Working Paper No. 556

Long-Term Trends in the Levy Institute Measure of Economic Well-Being (LIMEW), United States, 1959–2004

by

Edward N. Wolff*
The Levy Economics Institute and New York University

Ajit Zacharias
The Levy Economics Institute

and

Thomas Masterson
The Levy Economics Institute

with the assistance of
Hyunsub Kum, Seoul National University, and Melissa Mahoney,
The New School for Social Research

January 2009

* Edward N. Wolff: Department of Economics, New York University, 19 West 4th Street, 6th floor, New York, NY 10012 USA; edward.wolff@nyu.edu, tel.: (212) 998-8917, fax: (212) 995-4186. Ajit Zacharias: The Levy Economics Institute (address above); zacharia@levy.org, tel.: (845) 758.7734, fax: (845) 758.1149. Thomas Masterson: The Levy Economics Institute (address above); masterso@levy.org; tel.: (845) 758-7715, fax: (845)758-1149.

The Levy Economics Institute Working Paper Collection presents research in progress by Levy Institute scholars and conference participants. The purpose of the series is to disseminate ideas to and elicit comments from academics and professionals.

The Levy Economics Institute of Bard College, founded in 1986, is a nonprofit, nonpartisan, independently funded research organization devoted to public service. Through scholarship and economic research it generates viable, effective public policy responses to important economic problems that profoundly affect the quality of life in the United States and abroad.

The Levy Economics Institute
P.O. Box 5000
Annandale-on-Hudson, NY 12504-5000
http://www.levy.org

ABSTRACT

We use here a new measure of household economic well-being called LIMEW. LIMEW is different in scope from the official U.S. Census Bureau measure of gross money income (MI) in that it includes taxes, noncash transfers, public consumption, income from wealth, and household production. We analyze trends in LIMEW from 1959 to 2004, and find that median LIMEW grew by 0.7 percent per year while median MI increased by 0.6 percent per year. LIMEW grew much slower than MI from 1959 to 1982, and much faster than MI from 1982 to 2004. In 2004, measured inequality was lower in LIMEW than MI (a difference of 5.5 Gini points); similarly, the increase in inequality between 1959 and 2004 was higher in MI than LIMEW (6.2 versus 5.1 Gini points). Much of the difference in these measures can be traced to the role of net government expenditures.

According to both measures, the racial gap narrowed from 1959 to 1989; it then widened somewhat from 1989 to 2004 according to LIMEW but continued to narrow according to MI. The difference in time trends can be traced mainly to the rising income from wealth of white households relative to nonwhite households. The gap in well-being between single females and married couples widened from 1959 to 1989 and then narrowed slightly between 1989 and 2004 according to LIMEW but increased rather steadily from 1959 to 2004 according to MI. The fortunes of the elderly relative to the nonelderly showed considerable improvement from 1959 to 2004 according to LIMEW, almost reaching parity in 2004. In contrast, according to MI, the relative position of the elderly was about the same in 2004 as in 1959. In this instance, the difference in time trends can be traced mainly to rising income from wealth and government transfers accruing to the elderly relative to the nonelderly.

Keywords: Well-Being; Living Standards; Inequality

JEL Classifications: D31, D63, P17

1. INTRODUCTION

Economic well-being refers to the household's command over, and access to, the goods and services produced in a modern market economy during a given period of time. The magnitude of the command or access that can be exercised by the household is approximated by an income measure, since household income should, in principle, reflect the resources available to the household for facilitating current consumption or acquiring assets. Traditionally, money income is used as a measure that reflects such command.

Our aim in this paper is to propose a new measure of economic well-being. Gross money income (MI), the most widely used measure of economic well-being in the United States and several advanced capitalist countries, has been criticized on several grounds. The landmark report by the Canberra Group, a group of international experts on household income statistics, recommended, among other things, that estimates of in-kind social benefits need to be added and tax burden subtracted from money income to arrive at a better measure of household economic well-being (Canberra Group 2001). In a welcome and significant shift, the U.S. Census Bureau placed its "experimental measures of income" on par with gross money income (MI) in its annual reports (DeNavas-Walt, Cleveland, and Webster 2003). The Bureau's most comprehensive measure, which we refer to as extended income (EI), is a better approximation of a household's command over commodities than MI. EI is an after-tax measure of income. It expands the definitions of income from work and income from wealth. Furthermore, it has a better accounting of the government's role in household economic well-being.

The EI and MI measures seek to estimate the command over commodities. Although commodities are of critical importance, they form only a portion of the entire set of goods and services available to households. The state plays a crucial role in the direct provisioning of the "necessaries and conveniences of life" (to use Adam Smith's famous expression), such as public education and highways ("public consumption"). Nonmarket household work, such as childcare, cooking, and cleaning, also provides the necessaries and conveniences of life ("household production").

The Levy Institute Measure of Economic Well-Being (LIMEW) is a more comprehensive measure than the two official measures. We include estimates of public

consumption and household production in our measure, components that are excluded in most available measures of economic well-being. We also include estimates of long-run benefits from the ownership of wealth (other than homes) in the form of an imputed lifetime annuity, a procedure that, in our view, is superior to considering only current income from assets.

There are three key motivations behind constructing LIMEW. First, trends in well-being are sensitive to how we choose to measure well-being. A broader measure of well-being might be a better guide to actual trends in the standard of living. Second, another motivation behind developing the LIMEW is to study disparities among key demographic groups. By focusing only on money income, we might end up with a partial picture of the relative advantage of one particular group over another. Third, LIMEW provides a more comprehensive measure of economic inequality. As one might expect, household production and public consumption are distributed much more equally than earnings among households. On the other hand, inequality in wealth is generally much higher than that of income or earnings. LIMEW allows us to estimate the net effect of including both components.

We begin by briefly describing the methodology for the LIMEW. The sources of data and methods used are described in the appendix. In the subsequent section (section 3), we report on time trends in LIMEW, EI, and MI from 1959 to 2004. Section 4 provides details on the three measures by race, marital status, age, and education. We also show how the different components of LIMEW contribute toward the gap in well-being. Section 5 reports on inequality trends. Concluding remarks are made in section 6.

2. COMPONENTS OF LIMEW

LIMEW is constructed as the sum of the following components (see table 1): base money income; income from wealth; net government expenditures (transfers and public consumption, net of taxes); and household production.

Base money income is defined as gross money income *less* the sum of property income (interest, dividends, and rents) and government cash transfers (e.g., Social Security benefits). Earnings make up the overwhelming portion of base money income.

The remainder consists of pensions, interpersonal transfers, workers' compensation paid by the private sector, and other small items.

The second component is imputed income from the household's wealth holdings. MI includes interest, dividends, and rent. From our perspective, property income is an incomplete measure of the economic well-being derived from the ownership of assets. Owner-occupied housing yields services to their owners over many years, thereby freeing up resources otherwise spent on housing. Financial assets, can, under normal conditions, be a source of economic security in addition to property-type income.

We distinguish between home wealth and other wealth. Housing is a universal need and home ownership frees the owner from the obligation of paying rent, leaving an equivalent amount of resources for consumption and asset accumulation. Hence, benefits from owner-occupied housing are reckoned in terms of the replacement cost of the services derived from it (i.e., a rental equivalent).[1] We estimate the benefits from nonhome wealth using a lifetime annuity method.[2] We calculate an annuity based on a given amount of wealth, an interest rate, and life expectancy. The annuity is the same for the remaining life of the wealth holder and the terminal wealth is assumed to be zero (in the case of households with multiple adults, we use the maximum of the life expectancy of the head of household and spouse in the annuity formula). Moreover, in our method, we account for differences in portfolio composition across households. Instead of using a single interest rate for all assets, we use a weighted average of asset-specific and historic real rates of return,[3] where the weights are the proportions of the different assets in a household's total wealth.

The third component is net government expenditures—the difference between government expenditures incurred on behalf of households and taxes paid by households.

---

[1] This is consistent with the approach adopted in the U.S. national accounts.

[2] This method gives a better indication of resource availability on a sustainable basis over the expected lifetime than the standard bond-coupon method. The latter simply applies a uniform interest rate to the value of nonhome wealth. It thereby assumes away differences in overall rates of return for individual households ascribable to differences in household portfolios. It also assumes that the amount of wealth remains unchanged over the expected (conditional) lifetime of the wealth holder.

[3] The rate of return used in our procedure is real total return (the sum of the change in capital value and income from the asset, adjusted for inflation). For example, for stocks, the total real return would be the inflation-adjusted sum of the change in stock prices plus dividend yields.

Our approach to determine expenditures and taxes is based on the social-accounting approach (Hicks 1946; Lakin 2002: 43–46). Government expenditures included in LIMEW are cash transfers, noncash transfers, and public consumption. These expenditures, in general, are derived from the National Income and Product Accounts [NIPA tables 3.12 and 3.15.5]. Government cash transfers are treated as part of the money income of the recipients. In the case of government noncash transfers, our approach is to distribute the appropriate actual cost incurred by the government among recipients of the benefit.[4] In contrast, the Census Bureau includes the fungible value of medical benefits in EI. The fungible-value method is based on the argument that the income value for the recipient of a given noncash transfer is, on average, less than the actual cost incurred by the government in providing that benefit [see, for example, Canberra Group (2001: 24, 65)]. This valuation method involves estimating how much the household could have paid for the medical benefit, after meeting its expenditures on basic items such as food and clothing, with the maximum payment for the medical benefit set equal to the average cost incurred by the government.

We do not use the fungible-value approach because of its implication that recipients with income below the minimum threshold receive no benefit from the service (like health care). This implication is inconsistent with our goal of measuring the household's access to or command over products. Further, unlike the social-accounting method, the fungible-value method would not yield the actual total government expenditure when aggregated across recipients. Such a feature is incompatible with our goal of estimating net government expenditures using a consistent methodology.

The other type of government expenditure that we include in LIMEW is public consumption. We begin with a detailed functional classification of government expenditures. We then exclude certain items because they fail to satisfy the general criterion of increasing the household's access to goods or services. These items generally form part of the social overhead (e.g., national defense). Other expenditures, such as transportation, are allocated only in part to households because part of the expenditure is

[4] In the case of Medicare and Medicaid—by far the biggest items in this list—the relevant cost is the "insurance value" differentiated by risk classes.

also incurred on behalf of the business sector. The household sector's share in such expenditures can be estimated on the basis of information regarding its utilization (for example, miles driven by households and businesses). The remaining expenditures (such as health) are allocated fully to households.

In the second stage, the expenditures for each functional category are distributed among households. The distribution procedures followed by us build on earlier studies employing the government cost approach [e.g., Ruggles and O'Higgins (1981)]. Some expenditures are distributed on the basis of estimated patterns of utilization or consumption, while others are distributed equally among the relevant population.

The third part of net government expenditures is taxes. Our objective is to determine the actual tax payments made by households. We do not consider tax incidence in our analysis. Our approach is consistent with the government cost approach. We align the aggregate taxes in the Annual Demographic Supplement (ADS) (imputed by the Census Bureau) with their NIPA counterparts, as we did for government expenditures. We include only taxes paid directly by households, including federal and state personal income taxes, property taxes on owner-occupied housing, and payroll taxes (employee portion). Taxes on corporate profits, on business-owned property, and on other businesses, as well as nontax payments, are not allocated to the household sector because they are paid directly by the business sector.

The fourth component of LIMEW is the imputed value of household production. Three broad categories of unpaid activities are included in the definition of household production: (1) core production activities, such as cooking and cleaning; (2) procurement activities, such as shopping for groceries and for clothing; and (3) childcare activities, such as caring for babies and reading to children. These activities are considered as "production," since they can be assigned, generally, to third parties apart from the person who performs them, although third parties are *not* always a substitute of the person, especially for the third activity.[5]

[5] The third-party principle is sometimes ambiguous in the case of such personal care activities as shaving [see OECD (1995: 11)].

Our strategy for imputing the value of household production is to value the amount of time spent by individuals on the basis of its replacement cost as indicated by the average earnings of domestic servants or household employees (Kuznets, Epstein, and Jenks 1941: 432–433; Landefeld and McCulla 2000). Research suggests that there are significant differences among households in the quality and composition of the "outputs" of household production, as well as the efficiency of housework (National Research Council 2005: ch. 3). The differentials are correlated with household-level characteristics (such as wealth) and characteristics of household members [such as the influence of parental education on childrearing practices, e.g., Yeung and Stafford (2003)]. Therefore, we modify the replacement-cost procedure and apply to the average replacement cost a discount or premium that depends on how the individual (whose time is being valued) ranks in terms of a performance index. Ideally, the performance index should account for all the factors relevant in determining differentials in household production and the weights of the factors should be derived from a full-fledged multivariate analysis. Given the absence of such research findings, we incorporated three key factors that affect efficiency and quality differentials—household income, educational attainment, and time availability—with equal weights attached to each.[6]

3. LEVEL AND COMPOSITION OF WELL-BEING

The picture regarding economic well-being differs substantially between LIMEW and the two official measures. By construction, MI and EI have average values less than LIMEW. The median value of MI amounted to 59 percent of LIMEW in 1959, 68 percent in 1972, 70 percent in 1982, 65 percent in 1989, 61 percent in 2000, and 57 percent in 2004 (see table 2). Corresponding ratios of EI to LIMEW were similar. The three measures show somewhat different rates of change over the entire 1959–2004 period. Median EI shows the highest annual rate of growth at 0.8 percent, followed by LIMEW at 0.7 percent, and then MI at 0.6 percent. There are also large differences by subperiods. In the 1959–72

[6] See Wolff, Zacharias, and Caner (2004) and Wolff and Zacharias (2007a) for more details on the methodology used to construct LIMEW.

period, both MI and EI grew substantially faster than the LIMEW. Indeed, LIMEW increased by *only 4 percent* over the whole period. From 1972 to 1982, both LIMEW and MI fell in absolute terms, while EI grew close to 0.5 percent per year. In contrast, in the years 1982 to 1989, all three indices recorded very high growth rates, but LIMEW grew much faster than MI and EI. In the subsequent period, 1989–2000, LIMEW again grew faster than either EI or MI, 0.9 percent per year versus 0.7 and 0.4 percent per year, respectively. Finally, between 2000 and 2004, LIMEW continued to grow at an even faster pace, almost 1.0 percent per year, while EI and MI both declined in absolute terms.

Table 2 also shows two alternative LIMEW indices. If we strip away household production from LIMEW, we arrive at a measure called *post-fiscal income* (PFI). This measure reflects the effect of net fiscal incidence in an accounting sense; that is, it includes as part of household income all government expenditures incurred on behalf of households (public consumption and transfers), net of tax payments by households. The overall growth rate between 1959 and 2004 was the highest for PFI compared to all other measures, at 1.0 percent per year. The relatively slow growth of LIMEW in comparison was due to the fact that household production grew slowly over these years. There are also notable differences between PFI on the one hand and MI and EI on the other in terms of growth rates during the 1980s and 1990s, with PFI, like the LIMEW, displaying higher rates.

As shown in Table 1 and discussed above, EI is a post-tax, post-transfer measure of economic well-being. For comparison, we also define a similar measure called *comprehensive disposable income* (CDI) that shows the effects of stripping away both household production and public consumption from LIMEW. Both CDI and EI show very similar rates of increase over the entire 1959–2004 period, though there are again differences by subperiod. Median CDI declined between 1972 and 1982, while EI showed a positive annual growth rate of 0.2 during the same period; EI fell in absolute value from 2000 to 2004, while CDI grew at 0.7 percent per year. In general, EI outpaced CDI during the 1960s and 1970s, while the converse was true during the 1980s, 1990s, and early 2000s.

Addendum B shows trends in the various measures of well-being in equivalent dollars (that is, adjusted for changes in family size and composition).[7] All three measures, LIMEW, EI, and MI, show higher rates of growth when an equivalence-scale adjustment is applied. This difference reflects the reduction in average household size over these years. Over the entire 1959 to 2004 period, median equivalent EI grew the fastest, at 1.2 percent per year, followed by LIMEW and MI in a virtual tie at 1.05 and 1.04 percent per year, respectively. As before, median equivalent LIMEW led the way after 1982, while median equivalent EI and MI grew faster before 1982.

Addendum A shows total hours worked. By our calculations, there was a noticeable decline in median annual hours worked from 1959 to 1982. Overall, it fell by 0.5 percent per year and this was almost entirely due to a large decline in housework. In contrast, from 1982 to 1989, there was a large rise in total hours worked, by 0.7 percent per year, and this was entirely due to a rise in market work (that is, in the labor market). There was little change from 1989 to 2000. But, between 2000 and 2004, total hours fell at the annual rate of 0.4 percent, mainly due to the sharp decline in market work. Over the entire period, 1959 to 2004, median hours worked fell by 7.9 percent overall, with median market work falling 3.3 percent and housework falling by 18.9 percent.

Figure 1 provides more details on the change in time worked. Results are shown for *mean* annual hours worked by individuals. Here it is clear that the large reduction in housework between 1959 and 1982 was attributable to a sharp drop in hours of housework of women (a change of 521 hours). Men actually increased their housework by 319 hours over the period, but not enough to compensate for the decline among women. Women further reduced their hours of housework from 1982 to 2004, but the decline was modest (40 hours). Men, on the other hand, continued to increase hours of housework, but here again the change was not large (60 hours).

With regard to market work, women nearly doubled their hours from 1959 to 2004; the change was fairly uniform over the five subperiods between 1959 and 2004.

---

[7] The equivalence scale used here is the three-parameter scale employed in the U.S. Census Bureau's experimental poverty measures (Short 2001). The three parameters attempt to take into account the following features of household consumption: on average, children consume less than adults; consumption rises less than proportionately with household size; and the increase in household consumption is generally more when a child is added to a single-person family than when a child is added to a two-person family.

Men, on the other hand, showed a decline in hours of market work from 1959 to 2004. All told, total hours of work for women showed a decline of 73 hours (or 3 percent) from 1959 to 2004 because of the reduction in their housework, while men's total hours rose by 167 hours (or 7 percent) due to their enhanced hours of housework.

Just for comparison, we also show trends in real per capita GDP, LIMEW, EI, and MI over the same period in table 2, Addendum C. Between 1959 and 2004, real GDP per capita grew at an annual rate of 2.2 percent, more than half a percentage point faster than real per capita LIMEW, EI, or MI. Per capita GDP also generally grew considerably faster than any of these three indicators in each of the subperiods as well (the exceptions are for per capita EI, which grew at the same rate in 1972–82, and for per capita LIMEW, which grew at the same rate from 1982 to 2000). This conclusion is valid even if we compare the growth in the median values of equivalence-scale adjusted measures of household well-being and per capita GDP. Mean LIMEW also grew slower than GDP per capita between 1959 and 2004—1.0 percent per year compared to 2.2 percent per year for GDP per capita. When we also adjust for the fact that total hours worked were stable over the period as well (mean hours increased per year by 0.04 percent and median hours per year by -0.18 percent), we still find that LIMEW per hour worked increased much more slowly than GDP per capita. In sum, the growth in household well-being was much slower over the years 1959 to 2004 than the growth in total output per capita.

A. Composition of LIMEW

The composition of the LIMEW by income quintile for various years is shown in table 3. With regard to the total population, the most notable change was in the income from wealth component. It jumped from 11 percent of LIMEW in 1959 to 14 percent in 1972 and then to 18 percent in 1982, stayed the same in 1989, then surged to 23 percent in 2000, and finally fell back to 19 percent in 2004 (also see figure 2). The movements over time largely reflected the growing magnitude of wealth overall and, for the last period, the boom and bust in financial markets of the late 1990s and early 2000s.

Net government expenditures as a share of LIMEW rose between 1959 and 1972 from 1.8 to 3.6 percent, then continued its climb to 4.1 percent in 1982, but fell off to 1.6 percent in 2000. A sharp increase occurred between 2000 and 2004 as the share of net

government expenditures jumped to 6.8 percent. The increase from 1959 to 1982 reflected the sharp growth in transfers and, to a lesser extent, in public consumption that outstripped the growth in taxes (see figure 2). On the other hand, the share of net government expenditures declined from 1982 to 2000 because taxes grew much faster than transfers and public consumption, which both appeared to grow at similar rates over that period. A reversal occurred between 2000 and 2004 as taxes plunged by $3,300 in 2007 dollars (from 16.6 to 13.4 percent of LIMEW).[8] The growth in net government expenditures was also facilitated by the growth in transfers and public consumption, though they imparted a smaller boost than taxes.

The share of household production in LIMEW fell sharply from 32.5 percent in 1959 to 20.5 percent in 1982, rebounded a bit to 23.1 percent in 1989, fell to 21.4 percent in 2000, and remained roughly at this level in 2004. There is clearly a countercyclical effect occurring in household production. The overall change from 1959 to 2004 largely reflected the decline in hours spent on housework, particularly between 1959 and 1982 (see table 2 and figure 1).

There are marked differences in the importance of different components in LIMEW across quintiles (table 3). Income from wealth becomes an increasingly larger share of LIMEW the higher the household is in the distribution. In 2004, the share ranged from 4 percent for the lowest quintile to 32 percent for the highest. The opposite is the case for net government expenditures. In 2004, its share ranged from 22 percent for the lowest quintiles to -3 percent for the highest. There is much less variation in both base income and household production as shares of LIMEW across quintiles. In 2004, there was almost no variation in the base income share, though in earlier years the share of base income tended to peak in the third and fourth quintiles. With regard to household production, its share tends to rise between the bottom and fourth quintile and then fall off for the top quintile.

It is also interesting to examine how the composition of the LIMEW has changed for households in different parts of the distribution because the relative importance of individual components can vary across the distribution. The most dramatic changes

[8] All dollar values for the rest of this paper are in 2007 dollars, unless otherwise noted.

appeared to have taken place at the bottom and top of the LIMEW distribution. For the bottom quintile, the share of net government expenditures, after surging from 11 percent in 1959 to 31 percent in 1982, declined to 22 percent in 1989, and fell further to 18 percent in 2000. There was a marked increase between 2000 and 2004, as the share of net government expenditures once again reached its 1989 level. The share of base income in LIMEW decreased slightly from 46 percent in 1959 to 42 percent in 1972, then rose to 44 percent in 1982, to 51 percent in 1989, and then increased once again to 56 percent in 2000, only to fall subsequently to 53 percent in 2004. In contrast, income from wealth fell almost continuously and substantially as a share of LIMEW from 10 percent in 1959 to 4 percent in 2004, while the share of household production in LIMEW also fell off from 33 to 20 percent over these years.

For the top quintile, there was a sizeable increase in the share of income from wealth. It rose from 16 percent in 1959 to 30 percent in 1982 and then to 37 percent in 2000 before declining to 32 percent in 2004. Declines in the relative importance of base income (from 54 to 51 percent from 1959 to 2004) and household production (from 32 to 19 percent) accompanied the sharp growth in income from wealth at the top. Net government expenditure also fell off, from -1.6 percent in 1959 to -6.9 percent in 2000, but then it rose sharply between 2000 and 2004 to -2.7 percent. Thus, it appears that the transformation in the structure of well-being over the four decades played out differently for those at the bottom and the top. For those at the bottom, the transformation meant a greater reliance on base income (mainly labor income) and on net government expenditures. On the other hand, for those at the top, income from wealth became significantly more important, and base income and household production less important.

B. Sources of Growth of LIMEW

Figure 2A shows the contribution to the overall change in mean LIMEW by component and subperiod. From 1959 to 1972, mean LIMEW grew by 7 percent. Of this increase, the main contributor was the growth in base income, which accounted for 8 percentage points. The growth of income from wealth accounted for another 4.2 percentage points and net government expenditure for 2.1 percentage points. In contrast, the reduction in household production subtracted 7 percentage points from overall growth. Between 1972

and 1982, mean LIMEW fell by 1.2 percentage points. The growth in income from both wealth and net government expenditures made positive contributions, whereas base income and household production declined in absolute terms.

From 1982 to 1989, mean LIMEW surged by 21 percent. The main contributors over this period were the growth in base income (9.7 percentage points) and the growth in household production (7.5 percentage points). The increase in income from wealth also added another 4.3 percentage points. Between 1989 and 2000, mean LIMEW again surged, by 21 percent. In this period, the growth in base income and that of income from wealth made almost equal contributions (9.9 and 9.3 percentage points, respectively). The increase in household production added another 2.8 percentage points, while net government expenditures showed negative growth.

Finally, mean LIMEW grew by a meager 1.1 percent between 2000 and 2004 because of declines in base income and income from wealth. However, net government expenditures added 5.2 percentage points, while household production played a secondary role, with a contribution of 0.6 percentage points.

Over the entire 1959–2004 period, mean LIMEW registered a 56 percent increase. Of this, 47 percent (27 percentage points) emanated from the growth in base income and 34 percent (19 percentage points) from the gains in income from wealth. Gains in net government expenditure contributed 16 percent (8.8 percentage points), whereas household production remained virtually unchanged over the period.

C. The Middle Class

We define the middle class as the middle quintile. The very slow growth of median LIMEW from 1959 to 1982 was partially due to the decline in household production, which fell from 32 to 21 percent of middle class LIMEW and declined by $7,400 (see tables 3 and 4 and figure 3). Of this $7,400 decline in household production, 30 percent was due to decline in housework hours and the remaining 70 percent was due to a decline in the unit value of housework. This decline in household production partially offset the contribution from the robust growth in net government expenditures, which climbed from 3.2 to 12 percent of LIMEW over the period or by $5,100. The major reason for sluggish growth in LIMEW over this period, however, was the drop in base income between 1972

and 1982, falling from 62 to 59 percent of LIMEW and decreasing in 2007 dollar terms by $4,000, almost wiping out the $4,300 gain in the 1959–1972 period.

The composition of LIMEW for the middle quintile remained relatively stable from 1982 to 1989. The very high rate of growth of median LIMEW over this period (2.9 percent per year) was due to relatively balanced growth in all four components, particularly base income (a gain of $6,600) and household production (an increase of $5,200). Over this period, 98 percent of the gain in household production was due to a rise in the unit value of housework. From 1989 to 2000, median LIMEW growth slowed down to 0.9 percent per year. The composition of LIMEW of the middle quintile was also relatively stable over this period and the slowdown in the overall growth of LIMEW was attributable to the reduced growth of each of its components. However, between 2000 and 2004, the composition of LIMEW changed dramatically in favor of net government expenditures and away from base income. The increase in net government expenditures was particularly strong, as it rose by $4,900. This was more than sufficient to overcome the absolute declines that took place in base income and income from wealth ($2,500 and $800, respectively).

Over the whole period from 1959 to 2004, the mean value of LIMEW of the middle quintile grew by 37 percent (median LIMEW gained 36 percent). Of the gain, almost half (17 percentage points) was due to the increase in net government expenditures (table 4 and figure 3). The biggest contributor was the increase in transfers, which accounted for 16 percentage points, followed by the increase in public consumption, which added 8 percentage points. The increased tax burden subtracted 7 percentage points. The increase in base income added another 15 percentage points (or 40 percent) to the growth in LIMEW of the middle class. Gains in income from wealth provided only an additional 3.8 percentage points. Of this, income from nonhome wealth accounted for over 100 percent, while imputed rent actually declined slightly. Household production barely changed, on net, over the 1959 to 2004 period for the middle quintile.

Table 4 also presents a growth decomposition of the average EI and MI for their respective middle quintiles. Average EI of the middle quintile grew by 44 percent between 1959 and 2004. Of this increase, fully 54 percent (24 percentage points) was attributable to the increase in base income, 32 percent from the growth of net government

expenditure, and only 14 percent to gains in income from wealth. For MI, 62 percent of its 32 percentage point gain was attributable to the growth of base income and 35 percent to increased cash transfers.

In sum, according to the LIMEW measure, the public sector was the leading source of middle class well-being growth between 1959 and 2004. The increase in labor income was secondary, while gains in income from wealth was a distant third. In contrast, according to both EI and MI, most of the growth in median well-being was due to rises in labor earnings over the period.

4. DEMOGRAPHIC DIFFERENCES IN ECONOMIC WELL-BEING

We next look at disparities in well-being between population groups based on the following characteristics of the householder: race/ethnicity, age, education, marital status, and region (see table 5).[9] We measure these by the ratio of mean or median values.[10]

A. Racial Differences

In 1959, the mean LIMEW of nonwhites equaled 64 percent that of whites (see figure 4A).[11] The ratio grew rather steadily to 80 percent in 1989, then fell back to 75 percent in 2000, but recovered slightly to 76 percent in 2004. In contrast, according to EI, the racial gap decreased over the whole period, with the ratio of mean EI between nonwhites and whites rising from 59 percent in 1959 to 76 percent in 2004. However, both LIMEW and EI show very similar trends in the ratio of median values, with the racial ratio of median LIMEW rising from 0.61 to 0.85 from 1959 to 2004 and that of EI from 0.57 to 0.74.

A major reason behind the decline of the relative mean LIMEW of nonwhites during the 1990s was the growing wealth gap. The income from wealth of nonwhites was

[9] In the years prior to 1980, the husband was always designated as the "head" or householder in married-couple families in the Census Bureau surveys. Since then, the householder is the person in whose name the housing unit is owned or rented. If it is owned or rented jointly by a married couple, then the householder may be either the wife or the husband.

[10] We prefer to use the mean values rather than median values because it allows us to decompose the difference between subgroups into individual components. However, we will also note the median values where appropriate.

29 percent that of whites' in 1959; it increased to 33 percent in 1989, but dropped to only 20 percent in 2000 before increasing to 24 percent in 2004, thus offsetting the trend toward greater parity in the other components. In fact, the gap in all other components, defined as mean value for whites minus mean value for nonwhites, narrowed (or moved in favor of nonwhites) over the four decades (see figure 4B). The gap in base income fell from $17,300 to $12,600 in favor of whites between 1959 and 1982, and increased to $14,400 by 2004. The gap in government transfers fell from $400 in favor of whites in 1959 to $1,300 in favor of nonwhites in 1989 and then grew again to $600 in favor of whites by 2004. The gap in public consumption fell from $500 to $4,100 in favor of nonwhites, and the gap in household production from $8,100 to $2,600 in favor of whites, between 1959 and 2004. The gap in the tax burden between whites and nonwhites also increased between 1959 and 2000, from $4,200 to $7,000, before falling to $5,800 in 2004. Between 2000 and 2004, the relative mean LIMEW of nonwhites increased slightly, primarily as a result of a substantial decline in the gap in income from wealth between nonwhites and whites.

It is of note that public consumption favored nonwhites more than whites, largely reflecting the higher educational expenditures incurred on their behalf, which, in turn, was due to the higher number of children in the average nonwhite household. On the other hand, the value of household production was higher for whites in all years because the hourly replacement cost of household production was higher for white households due to their higher average money income and educational attainment. This enabled a continued advantage for white households in the value of household production, despite the fact that over time they went from spending more hours on household production than nonwhite households to significantly less.

B. Differences by Marital Status

All three measures show a very high gap between families with a single-female householder ("single females") and families with a married householder ("married couples"), as well as a widening of the gap in 2004 as compared to 1959 (see table 5,

[11] "Whites" are defined here as non-Hispanic whites. "Nonwhites" refers to everyone else.

panel D and figure 5A).[12] In 2004, single females had an average money income that was less than half that of married couples; EI and LIMEW paint a better picture with the ratios of mean values between single females and married couples of 0.56 and 0.62, respectively. The gap in well-being between single-male householders ("single males") and married couples was considerably less than the gap between single females and married couples according to all three measures. In 2004, single males had an average well-being that was 72 percent of married couples according to LIMEW, 74 percent according to EI, and 71 percent according to MI. Ratios of median values show very similar results for single females relative to married couples and single males relative to married couples in 2004.

Time trends are also striking. The ratio of mean LIMEW between single females and married couples declined rather steadily over time, from 0.72 in 1959 to 0.60 in 1989, and then improved slightly to 0.62 in 2004. The EI measure shows a more continuous decline, with the ratio falling from 0.65 in 1959 to 0.56 in 2004, as does MI, with the ratio dropping from 0.63 to 0.48. In contrast, the ratio of *median* LIMEW between the two groups showed a slight improvement between 1959 and 2004, from 0.67 to 0.69. The difference in time trends between the ratio of means and the ratio of medians largely reflects the rising share of income from wealth in the LIMEW of married couples, which primarily went to the upper income groups among married couples. As a result, mean LIMEW grew much faster than median LIMEW among married couples. The ratio of median EI and MI, similar to the ratios of their mean values, showed a steady erosion in the relative well-being of single females relative to married couples.

In 2004, the average LIMEW for single females was lower by roughly $53,700 as compared to married couples (see figure 5B).[13] The gap in base income was $41,500, 77 percent of the overall gap. The gap in income from wealth was less, $21,600 or 40 percent of the overall gap. Further, the gap in home production was $13,300 or 25 percent of the gap. On the other side of the ledger, married couples paid, on average, $13,200

[12] We include only family households in this comparison, thus leaving out households with only one person and households with only unrelated individuals (e.g., roommates or unmarried partners).
[13] The size of the difference can perhaps be appreciated by considering the following statistic: In 2007, the median annual earnings of average full-time, full-year, male worker were $45,113 and the corresponding mean value was $58,335.

more in taxes than single females, and received $4,600 less in the way of transfers and $5,000 less in the way of public consumption. The total net government advantage for single females relative to married couples amounted to $22,700.

We can now see why the gap in mean LIMEW between single females and married couples rose sharply over time. Between 1959 and 2004, 68 percent of the $31,600 rise in the gap in mean LIMEW between the two groups was ascribable to the increased gap in base income, 63 percent to the increased gap in income from wealth, and 20 percent to the increased gap in household production. Offsetting these increases were large relative gains for single females in public consumption, 18 percent of the overall gap, and particularly in taxes paid, 31 percent of the overall gap (the gap in government transfers remained fairly constant over the four decades).

C. Differences by Age Group

We next examine well-being for households with householders belonging to five age groups. The standard hump shape of the age-income relationship, with the youngest and oldest groups worse off and the middle-age groups better off, held up for all three measures, LIMEW, EI, and MI, in 1959 (see table 5, panel B). The same patterns reappeared in 1972, 1982, and 1989 for all three measures. However, in 2000, while the pattern repeated itself for EI and MI, a new pattern emerged on the basis of LIMEW, with the age group 65 and older overtaking the average nonelderly household. In 2000, the mean LIMEW for the elderly was 7 percent higher than the average LIMEW for all households (see figure 6A). In contrast, the average well-being of the elderly was 80 percent of all households according to EI and only 61 percent according to MI. While the mean LIMEW of the elderly declined to slightly below the average LIMEW for all households in 2004, they were still substantially better off than the youngest group and slightly better off than the soon-to-retire age group.

Indeed, the mean LIMEW of the elderly relative to the nonelderly climbed from 0.79 in 1959 to 0.99 in 1989, then jumped to 1.09 in 2000, before declining to 0.98 in 2004. In contrast, the mean EI of the elderly relative to the nonelderly increased moderately from 0.66 in 1959 to 0.84 in 1982, but then fell off to 0.76 in 2000, before recovering to 0.81 in 2004. MI showed a different time trend, with the mean MI of the

elderly relative to the nonelderly dropping considerably between 1959 and 1972 from 0.58 to 0.51. In 1982 and 1989, the situation was better as the ratios were roughly at 0.60, though setbacks seems to have been suffered in 2000 and 2004 as the ratio slid back to 0.57 in 2004. The average well-being of the elderly relative to the nonelderly is highest according to LIMEW, followed by EI and then MI.

Trends in median values show an improvement of the relative well-being of the elderly by all three measures. But the gap between the elderly and the nonelderly was generally much higher on the basis of medians than mean values (with one or two exceptions).

Among the nonelderly, the youngest age group (under age 35) saw a sizeable deterioration in their relative well-being. The ratio of their mean LIMEW to the overall mean eroded from 93 percent in 1959 to 79 percent in 2004. Similar, though not as pronounced, trends are evident for EI (92 to 81 percent) and MI (93 to 84 percent). Moreover, a similar worsening is evident for trends in median values as well. The other three age groups (35–44, 45–54, and 55–64) showed very little change in their relative level of well-being according to the three measures.

In absolute terms, the gap in mean LIMEW between the elderly and nonelderly was at its highest in 2000, at $10,100 (figure 6B). The nonelderly had a substantial advantage in terms of base income (a difference of $51,500), a more moderate advantage in public consumption of $7,500, and in household production of $1,800. However, the elderly were way ahead of the nonelderly in terms of income from wealth (a difference of $35,800), government transfers (a difference of $21,600), and in taxes paid (a difference of $13,500—the nonelderly paid more taxes). The first of these reflects the fact that the LIMEW includes the annuity value from nonhome wealth as income, which is quite high for the elderly owing to a greater amount of accumulated wealth and a shorter remaining life expectancy. Transfers also help raise the well-being of the elderly much more than they do for the nonelderly, reflecting the large share of age-based entitlement programs (Social Security and Medicare) in total transfers. Taxes also fall much more on the nonelderly household than on the elderly because of the former's larger taxable income.[14]

[14] Most of Social Security income is excluded from taxable income.

Of the $13,800 reduction in the mean LIMEW gap between the elderly and the nonelderly from 1959 to 2004, fully $14,000 was due to the increase in the gap in income from wealth between the two groups. The other large contributors to closing the LIMEW gap were government transfers ($15,500) and taxes paid ($6,600). The increased gap in base income between the nonelderly and elderly of $21,500 helped to moderate the reduction in the overall gap between the two groups (in favor of the nonelderly).

D. Differences by Educational Attainment

We next examine well-being among households classified by the educational attainment of the household head. The main story here is that the less educated groups (less than high school, high school graduates, and some college) have all seen deterioration in living standards relative to college graduates over the years 1959 to 2004 (see table 5, panel C and figure 7A). The ratio of mean LIMEW between those with less than a high school degree to those with a college degree fell from 0.53 to 0.50 over the period, the corresponding ratio between high school graduates and college graduates declined from 0.67 to 0.62, and the ratio between those with some college and college graduates decreased from 0.77 to 0.70. Similar trends are evident for mean EI and mean MI, as well as median LIMEW, EI, and MI.

Figure 7B highlights the change in the gap in mean LIMEW between high school and college graduates over the 1959 to 2004 period. In 2004, the overall gap stood at $57,900. College graduates in 2004 had a $50,200 advantage in base income, an $18,200 advantage in income from wealth, and a $12,500 advantage in household production. On the other hand, high school graduates paid, on average, $17,200 less in taxes and had a $5,300 advantage in income transfers, as well as a very slight advantage in public consumption.

Of the $20,700 increase in the mean LIMEW gap between college and high school graduates from 1959 to 2004, more than 100 percent ($27,600) was due to the increase in the gap in base income and $9,500 to the rising differential in income from wealth between the two groups. The large contributors to reducing the LIMEW gap were government transfers, which increased by $7,000 in favor of the high school graduates, and taxes paid, which increased by $10,500 in favor of college graduates.

E. Differences by Region

Table 5 (panel E) highlights regional disparities in well-being. The differences are relatively small. In 2004, The Northeast ranked first according to the mean values of three measures (LIMEW, EI, and MI), 7 to 10 percent above average, followed by the West, Midwest, and South (the last about 15 percent below average). According to the median values, the Northeast and West ranked the highest, followed by the Midwest, and then the South. The ranking remained pretty much unchanged from 1959 to 2004. However, the South did show relative gains in mean LIMEW, EI, and MI (from about 85 to 94 percent of the overall average) and even larger gains in median EI and MI (from about 80 to 92 percent of the overall average).

5. ECONOMIC INEQUALITY

We begin with an overview of the shares of each quintile in aggregate income (table 6). The quintiles of each income measure are defined by ranking households according to that measure. Therefore, in general, a given quintile of the different measures need not be made up of the same households. Nevertheless, it is striking that according to all three measures, the income shares of the middle three quintiles were lower in 2004 as compared to 1959. The change in the division of the economic pie favored the top quintile far more than the bottom quintile in LIMEW and MI distributions. The bottom quintile showed no change in their share of aggregate LIMEW and MI, while the top quintile's share of aggregate LIMEW went up by 5.3 percentage points, and its share of MI rose by 5.9 percentage points. In contrast, the EI distribution showed a small gain of 0.2 points for the bottom quintile and a more modest 2.2 point gain for the top quintile.

The increase in the share of the top quintile was relatively moderate from 1959 to 1989 (actually negative for EI), followed by a big surge from 1989 to 2000, and a slight decline between 2000 and 2004. As for their shares in the overall pie, the top quintile fared the best according to MI with a share of 50 percent in 2004; the top quintile of the LIMEW had a slightly lower share of 47 percent, while the top quintile of EI had an even lower share of 45 percent.

There was a modest growth in the share of the bottom quintile in LIMEW, EI, and MI between 1959 and 1982; all three measures show the bottom quintile losing ground between 1989 and 2004. Among the three measures, the share of the bottom quintile in 2004 was the highest in the LIMEW (5.6 percent), followed by EI (4.6 percent), and MI (3.4 percent).

The decline in the income share of the middle class (the third quintile) between 1959 and 2004 was much larger in LIMEW and MI (2.1 and 2.6 percentage points) than EI (1.2 percentage point). The third quintile's share in total LIMEW fell between 1959 and 1982, remained unchanged between 1982 and 1989, declined again between 1989 and 2000, and then rose a little bit between 2000 and 2004. Except between 1959 and 1972, the middle quintile of MI saw declines in their share during all the subperiods, with the largest declines occurring between 1989 and 2000. For the middle quintile of EI, too, the largest decline occurred between 1989 and 2000.

The losses suffered by the second and fourth quintiles between 1959 and 2004 in their respective shares of the aggregate economic pie were higher in terms of LIMEW and MI than EI. The share of the second quintile fell by about 1.5 percentage points for LIMEW, 2.2 for MI, and 0.9 for EI. The share of the fourth quintile fell by 1.6 percentage points for LIMEW, 1.1 for MI, and 0.3 for EI. Here, again, the most pronounced declines happened during the 1989–2000 period.

Table 7 shows Gini coefficients for the various measures (also see figure 8). In 2004, the Gini coefficient for MI was the highest at 46.5, followed by LIMEW (41.0), and EI (40.1). Compared to LIMEW and EI, MI shows larger inequality because it is a pretax measure and does not take into account government noncash transfers. Public consumption and household production are relatively equally distributed and, hence, their inclusion in LIMEW lowers LIMEW inequality relative to MI inequality.

All three measures indicate higher inequality in 2004 than in 1959. The largest increase is recorded for MI, 6.2 Gini points, while LIMEW shows a rise of 5.1 Gini points, and the Gini coefficient for EI grows by 2.1 points. According to all three measures, there was no significant change in inequality between 1959 and 1972. According to MI, almost all of the increase in inequality occurred from 1989 to 2000. In contrast, the LIMEW measure showed a 1.1 point increase from 1972 to 1982, then no

change from 1982 to 1989, and then a large spurt of 5.0 points from 1989 to 2000, followed by a decline of 1.2 points between 2000 and 2004. EI shows a sharp drop in inequality between 1972 and 1982, a small increase from 1982 to 1989, and then a large increase (4.0 points) from 1989 to 2000, followed by a slight decline between 2000 and 2004. The results for MI, it should be noted, are for *households*, not families, and the results for 1982, 1989, 2000, and 2004 line up fairly closely to the official CPS figures.[15]

We also show time trends for the Gini coefficients of two other LIMEW measures, PFI and CDI. As we noted above, PFI is equal to LIMEW minus household production. The Gini coefficient for PFI is about 2 to 3 points greater than that of LIMEW, reflecting the equalizing effects of household production. The inequality of PFI shows a somewhat different time trend as that of LIMEW. There is a slight decline from 1959 to 1972, a small increase from 1972 to 1982, a further small increase from 1982 to 1989, and then a surge from 1989 to 2000, followed by a modest decline between 2000 and 2004. Over the whole 1959 to 2000 period, the Gini coefficient for PFI increased by 5.2 points, slightly more than that for LIMEW.

The subtraction of public consumption from PFI yields CDI. The elimination of public consumption increases measured inequality since public consumption is distributed very progressively. The Gini coefficient for CDI is about 5 to 6 points greater than that of LIMEW, reflecting the equalizing effects of both public consumption and household production. However, the time trend for CDI is generally similar to that for PFI. Over the entire period from 1959 to 2004, inequality of CDI increased by 6.3 Gini points, compared to 5.1 for LIMEW.

Table 7 also shows equivalence-scale adjusted measures of LIMEW, EI, and MI. The effect of the adjustment is to lower measured inequality in all three measures. This is not surprising in light of the well-known correlation that exists in the data between household size and income. The bottom rungs of the income distribution tend to have more single-person households and smaller families than the higher rungs. Additionally, in the case of LIMEW, public consumption and household production display strong

[15] The source is: http://www.census.gov/hhes/www/income/histinc/h04.html.

positive correlation with household size. Consider, for example, households with school-age children. The single largest component of public consumption is public education, for which we have imputed per-pupil expenditures as a part of LIMEW. Households with more school-age children would, in general, have larger amounts of public consumption allocated to them. Similarly, hours spent on household production also tend to increase with the number of children at home, thus producing a positive correlation between household size and value of household production.[16]

Time trends are quite similar to those using unadjusted values of the corresponding measure. However, the reduction in measured inequality as a result of the equivalence-scale adjustment is larger for all the other years relative to 1959, perhaps reflecting the fact that the correlation between household size and income was relatively smaller in 1959. Consequently, the overall increase in measured inequality between 1959 and 2004 is smaller than the corresponding unadjusted measures.

Panel B of the table shows the same set of measures for family households only.[17] As expected, measured inequality is lower for families than all households since single individuals are excluded. However, once again, the time trends are very similar to those for all households. Moreover, once again, the overall increase in inequality is smaller using family households compared to all households, except for CDI. This difference reflects the growth of smaller families over the period and the fact that smaller families have lower incomes than larger families.

Decomposition of inequality by income components (or sources) is a standard technique used to assess the amounts of inequality accounted for by individual components in the alternative income measures. The decomposition results, while not suggesting causality, can serve as a rough guide to the inequality-enhancing or inequality-reducing effects of the constituent components of a measure. To assess the contribution of different components to the changes in inequality of LIMEW, we first

[16] A separate issue concerns the applicability of standard equivalence scales to income measures that include nonmarket components such as public consumption and household production. This is an area that requires further research.

[17] A family household is a household with at least one family. The Census Bureau defines "family" as a group of two or more persons living in the same household and related to each other by blood, marriage, or adoption.

decomposed the Gini coefficient of LIMEW into the respective amounts of inequality accounted for by each component for all the years. The amount of inequality accounted for by a component is the product of that component's concentration coefficient and share in income (table 8, panel A). The contribution of the components to the change in the Gini coefficient between two years was calculated as the difference between the amount of inequality accounted for by that component in the later and the earlier year (table 8, panel B).

The contribution of base money income to the level of inequality is markedly lower in LIMEW compared to EI and MI. The lower contribution owed more to the smaller share of base money income in LIMEW than to the difference in the degree of inequality in the distribution of base money income across the LIMEW distribution. The average value of the concentration coefficient (averaged over all six years) for base income in LIMEW was 0.37, compared to 0.44 in EI and 0.47 in MI. The discrepancy in the share of base income in overall income was, however, much larger: The average value over the six years was 55 percent in LIMEW, as against 97 percent in EI and 87 percent in MI. Between 1959 and 2004, the contribution of base income to inequality in LIMEW hardly changed, thus resulting in its negligible contribution to the growth in inequality between the two years. In contrast, the contribution of base income to inequality in MI and EI grew between 1959 and 2004 because of the increase in the concentration coefficients in both measures (from 0.42 to 0.51 in MI and from 0.41 to 0.48 in EI). The share of base income was lower in 2004 than 1959 for both the official measures: 102 versus 98 percent in EI and 92 versus 88 percent in MI.

The contribution of income from wealth to the level of inequality in 2004 was substantially higher in LIMEW than in EI and MI. Almost all of this could be attributed to the higher amount of inequality accounted for by income from nonhome wealth in LIMEW. Both the concentration coefficient and income share were higher in LIMEW than in EI and MI. The concentration coefficient for income from nonhome wealth was 0.79 in LIMEW as against 0.69 in EI and 0.62 in MI; the income share was 16 percent in LIMEW, but only 7 percent in EI and 5 percent in MI. Comparison with 1959 shows that the amount of inequality contributed by income from nonhome wealth to the inequality in LIMEW was huge, 253 percent higher in 2004. Much of this increase was driven by the

fact that the share of income from nonhome wealth in 1959 was less than half of its level in 2004 for LIMEW (7 percent); in contrast, the share of this component in EI was practically unchanged between the two years and slightly lower for MI (4 percent). The evidence suggests that the higher contribution of income from wealth to the rise in inequality in LIMEW between 1959 and 2004 was driven mainly by the sharp increase in the relative size of income from nonhome wealth in LIMEW.

Base income and income from wealth contributed positively to the increase in inequality between 1959 and 2004 in all three measures. In contrast, net government expenditures contributed negatively to the increase in inequality in all three measures.[18] However, the effectiveness of net government expenditures in lowering the increase in inequality appears to be much less important in LIMEW as compared to the official measures: Between 1959 and 2004, net government expenditures reduced the increase in inequality of LIMEW by approximately 0.7 Gini points, 1.2 in MI, and a very notable 5 points in EI. In fact, the moderating effect of net government expenditures on the change in inequality of EI was only slightly smaller than the combined augmenting effect of base income and income from wealth (6.0 points). The main reason why net government expenditures had a bigger effect on restraining inequality growth in EI as compared to LIMEW was the difference in the redistributive effect of taxes in the two measures.

Taxes take a bigger bite out of inequality in EI than in LIMEW. This was true in 1959 and 2004. The amount of reduction in inequality accounted for by taxes was 3.9 points for LIMEW and 8.4 points for EI in 1959; the 2004 estimates were 6.0 and 13.8 points, respectively, for LIMEW and EI. One reason for the larger inequality-reducing effect of taxes in EI is that taxes are a larger percentage of EI than they are of LIMEW (25 versus 13 percent in 2004 and 17 versus 10 percent in 1959). This is to be expected because LIMEW includes components that are excluded from EI altogether—public consumption and household production—and because of the difference in the treatment of some components common to the two measures.[19] Another reason is that taxes are more progressive in EI than in LIMEW. Effective tax rates tend to rise with EI because

[18] Net government expenditures consist only of cash transfers in MI because it is a pretax measure.

households in the higher rungs of the EI distribution have, on average, taxable income as their main source of income. In contrast, households in the higher rungs of the LIMEW tend to have imputed income from wealth (generally not subject to taxation) as a very substantial portion of their LIMEW and, therefore, effective tax rates rise less sharply than they do for EI.

Household production contributed sizably to a decline in inequality of LIMEW between 1959 and 2004. In fact, it was the largest single component restraining inequality growth between the two years. The decline in household production's contribution to inequality stemmed almost entirely from the decline in its share of LIMEW as its concentration coefficient showed very little change between the two years. The share of household production fell by 11 percentage points, from 33 percent in 1959 to 22 percent in 2004, while the concentration coefficient was 0.35 in 1959 and 0.36 in 2004.

Turning to the estimates for the latest subperiod, 2000 to 2004, it is interesting to note that both EI and LIMEW showed declines in inequality during this period, while MI showed a slight increase in inequality. The decomposition results shed some light on the factors contributing to the decline in the inequality of EI and LIMEW. The biggest factor behind the decline in both measures was the sizeable fall in the amount of inequality contributed by the income from nonhome wealth. In turn, the decline in the contribution of income from nonhome wealth was driven almost entirely by the fall in its share in total income: in EI that share fell from 12 to 7 percent between 2000 and 2004, while in LIMEW it fell from 19 to 16 percent. The decline in the share of income from wealth reflected the absolute decline in income from wealth that occurred between the two years in both measures: property income and realized capital gains included in EI fell by 43 percent and annuities included in LIMEW fell by 15 percent. The deflated state of the financial markets in 2004 relative to the "irrational exuberance" of 2000 could go a long way toward explaining the stark declines in income from nonhome wealth.

The rise in the share of transfers and the reduction in the share of taxes, on the other hand, did not appear to have contributed to an increase in the inequality-reducing

---

[19] LIMEW is also larger than EI because annuities and imputed rent included in LIMEW are larger than their counterparts in EI—property income plus realized capital gains and return on home equity. Transfers included in LIMEW are also larger than EI because of NIPA alignment in LIMEW.

effect of net government expenditures. Net government expenditures reduced inequality of LIMEW by 3.9 Gini points in 2000, but only 2.1 points in 2004. Similarly, net government expenditures reduced inequality of EI by 15.1 points in 2000 and 12.8 points in 2004. The lower contribution reflects the fall in the share of taxes in total income in both measures accompanied by no change in its concentration coefficients. Since taxes enter the income measures with a negative sign, a reduction in the share of taxes in income can take a larger bite out of inequality only if its concentration coefficient increases, i.e., if the tax burden shifts more toward those on the higher rungs of the income distribution. The absence of such a shift might help explain why the inequality-reducing effect of net government expenditure was lower in 2004 than in 2000.

6. CONCLUSION

We find that median well-being grew sluggishly over the 1959 to 2004 period by any measure, particularly compared to the 2.2 percent annual growth in GDP per capita. Of the three principal measures, EI showed the highest growth at 0.8 percent per annum, LIMEW the second highest at 0.7 percent per annum, and MI the lowest at 0.6 percent per annum. However, when we exclude household production from LIMEW to obtain PFI, we estimate a 1.0 percent annual growth over the period. The reason is that household production itself showed almost no change over the period for the middle LIMEW quintile. In fact, median hours of housework fell by 19 percent over the period, but this was exactly offset by a corresponding increase in the unit value of household work.

The time pattern for the three principal measures is also quite different. MI and EI showed much higher growth than LIMEW from 1959 to 1982, but LIMEW grew faster than MI or EI from 1982 to 2004.

It appears that the main factor behind the measured differences in the trend of economic well-being are the differences in the composition of the measures. While base income declined as a share of LIMEW from 1959 to 2004, particularly after 1972, income from wealth increased, particularly from 1989 to 2000. Both government transfers and public consumption made substantial gains in their shares of LIMEW from

1959 to 1982, but then showed only minor fluctuations in the subsequent years. Taxes as a share of LIMEW showed a big increase from 1959 to 1972, then remained somewhat stable before registering a marked decline between 2000 and 2004.

However, the compositional change differed between the top and bottom quintiles of the LIMEW. Between 1959 and 2004, households at the bottom became more reliant on base income (mainly consisting of labor income) and on net government expenditures. On the other hand, for those at the top, income from wealth almost doubled as a share of LIMEW over these years.

Median LIMEW grew by 0.7 percent per year from 1959 to 2004. For the middle quintile of the LIMEW distribution, the main source of its growth over these years was the increase in net government expenditures, which accounted for about half the overall increase in LIMEW. The biggest contributor was the increase in transfers, followed by the increase in public consumption. The increase in base income accounted for another 40 percent of the growth in LIMEW of the middle class. Gains in income from wealth were relatively small. The period 2000 to 2004 is particularly interesting. During these years median LIMEW grew by 1.0 percent per year, while median MI and EI suffered net declines. The increase in net government expenditures accounted for *150 percent* of the growth of LIMEW, as base income and income from wealth both declined in absolute terms. The increase in net government expenditures, in turn, was about equally due to gains in transfers and a reduction in the tax burden. Indeed, as shown in table 9, this was a period when the total government deficit (including all levels of government) increased enormously from -160 billion to 509 billion dollars.

The LIMEW also provides a different picture of disparities among population subgroups than EI or MI. Racial disparities according to LIMEW first lessened from 1959 to 1989, but then increased between 1989 and 2000, while both EI and MI show a general narrowing over the years from 1959 to 2000; all three indices show almost no change from 2000 to 2004. The worsening of the racial gap during the 1990s is mainly traceable to the considerable and growing disadvantage faced by nonwhites in wealth ownership. As for single female-headed families, all three measures show a very large gap in well-being between them and married couples. All three also show deterioration in the relative well-being of single female-headed families. Increasing gaps in base income

and income from wealth explain most of the deterioration in the relative economic status of single female-headed families according to the LIMEW measure. In contrast, the rising gap between the two groups in EI is largely a reflection of the rising gap in their labor income.

The hump shape of the age-income relationship (with the youngest and oldest groups worse off and the middle-age groups better off, compared to the average) holds for MI and EI in all years, but not for LIMEW in 2000 and 2004. The elderly were 9 percent better off than the nonelderly (on the basis of mean values) in 2000 because of greater income from wealth. This, in turn, was due to a greater amount of accumulated wealth and a shorter remaining life expectancy for the elderly. In 2004, the elderly were near parity with the nonelderly and, in fact, better off than the soon-to-retire group. Moreover, LIMEW shows an almost continuous improvement in the relative well-being of the elderly from 1959 to 2000. In contrast, EI shows an improvement from 1959 to 1982 and then a slippage from 1982 to 2000, while MI shows a slight worsening in the relative well-being of the elderly over the whole period, though particularly from 1989 to 2000.

According to both MI and LIMEW, there was a substantial growth of inequality over the years from 1959 to 2004. The Gini coefficient for MI increased by 6.2 points and for LIMEW by 5.1 points. EI, on the other hand, showed a smaller increase of 2.1 Gini points over the period. The Gini coefficient for PFI (LIMEW less household production) also rose by 5.2 points and that for CDI (PFI less public consumption) by 6.3 points. Gini coefficients for equivalence-scale adjusted MI, EI, and LIMEW show lower levels of inequality than the corresponding unadjusted measures because the bottom rungs of the income distribution tend to have more single person households and smaller families than the higher rungs. The adjusted measures also show slightly smaller proportionate increases than the corresponding unadjusted measures. This reflects the reduction in household size for rich households *relative* to poor households. Inequality measures for family households also show a smaller increase than for all households.

Time trends are also different for the three principal measures. All three measures show little change in inequality from 1959 to 1972. LIMEW shows an increase from 1972 to 1982, no change from 1982 to 1989, and then a surge from 1989 to 2000,

reflecting the large increase in income from wealth, which is highly concentrated at the top. This was followed by a significant decline in inequality due to the decline in the value of financial assets between 2000 and 2004. EI shows a big drop in inequality from 1972 to 1982, a slight increase to 1989, and then a spurt from 1989 to 2004. In contrast, MI shows little change from 1972 to 1989 and then a large spike from 1989 to 2004.

Decomposition analysis showed that base money income (consisting mainly of earnings) and income from wealth contributed positively to the increase in inequality between 1959 and 2004 in all three measures, though their roles are reversed in the LIMEW vis-à-vis the official measures. The principal factor behind the increase in inequality in LIMEW is the rising contribution from income derived from nonhome wealth, while for MI and EI this role was played by base income. Net government expenditures contributed negatively to the increase in inequality between 1959 and 2004 in all three measures. However, the effectiveness of net government expenditures in lowering the increase in inequality was much less important in LIMEW as compared to the official measures. The main reason why net government expenditures had a bigger effect on restraining inequality growth in EI as compared to LIMEW was that the taxes were more progressively redistributive in EI than LIMEW.

The period from 2000 to 2004 is again particularly interesting. Over these years, the Gini coefficient for LIMEW and EI showed a decline of 1.2 and 0.8 points, respectively, while the Gini coefficient for MI showed an increase of 0.5. The large decline in income from nonhome wealth (15 percent in LIMEW and 43 percent in EI) was the main factor accounting for the reduction in the inequality of LIMEW and EI. While the increase in net government expenditures helped increase the well-being among the middle class, it appears that their contribution to reducing inequality was actually lower in 2004 than in 2000, primarily because the tax burden was not shifted more towards the households in the higher parts of the income distribution. The reduction in measured inequality between 2000 and 2004 thus appears to be a result of the boom and bust of financial markets rather than a reduction in earnings inequality or changes in government redistributive policies.

APPENDIX A: SOURCES AND METHODS

Introduction

The information required for constructing the LIMEW is not available in any single microdata file. At a very basic level, our empirical strategy in estimating the LIMEW can be described as starting with a large microdata file with income and demographic characteristics and then adding on the supplementary information, either via statistical matching or other imputation techniques, to estimate the various components of the LIMEW. The key technique of statistical matching is described briefly in the next section (section A1). Details regarding individual matches and assessment of the quality of matches are provided separately in Appendix B. Our empirical strategies involved in constructing the core synthetic file for 1959 and 1972 are sufficiently different from each other, as well as for the later years, to warrant separate descriptions (sections A2 and A3). The subsequent section (section A4) discusses the procedures followed for 1982, 1989, 2000, and 2004. Estimates of public consumption were derived in a relatively uniform fashion for all the years and, hence, they are discussed separately in the next section (section A5) of this appendix. The wealth definitions and long-run rates of return used in the study are presented in the final section (section A6). Due to limitations of space, our focus is on providing the crucial steps involved in constructing the estimates rather than on the minutiae.

A1. Statistical Matching

The microdata files are combined to create the core synthetic file using constrained statistical matching. The basic idea behind the technique is to transfer information from one survey ("donor file") to another ("recipient file"). Such information is missing in the recipient file, but necessary for research purposes. Each individual record in the recipient file is matched with a record in the donor file, where a match represents a similar record, based on the several common variables in the both files. The variables are hierarchically organized to create the matching cells for matching procedure. Some of these variables are considered as strata variables, i.e., categorical variables that we consider to be of the greatest importance in designing the match. For example, if we use sex and employment status as strata variables, this would mean that we would match only individuals of the

same sex and employment status. Within the strata, we use a number of variables of secondary importance as match variables.

The matching is performed on the basis of the estimated propensity scores derived from the strata and match variables. In this derivation, a penalty weight is assigned to the distance function according to the size and ranking of the coefficients of strata variables. For every recipient in the recipient file, an observation in the donor file is matched with the same or nearest-neighbor values of propensity scores. The quality of match is evaluated by comparing the marginal and joint distributions of the variable of interest in the donor file and the statistically matched file.[20]

A2. 1959

Our basic file is the 1-in-100 national random sample of the population that consists of 579,000 household and 1,780,000 person records, drawn from the 1960 Census.[21] The file, commonly abbreviated as "IPUMS," contains detailed information on demographic characteristics (as of 1960) and money income (received during 1959). Additional information required to construct the core synthetic file was obtained from the following nationally representative surveys via statistical matching with the IPUMS: Consumer Expenditure Survey 1960–61 (CES) that consists of 13,745 consumer units;[22] Survey of Financial Characteristics of Consumers 1962 (SFCC) with a sample size of 2,557 households;[23] Individual Tax Model File 1960 (ITM) that contains a sample of 101,920 tax returns;[24] and two time-use surveys: Americans' Use of Time, 1965–1966 (sample size: 2,001 individuals) and Time Use in Economic and Social Accounts, 1975–1976 (sample size: 2,406 individuals).[25] The major steps involved in constructing the LIMEW by adding supplementary information are shown in table A1.

---

[20] For a technical description and results of our matching algorithm, see Kum and Masterson (2008).
[21] See Ruggles et al. (2008)
[22] See U.S. Department of Labor, Bureau of Labor Statistics (1983)
[23] Details on the survey can be found at: http://www.federalreserve.gov/pubs/oss/oss2/scfindex.html
[24] The general description of the file can be found at: http://www.nber.org/~taxsim/gdb/. We obtained the data from the National Archives: http://www.archives.gov/
[25] We used the version of the 1965 file compiled by American Heritage Time Use Study, release 1 (May 2006). Created at the Centre for Time Use Research, United Kingdom, by Kimberly Fisher, Muriel Egerton and Jonathan Gershuny, with Nuno Torres and Andreas Pollmann, and contributions from Anne H. Gauthier and John Robinson. Created for Yale University with initial funding from the Glaser Progress

Table A1. Construction of LIMEW, 1959

Line No.	Component	Source
1	Earnings	IPUMS
2	Money income other than earnings	
3	Property income	Statistical matching of IPUMS and CES
4	Government cash transfers	
5	Other money income	
6	Money income (MI): Sum of lines 1 and 2	IPUMS
7	*Less*: Property income (line 3) and Government cash transfers (line 4)	
8	*Equals*: Base money income	
9	*Plus*: Income from wealth	Statistical matching of IPUMS and SFCC
10	Annuity from nonhome wealth	
11	Imputed rent on owner-occupied housing	
12	*Less*: Taxes	
13	Income taxes	Statistical matching of IPUMS and ITM; *IncTaxCalc* program; and NIPA
14	Payroll taxes	
15	Property taxes	Statistical matching of IPUMS and SFCC (for home values); and NIPA and Census Bureau data (for aggregate amounts)
16	*Plus*: Cash transfers	Same as line 4 above; and NIPA for relevant aggregates
17	*Plus*: Noncash transfers	IPUMS; Statistical matching of IPUMS and CES 1960–61; Administrative data; and NIPA (for aggregate amounts)
18	*Plus*: Public consumption	IPUMS and others (see section A.5)
19	*Plus*: Household production	Statistical matching of IPUMS and time-use surveys of 1965 and 1975
20	*Equals*: LIMEW	

Each of the steps described in the table are discussed briefly below.

Lines 3 through 5

Statistical matching with CES was performed to determine the proportions in which money income other than earnings (line 2) was distributed among its three components (lines 3 through 5) for each household in the IPUMS with a nonzero amount for money income other than earnings. The proportions, imputed from the statistical matching, were utilized to calculate the dollar amount of income from each source.

Foundation and supplementary funding from the ESRC (http://www.timeuse.org/ahtus/). We created the

Lines 9 through 11

Statistical matching with SFCC was conducted to obtain the amounts of assets and liabilities for each household in the IPUMS. Values of assets (other than homes) and liabilities were "aged" back from their 1962 to 1959 levels by deflating each asset and liability with their respective rate of return. Home values were deflated to the 1959 levels by the percent change in the median home price between 1959 and 1962. Data on rates of return for assets (other than homes) was obtained from the Federal Reserve (see section A6) with two exceptions. Interest rate on time and saving deposits, a component of liquid assets, was not available from the Federal Reserve. We therefore used the estimate from Gray (1964). Also, the Federal Reserve does not have any data for the period 1959–62 to calculate the rates of return on retirement assets. We assumed that they earned the same rate of return as financial assets, for which data was available (see section A6).

Lifetime annuities (including annuitized payments on debts) were calculated based on the demographic information available in the IPUMS (age, sex, and race of the head and spouse of wealth-holding families), life expectancy tables for 1959 (differentiated by age, sex, and race—obtained from the *Statistical Abstract* 1962), and long-term rates of return by asset type. The aggregate amount of imputed rent on owner-occupied housing for 1959 (reported in the national accounts, NIPA table 7.12, line 209) was distributed among households according to the gross value of homes.

Lines 12 through 15

Statistical matching with ITM was conducted to obtain the amounts of capital gains, capital losses, and deductions for each potential tax unit in the IPUMS. This information was utilized in conjunction with other relevant information in the synthetic file (including information derived from the statistical matches with the CES and SFCC) to construct the variables necessary for determining income and payroll tax payments. The actual amounts of taxes were calculated using the *IncTaxCalc* program (developed by Jon Bakija at Williams College), which incorporates detailed information regarding the tax regime in 1959 with respect to federal and state income taxes. Income and payroll taxes

---

1975 file by combining the AHTUS and the original study files. The original study is Juster et al. (1978).

were aligned with their respective national accounts aggregates. The NIPA amount of property taxes on owner-occupied homes in each state was distributed among homeowners according to the gross value of homes.

Lines 16 through 17

The statistical match with CES allowed us to determine four cash transfers: Social Security, unemployment compensation, veterans' benefits, and public assistance. They comprised 94 percent of all government transfers in 1959, as reported in the national accounts (NIPA table 3.12 "Government Social Benefits"). Additional imputations were done for some noncash transfers (e.g., medical assistance) reported in the national accounts (based on household/individual characteristics in the IPUMS) and a variety of administrative sources.

Line 18

See section A.5.

Line 19

The 1965 time-use survey included only the nonelderly, urban adult (age 19+) population living in households in which at least one adult was employed. For individuals in the IPUMS within the same universe, a statistical match was conducted with the time-use survey to impute weekly hours of household production. For the elderly and the nonurban population (as well as individuals in urban households in which no adult was employed), an unconstrained statistical match was performed with the 1975–76 time-use survey to impute weekly hours of household production.

The hourly wage rate for private household workers was estimated from the IPUMS, with some additional information taken from the March CPS surveys of 1962, 1963, and 1964. The IPUMS contain information on weeks worked last year, hours worked last week, and annual wages. However, weeks worked last year are reported in interval form, rather than as continuous variables. We converted weeks worked into a discrete variable by using the estimates developed by the Unicon Research Corporation in

their version of the March CPS public-use files.[26] The data on hours worked presented two problems. First, they were reported in interval form (like the data on weeks worked). Additionally, roughly a quarter of private household workers who reported positive wages during the previous year were not working during the reference week, reflecting the fact that majority of them were part-year workers. To avoid the bias that would creep into the wage calculation if we were to treat them as not having worked last year, we imputed the weekly hours group for them by using the logistic regression variant of the multiple imputation technique.[27] The independent variables used in the regression were: age, age squared, and dummies for sex, race, marital status, full-time worker, rural residence, and regions. Five replicates were computed for each observation and their average was assigned as the final value. After assigning all workers into hours-worked intervals, we calculated point estimates for each interval using two different methods.[28] In the first method, we simply assigned the midpoint of the intervals as the point estimates. The second method was an imputation based on pooling together data on private household workers from the March CPS surveys of 1962, 1963, and 1964. Two estimates of the annual hours worked were calculated by multiplying the weeks worked per year by the IPUMS and CPS estimate of weekly hours, respectively. In the next step, two estimates of average hourly wage rate were calculated by dividing the annual wages reported in the IPUMS with, respectively, the two estimates of annual hours described in the previous sentence. The hourly wage based on IPUMS data alone was roughly 3 percent higher than that estimated by combining the IPUMS and CPS data. Since we did not want to overstate the importance of household production for economic well-being, we chose the latter, lower estimate.

Two variables required for constructing the performance index (educational attainment and household income) were available directly in the IPUMS. The final

---

[26] Weeks worked in the previous year are reported in intervals in the March CPS prior to 1976. Unicon Research Corporation (http://www.unicon.com/) has converted this variable into a quasicontinuous variable by assigning for each interval a point estimate based on pooling together data from a few March CPS surveys from 1976 onwards.

[27] The imputation was after classifying workers into groups defined by the weeks worked last year. The SAS procedure PROC MI was employed for the imputation.

[28] One value for the hours worked variable reported in the data was "40 hours," which obviously did not require any further modification. Sixteen percent of observations fell into this group.

variable, time availability, was constructed by transforming the weekly hours of market work reported in the IPUMS in interval form into a continuous variable and then subtracting the resulting value from 112.[29] Transformation of the weekly hours of market work variable into a continuous variable was required only for those who performed market work in 1959 and, among them, for those who worked less than 40 hours a week.[30] The transformation involved two steps. First, we pooled together the data from the March CPS for 1962, 1963, and 1964, which contained actual values (rather than intervals) for hours worked last week. In the next step, we stacked the CPS data and the IPUMS. Those who worked less than 40 hours a week were split into cells by the weeks worked and weekly hours intervals. The observations from the IPUMS were treated as having missing values for the actual weekly hours. We imputed weekly hours for them using the predictive mean matching variant of the multiple imputation technique, following a procedure that was similar to that described in the previous paragraph.

A3. 1972

Our basic data file is a special version of the 1973 March CPS file that was assembled by the Social Security Administration. This file contains, in addition to the variables in the standard file, information on tenure (own or rent home), income amounts reported on the tax returns, type of tax return filed, number of exemptions, etc. The sample consists of 44,899 household and 135,893 person records.[31] The file, abbreviated as "CPS" below, contains detailed information on demographic characteristics (as of 1973) and money income (received during 1972). Additional information required to construct the core synthetic file was obtained from the following nationally representative surveys via statistical matching with the CPS: Consumer Expenditure Survey 1972–73 (CES) that

[29] The number 112 is obtained by subtracting 56 from the total hours in a week, i.e., 158. We assumed that the physically available hours in a week are limited by the requirement that 8 hours per day are needed for rest and personal care.

[30] Those who reported working 40 or more hours last week were treated as having worked 40 hours.

[31] Social Security Administration. CURRENT POPULATION SURVEY, 1973, AND SOCIAL SECURITY RECORDS: EXACT MATCH DATA [Computer file]. ICPSR version. Washington, DC: U.S. Dept. of Commerce, Bureau of the Census and Social Security Administration, Long-Range Research Branch [producer], 197?. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2001.

consists of 19,975 consumer units;[32] Augmented Individual Income Tax Model File 1972 (AIITM) that contains a sample of 106,581 tax returns (Social Security Administration 1972); and the time-use survey, Time Use in Economic and Social Accounts, 1975–76 (sample size: 2,406 individuals).[33] The major steps involved in constructing the LIMEW by adding supplementary information are shown in table A2.

[32] U.S. Dept. of Labor, Bureau of Labor Statistics. CONSUMER EXPENDITURE SURVEY, 1972-1973 [Computer file]. Washington, DC: U.S. Dept. of Labor, Bureau of Labor Statistics (BLS). We purchased the computer file from the BLS.

[33] We created the 1975 file by combining the AHTUS and the original study files. The original study is Juster et al. (1978).

Table A2. Construction of LIMEW, 1972

Line No	Component	Source
1	Earnings	CPS
2	Money income other than earnings	
3	Property income	
4	Government cash transfers	
5	Other money income	
6	Money income (MI): Sum of lines 1 and 2	
7	*Less*: Property income (line 3) and Government cash transfers (line 4)	
8	*Equals*: Base money income	
9	*Plus*: Income from wealth	Statistical matching of CPS with AIITM and CES; and Flow of Funds
10	Annuity from nonhome wealth	
11	Imputed rent on owner-occupied housing	
12	*Less*: Taxes	
13	Income taxes	Statistical matching of CPS and AIITM; *IncTaxCalc* program; and NIPA
14	Payroll taxes	
15	Property taxes	Statistical matching of CPS and CES; and NIPA (for aggregate amount)
16	*Plus*: Cash transfers	Same as line 4 above; and NIPA for relevant aggregates
17	*Plus*: Noncash transfers	Administrative data; NIPA (for aggregate amounts); and statistical matching of CPS and CES
18	*Plus*: Public consumption	CPS and others (see section A.5)
19	*Plus*: Household production	Statistical matching of CPS and time-use survey of 1975
20	*Equals*: LIMEW	

Each of the steps described in the table are discussed briefly below:

Lines 9 through 11

The major problem in estimating LIMEW for 1972 was the absence of a survey of household wealth. Amounts of principal nonhome assets were estimated from a statistical match with AIITM. Home values and the outstanding amounts of mortgage and consumer debt were estimated from a statistical match with the CES.

Statistical matching with AIITM was conducted to calculate the amounts of nonhome assets. The match allowed us to determine, for each potential tax-filing unit in the CPS, dividends, interest, and business-type income or loss from the following

sources: businesses, partnerships, S-corporations, farms, rental real estate, and trusts. [34] An initial estimate of benchmark aggregate amounts for assets yielding such incomes was constructed from the Flow of Funds (FOF) data on the balance sheet of households and nonprofit organizations (table B.100). The initial estimate differs from the amount reported in the FOF because it reflects the addition or subtraction that is required to make the FOF definition of assets conform, as much as possible, to the definitions found in household wealth surveys.[35] The assets were: equity in unincorporated business and real estate; stocks (consisting of mutual fund shares, and publicly-traded and closely-held shares); and credit market assets (consisting of savings accounts, U.S. government securities, corporate and foreign bonds, and mortgages). Adjusting the initial estimates of these assets upward or downward to account for the discrepancy that is usually found between survey-based and FOF estimates resulted in the final benchmarks. This step was taken to facilitate comparability of levels with the other years, which are all based on survey data. The derivation of the final estimates relied heavily on the research conducted at the Federal Reserve focusing on the relation between the concepts of assets in the FOF and wealth surveys, and comparing the estimates from the two sources. The two studies that we utilized are Antoniewicz (2000), and Avery, Elliehausen, and Kennickell (1988).We abbreviate the latter below as AEK (1988) for convenience.[36]

The basic procedure can be described as follows: We first calculated the ratios of initial estimates to FOF aggregates from AEK (1988) and Antoniewicz (2000) for each asset in the wealth survey years 1963, 1983, 1989, 1992, 1995, and 1998.[37] As noted in the previous paragraph, the initial estimate reflects the adjustment made to the FOF amount in order to make it comparable to the survey aggregate. The initial estimate of the 1972 benchmark for each asset was obtained by multiplying the FOF aggregate in 1972 by the average of the ratios over all survey years. We then calculated, from the same

[34] This group includes: income/loss from unincorporated businesses, partnerships, S-corporations, farms, rental real estate, and trusts.
[35] For example, the FOF table includes the amounts held by nonprofit organizations for various assets and debts. We would subtract the estimated amount held by nonprofit organizations to derive the initial benchmarks because household wealth surveys exclude nonprofit organizations.
[36] Information on 1989, 1992, 1995, and 1998 surveys were obtained from Antoniewicz (2000). The discussion of 1963 and 1983 surveys can be found in Avery, Elliehausen, and Kennickell (1988).

sources, the ratio of the survey aggregate to the initial estimate for each asset in all the years. This ratio can be considered as the extent to which the survey-based aggregate differs from an independently-derived aggregate due to a number of reasons, including over- or under-reporting. The final estimate for each asset in 1972 was obtained by multiplying the 1972 initial estimate by the average of the ratios over all survey years.

The final estimates for the aggregate values of equity in unincorporated business, stocks, and credit market assets were distributed among households according to the distributions of incomes. Specifically, equity in unincorporated business was distributed according to the absolute value of income from unincorporated business. We took the absolute value of this type of income to convert the losses faced by some individuals into positive amounts, because incurring losses is not necessarily indicative of the absence of assets. Income from unincorporated business was defined as the sum of income or loss from business, farms, rental real estate, and partnerships, plus 10 percent of the absolute value of income or loss from estates and trusts. The value of stocks was distributed according to income from stocks. The latter was calculated as the sum of dividends, the absolute value of the income or loss from S-corporations, and 25 percent of the absolute value of income or loss from estates and trusts. Credit market assets were distributed according to total income from such assets, defined as the sum of interest income and 65 percent of the absolute value of income or loss from estates and trusts. We allocated the income or loss from estates and trusts among the three assets because the FOF data did not allow us to develop a separate estimate for equity in trust funds and estates. A similar reason lies behind our decision to merge the income from S-corporations with dividends; no separate estimate is available in the FOF data for shares held in S-corporations.

Statistical matching with the CES file provided an initial estimate of the distribution of home values (principal residence only). The CES was conducted over 1972 and 1973. Therefore, some home values in the matched file were 1973 home values. The initial estimate was modified by adjusting the home values reported in 1973 by a set of deflation factors that reflected the change in median home values between 1972 and 1973 by region and location (a combination of urban/rural status and population). The

[37] Some adjustments were made to this procedure for selected items, the details of which are available from

final distribution was scaled up to sum to the FOF benchmark for principal residence. Since the FOF aggregate includes all types of owner-occupied housing (including vacant land, vacation homes, etc.), we deflated the FOF aggregate by 5 percent. The latter was the average shortfall in the survey aggregate of the value of principal residence relative to the FOF aggregate, calculated over five survey years: 1963, 1983, 1989, 1992, and 1995.

The match with the CES file also yielded estimates of the distribution of mortgage interest and principal payments. We imputed the number of payments made by each mortgage-paying household via a statistical match with the 1970 IPUMS, which contained a variable that indicates how many years ago the household moved into the present housing unit. The length of mortgage was assumed to be 30 years. We also assumed that the contract interest rate for a mortgage-paying household was the same as the average national mortgage interest rate in the year in which they moved into their house.[38] Given the length of mortgage, number of mortgage payments, current total mortgage payment (sum of interest and principal payments), and the interest rate, we could calculate, using the standard amortization formula, the outstanding mortgage balance for each mortgage-paying household. The estimated distribution of mortgage debt was scaled up, just as the home values, to add up to the FOF final benchmark. The latter was obtained via an operation identical to that discussed previously from nonhome

---

the authors upon request.

[38]The year that the family moved into the housing unit and the corresponding mortgage rate could take the following values in the sample:

Year	Interest rate (in percent)
1972	7.40
1971	7.56
1970	8.22
1968–69	7.28
1963–67	6.04
1953–62	5.34
1952 or earlier	4.50

The interest rate for the years between 1951 and 1960 are the weighted sum of FHA and conventional contract rates from Guttentag and Beck (1970: tables C-1 and C-2). Weights used are the shares of FHA and conventional mortgages for nonfarm, single-family homes in their combined total. The shares were calculated from the *Economic Report of the President 2008* (table downloaded from: http://www.gpoaccess.gov/eop/tables08.html, table B75). For the years 1961 and 1962, we used the unweighted average of contract rates (FHA Series) on new and existing homes published in the *Federal Reserve Bulletin*, August 1966. For the years between 1963 and 1972, we used the contract rate on conventional mortgages available at the Federal Housing Finance Board website (http://www.fhfb.gov/). These rates pertain to single-family, nonfarm homes.

assets. In the first step, the initial FOF benchmark was obtained by subtracting an estimated amount of mortgage debt held on principal residences from the reported amount in FOF. This was necessary because our data allowed us to impute only the distribution of mortgage debt on the principal residence. In the second step, we estimated the average shortfall in the survey aggregate of the value of mortgage debt on principal residence relative to the FOF aggregate, calculated over two survey years: 1963 and 1983. The FOF final benchmark was obtained by deflating the initial benchmark by the average shortfall.

Finally, the statistical match with the CES also yielded an estimate of the distribution of nonmortgage interest payments. Here again we followed a procedure identical to that described earlier for nonhome wealth to derive total nonmortgage debt (consumer debt plus "other" debt) from the FOF data. The final benchmark amount was distributed among households according to the distribution of nonmortgage interest payments. Lifetime annuities (including annuitized payments on debts) were calculated based on the demographic information available in the CPS (age, sex, and race of the head and spouse of wealth-holding families), life expectancy tables for 1972 (differentiated by age, sex, and race—obtained from the *Statistical Abstract* 1974), and long-term rates of return by asset type. The aggregate amount of imputed rent on owner-occupied housing for 1972 (reported in the national accounts, NIPA table 7.12, line 209) was distributed among households according to the gross value of homes.

Lines 12 through 15

Statistical matches with the CES and AIITM described above also provided information for the estimation of tax payments. Deductions for each potential tax unit in the CPS (property taxes, mortgage interest payment, medical expenditures, etc.) were obtained from the statistical match with the CES. This information, in conjunction with information available in the CPS, was utilized to conduct a statistical match with AIITM to obtain the amounts of capital gains and capital losses. The variables obtained from the statistical matches were utilized together with other relevant information in the synthetic file to construct the variables necessary for determining income and payroll tax payments. The actual amounts of taxes were calculated using the *IncTaxCalc* program

(developed by Jon Bakija at Williams College), which incorporates detailed information regarding the tax regime in 1972 with respect to federal and state income taxes. Income and payroll taxes were aligned with their respective national accounts aggregates. Property taxes on owner-occupied homes obtained from the statistical match with CES were aligned to the NIPA total.

Lines 16 through 17

Government cash transfers received under Social Security, unemployment compensation, veterans' benefits, public assistance, and workers compensation are identified in the CPS. We aligned them with their appropriate NIPA benchmarks. These cash transfers comprised 72 percent of all government transfers in 1972, as reported in the national accounts (NIPA table 3.12 "Government Social Benefits"). The statistical match with CES allowed us to determine the value of food stamps received by households. Additional imputations were done for some noncash transfers (most importantly Medicare and Medicaid) reported in the national accounts, based on household/individual characteristics in the CPS and a variety of administrative sources.

Line 18

See section A.5.

Line 19

Hours of household production were obtained via a statistical match with the 1975–76 time-use survey.[39] We calculated the hourly wage rate for private household workers from the 1971 May Current Population Survey because it included a special module on this occupational group. The hourly wage rate was "aged" forward to 1972 by using the percent change between 1971 and 1972 in the hourly wage of private household workers. Two variables required for constructing the performance index (educational attainment and household income) were available directly in the CPS. The final variable, time

[39] See note 33 above for the details regarding the survey.

availability, was constructed by utilizing the information regarding hours and weeks worked in the CPS.

A4. 1982, 1989, 2000, and 2004

Our main data source is the public-use data files developed by the U.S. Bureau of the Census from the Current Population Survey's Annual Demographic Supplement (ADS), which is the most comprehensive source of annual information regarding a number of key demographic characteristics (as of the survey year), household income, and receipt of noncash transfers (as of the previous year). The number of households was 59,026 in 1983, 59,941 in 1990, 78,000 in 2001, and 76,387 in 2005. Additional information required to construct the core synthetic file was obtained from the following nationally representative surveys via statistical matching with the ADS: the 1983, 1989, 2001, and 2004 rounds of the Survey of Consumer Finances (SCF) that contains detailed information on household wealth;[40] the Americans' Use of Time Project (AUTP) conducted in 1985; and the American Time Use Survey (ATUS) conducted in 2003 and 2004.[41] The major steps involved in constructing the LIMEW by adding supplementary information are shown in table A3.

[40]The 1983, 1989, 2001, and 2004 rounds of the SCF had sample sizes of 4,262, 3,143, 4,442, and 4,519 households, respectively.

[41] The AUTP, ATUS 2003, and ATUS 2004 had sample sizes of 5,358, 20,000 and 13,973 individuals, respectively.

Table A3. Construction of LIMEW: 1982, 1989, 2000, and 2004

Line No	Component	Source
1	Earnings	ADS
2	Money income other than earnings	
3	Property income	
4	Government cash transfers	
5	Other money income	
6	Money income (MI): sum of lines 1 and 2	
7	*Less*: Property income (line 3) and government cash transfers (line 4)	
8	*Equals*: Base money income	
9	*Plus*: Income from wealth	Statistical matching of ADS with SCF
10	Annuity from nonhome wealth	
11	Imputed rent on owner-occupied housing	
12	*Less*: Taxes	
13	Income taxes	ADS and NIPA
14	Payroll taxes	
15	Property taxes	
16	*Plus*: Cash transfers	Same as line 4 above; and NIPA for relevant aggregates
17	*Plus*: Noncash transfers	ADS; administrative data; and NIPA
18	*Plus*: Public consumption	ADS and others (see section A.4)
19	*Plus*: Household production	Statistical matching of ADS and time-use surveys
20	*Equals*: LIMEW	

Each of the steps described in the table are discussed briefly below:

Lines 9 through 11

Statistical matching with SCF was conducted to obtain the amounts of assets and liabilities for each household in the IPUMS. Values of assets (other than homes) and liabilities were "aged" back from their 1983 to 1982 levels and 2001 to 2000 levels by deflating each asset and liability with their respective rate of return. Home values were deflated to the 1982 and 2000 levels by the percent change in the national median home price between the survey and previous year. Lifetime annuities (including annuitized payments on debts) were calculated based on the demographic information available in the ADS (age, sex, and race of the head and spouse of wealth-holding families), life expectancy tables (differentiated by age, sex, and race—obtained from the *Statistical Abstract*, various years), and long-term rates of return by asset type. The aggregate amount of imputed rent on owner-occupied housing (reported in the national accounts,

NIPA table 7.12, line 209) was distributed among households according to the gross value of homes.

Lines 12 through 15

All taxes have imputed values in the ADS and were aligned with their NIPA counterparts by distributing for each tax the discrepancy between the NIPA and ADS aggregate among households according to the share of each household in the ADS aggregate.

Lines 16 through 17

Transfers for which actual or imputed amounts were reported in the ADS were aggregated across recipients and compared against the benchmarks. Any discrepancy between the ADS total and the NIPA benchmark for a given transfer payment was distributed across recipients according to the distribution of that payment in the ADS. Transfers that were recorded in the ADS have NIPA amounts that make up roughly 90 percent of all transfers reported in the NIPA table 3.12 "Government Social Benefits." Additional imputations were carried out for some noncash transfers (e.g., the nutritional program known as WIC, payments to nonprofit organizations providing social benefits to households, etc.) reported in the national accounts, based on household/individual characteristics in the CPS and a variety of administrative sources.

Line 18

See section A.5.

Line 19

Hours of household production were obtained via a statistical match with the time-use surveys. The AUTP was used for both 1982 and 1989; the 2003 and 2004 rounds of ATUS were used for 2000 and 2004, respectively. We calculated the hourly wage rate for private household workers from the annual file that was created by merging the Current Population Survey's monthly outgoing rotations files. The wage rate was defined as usual weekly earnings divided by usual weekly hours of work. The variables required for

constructing the performance index (educational attainment, time availability, and household income) were available directly in the ADS.

A5. Public Consumption

Estimates of public consumption by households were constructed in three steps: (1) obtaining total expenditures by function and level of government; (2) allocating total expenditures between the household sector and other sectors of the economy; and (3) distributing expenditures allocated to the household sector among households.

Expenditure by Function and Level of Government

The expenditure category used here is government consumption expenditures and gross investment (the same as that on the product side of the NIPA). To group expenditures according to purpose, we adopted the functional classification in NIPA, with minor modifications.

We distributed the NIPA aggregate of state and local expenditures for each function among the states using the interstate distribution of these expenditures in the Annual Survey of Government Finances (ASGF) or the Census of Governments conducted by the U.S. Bureau of the Census. Care was taken to ensure that the expenditure concept and the groupings of the functions in the Census Bureau data conform as closely as possible to the NIPA expenditure and function concepts.

Allocation of Expenditures to the Household Sector

We started by constructing a schema of detailed functions by level of government (federal versus state and local).[42] Then we grouped these functions into three categories. The first involved activities that do not expand the potential amenities available to the household sector. General public service, national defense, law courts, and prisons are prominent examples. The second category included functions that are assumed to expand amenities directly only to the household sector, such as income security and recreation and culture.

[42] The detailed functional schema is outlined in Wolff and Zacharias (2007b).

The third category consisted of functions that can potentially serve both the household and nonhousehold sectors, such as economic affairs and housing and community services. Costs incurred in the performance of these functions are allocated to the household sector in accordance with the extent that they are "responsible" in generating such costs. Our judgment regarding the extent of responsibility is based, as much as possible, on the available empirical information. A prominent example of this type of function is highways (included under economic affairs), where approximately 60 percent of expenditures were estimated to occur on behalf of households.

Distribution of Allocated Expenditures among Households

After determining government expenditures allocated to the household sector (i.e., "public consumption") by function, we distributed them among households. We attempted to follow the same principles of direct usage and cost responsibility that were employed in splitting total government expenditures between the household and nonhousehold sectors. Two major categories of public consumption are distributed among households: those distributed equally across persons (such as public health and hospitals, police, and fire) and those distributed according to household-level, or person-level, characteristics (such as elementary and secondary education or highways).

The second group of expenditures account for the bulk of public consumption (nearly three-quarters). The person-level or household-level characteristics used in the distribution procedures, and their corresponding functions, are listed below:

- *Amount and type of income*: agriculture.

- *Type of income received (including receipt of noncash transfers)*: public housing, administrative costs of Medicare, disability, retirement income (Social Security), welfare and social services, and unemployment compensation.

- *Shares in consumption expenditures*: energy, pollution control and abatement, postal service, liquor stores, water supply, sewerage, and sanitation.

- *Enrollment in public educational institutions*: education.

- *Patterns of vehicle ownership and transportation usage*: transportation and parking.

- *Employment status*: occupational safety and health.

Information on the type and amount of income, as well as the employment status of individuals, is obtained directly from the primary data file, such as the IPUMS or ADS. All other characteristics were imputed to individuals or households in the primary sample from information gathered from external sources.

A6. Wealth and Rates of Return

1959, 1982, 1989, 2000, and 2004

We divide net worth into two components. The first is the gross value of owner-occupied housing and its corresponding liability—mortgage debt on owner-occupied housing. The remainder, "nonhome wealth," equals the sum of: (1) equity in unincorporated businesses and real estate (other than the principal residence); (2) cash and demand deposits, time and savings deposits, certificates of deposit, money market accounts, and the cash surrender value of life insurance plans; (3) government bonds, corporate bonds, foreign bonds, and other financial securities, corporate stock and mutual funds, and equity in trust funds; and (4) the cash surrender value of defined-contribution pension plans, including IRAs, Keogh, and 401(k) plans; (5) less other (nonhome) debt such as auto and credit card loans.

The total real rate of return of each nonhome wealth component is the average of annual rates over a relatively long period of time, varying from 14 to 40 years, depending on the asset (see table A4). The total rates of return data we use are inclusive of both the capital gains and the income generated by the assets. The average rates of return by asset type were estimated from the data on asset holdings published by the Federal Reserve in the Flow of Funds Accounts for the United States and financial market information included in the 2005 Economic Report of the President.[43]

[43] The Flow of Funds data are available at: http://www.federalreserve.gov/releases/z1/Current/ and the 2005 Economic Report of the President is available at: http://www.gpoaccess.gov/eop/. Details on the data taken from the Flow of Funds, including series identifiers, are available from the authors upon request.

Table A4. Long-Term Average Rates of Return (in percent)

	Nominal	Real	Period
Real estate and business	6.95	2.56	1960–2004
Liquid assets	5.56	0.86	1965–2004
Financial assets	7.48	3.06	1960–2004
Pension assets	6.76	3.64	1986–2004
Mortgage debt	0.00	-4.28	1960–2004
Other debt	0.00	-4.28	1960–2004
Inflation rate (CPI-U)	4.28		

Notes: **Real rate of return** = (1+Nominal rate)/(1+Inflation rate)-1
Real estate and business: Holding gains (taken from the Flow of Funds table R.100) divided by equity in noncorporate business (taken from the Flow of Funds table B.100).
Liquid assets: The weighted average of the rates of return on checking deposits and cash, time and saving deposits, and life insurance reserves. The weights are the proportion of these assets in their combined total (calculated from the Flow of Funds table B.100). The assumptions regarding the rates of return are: zero for checking deposits, the rate of return on a 1-month CD (taken from the table "H.15 Selected Interest Rates" published by the Federal Reserve and available at: http://www.federalreserve.gov/releases/h15/data.htm) for time and saving deposits, and one plus the inflation rate for life insurance reserves.
Financial assets: The weighted average of the rates of return on open market paper, Treasury securities, municipal securities, corporate and foreign bonds, corporate equities, and mutual fund shares. The weights are the proportion of these assets in total financial assets held by the household sector (calculated from the Flow of Funds table B.100). The assumption regarding the rate of return on open market paper is that it equals the rate of return on 1-month finance paper (taken from the table H.15 "Selected Interest Rates" published by the Federal Reserve and available at: http://www.federalreserve.gov/releases/h15/data.htm). The data for the rates of return on other assets are taken from the Economic Report of the President 2005, table B.73. The assumptions regarding Treasury securities, municipal securities, corporate and foreign bonds, and corporate equities are, respectively, average of Treasury security yields, high-grade municipal bond yield, average of corporate bond yields, and annual percent change in the S&P 500 index. Mutual fund shares are assumed to earn a rate of return equal to the weighted average of the rates of return on open market paper, Treasury securities, municipal securities, corporate and foreign bonds, and corporate equities. The weights are the proportions of these assets in the total financial assets of mutual funds (calculated from the Flow of Funds table L.123).
Pension assets: Net acquisition of financial assets (taken from the Flow of Funds table F.119c) divided by total financial assets of private defined-contribution plans (taken from the Flow of Funds table L.119c).
Inflation rate: Calculated from the CPI-U, published by Bureau of Labor Statistics.

1972

The nonhome wealth definition used in 1972 was different from that used in the other years because there was no survey on household wealth for that year. The nonhome wealth for 1972 was calculated as the difference between nonhome assets and the sum of consumer and other debt (excluding mortgage on principal residence). Nonhome assets included: (1) equity in real estate (other than principal residence) and unincorporated businesses; (2) interest-bearing assets that consist of time and savings deposits, certificates of deposit, money market accounts, government bonds, corporate bonds,

foreign bonds, and other financial securities;[44] and (3) corporate stock, less consumer debt.

Given the difference in the wealth definition, the rates of return used in the 1972 annuity calculation also had to be different for interest-bearing assets and stocks. These were calculated using the same sources of data and methodology described above, with the requisite modifications. The resulting long-run real rates of return for interest-bearing assets and stocks were 2.04 and 3.24 percent, respectively.

[44]The individual components of interest-bearing assets could not be estimated separately.

APPENDIX B: STATISTICAL MATCHES

Introduction

The statistical matches conducted for constructing the LIMEW synthetic data files are described below. For some data files, certain operations were required before matching could be conducted. These operations are also described below. In addition, various indicators are presented to assist the reader in assessing the "goodness of match."

B1. 1959

Compiling the 1959 data set required the most individual steps, due to the relative scarcity of data available from any one source. The first required step was to split up the "other income" category in the IPUMS data set into transfer, property, and other income. This split was accomplished by matching the IPUMS with the CES and transferring the shares of other income in the CES to the resulting data set. Wealth data was obtained from the match with the SFCC. A match with the ITM provided items necessary to compute taxes. Finally, a match with two separate time-use surveys provided the necessary data to calculate the value of household production.

Transfer Income Shares Match

Before matching, some imputations were necessary for the IPUMS file. The IPUMS data set does not contain rural/urban status for those households in states where the total rural or urban population does not exceed 250,000. Rural status was imputed by running a logistic regression on the whole data set, creating a predicted propensity score for each household and then assigning the highest score households rural status in each of the states without data (for the states in question—Rhode Island, Vermont, Delaware, North Dakota, Nevada, Utah, Wyoming, Alaska, and Hawaii—the number of rural households selected was based on the 1961 Statistical Abstract of the United States, table No. 12 "Population, Urban and Rural, by States and for Puerto Rico, 1940 to 1960"). A number of the households in the IPUMS had missing values for home value. We created a categorical variable (renting vs. owning a home in one of three value categories: less than

$10,000; $10,000–$22,500; $22,500 and up) and imputed the missing values using ordered logistic regression.

The households in the IPUMS were broken up into consumer units, following the method used in the CES for 1960, each of which is matched with a consumer unit record from the CES. For each consumer unit in the IPUMS, eligibility for four types of transfer income (welfare, Social Security, veterans' benefits, and unemployment compensation) was imputed based on consumer-unit characteristics. These eligibility variables were then used to construct super-cells for statistical matching.

Within the super-cells, strata variables were used to construct cells for matching. These strata variables are region (Northeast, South, Midwest, and West), age of the household head (over or under 65), the homeownership status of the household (as described above), household income quartile, marital status of household head, and race of household head. The matching was performed on the basis of the estimated propensity scores derived from the most relevant common variables in the two data sets: education category (less than high school, high school graduate, some college, college graduate); earner composition of the household; sex of household head; number of persons in the household; number of children in the household; number of earners in the household; poverty status of the household; self-employment and employment status of the household head; parental status of the household head; and rural/urban location. For every recipient unit in IPUMS, a donor unit in the consumer survey was matched with the same or nearest-neighbor values of propensity scores. In this search, a penalty weight was assigned to the distance function according to the size and ranking of the coefficients of strata variables.

The quality of match was evaluated by comparing the marginal and joint empirical distribution of shares of other income in the consumer survey and the statistically matched file. Figures B1-1 through B1-4 compare the results of the match with administrative data.

Figure B1-1. By State Difference between IPUMS Match and Administrative Data, Veterans' Benefits

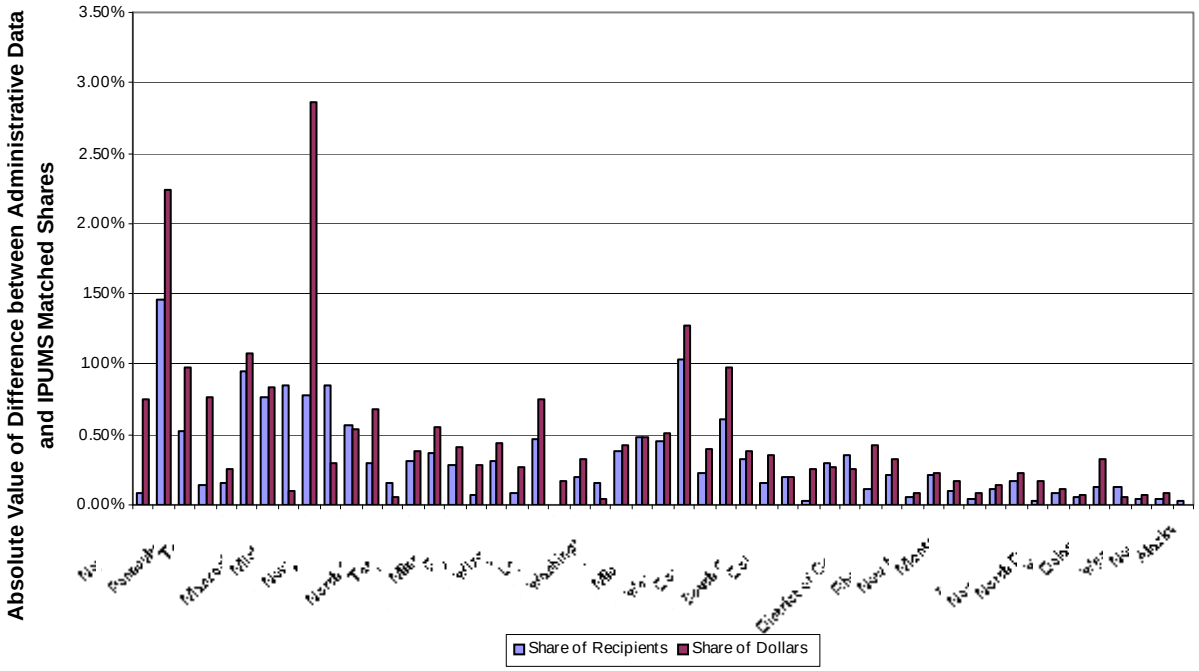


Figure B1-2. By State Difference between IPUMS Match and Administrative Data, Social Security

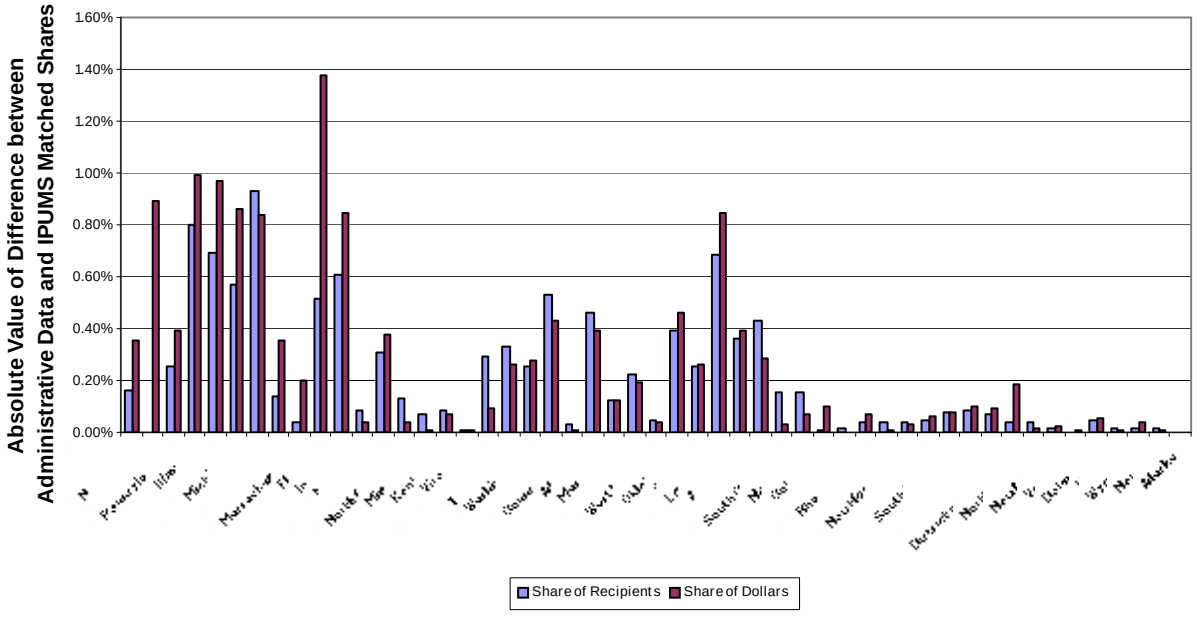


Figure B1-3. By State Difference between IPUMS Match and Administrative Data, Public Assistance

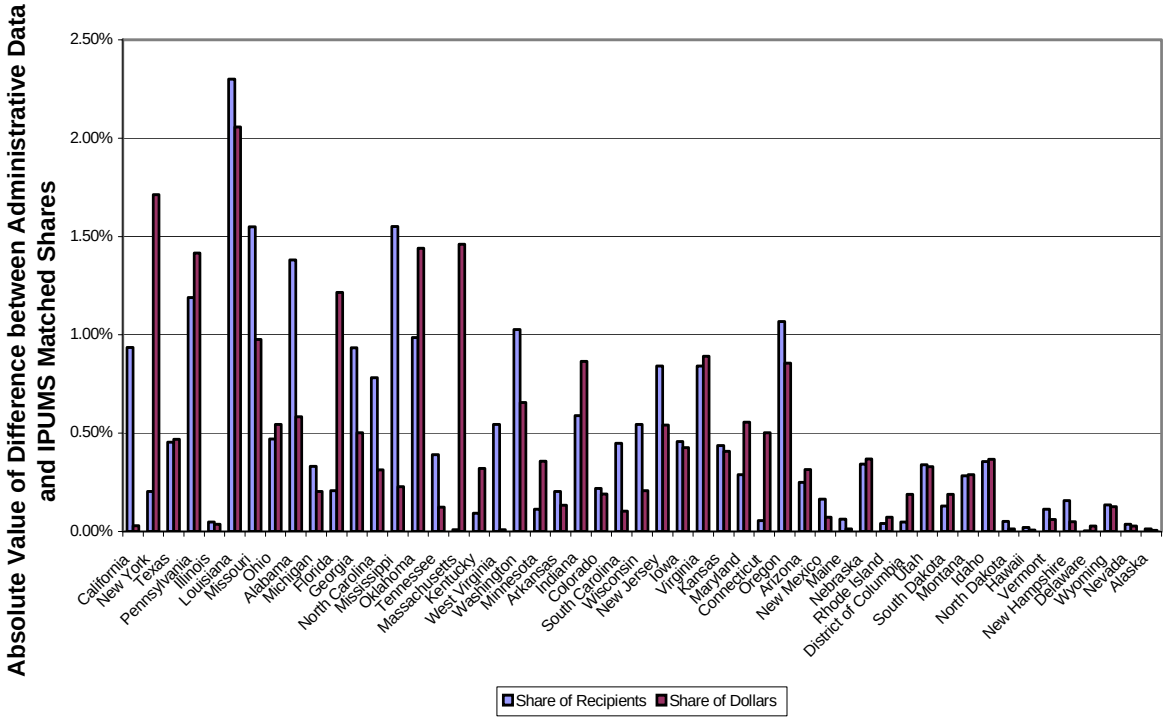
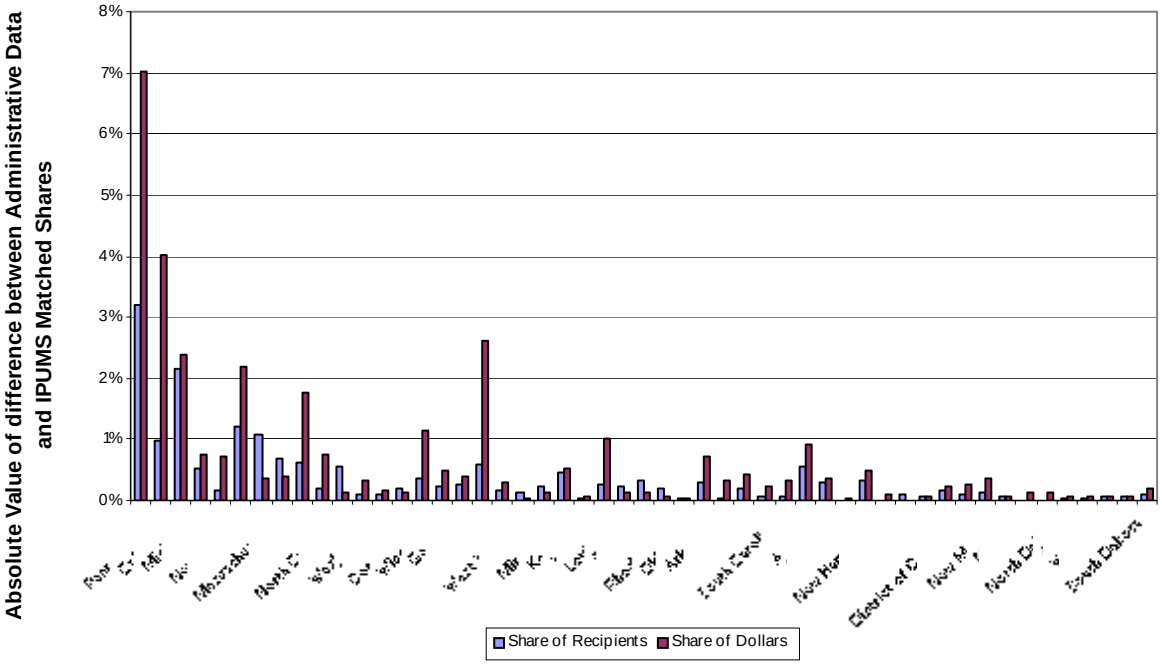


Figure B1-4. By State Difference between IPUMS Match and Administrative Data, Unemployment Compensation



Wealth Match

The 1962–3 Survey of Financial Characteristics of Consumers has a substantial number (11 percent) of missing values ("not ascertained") for the race variable. These were imputed using the method of multiple imputation through chained equations implemented in Stata's *ice* command. Five iterations were done, creating a file with no missing values that was used in the wealth match, after adjusting weights. Table B1-1 shows the result of the imputation compared with the race of household head in the ADS for 1959.

Table B1-1. Result of Imputation of Race of Household Head

	ADS	SFCC Before	SFCC After	Difference	Difference from ADS
Nonwhite	9.71%	9.20%	9.99%	0.79%	0.28%
White	90.29%	79.85%	90.01%	10.16%	-0.28%
Not Ascertained		10.95%		-10.95%	

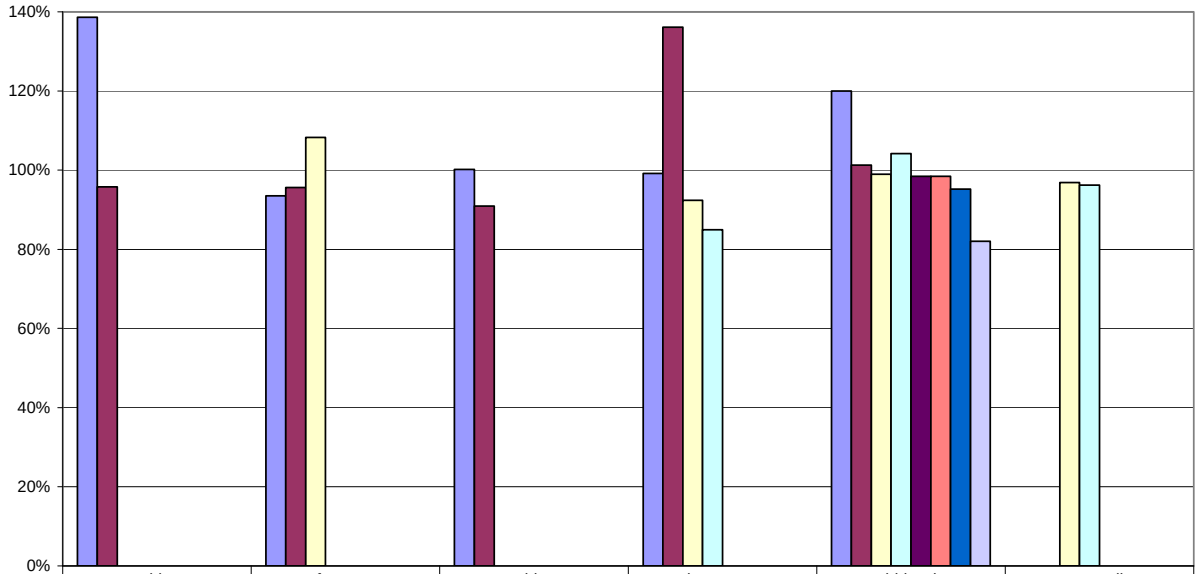
Each household record in the IPUMS was matched with a household record in the SFCC, where a match represents a similar unit, based on the several common variables in both data sets. The variables were hierarchically organized to create the matching cells for matching procedure.

The strata variables used in the matching procedure were the race of the household head (white vs. nonwhite), the homeownership status of the household (renting vs. owning a home in one of three value categories: less than $10,000; $10,000–$22,500; $22,500 and up), the family type (married couples, single males, single females with children, single females without children), age of the household head (three categories: up to 40; 41 to 64; 65 and older), and household income quantiles (bottom four quintiles, 80–90th percentile, 90th–95th percentile, 95th–99th percentile, and top 1 percent). Within these strata, we used the education and occupation of the household head, number of children, and size of the household as match variables.

The matching was performed on the basis of the estimated propensity scores derived from all the variables mentioned above. For every recipient unit in IPUMS, a donor unit in the wealth survey was matched with the same or nearest-neighbor values of propensity scores. In this search, a penalty weight is assigned to the distance function according to the size and ranking of the coefficients of strata variables.

The quality of the match was evaluated by comparing the marginal and joint empirical distribution in the wealth survey and the statistically matched file. Figure B1-5 shows the ratios of mean net worth for each value of the strata variables. The fit is quite good, with almost all categories within plus or minus 5 percent of equivalence.

Figure B1-5. Ratio of Net Worth by Category (AIPUMS/SFCC1962)



	white	famtype	elder	homeown	hhinccl	overall
cat1	138.60%	93.50%	100.15%	99.17%	119.96%	
cat2	95.76%	95.59%	90.89%	136.15%	101.30%	
cat3		108.30%		92.41%	98.97%	96.87%
cat4		0.00%		84.97%	104.21%	96.18%
cat5					98.45%	
cat6					98.44%	
cat7					95.20%	
cat8					82.04%	

Tax Match

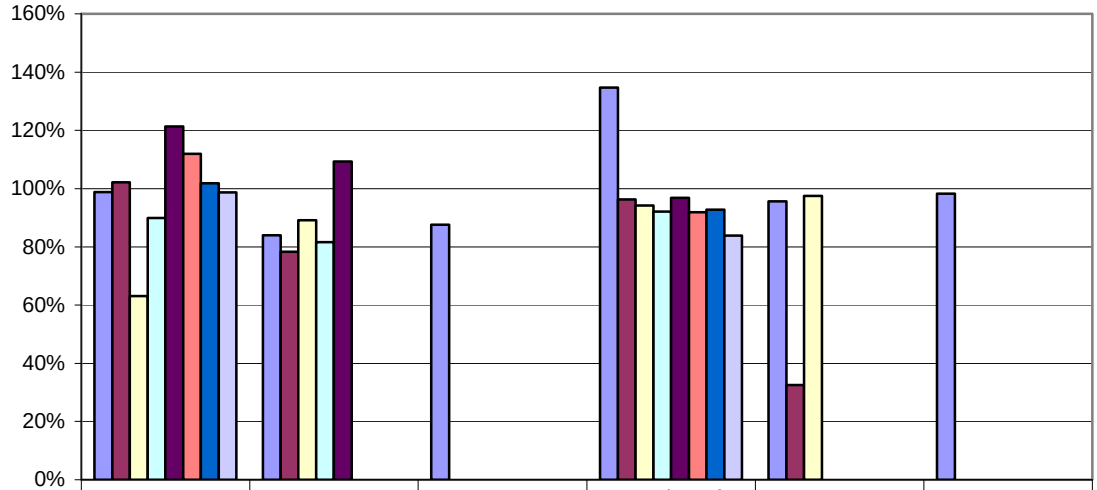
For estimating taxes paid by households in the IPUMS, we used *IncTaxCalc*, a SAS program developed by Jon Bakija at Williams College. In order to generate the information needed to use the program, we did a statistical match using the ITM for 1960 to get standardized deductions for each household in the IPUMS. To create cells for matching, we identified tax-paying units within the IPUMS and then calculated adjusted gross income (AGI), number of exemptions, and filing status and the imputed deduction status (itemized or standard) for each tax unit. The strata variables used for the match

were AGI quantiles, wage quantiles, deduction type, number of exemptions, and return type. Within these strata, we used AGI and wage income as match variables.

The matching was performed on the basis of the estimated propensity scores derived from all the variables mentioned above. For every recipient unit in IPUMS, a donor unit in the tax model was matched with the same or nearest-neighbor values of propensity scores. In this search, a penalty weight was assigned to the distance function according to the size and ranking of the coefficients of strata variables.

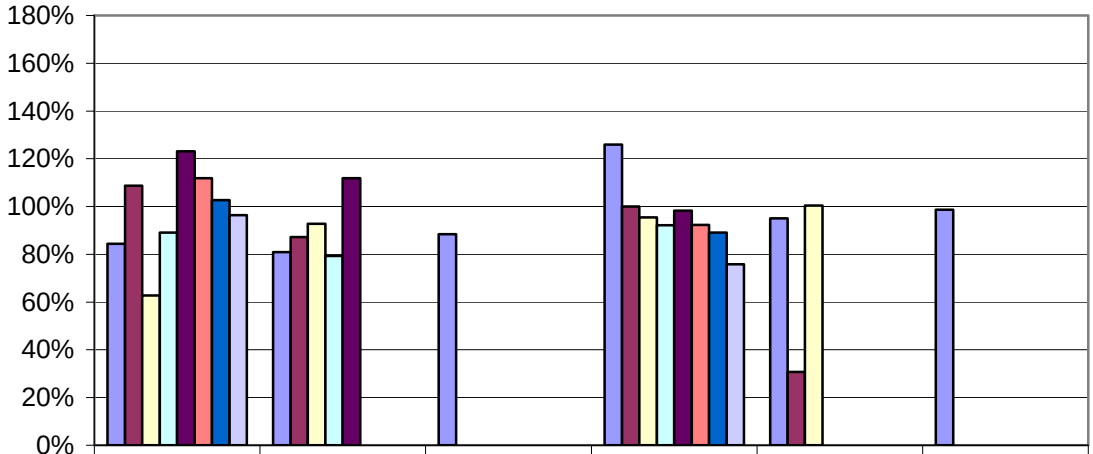
The quality of match was evaluated by comparing the marginal and joint empirical distribution in the income tax model and the statistically matched file. Figures B1-6 through B1-9 illustrate the closeness of the fit for the most important strata variables used in the match. The box plots (figures B1-8 and B1-9, in particular) demonstrate the closeness of the entire distribution after the match.

Figure B1-6. Ratio of Mean Tax Paid by Category (AIPUMS/ITM1960)



	AGI Quantile	Wage Quintile	Deduction Type	Number of Exemptions	Return Type	Overall
cat1	98.8%	84.0%	87.7%	134.7%	95.6%	98.2%
cat2	102.2%	78.3%	0.0%	96.3%	32.6%	
cat3	63.0%	89.1%		94.2%	97.4%	
cat4	89.9%	81.6%		92.1%		
cat5	121.4%	109.3%		96.8%		
cat6	111.9%			91.8%		
cat7	101.9%			92.8%		
cat8	98.6%			83.9%		

Figure B1-7. Ratio of Mean Interest Paid by Category (AIPUMS/ITM1960)



	AGI Quantile	Wage Quintile	Deduction Type	Number of Exemptions	Return Type	Overall
cat1	84.4%	80.9%	88.4%	125.9%	95.1%	98.6%
cat2	108.7%	87.1%	0.0%	100.0%	30.8%	
cat3	62.7%	92.8%		95.5%	100.4%	
cat4	89.1%	79.3%		92.1%		
cat5	123.2%	111.9%		98.2%		
cat6	111.9%			92.2%		
cat7	102.6%			89.0%		
cat8	96.5%			75.9%		

Figure B1-8. Distribution of Tax Paid by AGI Quantiles

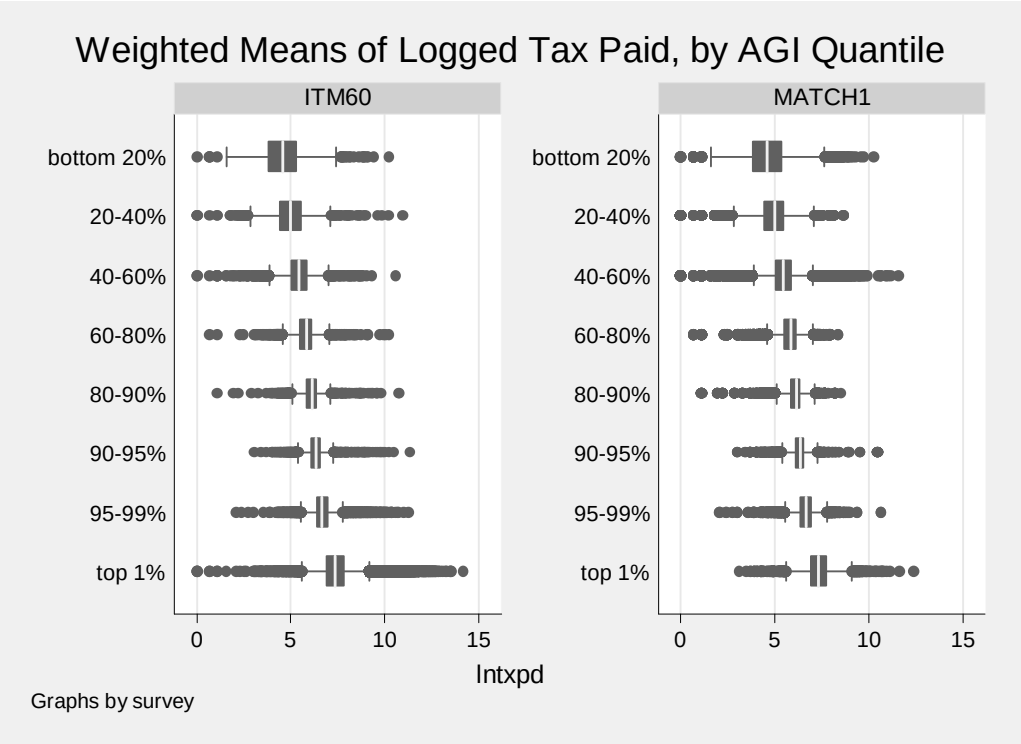
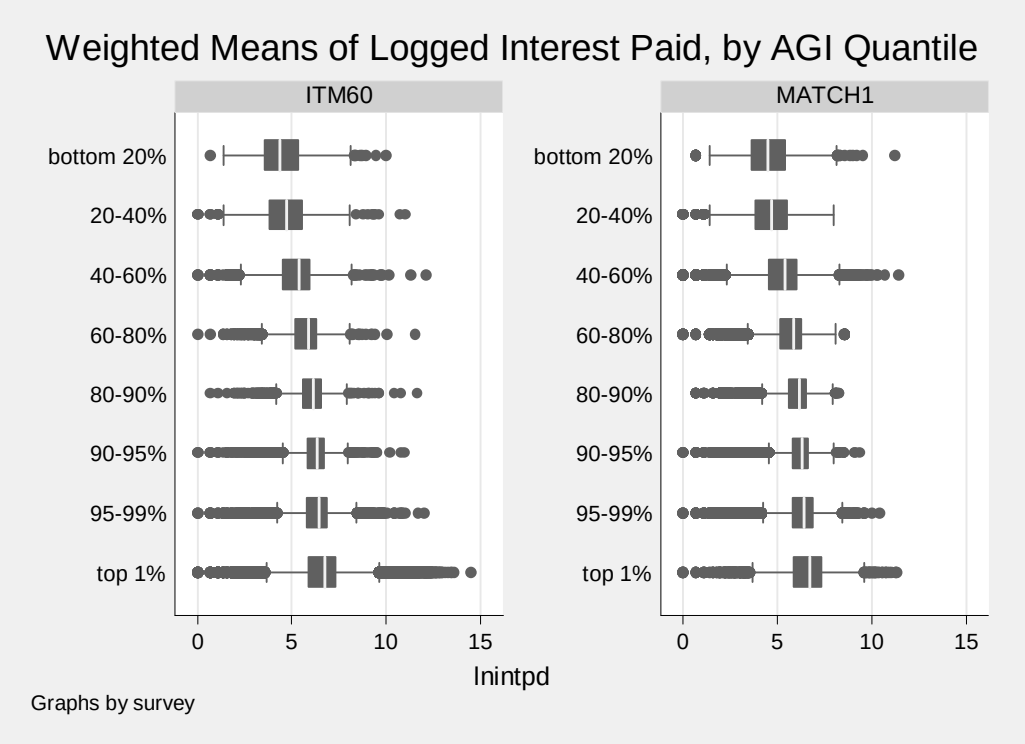


Figure B1-9. Distribution of Interest Paid by AGI Quantiles



After the match was completed, we ran the *IncTaxCalc* program to generate state and federal income tax and payroll taxes. Property taxes were distributed from administrative data, based on home values and state of residence. The resulting regional distributions of income payroll and property taxes were scaled to match administrative totals from the NIPA accounts.

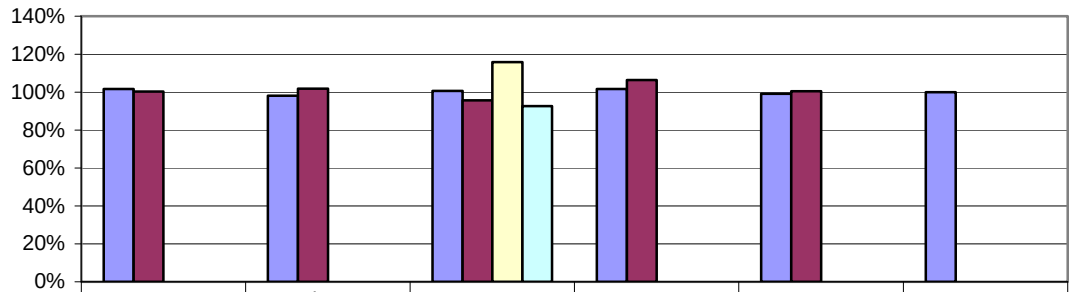
Time-Use Match

The hours of household production for 1959 were obtained via statistical matches with two separate surveys: Americans' Use of Time, 1965–1966 (sample size: 2,001 individuals) and Time Use in Economic and Social Accounts, 1975–1976 (sample size: 2,406 individuals).[45] The earlier survey included only nonelderly adults living in urban households with at least one adult employed in a nonfarm occupation. For individuals in the IPUMS within the same universe, a statistical match was conducted with the time-use survey to impute weekly hours of household production.

We constructed matching cells using sex, employment status, marital status, and parental status of the individual. Within these cells, the matching variables used in producing the propensity score were age category, education category, household income quartile, number of adults in the household, number of children under 5 in the household, number of children under 18 in the household, presence of children under 5 in the household, race of individual, homeownership status, student status, region, occupational category, self-employment status, and whether the individual was ever married. Results of the match by category are summarized in figure B1-10, below.

[45] Please see Appendix A for citations for the data files.

Figure B1-10. Ratio of Average Weekly Hours of Household Production (Match/AUTP)



	Parental Status	Employment Status	Education	Sex	Marital Status	Overall
cat1	102%	98%	101%	102%	99%	100%
cat2	100%	102%	96%	106%	101%	
cat3			116%			
cat4			93%			

The 1965–66 survey excluded four groups of adult individuals: the elderly, rural residents, individuals in urban households in which no adult was employed, and individuals in urban households in which at least one adult was employed in a farm occupation. We picked out records from the 1975–76 survey[46] that fall into the four groups and treat that as a donor data set. We then implement an unconstrained statistical match between the donor data set and the individuals in the four groups in the 1969 IPUMS.

To carry out the match, we grouped the records in the two surveys to eleven mutually exclusive groups, based on location, sex, employment, and parental status (five for men and six for women). For men, the groups were: (1) urban elderly; (2) urban nonelderly; (3) rural elderly; (4) rural employed nonelderly; and (5) rural nonemployed nonelderly. For women, the groups were: (1) urban elderly; (2) urban nonelderly parents; (3) urban nonelderly nonparents; (4) rural elderly; (5) rural nonelderly parents; and (6) rural nonelderly nonparents.

Next, we estimated a selection model for household production (with two endogenous variables—probability for doing household production and weekly hours of

[46] We carried out a set of operations on the 1975 file and they are described in the next section titled "1972."

household production) for each of the eleven groups in the time-use survey. While the set of independent of variables used in each model was not exactly the same, in general they consisted of variables reflecting age, race, marital status, employment status of the individual and spouse, household size and composition, educational attainment, and household income quantiles. The selection equation for each group was then used in IPUMS to select individuals who were imputed to have positive hours of household production. The "hours" equation for each group was used to predict weekly hours of household production in the time-use survey and the IPUMS.

In the final step, we matched records with positive hours of household production in the two surveys on the basis of how close their predicted hours were. As is usual in this type of procedure, the hours equation from the selection model served only as a guide regarding the sign and ranking of coefficients; the actual distance function used in the match modified the size of the coefficients to attempt to match on certain demographics as close as possible (e.g., the coefficient on the dummy for employment status was "pumped up" relative to others while matching urban, nonelderly mothers).

Figures B1-11 to B1-14 provide some indication of the robustness of the match. For each demographic group, we compared the actual hours spent on household production reported in the time-use survey and the imputed hours in the matched file. The comparisons were done by means of the ratios of mean and median values. In general, the results indicate that the match quality was fairly good.

Figure B1-11. IPUMS 1960 (Matched) and TU 1975 (Donor): Men, Ratio of Mean Values

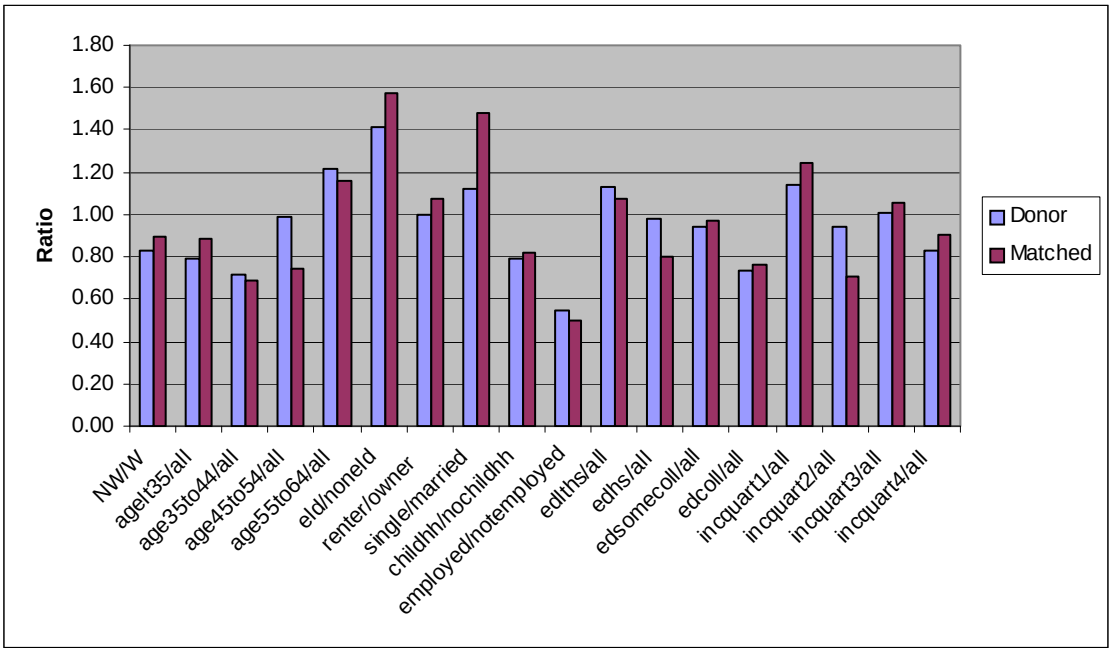
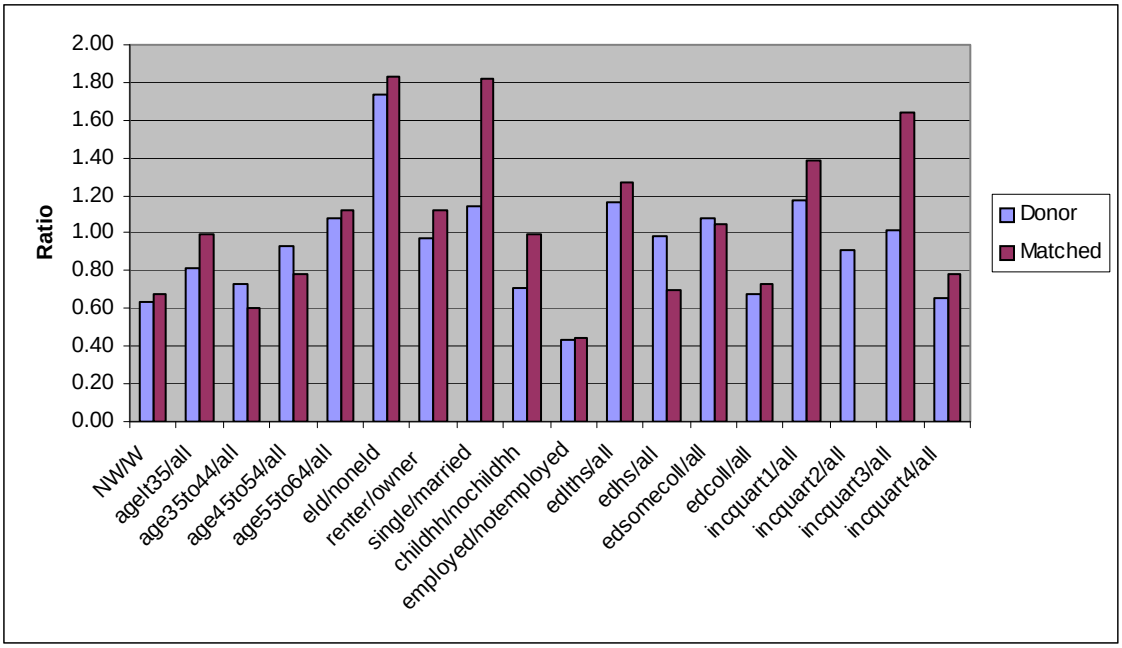


Figure B1-12. IPUMS 1960 (Matched) and TU 1975 (Donor): Men, Ratio of Median Values



Key: NW= Nonwhite; W= White; agelt35 = Age less than 35 years; age35to45 = Age between 35 and 44; age45to54 = Age between 45 and 54; age55to64 = Age between 55 and 64; eld = Age 65 years or over; noneld = Age less than 65 years; chidhh = Household with children; nochildhh = Household without children; edlths = Less than high school; edhs = High school graduate; edsomcoll = Some college education; edcoll = College graduate; inquart1 = Lowest income quartile; incquart2 = Second income quartile; incquart3 = Third income quartile; incquart4 = Highest income quartile.

Figure B1-13. IPUMS 1960 (Matched) and TU 1975 (Donor): Women, Ratio of Mean Values

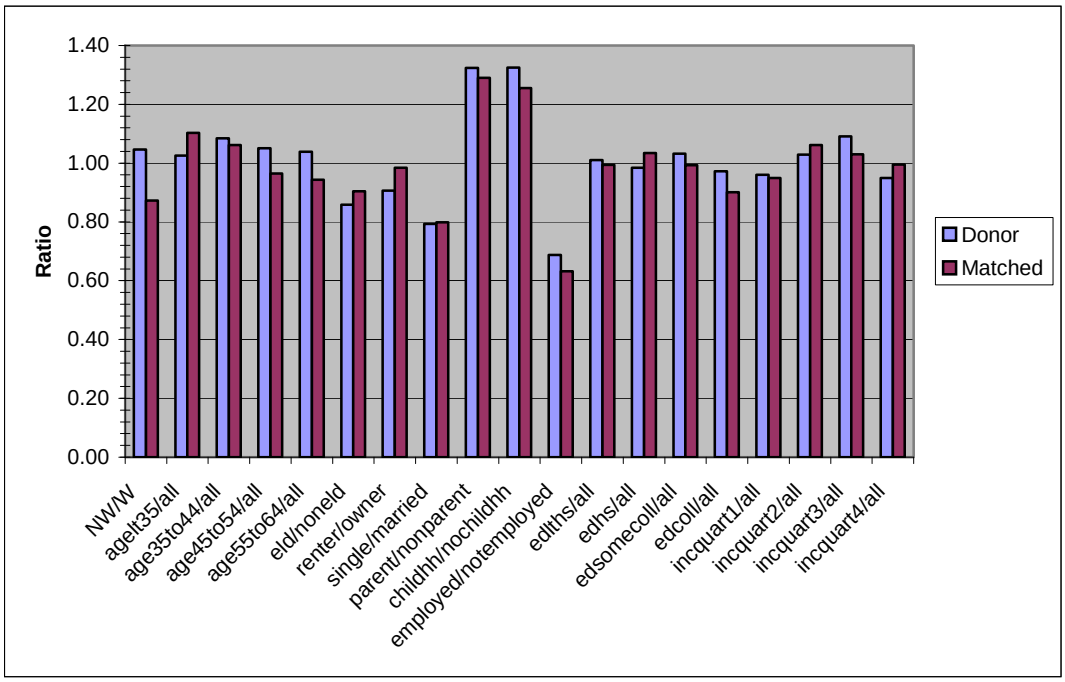
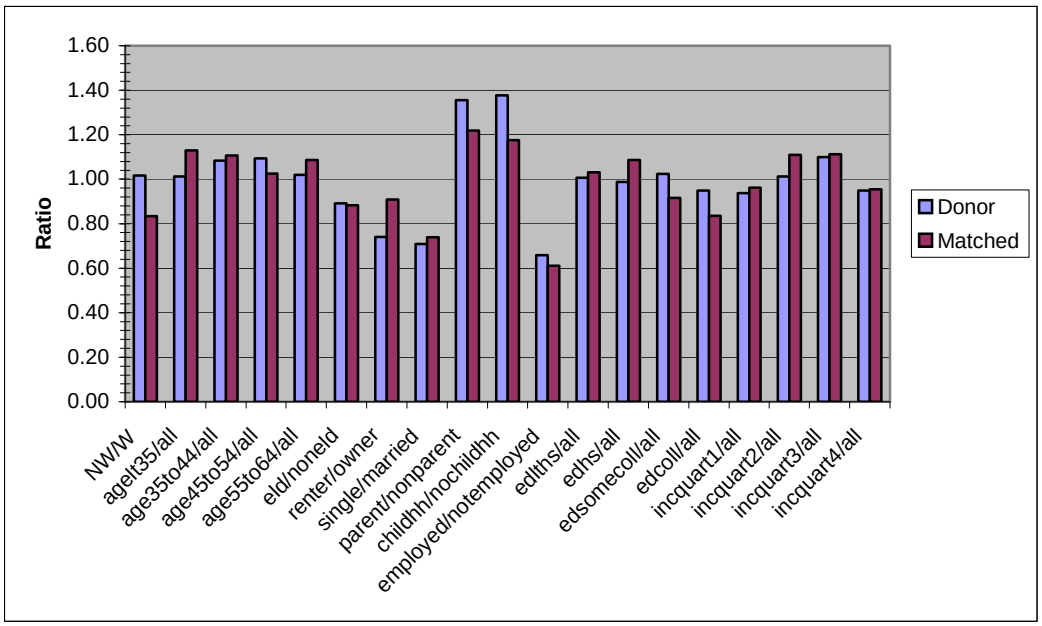


Figure B1-14. IPUMS 1960 (Matched) and TU 1975 (Donor): Men, Ratio of Median Values



Key: NW= Nonwhite; W= White; agelt35 = Age less than 35 years; age35to45 = Age between 35 and 44; age45to54 = Age between 45 and 54; age55to64 = Age between 55 and 64; eld = Age 65 years or over; noneld = Age less than 65 years; chidhh = Household with children; nochildhh = Household without children; edlths = Less than high school; edhs = High school graduate; edsomcoll = Some college education; edcoll = College graduate; inquart1 = Lowest income quartile; incquart2 = Second income quartile; incquart3 = Third income quartile; incquart4 = Highest income quartile.

B2. 1972

AIITM Match

The first step in creating the 1972 synthetic file was matching the CPS file with the AIITM file. The AIITM includes demographic characteristics of tax filers, including age, sex, and race. However, these variables were missing for those records with AGI greater than $100k or less than -$100k. In order to optimize the match, we used a process of multiple imputation with chained equations within the upper and lower tails separately to impute the missing values.

With the resulting file, we could then perform a statistical match with the CPS file using age categories (less than 35, 35 to 44, 45 to 54, 55 to 64, 65 and older), race (white, nonwhite), return type (single, joint, separate, head of household, and surviving spouse), sex of tax filer, and AGI quantile (four bottom quintiles, 80 to 90th percentile, 90 to 95th percentile, 95 to 99th percentile, top 1 percent) as strata variables. Within the cells created with these strata variables, we used normalized household income and wage income, dependent exemptions, and indicator variables for the presence of farm, business, and property income as match variables.

The results of the match are shown in figures B2-1 to B2-2. Figure B2-1 shows the distribution of capital gains in the AIITM and the matched file. The nature of the sample in the AIITM (oversampling of high-income households) and the matching process means that the upper tails were not carried over well into the matched file. In addition, many of the cells were small in number of observations (especially among the female nonwhite tax filers in the upper parts of the plots). With these exceptions, the distributions are very well reproduced in the matched file.

Figure B2-1. Weighted Means of Log Capital Gains by Cell

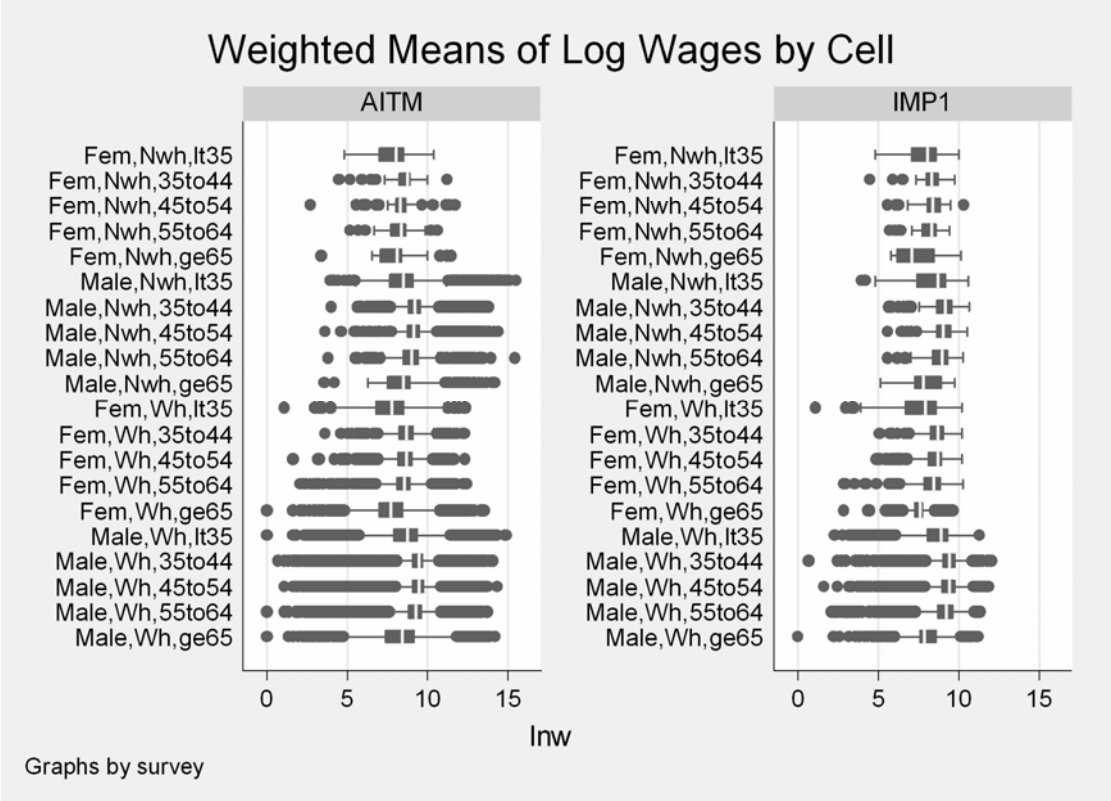
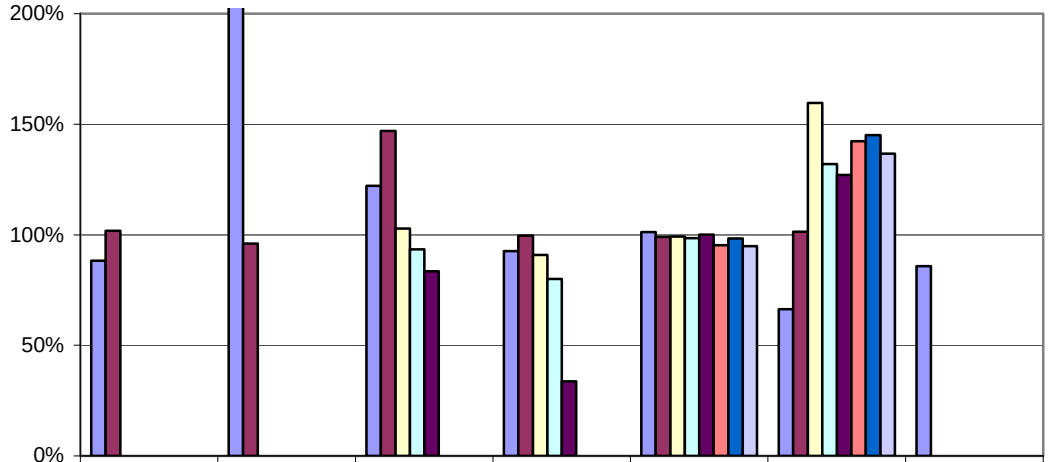


Figure B2-2. Ratio of Average Property Income by Categories (Match/AIITM)



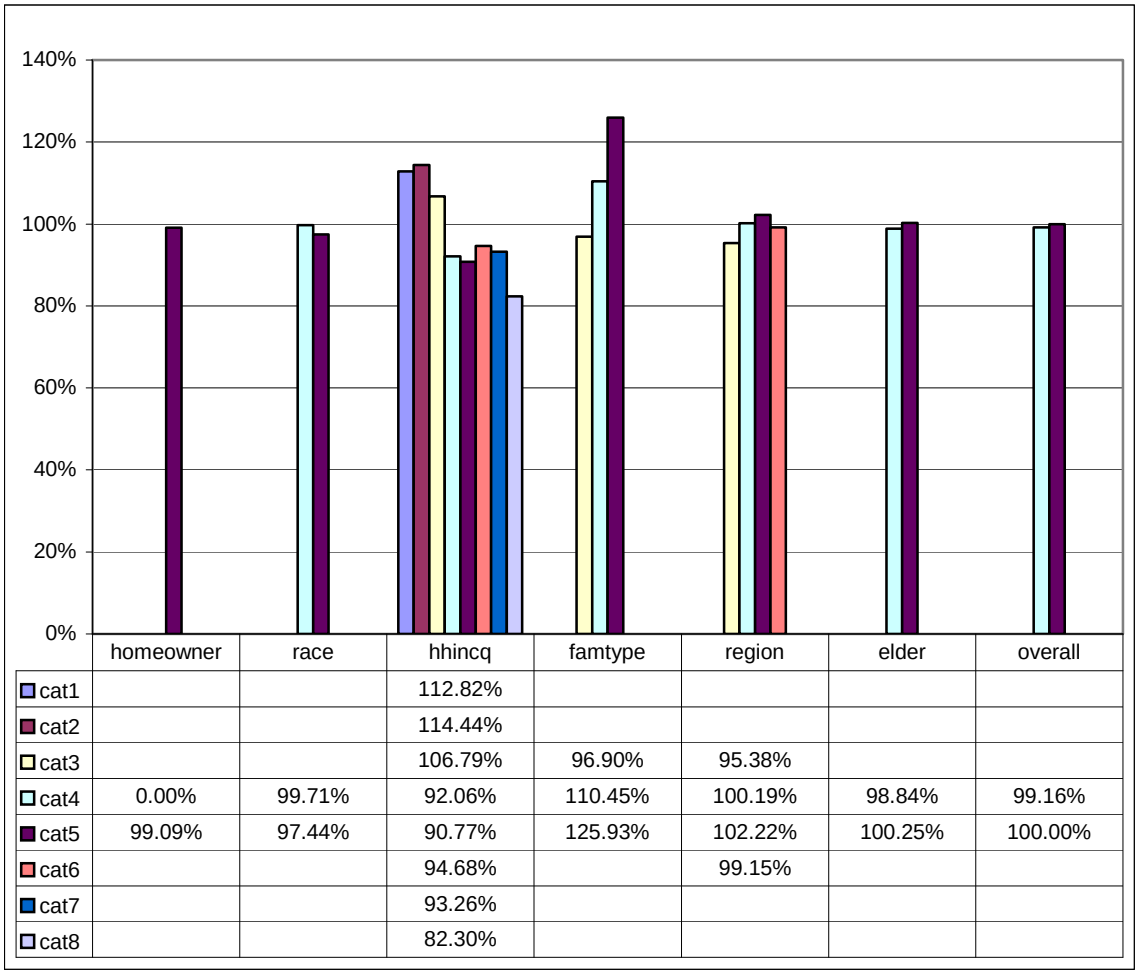
	Sex	White	Age	Return Type	AGI Quantile	Wage Quantile	Overall
cat1	88.22%	213.31%	122.18%	92.52%	101.21%	66.28%	85.76%
cat2	101.75%	95.99%	147.00%	99.60%	99.08%	101.36%	
cat3			102.80%	90.83%	99.27%	159.56%	
cat4			93.47%	80.06%	98.47%	131.92%	
cat5			83.48%	33.75%	100.12%	127.07%	
cat6					95.30%	142.31%	
cat7					98.39%	145.04%	
cat8					94.95%	136.64%	

CEX Match

In this step, we matched the CPS to the CES. First we used multiple imputation with hot decking to replace missing values in the CES. Next we deflated the value of homes from 1973 values to 1972 values using median home values for the two years. The resulting file was matched with the CPS, augmented with information from the AIITM match. This match serves two purposes: First, we get home values and mortgage debt, as well as other debt information and property taxes paid; second, we get useful information for deductions for the income-tax calculator. The strata variables we used in the match were family type (married couple, female head, or male head), homeownership (owner or renter), age (less than 65 or 65 and older), race (white or nonwhite), region (Northeast, South, Midwest, or West), and household income quantiles (see previous section for details). Within the cells created using these strata variables, we used normalized wage income, number of persons in the household, and the education, occupation, industry, and sex of the household head as match variables to produce propensity score ranks.

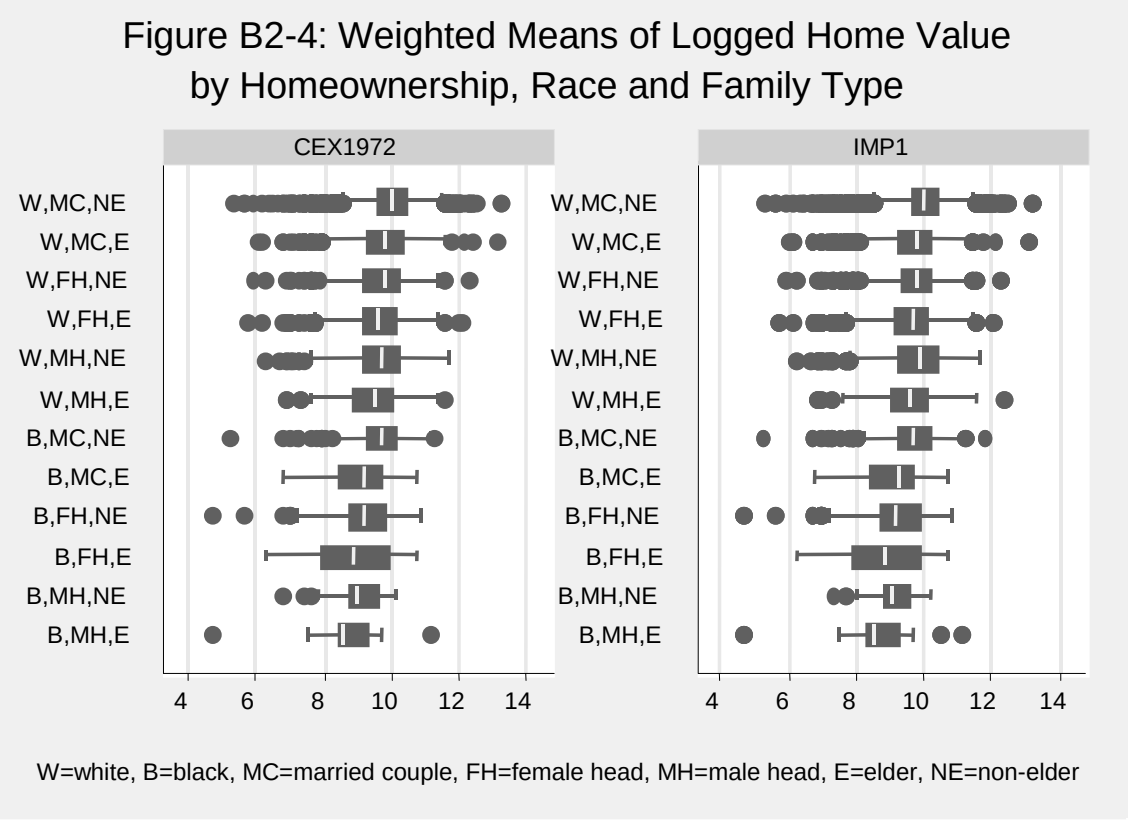
The results of the match are summarized in figures B2-3 and B2-4. The distribution of home values was transferred quite well to the matched file in all of the categories that we used.

Figure B2-3. Ratios (IMP/CEX) of Average Home Values by Category



	homeowner	race	hhincq	famtype	region	elder	overall
cat1			112.82%				
cat2			114.44%				
cat3			106.79%	96.90%	95.38%		
cat4	0.00%	99.71%	92.06%	110.45%	100.19%	98.84%	99.16%
cat5	99.09%	97.44%	90.77%	125.93%	102.22%	100.25%	100.00%
cat6			94.68%		99.15%		
cat7			93.26%				
cat8			82.30%				

Figure B2-4. Weighted Means of Logged Home Value by Homeownership, Race, and Family Type



IncTaxCalc

Finally, we used the results of the prior two steps to generate federal and state income taxes for each tax filer, using the *IncTaxCalc* SAS program created by Jon Bakija. Then for each individual, we calculated payroll taxes, as well as contributions to federal retirement and railroad retirement programs. Each category was then aligned to the NIPA totals (with the exception of federal and railroad retirement, since the NIPA total includes voluntary contributions).

Time-Use Match

The original time-use sample for 1975–76 consisted of individuals from 1,519 households. From 887 of the households, two individuals who formed a married/cohabitating couple were sampled; only a single individual was sampled from the remaining 632 households. The total sample thus consists of 2,406 individuals. Background information and time diaries were collected in four waves during the period

from October 1975 to November 1976. Most studies utilizing the data have restricted their analysis to the time diaries collected in the first wave [e.g., Robinson and Godbey (2001)]. Recent research based on the American Heritage Time Use Study (AHTUS) has utilized all four waves [e.g., Fisher et al. (2007)]. The advantage of the latter approach is that more observations, spread over a year, are available for analysis.

The data file that we used for matching is a combination of the original (i.e., ICPSR) and AHTUS files. Essentially, we supplemented the AHTUS file with additional background information drawn from the ICPSR files. The additional variables were: occupation, self-employment status, stock of consumer durables, sources of household income (earnings and unearned income), house value, net worth status (positive, zero, or negative), and net worth class (under $5k, $5–$15k, etc.).[47] Some of these additional variables were utilized to conduct the match with the CPS file.

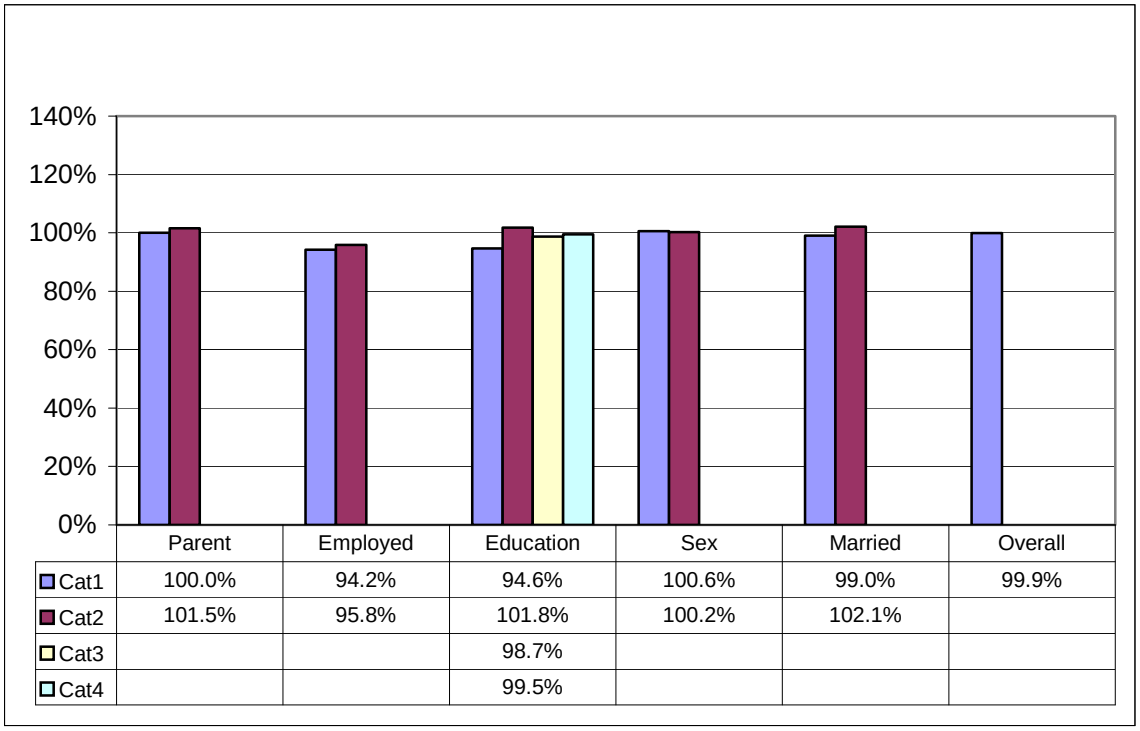
The strata variables used in the matching procedure are sex (male vs. female), employment status (employed vs. unemployed), presence of spouse (yes vs. no), and parent-status type (nonparent, married, and single). Again, parent-status type was decomposed into five categories: no child, children with married couple, children with single parent, children with related parents, and children with no parents. With some exclusive and exhaustive combination of these strata variables, twenty-four cells were constructed. Within these cells, we used four age groups, four educational groups, four income quartile groups, the number of adults in the household, race, home ownership, homemaker status, retirement status, disabled status, student status, four regional groups (Census regions), residence area (urban vs. rural), five major occupation groups, the number of children under 5, the number of children under 18, existence/presence of child in the household, full-/part-time worker status, self-employed, spouse employment status, spouse age categories, and spouse educational categories as match variables.

Figures B2-5 to B2-7 show the results of the match. The ratio of average weekly hours of household production in the matched file to the AHTUS file are quite close to unity in all the strata variable categories. The ratio of averages and means within

[47] Multiple imputation procedures were developed to fill in the missing values in the original data for the following variables: sources of household income (earnings and unearned income); house value; net worth status (positive, zero, or negative); and net worth class (under $5k, $5–$15k, etc.).

categories in the matched file are also quite close to the AHTUS file. The result, then, is a high-quality match.

Figure B2-5. Ratio of Average Total Weekly Hours Worked in Household Production (Match/AHTUS)



	Parent	Employed	Education	Sex	Married	Overall
Cat1	100.0%	94.2%	94.6%	100.6%	99.0%	99.9%
Cat2	101.5%	95.8%	101.8%	100.2%	102.1%	
Cat3			98.7%			
Cat4			99.5%			

Figure B2-6. Ratio of Average Weekly Hours of Household Production

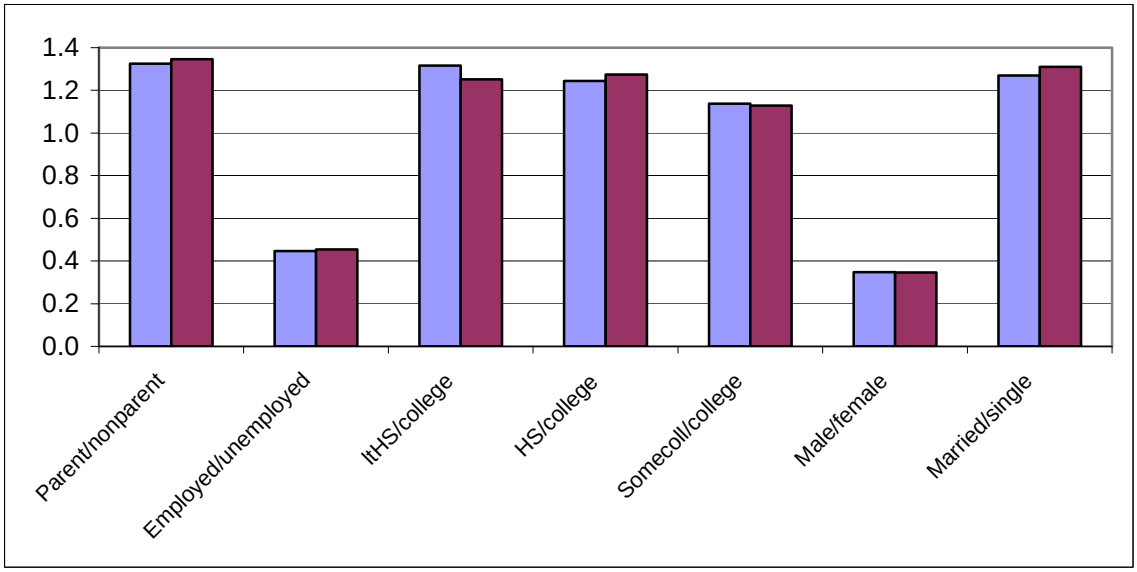
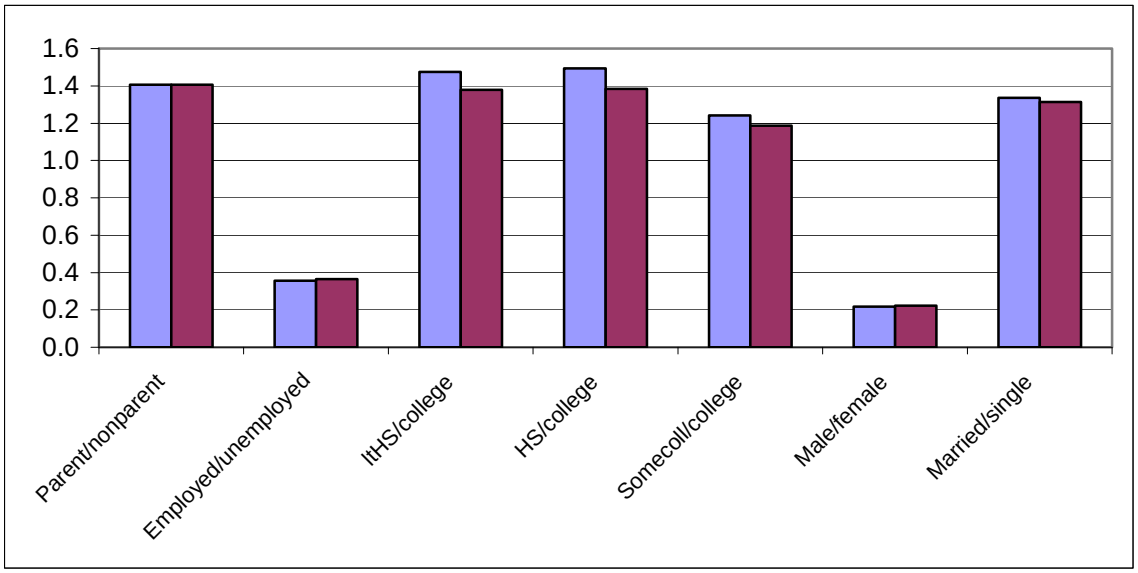


Figure B2-7. Ratio of Median Weekly Hours of Household Production



Key: ltHS= Did not graduate high school; HS= High school graduate; Somecoll = Some college education; college = College degree or more.

B3. 1982

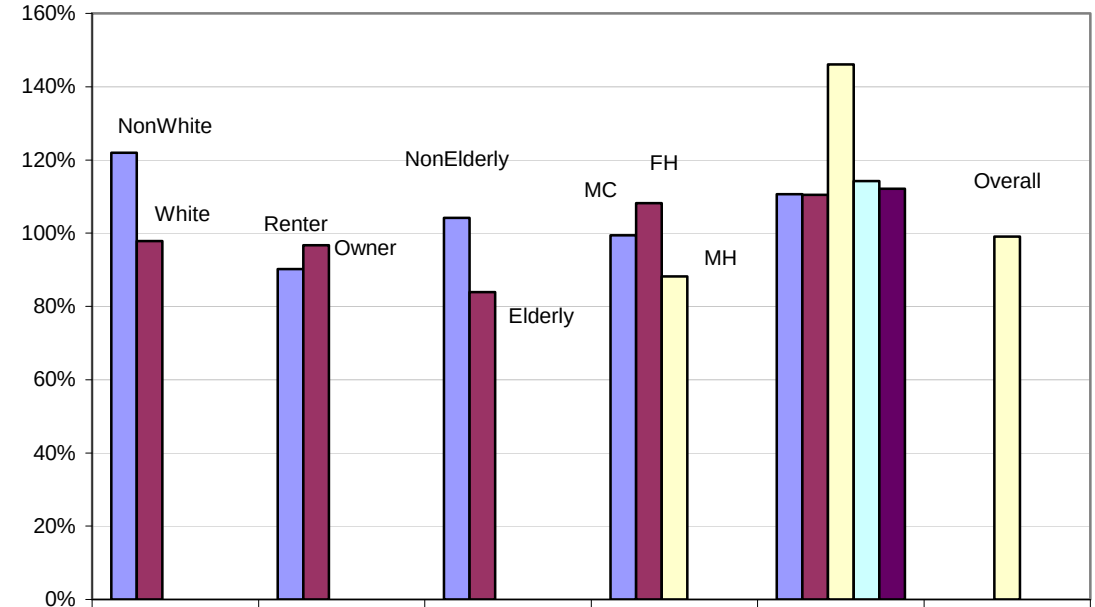
Wealth Match

The wealth match for the 1982 LIMEW estimates involved the 1983 ADS and the 1983 SCF. No extra procedures were required to prepare either of these two data sets for matching. Strata variables used in the match are race of household head (white or nonwhite), homeownership (owner or renter), age of household head (less than 40 years old, 40 to 64 years old, or over 65), family type (married couple, female head, or male head), and household income category (less than $20k, $20k to $50k, $50k to $75k, $75k to $100k, or over $100k). Match variables used to estimate propensity scores for the match are education level (less than high school, high school graduate, some college education, or college graduate), number of persons in the household, occupation of household head, region (Census region), quantiles of wage income, quantiles of transfer income, number of persons in the household under age 18, number of persons in the household age 65 or older, age of household head, and years of education of household head.

The quality of the match is displayed in figures B3-1 and B3-2. The ratios of mean net worth within strata variable categories in the matched file are close to the

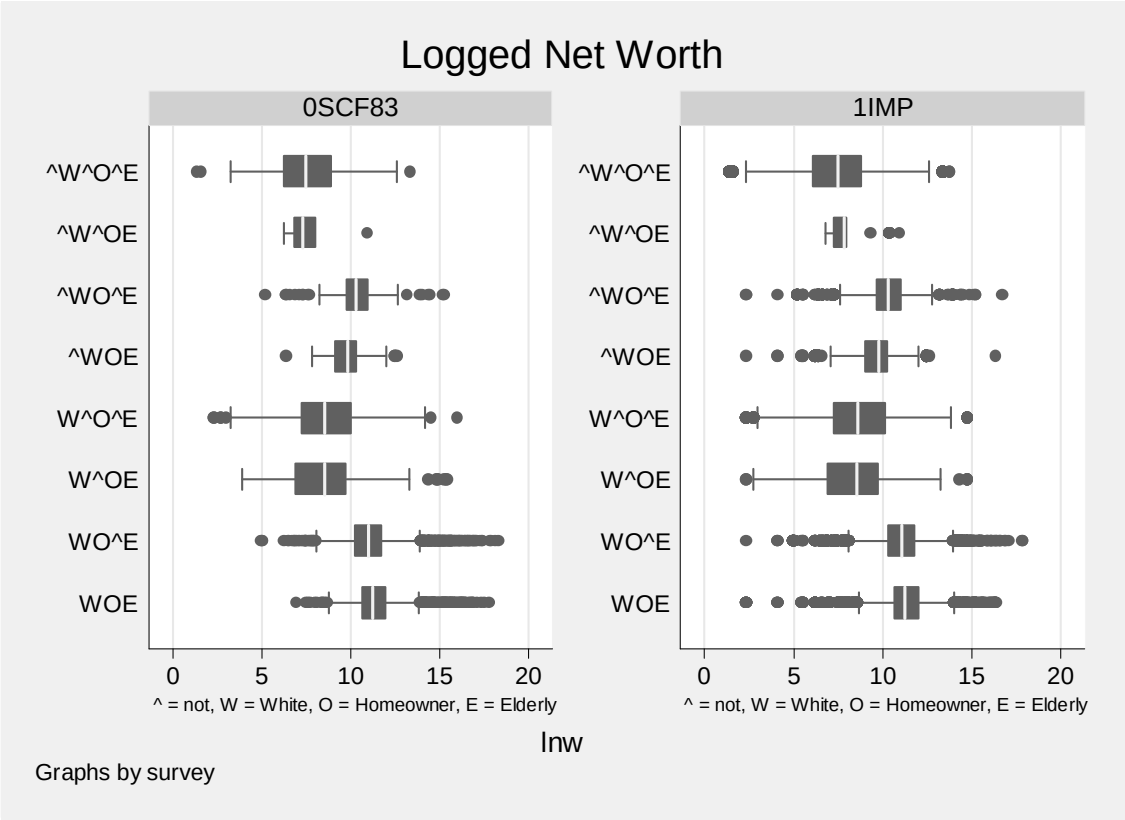
values in the donor file. The distribution of net worth within cells (figure B3-2) is well carried over into the matched file.

Figure B3-1. 1989 Mean Net Worth Ratio (IMP/SCF)



	White	Owner	Elderly	Famtype	HHINCCL	Overall
Cat1	122%	90%	104%	99%	111%	
Cat2	98%	97%	84%	108%	110%	
Cat3				88%	146%	99%
Cat4					114%	
Cat5					112%	

Figure B3-2. Distribution of Net Worth in Matched and Donor Files by Matching Cell



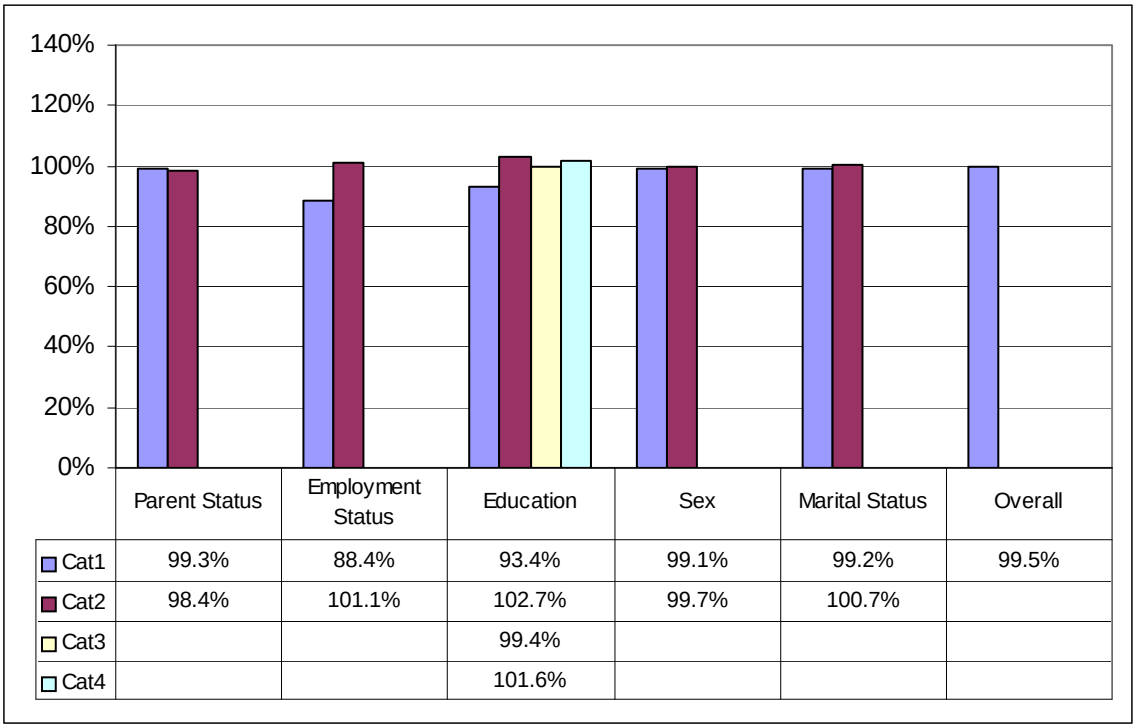
Time-Use Match

The time-use match for 1982 involved matching the 1983 ADS with the 1985 AUTP. The strata variables used to construct the matching cells are sex, employment status, parental status, and marital status. This produced sixteen matching cells. The matching variables used to produce propensity score estimates are education category (less than high school, high school graduate, some college education, or college graduate), household income class (less than $15k, $15k to $25k, $25k to $35k, or $35k and over; these are the categories in the AUTP), age category (18 to 24 years old, 25 to 34 years old, 35 to 44 years old, 45 to 54 years old, 55 to 64 years old, 65 to 74 years old, or 75 and older), number of children under 5 in the household, number of children under 18 in the household, presence of children in the household, number of adults in the household, retirement status, homemaker status, and weekly work hours.

The results of the match are summarized in figures B3-3 to B3-5. The match is quite good. For all values of the strata variables, the ratio of average weekly hours of

household production in the matched to the donor file is close to unity. In addition, the ratio of average weekly hours for each category of the strata variables to the whole in the matched file is quite similar to the donor file.

Figure B3-3. Ratios of Average Weekly Hours of Household Production (Match/AUTP)



	Parent Status	Employment Status	Education	Sex	Marital Status	Overall
Cat1	99.3%	88.4%	93.4%	99.1%	99.2%	99.5%
Cat2	98.4%	101.1%	102.7%	99.7%	100.7%	
Cat3			99.4%			
Cat4			101.6%			

Figure B3-4. Ratio of Mean Weekly Hours of Household Production, Categories to All

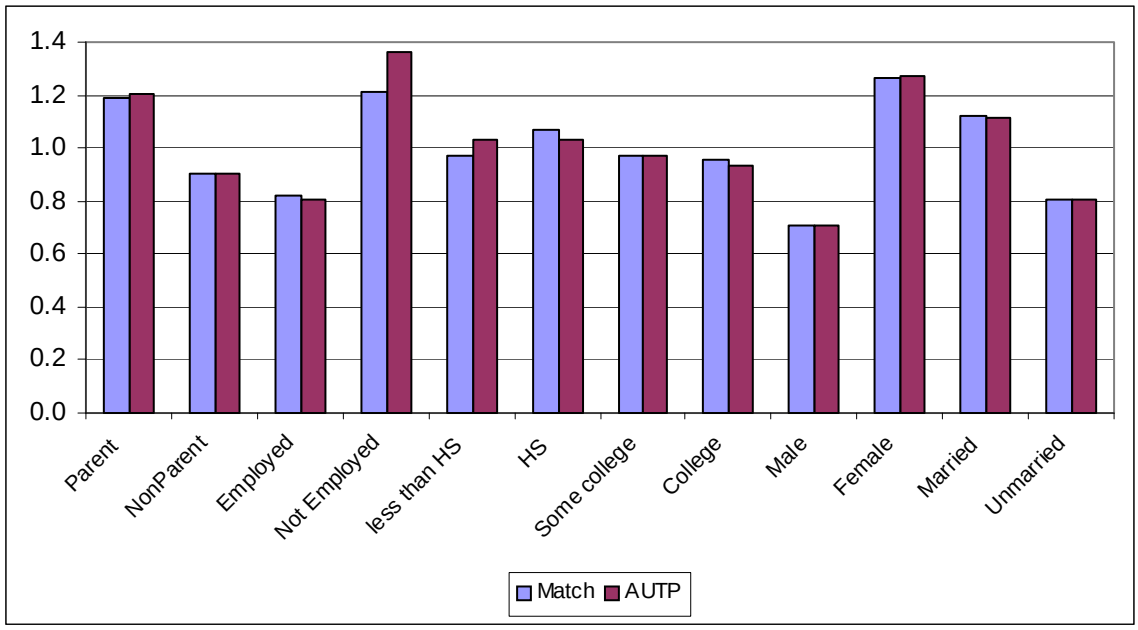
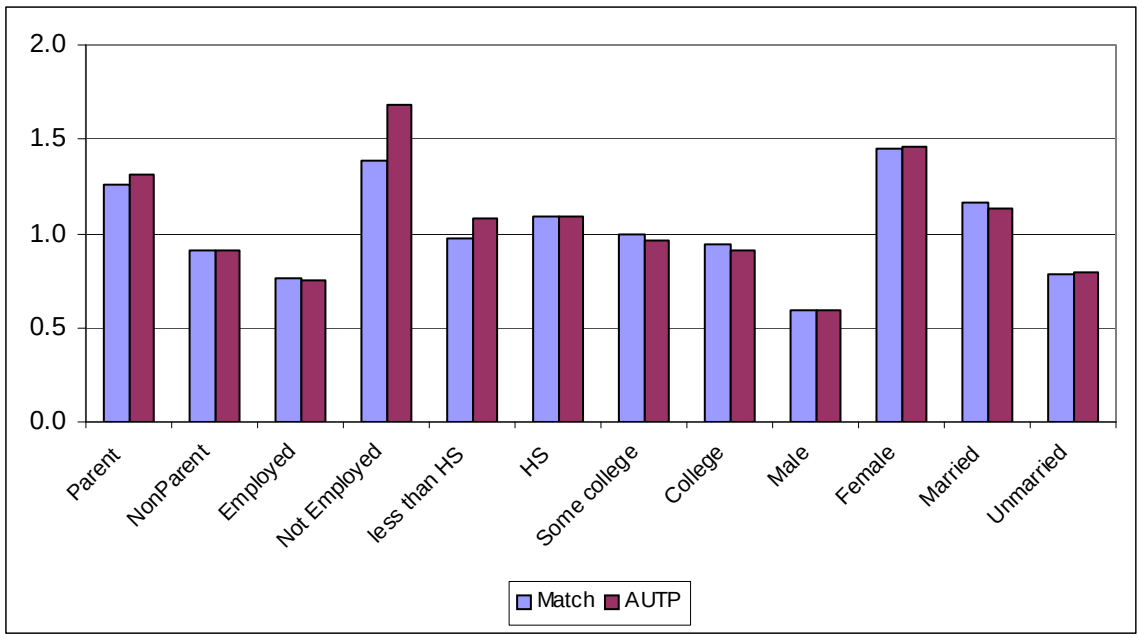


Figure B3-5. Ratio of Median Weekly Hours of Household Production, Categories to All



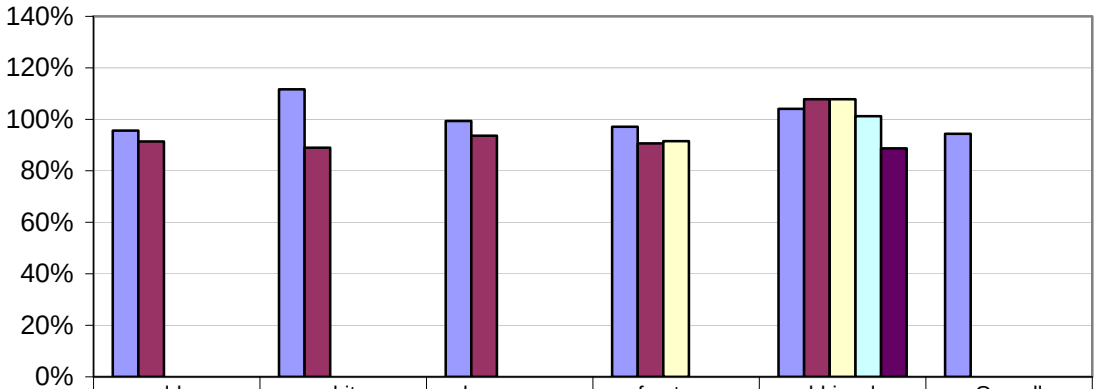
B4. 1989

Wealth Match

The wealth match for 1989 involved matching the 1990 ADS with the 1989 SCF. No extra procedures were required to prepare either of these two data sets for matching. Strata variables used in the match are race of household head (white or nonwhite), homeownership (owner or renter), age of household head (less than 65 years old or over 65), family type (married couple, female head, or male head), and household income category (less than $20k, $20k to $50k, $50k to $75k, $75k to $100k, or over $100k). Match variables used to estimate propensity scores for the match are education level (less than high school, high school graduate, some college education, or college graduate), number of persons in the household, occupation of household head, age of household head, race of household head, and indicators for transfer, self-employment, and property income.

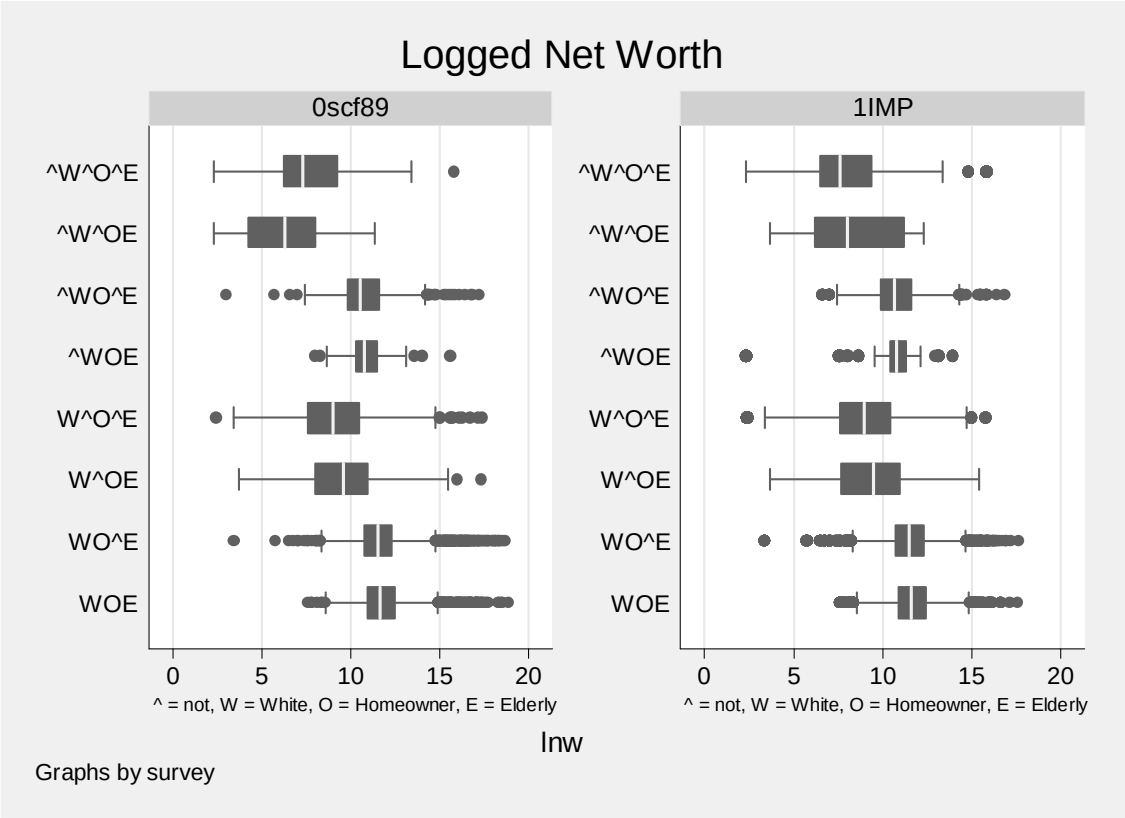
The quality of the match is displayed in figures B4-1 and B4-2. The ratios of mean net worth within strata variable categories in the matched file are, in all cases, close to the values in the donor file. In addition, the distribution of net worth within cells (figure B4-2) is well represented in the matched file.

Figure B4-1. 1989 Mean Net Worth Ratios (IMP/SCF)



	elder	white	homeown	famtype	hhinccl	Overall
cat1	95.63%	111.67%	99.39%	97.18%	104.16%	94.41%
cat2	91.39%	88.96%	93.66%	90.72%	107.85%	
cat3				91.53%	107.82%	
cat4					101.29%	
cat5					88.65%	

Figure B4-2. Distribution of Net Worth in Matched and Donor Files by Matching Cell



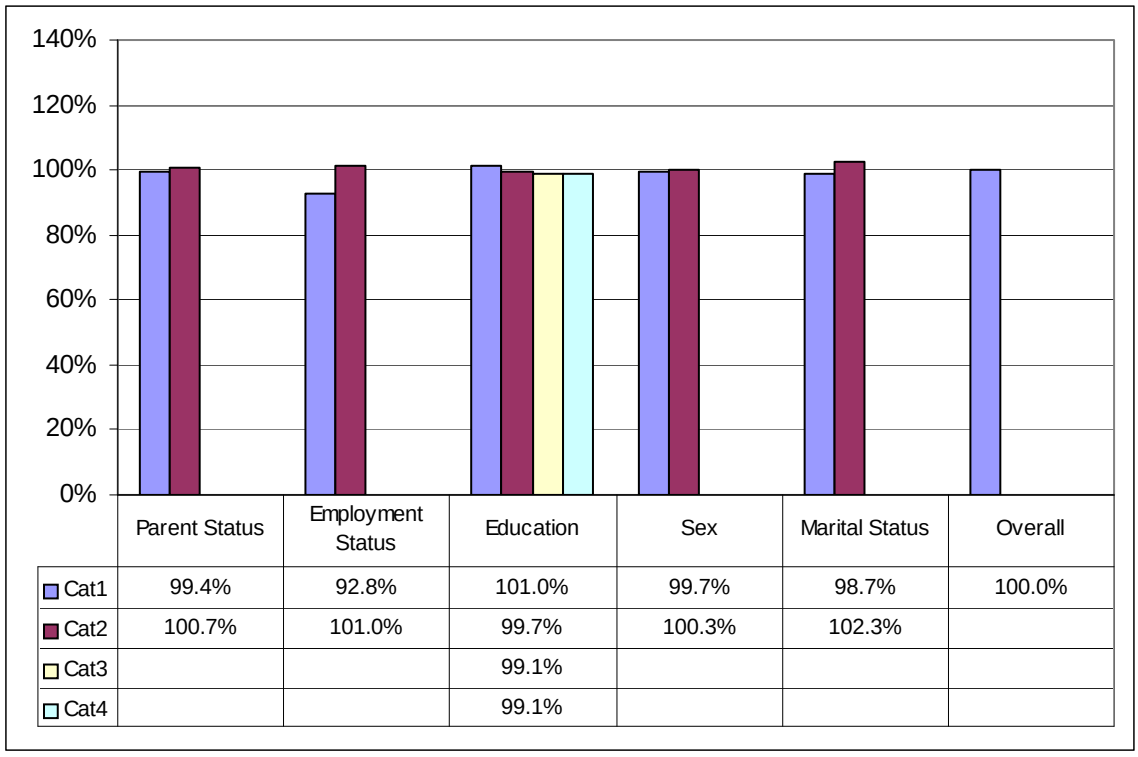
Time-Use Match

The time-use match for 1989 involved matching the 1990 ADS with the 1985 AUTP. No extra procedures were required to prepare either of these two data sets for matching. The strata variables used to construct the matching cells are sex, employment status, parental status, and marital status. This produced sixteen matching cells. The matching variables used to produce propensity score estimates are education category (less than high school, high school graduate, some college education, or college graduate), household income class (less than $15k, $15k to $25k, $25k to $35k, or $35k and over; these are the categories in the AUTP), age category (18 to 24 years old, 25 to 34 years old, 35 to 44 years old, 45 to 54 years old, 55 to 64 years old, 65 to 74 years old, or 75 and older), number of children under 5 in the household, number of children under 18 in the

household, presence of children in the household, number of adults in the household, retirement status, homemaker status, and weekly work hours.

The results of the match are summarized in figures B4-3 to B4-5. The match is quite good. For all values of the strata variables, the ratio of average weekly hours of household production in the matched to the donor file is close to unity. In addition, the ratio of average weekly hours for each category of the strata variables to the whole in the matched file is quite similar to the donor file.

Figure B4-3. Ratio of Average Weekly Hours in Household Production, by Category (Match/AUTP), 1989



	Parent Status	Employment Status	Education	Sex	Marital Status	Overall
Cat1	99.4%	92.8%	101.0%	99.7%	98.7%	100.0%
Cat2	100.7%	101.0%	99.7%	100.3%	102.3%	
Cat3			99.1%			
Cat4			99.1%			

Figure B4-4. Ratio of Average Weekly Hours of Household Production by Category to All, 1989

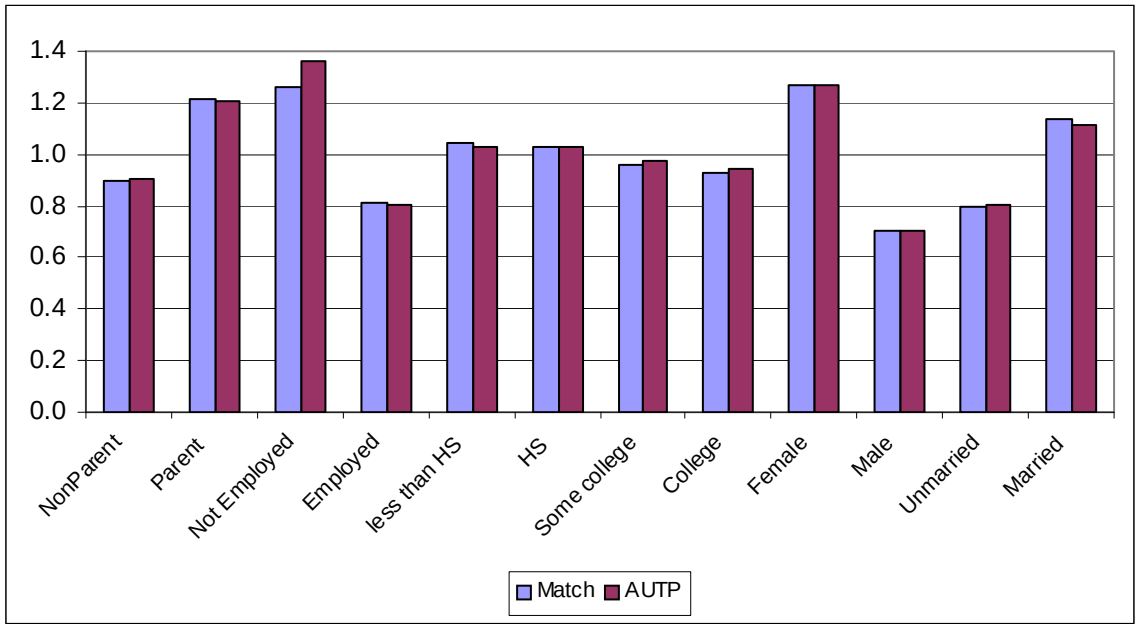
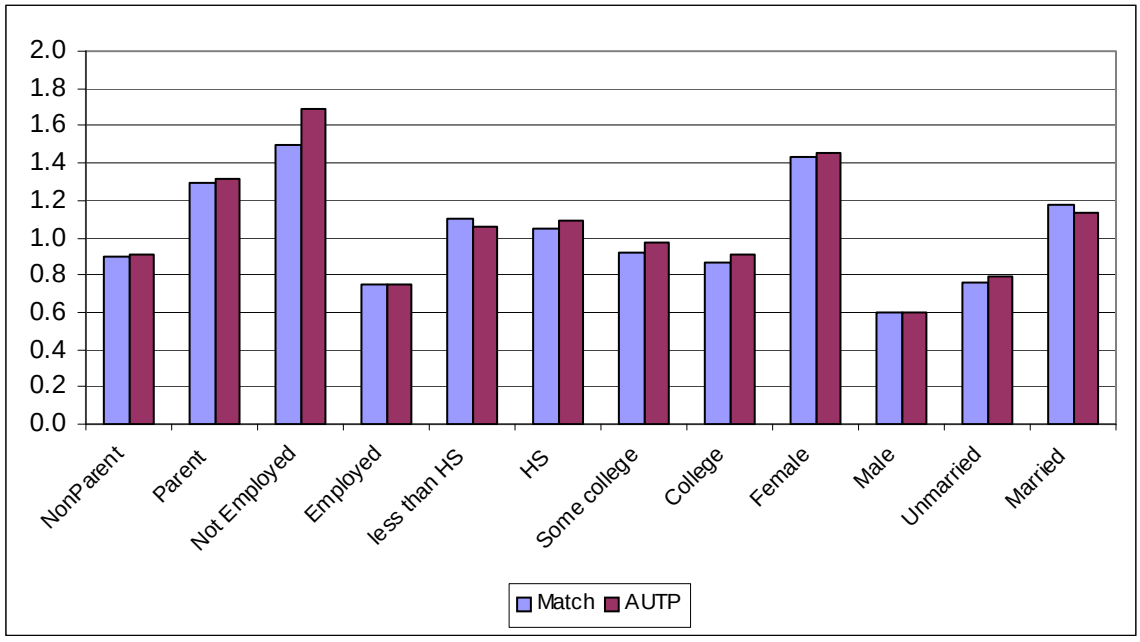


Figure B4-5. Ratio of Median Weekly Hours of Household Production by Category to All, 1989



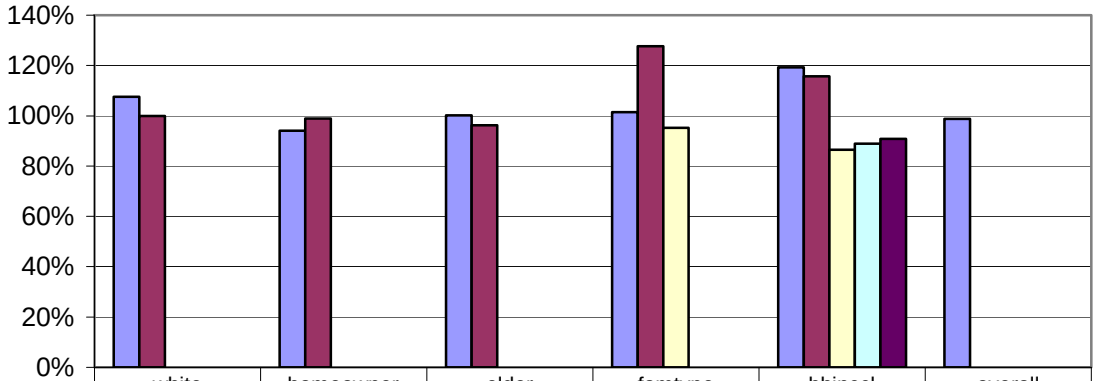
B5. 2000

Wealth Match

The wealth match for 2000 involved matching the 2001 ADS with the 2001 SCF. No extra procedures were required to prepare either of these two data sets for matching. Strata variables used in the match are race of household head (white or nonwhite), homeownership (owner or renter), age of household head (less than 65 years old or over 65), family type (married couple, female head, or male head), and household income category (less than $20k, $20k to $50k, $50k to $75k, $75k to $100k, or over $100k). Match variables used to estimate propensity scores for the match are education level (less than high school, high school graduate, some college education, or college graduate), number of persons in the household, occupation of household head, age of household head, and indicators for transfer, self-employment, and property income.

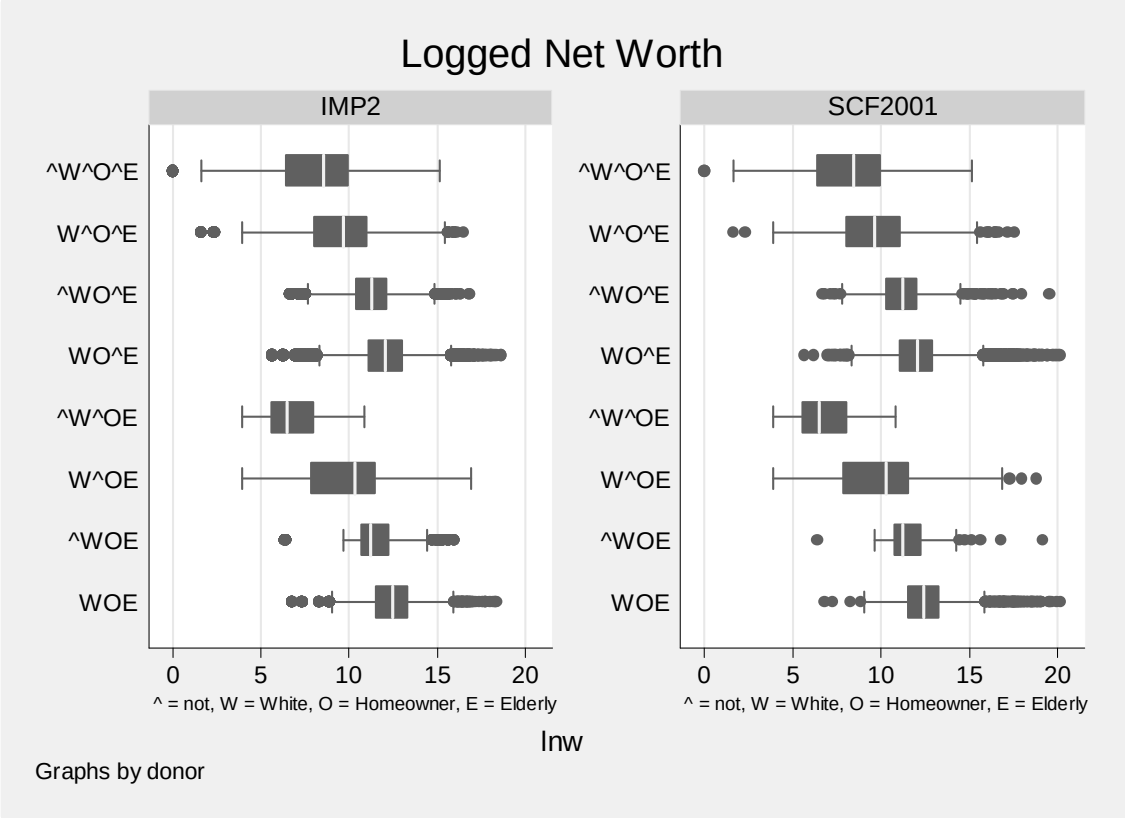
The quality of the match is summarized in figures B5-1 and B5-2. The ratios of mean net worth within strata variable categories in the matched file are close to the values in the donor file. The distribution of net worth within cells (figure B5-2) is well carried over into the matched file.

Figure B5-1. 2000 Mean Net Worth Ratios (IMP/SCF)



	white	homeowner	elder	famtype	hhinccl	overall
cat 1	107.52%	94.14%	100.21%	101.49%	119.22%	98.79%
cat 2	99.97%	98.90%	96.29%	127.61%	115.73%	
cat 3				95.26%	86.42%	
cat 4					88.88%	
cat 5					90.76%	

Figure B5-2. Distribution of Net Worth by Cell, Matched and Donor Files, 2000



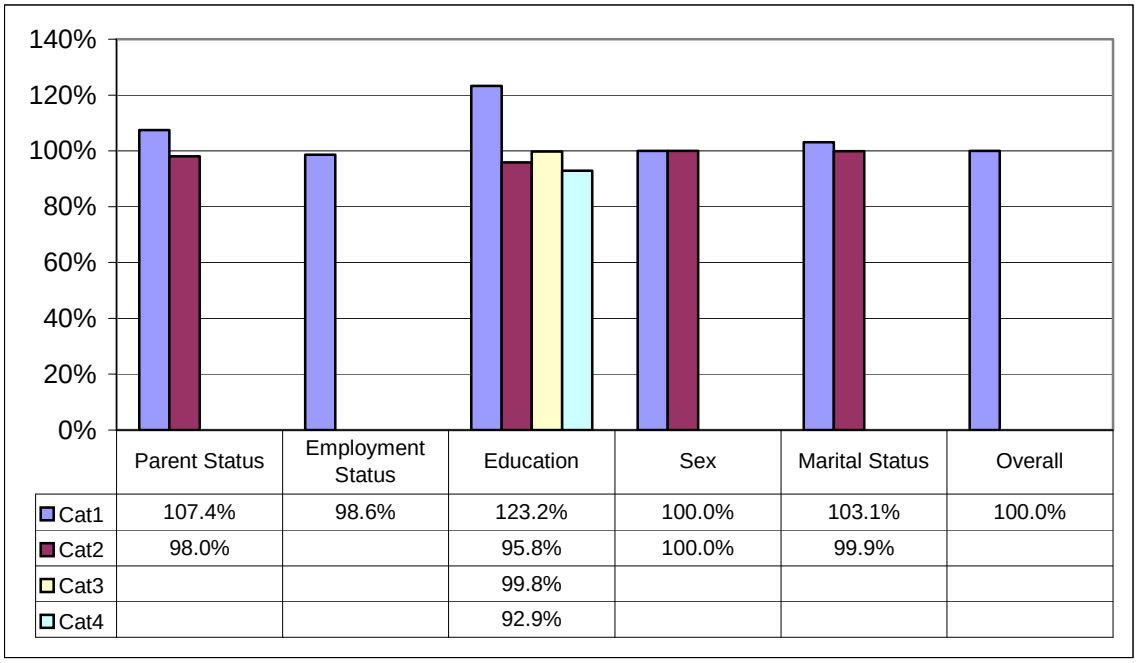
Time-Use Match

The time-use match for 2000 involved matching the 2001 ADS with the 2003 ATUS. No extra procedures were required to prepare either of these two data sets for matching. The strata variables used to construct the matching cells are sex, employment status, parental status, marital status, and spouse's employment status. This produced twenty-four matching cells. The matching variables used to produce propensity score estimates are education category (less than high school, high school graduate, some college education, or college graduate), household income class (less than $15k, $15k to $35k, $35k to $50k, $50k to $75k, or $75k and over), age, number of children under 6 in the household, number of children 6 to 13 in the household, number of children 14 to 18 in the household, presence of children in the household, number of adults in the household, retirement status, disability status, and full- and part-time status of individual and spouse.

The results of the match are summarized in figures B5-3 to B5-5. The match is quite good. For all values of the strata variables, the ratio of average weekly hours of

household production in the matched to the donor file is close to unity. In addition, the ratio of average weekly hours for each category of the strata variables to the whole in the matched file is quite similar to the donor file.

Figure B5-3. Ratio of Average Weekly Household Production by Category (Match/ATUS), 2000



	Parent Status	Employment Status	Education	Sex	Marital Status	Overall
Cat1	107.4%	98.6%	123.2%	100.0%	103.1%	100.0%
Cat2	98.0%		95.8%	100.0%	99.9%	
Cat3			99.8%			
Cat4			92.9%			

Figure B5-4. Ratios of Average Weekly Hours of Household Production by Category to All, 2000

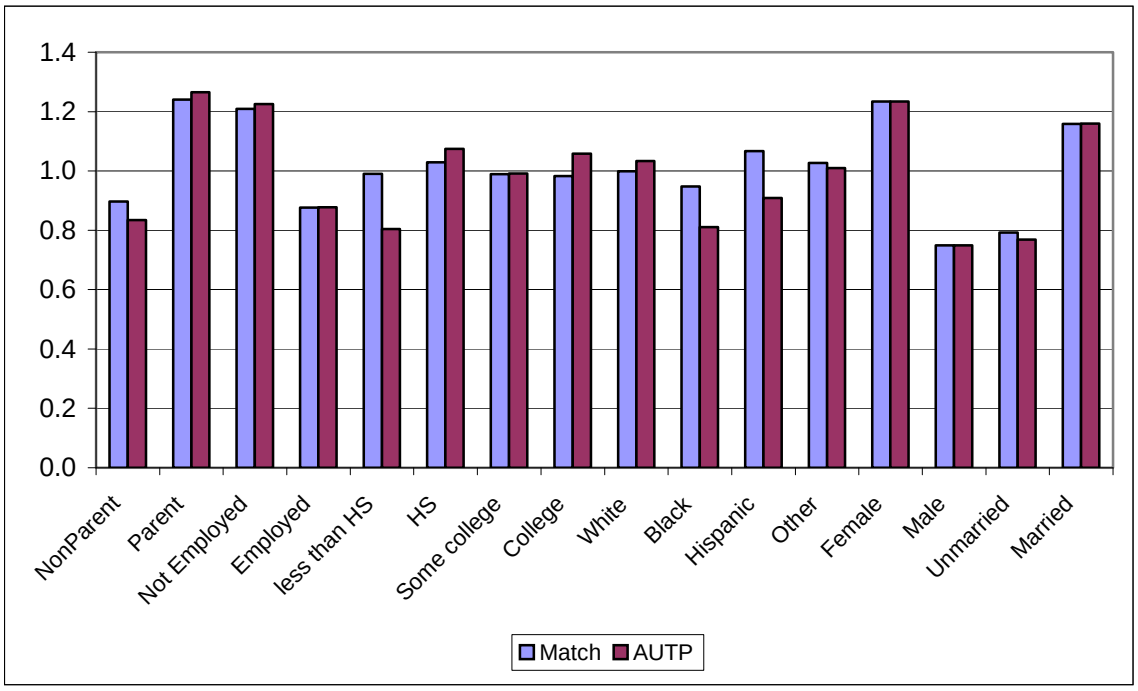
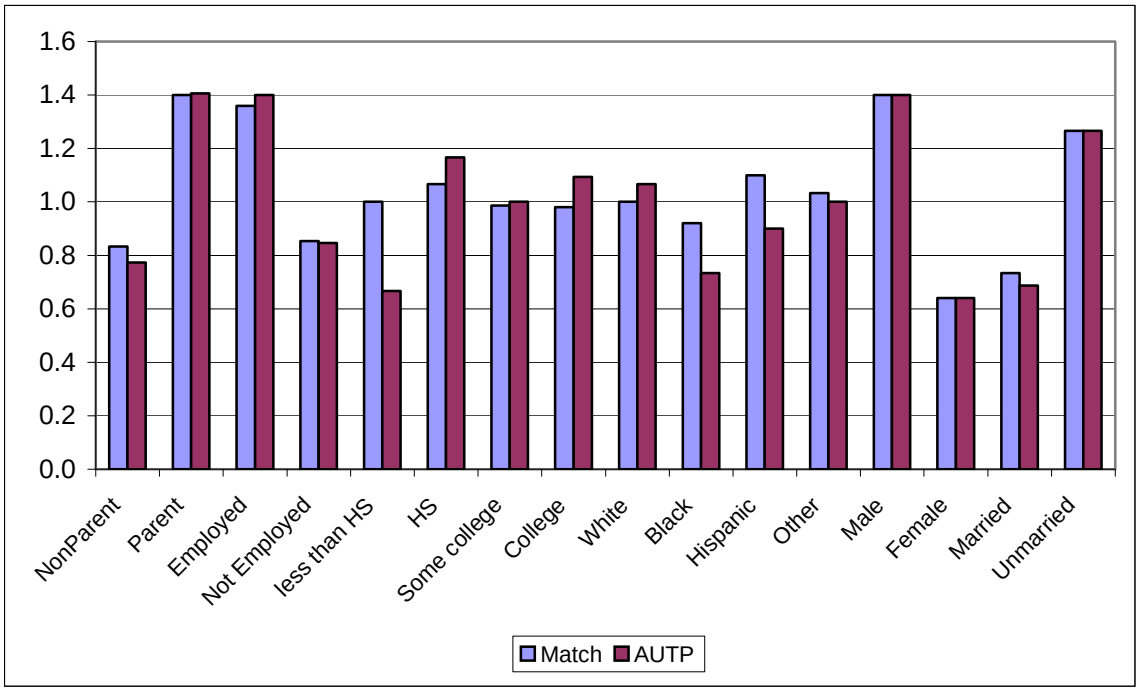


Figure B5-5. Ratios of Median Weekly Hours of Household Production by Category to All, 2000



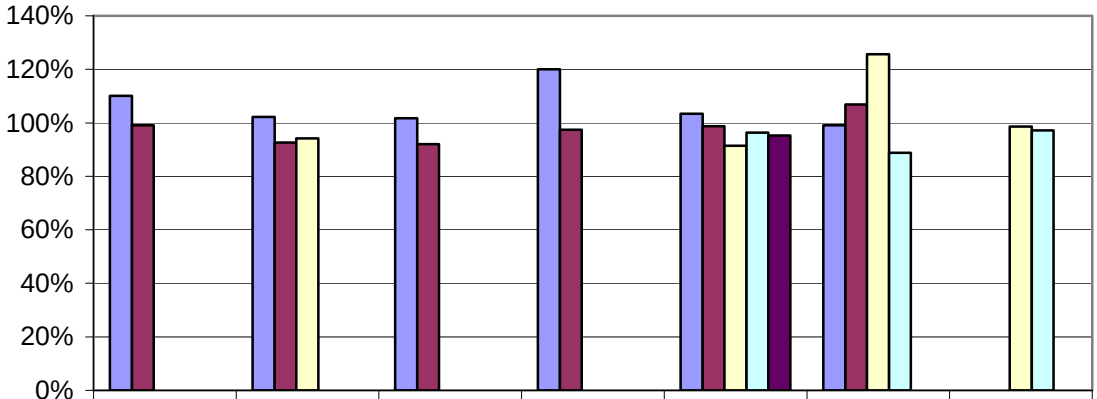
B6. 2004

Wealth Match

The wealth match for 2004 involved matching the 2005 ADS with the 2004 SCF. No extra procedures were required to prepare either of these two data sets for matching. Strata variables used in the match are race of household head (white or nonwhite), homeownership (owner or renter), age of household head (less than 40 years old, 40 to 64 years old, or over 65), family type (married couple, female head, or male head), and household income category (less than $20k, $20k to $50k, $50k to $75k, $75k to $100k, or over $100k). Match variables used to estimate propensity scores for the match are education level (less than high school, high school graduate, some college education, or college graduate), number of persons in the household, occupation of household head, region (Census region), quantiles of wage income, quantiles of transfer income, number of persons in the household under age 18, number of persons in the household age 65 or older, age of household head, and years of education of household head.

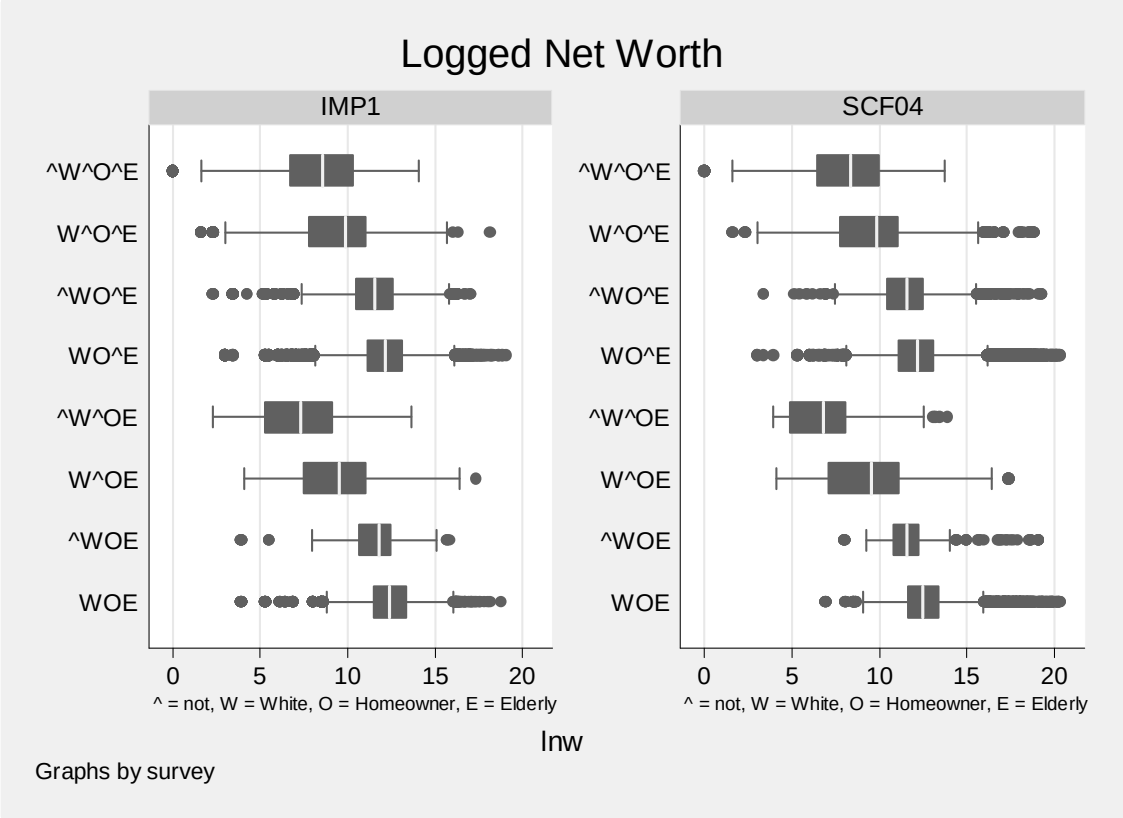
The quality of the match is displayed in figures B6-1 and B6-2. The ratios of mean net worth within strata variable categories in the matched file are close to the values in the donor file. The distribution of net worth within cells (figure B6-2) is well carried over into the matched file.

Figure B6-1. 2004 Mean Net Worth Ratios (IMP/SCF)



	white	famtype	elder	homeown	hhinccl	racecl	overall
cat1	110.10%	102.23%	101.80%	120.08%	103.37%	99.12%	
cat2	99.12%	92.67%	92.07%	97.44%	98.76%	106.88%	
cat3		94.20%			91.48%	125.66%	98.68%
cat4					96.35%	88.77%	97.24%
cat5					95.25%		

Figure B6-2. Distribution of Net Worth by Cell, Matched and Donor Files, 2004

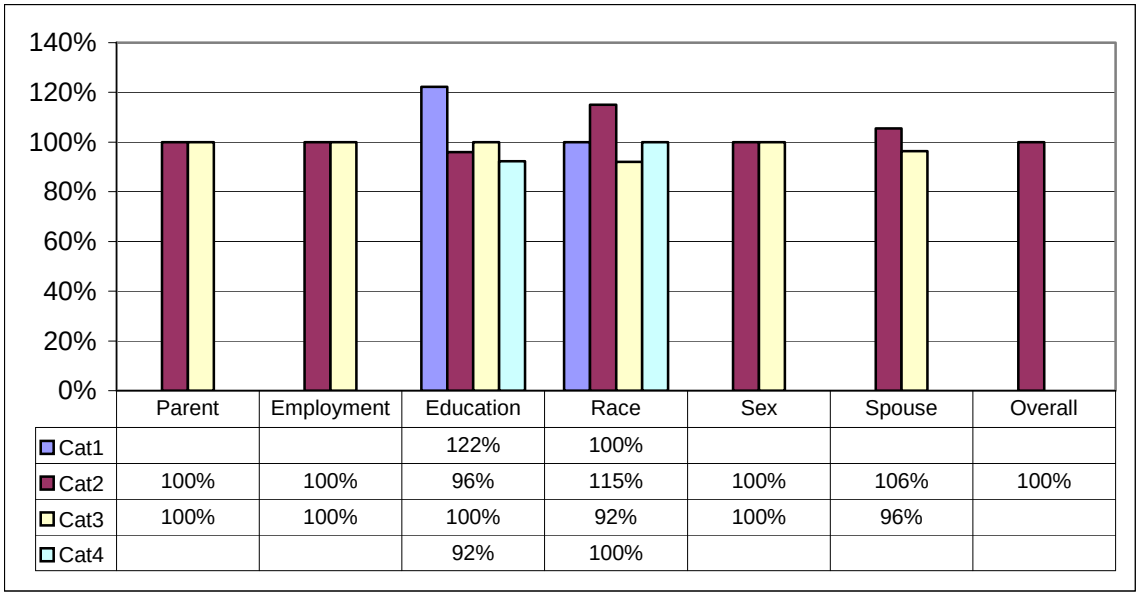


Time-Use Match

The time-use match for 2004 involved matching the 2005 ADS with the 2004 ATUS. No extra procedures were required to prepare either of these two data sets for matching. The strata variables used to construct the matching cells are sex, employment status, parental status, marital status, and spouse's employment status. This produced twenty-four matching cells. The matching variables used to produce propensity score estimates are education category (less than high school, high school graduate, some college education, or college graduate), household income class (less than $15k, $15k to $35k, $35k to $50k, $50k to $75k, or $75k and over), age, number of children under 6 in the household, number of children 6 to 13 in the household, number of children 14 to 18 in the household, presence of children in the household, number of adults in the household, retirement status, disability status, and full- and part-time status of individual and spouse.

The results of the match are summarized in figures B6-3 to B6-5. The match is quite good. For all values of the strata variables, the ratio of average weekly hours of household production in the matched to the donor file is close to unity. In addition, the ratio of average weekly hours for each category of the strata variables to the whole in the matched file is quite similar to the donor file.

Figure B6-3. Ratio of Average Weekly Hours of Household Production by Category (IMP/ATUS), 2004



	Parent	Employment	Education	Race	Sex	Spouse	Overall
Cat1			122%	100%			
Cat2	100%	100%	96%	115%	100%	106%	100%
Cat3	100%	100%	100%	92%	100%	96%	
Cat4			92%	100%			

Figure B6-4. Ratios of Average Weekly Hours of Household Production by Category, 2004

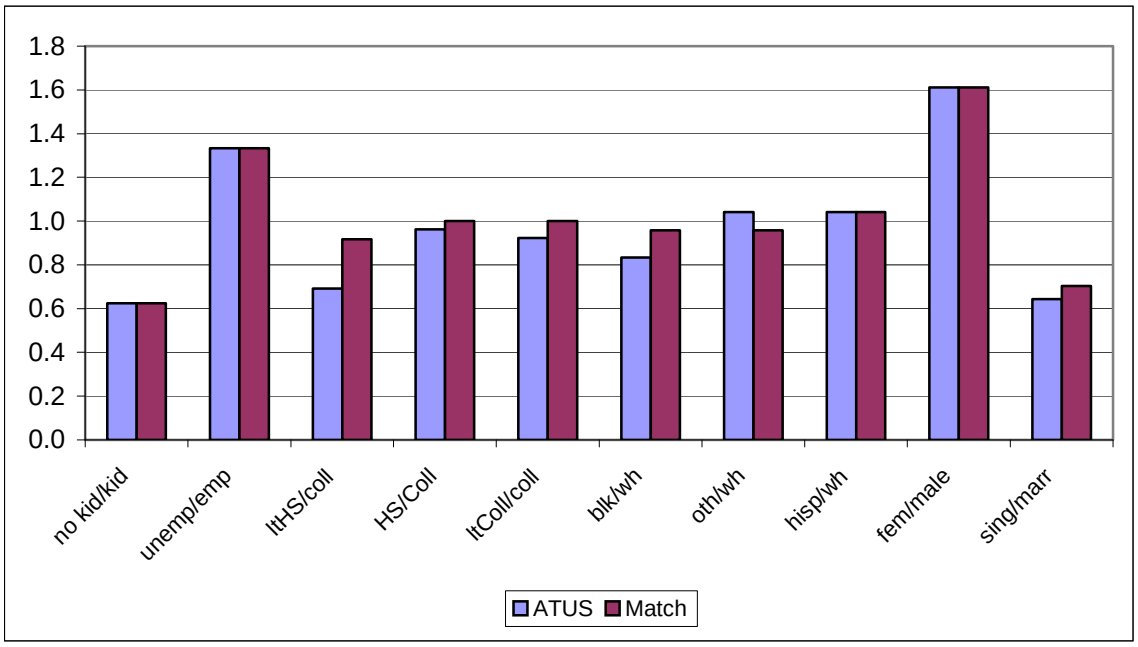
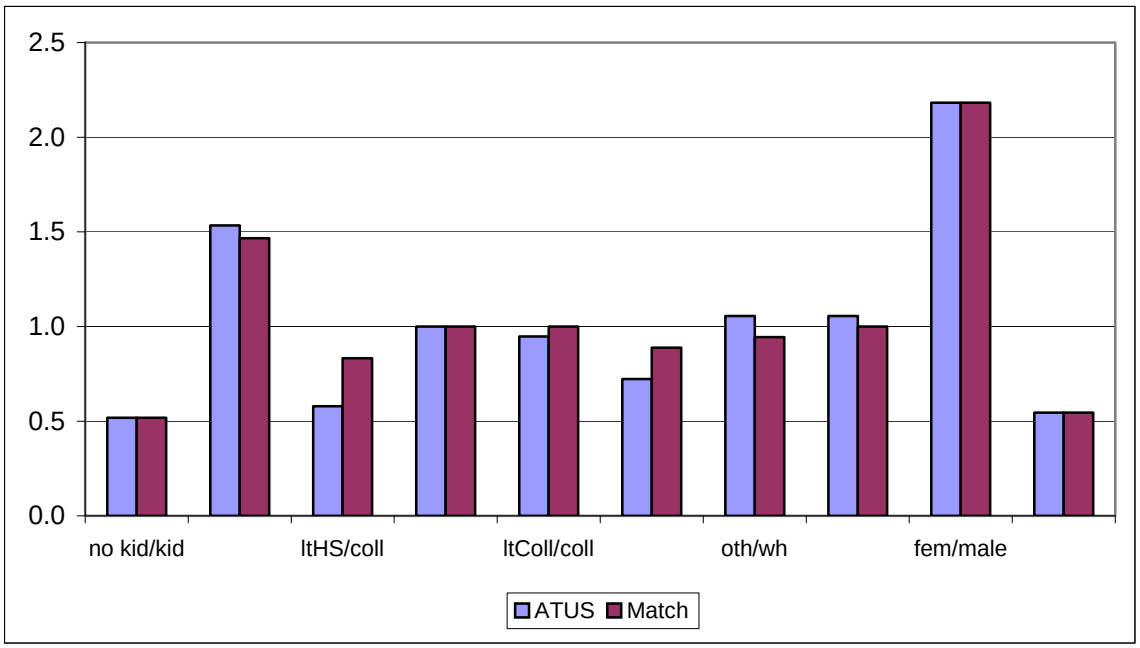


Figure B6-5. Ratios of Median Weekly Hours of Household Production by Categories, 2004



Key: unemp = Not employed; emp = Employed; blk = Black; hisp = Hispanic; ltHS = Less than high school; HS = High school graduate; ltColl = Some college education; Coll = College graduate; fem = Female; sing = Single; marr = Married.

REFERENCES

Antoniewicz, Rochelle I. 2000. "A Comparison of the Household Sector from the Flow of Funds Accounts and the Survey of Current Finances." Survey of Consumer Finances Working Paper, Federal Reserve Board of Governors. October. Available at: http://www.federalreserve.gov/pubs/oss/oss2/method.html

Avery, Robert B., Gregory E. Elliehausen, and Arthur B. Kennickell. 1988. "Measuring Wealth with Survey Data: An Evaluation of the 1983 Survey of Consumer Finances." Survey of Consumer Finances Working Paper, Federal Reserve Board of Governors. December. (last revised April 1988). Available at: http://www.federalreserve.gov/pubs/oss/oss2/method.html

Canberra Group. 2001. *Expert Group on Household Income Statistics: Final Report and Recommendations*. Ottawa: Canberra Group.

DeNavas-Walt, Carmen, Robert Cleveland, and Bruce H. Webster, Jr. 2003. "Income in the United States." *U.S. Census Bureau, Current Population Reports*. Washington, D.C.: U.S. Government Printing Office.

Fisher, Kimberly, Muriel Egerton, Jonathan I. Gershuny, and John P. Robinson. 2007. "Gender Convergence in the American Heritage Time Use Study (AHTUS)." *Social Indicators Research* 82(1): 1–33.

Gray, H. Peter. 1964. "Some Evidence on Two Implications of Higher Interest-Rates on Time Deposits." *The Journal of Finance* 19(1): 63–75.

Guttentag, Jack M., and Morris Beck. 1970. *New Series on Home Mortgage Yields since 1951*. Cambridge, MA: National Bureau of Economic Research.

Hicks, Ursula K. 1946. "The Terminology of Tax Analysis." *The Economic Journal* 56(221): 38–50.

Juster, F. Thomas, Paul Courant, Greg J. Duncan, John P. Robinson, and Frank P. Stafford. 1978. *Time Use in Economic and Social Accounts, 1975–1976*. Ann Arbor, MI: Survey Research Center and the Inter-university Consortium for Political and Social Research.

Kum, Hyunsub, and Thomas Masterson. 2008. "Statistical Matching Using Propensity Scores: Theory and Application to the Levy Institute Measure of Economic Well-Being." Working Paper No.535. Annandale-on-Hudson, NY: The Levy Economics Institute of Bard College.

Kuznets, Simon S., Lillian Epstein, and Elizabeth Jenks. 1941. *National Income and Its Composition, 1919–1938.* New York: National Bureau of Economic Research.

Lakin, Caroline. 2002. “The Effects of Taxes and Benefits on Household Income, 2000–01.” Social Analysis and Reporting Division, Office for National Statistics, U.K. http://www.statistics.gov.uk/.

Landefeld, J. Steven, and Stephanie H. McCulla. 2000. “Accounting for Nonmarket Household Production within a National Accounts Framework.” *Review of Income and Wealth* 46(3): 289–307.

Lerman, Robert I. 1999. “How Do Income Sources Affect Income Inequality?” in Jacques Silber (ed.), *Handbook on Income Inequality Measurement*. Boston: Kluwer Academic Publishers.

National Research Council. 2005. *Beyond the Market: Designing Nonmarket Accounts for the United States*. Panel to Study the Design of Nonmarket Accounts, K.G. Abraham and C. Mackie (eds.) Washington, DC: The National Academies Press.

Organisation for Economic Co-operation and Development. 1995. *Household Production in OECD Countries: Data Sources and Measurement Methods.* Paris: OECD.

Robinson, John P., and Geoffrey Godbey. 2001. *Time for life: The surprising ways Americans use their time*. University Park, PA: The Pennsylvania State University Press.

Ruggles, Patricia, and Michael O’Higgins. 1981. “The Distribution of Public Expenditure among Households in the United States.” *Review of Income and Wealth* 27(2): 137–64.

Ruggles, Steven, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander. 2008. *Integrated Public Use Microdata Series: Version 4.0.* Minneapolis, MN: Minnesota Population Center. Available at: http://usa.ipums.org/usa/

Ryscavage, Paul A. 1995. “Surge in Growing Income Inequality?” *Monthly Labor Review* 118(8): 51–61.

Short, Kathleen. 2001. “Experimental Poverty Measures: 1999.” *Current Population Report P60-21*. Washington, DC: U.S. Government Printing Office.

Social Security Administration. 1972. *Augmented Individual Income Tax Model Exact Match File*. Washington, DC: U.S. Dept. of Health, Education, and Welfare, Social Security Administration [producer]. Available at: http://www.archives.gov/

U.S. Department of Labor, Bureau of Labor Statistics. 1983. *Consumer Expenditure Survey, 1960–1961* (ICPSR version). Ann Arbor, MI: Inter-university Consortium for Political and Social Research. Available at: http://www.icpsr.umich.edu/

Weisbrod, Burton A., and W. Lee Hansen. 1968. “An Income-Net Worth Approach to Measuring Economic Welfare.” *The American Economic Review* 58(5): 1315–29.

Wolff, Edward N., Ajit Zacharias, and Asena Caner. 2004. *Levy Institute Measure of Economic Well-Being, Concept, Measurement and Findings: United States, 1989 and 2000.* February. Annandale-on-Hudson, N.Y.: The Levy Economics Institute of Bard College.

Wolff, Edward N., and Ajit Zacharias. 2007a. “The Levy Institute Measure of Economic Well-Being: United States, 1989 to 2001.” *Eastern Economic Journal* 33(4): 443–470.

————. 2007b. “The Distributional Consequences of Government Spending and Taxation in the U.S., 1989 and 2000.” *Review of Income and Wealth* 53(4): 692–715.

Yao, Shujie. 1999. “On the Decomposition of Gini Coefficients by Population Class and Income Source: A Spreadsheet Approach and Application.” *Applied Economics* 31(10): 1249–64.

Yeung, J.W., and F. Stafford. 2003. “Parental Child Care Time Allocation.” Unpublished manuscript.

TABLES AND FIGURES

Table 1. A Comparison of the LIMEW and Extended Income (EI)

LIMEW	EI
Money income (MI)	Money income (MI)
Less: Property income and government cash transfers	*Less*: Property income and government cash transfers
Equals: Base money income	*Equals:* Base money income
Plus: Income from wealth	*Plus*: Income from wealth
Annuity from nonhome wealth	Property income and realized capital gains (losses)
Imputed rent on owner-occupied housing	Imputed return on home equity
Less: Taxes	*Less*: Taxes
Income taxes [1]	Income taxes
Payroll taxes [1]	Payroll taxes
Property taxes [1]	Property taxes
Plus: Cash transfers [1]	*Plus*: Cash transfers
Plus: Noncash transfers [1, 2]	*Plus*: Noncash transfers
Plus: Public consumption	
Plus: Household production	
Equals: LIMEW	*Equals*: EI

Note: (1) Aligned with the NIPA estimates.
(2) The government-cost approach is used; the Census Bureau uses the fungible-value method for valuing Medicare and Medicaid in EI. The main difference between the two methods is that, while the fungible-value method assigns an income value for a benefit according to the recipient's level of income, the government-cost approach assigns an income value for a benefit irrespective of the recipient's income. In 1959, neither the Medicare nor Medicaid program existed. However, there were means-tested medical assistance programs in a large number of states. The imputed value of medical assistance received by households was valued at government cost in the LIMEW and the same value was also used in the EI estimate for 1959.

Table 2. Economic Well-Being and Work, 1959 to 2004

	Median Values in 2007 Dollars					
	1959	1972	1982	1989	2000	2004
Levy measures						
LIMEW	62,691	65,259	61,370	74,442	82,277	85,521
LIMEWA[1]	40,976	49,621	48,135	55,863	62,026	63,786
LIMEWB[2]	35,593	41,330	40,419	46,858	51,453	52,798
Official measures						
Extended income (EI)	33,631	40,313	42,210	45,369	48,954	48,342
Money income (MI)	37,051	44,395	43,003	48,364	50,571	48,531
Addendum A: Annual hours of work (median values)						
Market work	2,150	2,105	2,080	2,236	2,340	2,080
Housework	2,617	2,065	2,155	2,103	2,063	2,123
Total	5,084	4,600	4,501	4,718	4,749	4,683
Addendum B: Equivalence-scale adjustment						
Equivalent LIMEW	70,531	79,513	78,754	98,113	108,914	112,649
Equivalent EI	37,850	49,638	55,578	61,476	67,186	65,313
Equivalent MI	41,361	53,508	55,632	64,604	68,747	65,887
	Annual Percentage Change					
	1959–72	1972–82	1982–89	1989–2000	2000–04	1959–2004
Levy measures						
LIMEW	0.31	-0.61	2.80	0.91	0.97	0.69
LIMEWA	1.48	-0.30	2.15	0.96	0.70	0.99
LIMEWB	1.16	-0.22	2.13	0.85	0.65	0.88
Official measures						
Extended income (EI)	1.40	0.46	1.04	0.69	-0.31	0.81
Money income (MI)	1.40	-0.32	1.69	0.41	-1.02	0.60
Addendum A: Annual hours of work						
Market work	-0.16	-0.12	1.04	0.41	-2.90	-0.07
Housework	-1.80	0.43	-0.35	-0.18	0.73	-0.46
Total	-0.77	-0.22	0.67	0.06	-0.35	-0.18
Addendum B: Equivalence scale adjustment						
Equivalent LIMEW	0.93	-0.10	3.19	0.95	0.85	1.05
Equivalent EI	2.11	1.14	1.45	0.81	-0.70	1.22
Equivalent MI	2.00	0.39	2.16	0.57	-1.06	1.04
Addendum C: Real per capita amounts						
GDP	2.73	1.34	3.39	1.91	1.13	2.18
LIMEW	1.20	0.90	3.36	1.91	0.35	1.56
EI	2.11	1.40	2.04	1.54	-0.95	1.52
MI	2.04	1.18	2.59	1.48	-0.79	1.54

1. LIMEWA equals LIMEW less the value of household production.

2. LIMEWB equals LIMEW less the value of household production and public consumption.

3. Change in per capita GDP in 2000 chained dollars (source: NIPA table 7.1, accessed on 11/12/08)

Source: Authors calculations

Table 3. Composition of LIMEW by Quintile, 1959–2004

Quintiles	Mean LIMEW (in 2007$)	Total	Base income	Income from wealth	Net government expenditures	Household production
			1959			
Lowest	19,658	100	46.9	11.6	8.0	33.6
Second	42,891	100	53.4	7.5	8.0	31.1
Third	62,682	100	57.7	6.4	3.6	32.3
Fourth	83,456	100	57.3	7.0	1.7	34.0
Highest	147,756	100	54.0	15.6	-1.6	32.0
All	71,289	100	55.0	10.8	1.8	32.5
			1972			
Lowest	21,696	100	45.9	8.4	22.1	23.6
Second	44,582	100	53.6	8.3	15.8	22.3
Third	65,435	100	62.1	8.4	6.8	22.6
Fourth	90,522	100	64.2	9.2	2.3	24.3
Highest	161,943	100	56.9	22.6	-2.8	23.4
All	76,837	100	58.5	14.6	3.6	23.3
			1982			
Lowest	21,602	100	43.6	7.4	30.7	18.3
Second	42,245	100	55.1	7.7	18.4	18.8
Third	61,057	100	59.3	8.1	11.7	20.9
Fourth	85,009	100	64.6	9.3	3.7	22.4
Highest	166,810	100	56.1	29.9	-6.0	20.0
All	75,346	100	57.6	17.7	4.1	20.5
			1989			
Lowest	28,359	100	50.9	6.8	21.6	20.7
Second	52,065	100	54.4	7.4	15.8	22.4
Third	74,670	100	57.7	8.1	10.1	24.2
Fourth	103,231	100	60.7	10.2	4.0	25.2
Highest	198,670	100	53.1	30.6	-5.8	22.1
All	91,401	100	55.6	18.2	3.2	23.1
			2000			
Lowest	30,536	100	56.3	6.5	18.0	19.3
Second	56,640	100	57.4	7.5	13.2	21.8
Third	82,488	100	58.1	8.7	9.8	23.5
Fourth	116,306	100	58.0	11.7	5.2	25.0
Highest	265,704	100	50.5	37.0	-6.9	19.3
All	110,338	100	54.3	22.7	1.6	21.4
			2004			
Lowest	31,119	100	53.4	4.2	22.2	20.3
Second	58,538	100	52.3	5.8	19.1	22.8
Third	85,772	100	53.0	7.4	15.1	24.5
Fourth	121,293	100	53.0	10.2	11.3	25.4
Highest	260,861	100	51.4	32.1	-2.7	19.1
All	111,519	100	52.2	19.2	6.8	21.8

Table 4. Contribution of Major Components to the Change in Middle Class Economic Well-Being, by Period and Measure

	1959-1972			1972-1982			1982-1989			1989-2000			2000-2004			1959-2004		
	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI
Base Income	**7.2**	**10.0**	**10.3**	**-6.4**	**-5.8**	**-7.1**	**10.7**	**12.4**	**12.7**	**6.5**	**5.6**	**6.2**	**-3.0**	**-1.7**	**-3.7**	**14.8**	**23.8**	**19.7**
Income from wealth	**2.4**	**6.4**	**2.2**	**-0.8**	**8.4**	**2.2**	**1.7**	**-3.3**	**0.6**	**1.5**	**-0.1**	**-1.9**	**-1.0**	**-4.2**	**-1.4**	**3.7**	**6.0**	**1.1**
Home wealth	1.7	4.2		-0.9	7.5		0.5	-4.5		-0.4	0.1		-0.6	-1.9		-0.1	4.9	
Nonhome wealth	0.8	2.2		0.1	0.8		1.2	1.2		2.0	-0.2		-0.4	-2.3		3.9	1.1	
Net government expenditures	**3.5**	**3.7**	**6.3**	**4.2**	**2.1**	**2.8**	**0.5**	**-1.6**	**-1.2**	**0.7**	**2.6**	**1.1**	**6.0**	**4.3**	**1.1**	**17.1**	**14.0**	**11.0**
Transfers	5.6	10.9	6.3	3.7	3.5	2.8	0.6	0.9	-1.2	2.2	3.4	1.1	2.7	2.3	1.1	16.1	24.1	11.0
Public consumption	4.6			-0.6			2.0			1.5			0.6			8.4		
Taxes	-6.6	-7.2		1.1	-1.4		-2.1	-2.5		-3.0	-0.8		2.7	2.1		-7.5	-10.1	
Household production	**-8.7**			**-2.9**			**8.4**			**1.8**			**2.0**			**1.3**		
Total	**4.4**	**20.1**	**18.8**	**-5.9**	**4.6**	**-2.1**	**21.3**	**7.4**	**12.2**	**10.5**	**8.1**	**5.3**	**4.0**	**-1.5**	**-4.0**	**36.8**	**43.8**	**31.9**

Table 5. Economic Well-Being by Measure and Selected Household Characteristics, 1959–2004 Ratio of Dollar Values (in thousands of 2007 dollars)

	Ratio of mean value to overall mean																	
	1959			1972			1982			1989			2000			2004		
Characteristic	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI
A. Race/Ethnicity																		
White	1.04	1.04	1.04	1.04	1.05	1.05	1.04	1.04	1.04	1.04	1.05	1.06	1.07	1.07	1.07	1.07	1.07	1.08
Nonwhite	0.66	0.62	0.60	0.79	0.75	0.75	0.79	0.75	0.72	0.83	0.79	0.76	0.80	0.81	0.80	0.82	0.81	0.79
B. Age																		
Less than 65 years	1.04	1.06	1.08	1.04	1.07	1.11	1.02	1.04	1.09	1.00	1.04	1.10	0.98	1.05	1.10	1.00	1.04	1.10
Less than 35 years	0.93	0.92	0.93	0.88	0.92	0.96	0.78	0.82	0.90	0.80	0.82	0.87	0.79	0.83	0.87	0.79	0.81	0.84
35-45 years	1.14	1.14	1.17	1.21	1.19	1.23	1.14	1.11	1.21	1.12	1.12	1.20	1.08	1.11	1.18	1.13	1.13	1.20
45-55 years	1.11	1.16	1.18	1.19	1.23	1.27	1.28	1.28	1.31	1.20	1.28	1.34	1.13	1.24	1.31	1.13	1.19	1.28
55-64 years	0.96	1.03	1.03	0.97	1.01	1.03	1.06	1.13	1.12	1.01	1.10	1.10	0.93	1.07	1.07	0.98	1.08	1.11
65 or older	0.82	0.72	0.63	0.82	0.71	0.57	0.94	0.87	0.66	0.99	0.84	0.65	1.07	0.80	0.61	0.99	0.84	0.62
C. Education																		
Less than high school	0.84	0.83	0.81	0.80	0.77	0.73	0.77	0.74	0.62	0.74	0.67	0.56	0.72	0.59	0.50	0.68	0.59	0.49
High school	1.08	1.09	1.10	1.02	1.03	1.05	0.95	0.96	0.95	0.89	0.91	0.89	0.86	0.81	0.78	0.85	0.83	0.77
Some college	1.23	1.27	1.27	1.10	1.13	1.15	0.99	1.04	1.08	1.05	1.05	1.08	0.98	0.98	0.98	0.96	0.98	0.97
College	1.60	1.64	1.70	1.44	1.46	1.52	1.42	1.40	1.56	1.40	1.45	1.56	1.36	1.49	1.59	1.37	1.43	1.56
D. Family Type[4]																		
Married couple	1.12	1.11	1.12	1.15	1.14	1.15	1.25	1.21	1.23	1.27	1.23	1.25	1.28	1.27	1.29	1.28	1.26	1.29
Single female	0.81	0.75	0.71	0.82	0.77	0.72	0.77	0.71	0.63	0.77	0.71	0.64	0.81	0.70	0.64	0.80	0.70	0.61
Single male	1.02	1.04	1.02	0.93	1.10	1.05	0.89	0.99	0.99	0.94	1.02	1.02	0.94	0.98	0.97	0.92	0.94	0.91
E. Region																		
Northeast	1.07	1.08	1.10	1.09	1.07	1.08	1.04	1.04	1.02	1.12	1.11	1.12	1.08	1.06	1.06	1.09	1.06	1.09
Midwest	1.02	1.04	1.03	1.00	1.00	1.02	0.99	0.98	1.00	0.98	0.95	0.97	1.00	0.99	1.00	0.97	0.97	0.97
South	0.87	0.84	0.83	0.91	0.93	0.91	0.97	0.96	0.95	0.92	0.92	0.91	0.93	0.94	0.93	0.94	0.95	0.94
West	1.08	1.08	1.09	1.03	1.03	1.03	1.03	1.06	1.06	1.04	1.07	1.07	1.04	1.05	1.06	1.06	1.07	1.06
All Households	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Characteristic	Ratio of median value to overall median																	
	1959			1972			1982			1989			2000			2004		
	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI	LIMEW	EI	MI
A. Race/Ethnicity																		
White	1.04	1.04	1.05	1.04	1.06	1.06	1.04	1.04	1.05	1.04	1.06	1.07	1.04	1.07	1.08	1.05	1.08	1.11
Nonwhite	0.64	0.59	0.57	0.81	0.75	0.70	0.84	0.71	0.65	0.86	0.76	0.71	0.89	0.81	0.80	0.89	0.80	0.79
B. Age																		
Less than 65 years	1.06	1.07	1.09	1.08	1.11	1.14	1.06	1.05	1.14	1.05	1.06	1.14	1.02	1.06	1.16	1.03	1.04	1.14
Less than 35 years	1.01	0.99	1.00	0.97	1.00	1.04	0.88	0.85	0.97	0.88	0.85	0.93	0.88	0.86	0.93	0.87	0.83	0.90
35-45 years	1.20	1.19	1.20	1.32	1.26	1.30	1.26	1.16	1.30	1.23	1.18	1.30	1.19	1.16	1.28	1.21	1.15	1.28
45-55 years	1.10	1.16	1.17	1.23	1.27	1.33	1.31	1.34	1.40	1.24	1.35	1.43	1.15	1.25	1.38	1.13	1.22	1.38
55-64 years	0.88	0.96	0.97	0.94	1.00	1.01	1.02	1.14	1.10	0.98	1.09	1.07	0.91	1.05	1.07	0.95	1.08	1.14
65 or older	0.65	0.54	0.44	0.66	0.61	0.44	0.78	0.84	0.55	0.82	0.80	0.54	0.90	0.81	0.55	0.89	0.83	0.55
C. Education																		
Less than high school	0.85	0.84	0.82	0.80	0.76	0.66	0.79	0.74	0.56	0.76	0.66	0.51	0.76	0.61	0.48	0.74	0.59	0.47
High school	1.13	1.12	1.15	1.08	1.09	1.12	0.99	1.00	1.00	0.96	0.95	0.94	0.91	0.88	0.84	0.90	0.88	0.82
Some college	1.24	1.24	1.26	1.13	1.16	1.20	1.07	1.08	1.16	1.08	1.11	1.16	1.02	1.04	1.07	1.02	1.03	1.07
College	1.50	1.54	1.62	1.41	1.47	1.58	1.40	1.45	1.64	1.40	1.50	1.66	1.33	1.50	1.69	1.34	1.46	1.66
D. Family Type[4]																		
Married couple	1.12	1.12	1.13	1.18	1.18	1.20	1.27	1.25	1.29	1.30	1.28	1.32	1.32	1.32	1.39	1.31	1.31	1.38
Single female	0.76	0.67	0.63	0.83	0.76	0.67	0.82	0.68	0.59	0.83	0.68	0.61	0.89	0.74	0.67	0.90	0.73	0.65
Single male	0.91	0.98	0.99	0.99	1.11	1.07	0.96	1.04	1.05	0.95	1.06	1.06	0.96	0.99	1.00	0.95	0.97	0.99
E. Region																		
Northeast	1.06	1.08	1.10	1.09	1.06	1.08	1.02	1.05	1.02	1.11	1.12	1.13	1.07	1.05	1.04	1.08	1.07	1.09
Midwest	1.05	1.04	1.05	1.02	1.04	1.05	1.01	1.00	1.03	1.00	0.98	0.99	1.01	1.02	1.05	0.99	0.99	1.01
South	0.84	0.81	0.79	0.91	0.91	0.87	0.96	0.94	0.93	0.93	0.91	0.89	0.93	0.93	0.91	0.93	0.93	0.91
West	1.10	1.09	1.11	1.04	1.03	1.02	1.03	1.05	1.05	1.04	1.07	1.07	1.05	1.07	1.07	1.07	1.07	1.08
All Households	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 6. Share of Each Quintile in Aggregate Income (in percent), 1959–2004

	Quintiles				
	1	2	3	4	5
1959					
LIMEW	5.5	12.0	17.6	23.4	41.5
MI	3.4	10.9	17.3	24.3	44.0
EI	3.6	11.5	17.5	23.8	43.5
1972					
LIMEW	5.6	11.6	17.0	23.6	42.2
MI	3.7	9.7	17.4	25.2	43.9
EI	3.7	11.1	17.3	24.5	43.3
1982					
LIMEW	6.3	11.4	16.3	22.5	43.5
MI	4.0	10.1	16.6	24.7	44.6
EI	5.5	12.0	17.6	24.5	40.4
1989					
LIMEW	6.2	11.4	16.3	22.6	43.5
MI	3.9	9.7	16.2	24.5	45.6
EI	5.3	11.5	17.1	24.2	42.0
2000					
LIMEW	5.5	10.3	15.0	21.1	48.2
MI	3.6	8.9	14.8	23.1	49.7
EI	4.8	10.6	15.9	22.8	45.8
2004					
LIMEW	5.6	10.5	15.4	21.8	46.8
MI	3.4	8.7	14.7	23.2	50.0
EI	4.6	10.7	16.3	23.6	44.7

Note: Quintiles for each income measure are defined with respect to that income measure.

Table 7. Economic Inequality by Measure, 1959 to 2004 (Gini Coefficient x 100)

	1959	1972	1982	1989	2000	2004
A. All Households						
Levy Measures						
LIMEW	35.9	36.6	37.2	37.2	42.2	41.0
LIMEWA[1]	38.7	38.4	38.3	39.0	44.6	43.8
LIMEWB[2]	40.9	41.3	41.2	41.8	47.7	47.0
Official Measures						
EI	39.8	39.8	34.9	36.8	40.8	40.1
MI	40.3	40.7	40.9	41.8	46.0	46.5
Equivalence scale adjusted measures						
Equivalent LIMEW	32.5	32.3	32.1	32.9	38.1	36.5
Equivalent EI	39.1	37.9	33.0	34.9	38.8	37.9
Equivalent MI	40.1	38.9	39.1	40.0	44.1	44.5
B. Family Households						
Levy Measures						
LIMEW	32.4	32.4	33.0	32.4	37.1	36.5
LIMEWA	35.7	34.5	34.9	35.1	40.3	40.3
LIMEWB	38.4	38.0	38.9	39.1	44.6	44.8
Official Measures						
EI	36.8	36.6	31.6	33.5	37.6	36.4
MI	37.3	37.2	37.6	38.5	42.8	43.2

Notes:

1. LIMEWA equals LIMEW less the value of household production.
2. LIMEWB equals LIMEW less the value of household production and public consumption.

Table 8. Decomposition of Inequality by Income Source and Income Measure (Gini points x 100)

Public consumption	1.8	2.9	2.4	2.3	2.4	2.6
Taxes	-3.7	-4.9	-7.0	-6.3	-7.3	-6.0
Household production	11.5	8.5	7.6	8.3	8.2	7.9
Total	35.9	36.6	37.2	37.2	42.2	41.0
Extended Income						
Base money income	41.7	41.3	38.2	40.6	45.7	46.6
Income from wealth	5.3	8.3	9.4	10.3	10.3	6.3
Return on home equity	1.0	1.7	4.3	3.2	1.8	1.3
Property income plus realized capital gains	4.3	6.7	5.1	7.1	8.5	5.0
Net government expenditures	-7.1	-9.9	-12.7	-14.2	-15.1	-12.8
Transfers	0.5	-1.2	-0.3	-0.4	0.2	0.9
Taxes	-7.6	-8.7	-12.4	-13.8	-15.4	-13.8
Total	39.8	39.8	34.9	36.8	40.8	40.1
Money Income						
Base money income	38.6	40.2	38.9	39.5	43.6	44.7
Property income	1.5	2.0	3.5	3.7	3.4	2.8
Transfers	0.2	-1.5	-1.5	-1.4	-1.0	-1.0
Total	40.3	40.7	40.9	41.8	46.0	46.5

B. Contribution to the Change in Inequality

	1959-1972	1972-1982	1982-1989	1989-2000	2000-2004	1959-2004
LIMEW						
Base money income	1.9	0.0	-1.8	1.0	-0.2	0.8
Income from wealth	3.2	3.3	0.3	4.4	-2.5	8.7
Imputed rent	0.1	0.7	0.1	-0.3	-0.1	0.5
Annuities	3.1	2.7	0.3	4.7	-2.5	8.2
Net government expenditures	-1.4	-1.8	0.7	-0.2	1.8	-0.9
Transfers	-1.3	0.7	0.1	0.7	0.4	0.6
Public consumption	1.1	-0.4	-0.1	0.1	0.2	0.8
Taxes	-1.2	-2.0	0.7	-1.1	1.3	-2.3
Household production	-3.0	-0.9	0.7	-0.1	-0.3	-3.6
Total	0.7	0.6	0.0	5.0	-1.2	5.1
Extended Income						
Base money income	-0.4	-3.1	2.4	5.1	0.9	5.0
Income from wealth	3.1	1.1	0.9	-0.1	-4.0	1.0
Return on home equity	0.7	2.7	-1.1	-1.5	-0.4	0.3
Property income plus realized capital gains	2.4	-1.6	2.0	1.4	-3.6	0.7
Net government expenditures	-2.8	-2.8	-1.5	-0.9	2.3	-5.7
Transfers	-1.6	0.9	-0.2	0.6	0.7	0.5
Taxes	-1.1	-3.7	-1.4	-1.6	1.6	-6.2
Total	-0.1	-4.8	1.8	4.1	-0.8	0.2
Money Income						
Base money income	1.6	-1.3	0.6	4.1	1.0	6.0
Property income	0.6	1.5	0.2	-0.3	-0.6	1.4
Transfers	-1.8	0.0	0.1	0.4	0.1	-1.2
Total	0.4	0.2	0.9	4.2	0.5	6.2

Note: Contribution of each income source is expressed in Gini points multiplied by 100.

The numbers shown in the row labeled "Total" refers to the Gini ratio of the income measure

Table 9. Government Receipts and Expenditures, 1959 to 2004 (billions of dollars)

	1959	1972	1982	1989	2000	2004
Total receipts	124.8	353.6	948.6	1,638.8	3,161.6	3,284.5
Tax payments in the LIMEW	51.2	161.8	-475.3	787.0	1,644.9	1,545.4
Other receipts	73.6	191.8	472.2	851.8	1,516.7	1,739.1
Total expenditures	130.6	369.9	1,106.4	1,815.5	3,002.6	3,793.2
Government expenditures in the LIMEW	60.5	200.1	597.1	949.3	1,803.1	2,322.5
Transfers	22.5	82.9	300.7	464.6	911.3	1,238.3
Public consumption	38.0	117.2	296.4	484.7	891.8	1,084.2
Other expenditures	70.1	169.8	509.3	866.2	1,199.5	1,470.7
Net government expenditures in the LIMEW	9.3	38.3	121.8	162.3	158.2	777.1
Other net government expenditures	-3.5	-22.0	37.1	14.4	-317.2	-268.4
Total net government expenditures	5.8	16.3	157.8	176.7	-159.0	508.7

Figure 1. Annual Hours of Total Work, Market Work, and Housework by Sex, 1959 to 2004 (mean values, persons 19 years and older)

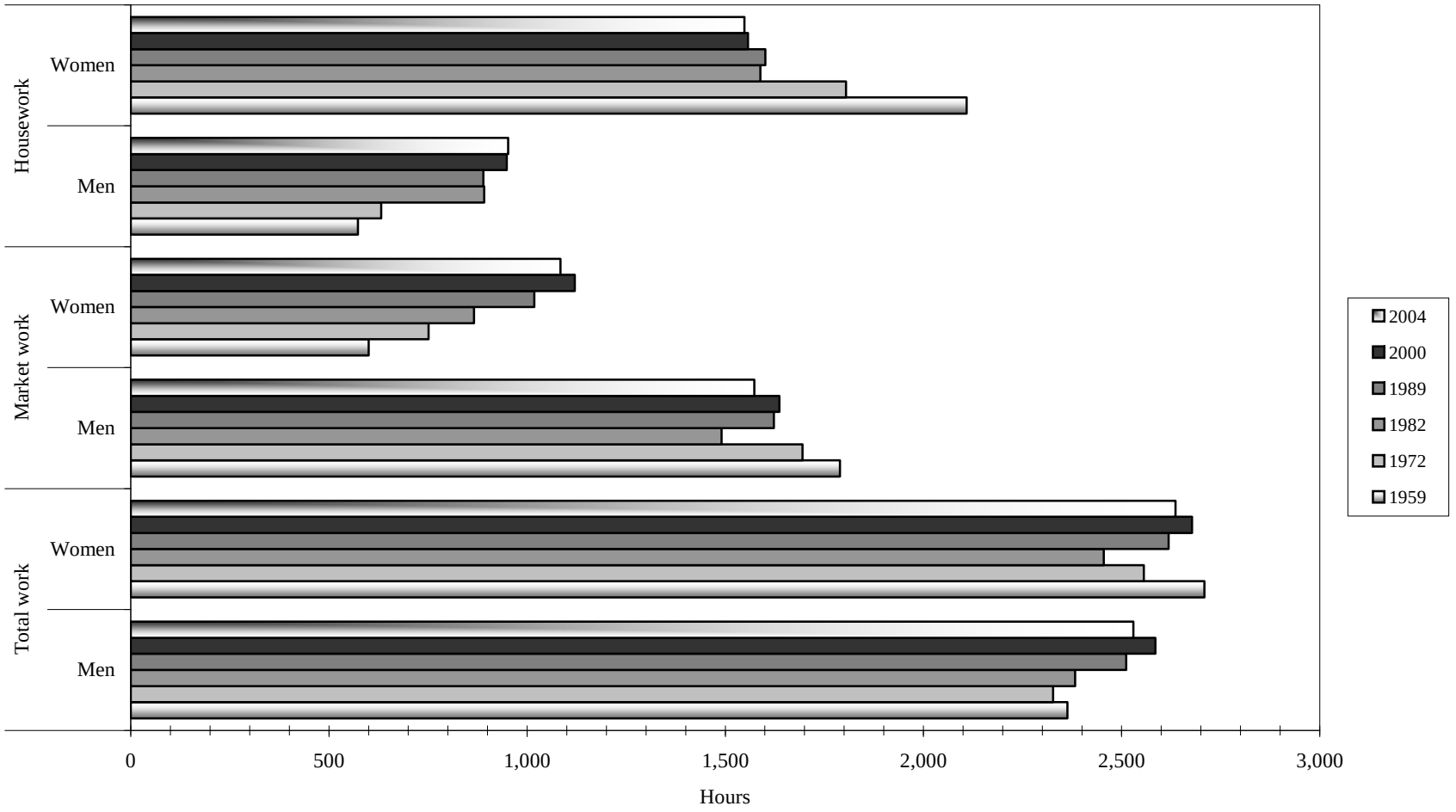
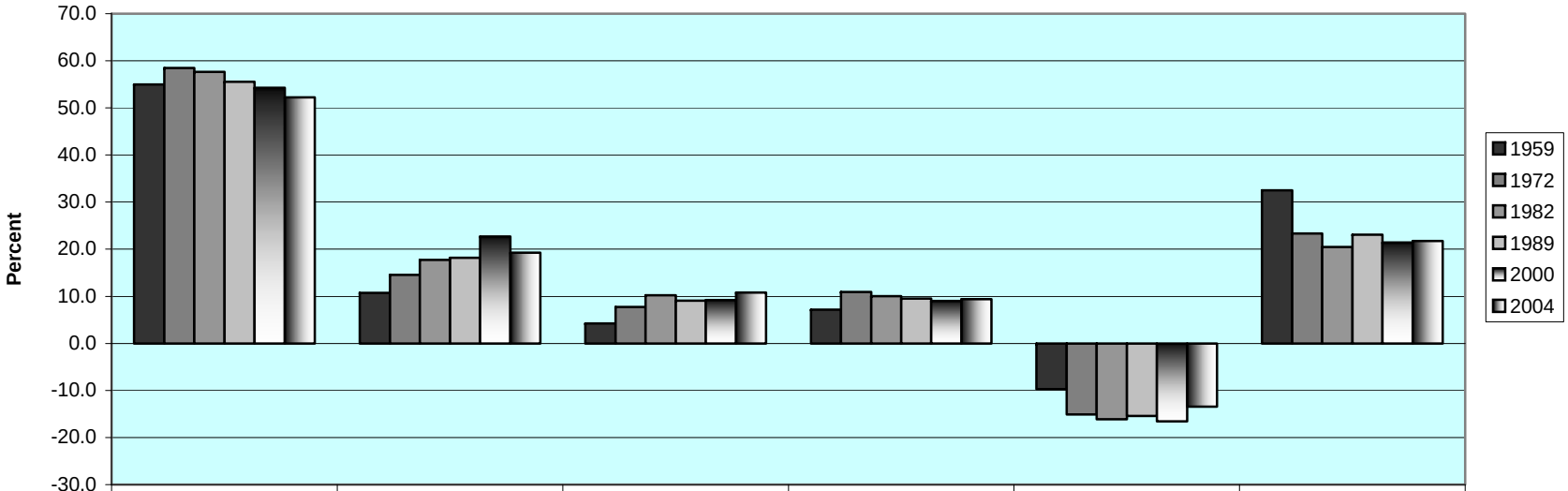


Figure 2. Composition of the LIMEW, 1959–2004 (percent)



	Base Income	Income from wealth	Government transfers	Public consumption	Taxes	Household production
1959	55.0	10.8	4.3	7.2	-9.7	32.5
1972	58.5	14.6	7.7	10.9	-15.1	23.3
1982	57.6	17.7	10.2	10.1	-16.1	20.5
1989	55.6	18.2	9.1	9.5	-15.4	23.1
2000	54.3	22.7	9.2	9.0	-16.6	21.4
2004	52.2	19.2	10.8	9.4	-13.4	21.8

Figure 2A. Contribution to the Percent Change in the Mean Value of LIMEW (in percent)

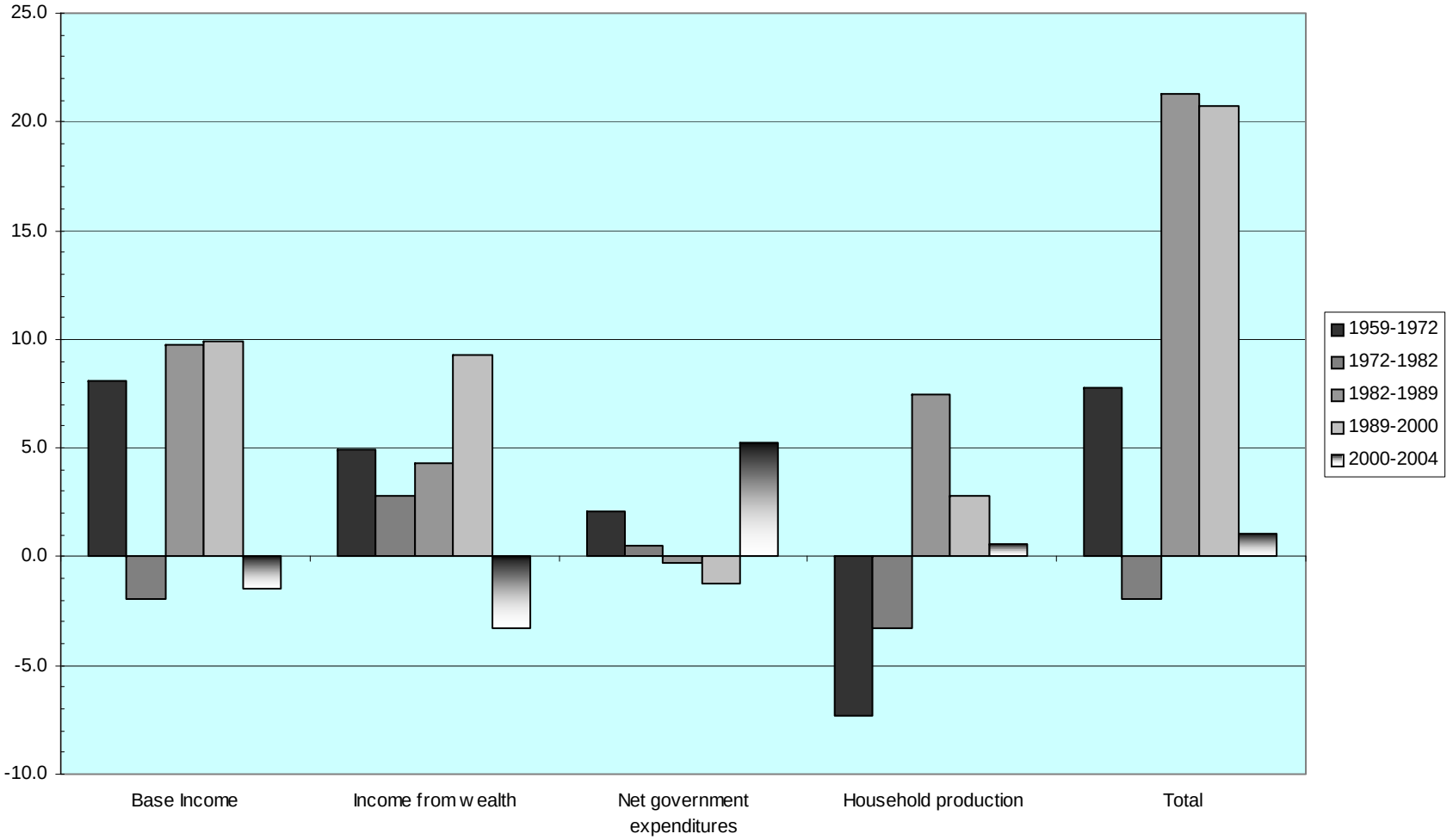


Figure 3. Contribution the Percentage Change in Mean LIMEW of the Third Quintile (in percent)

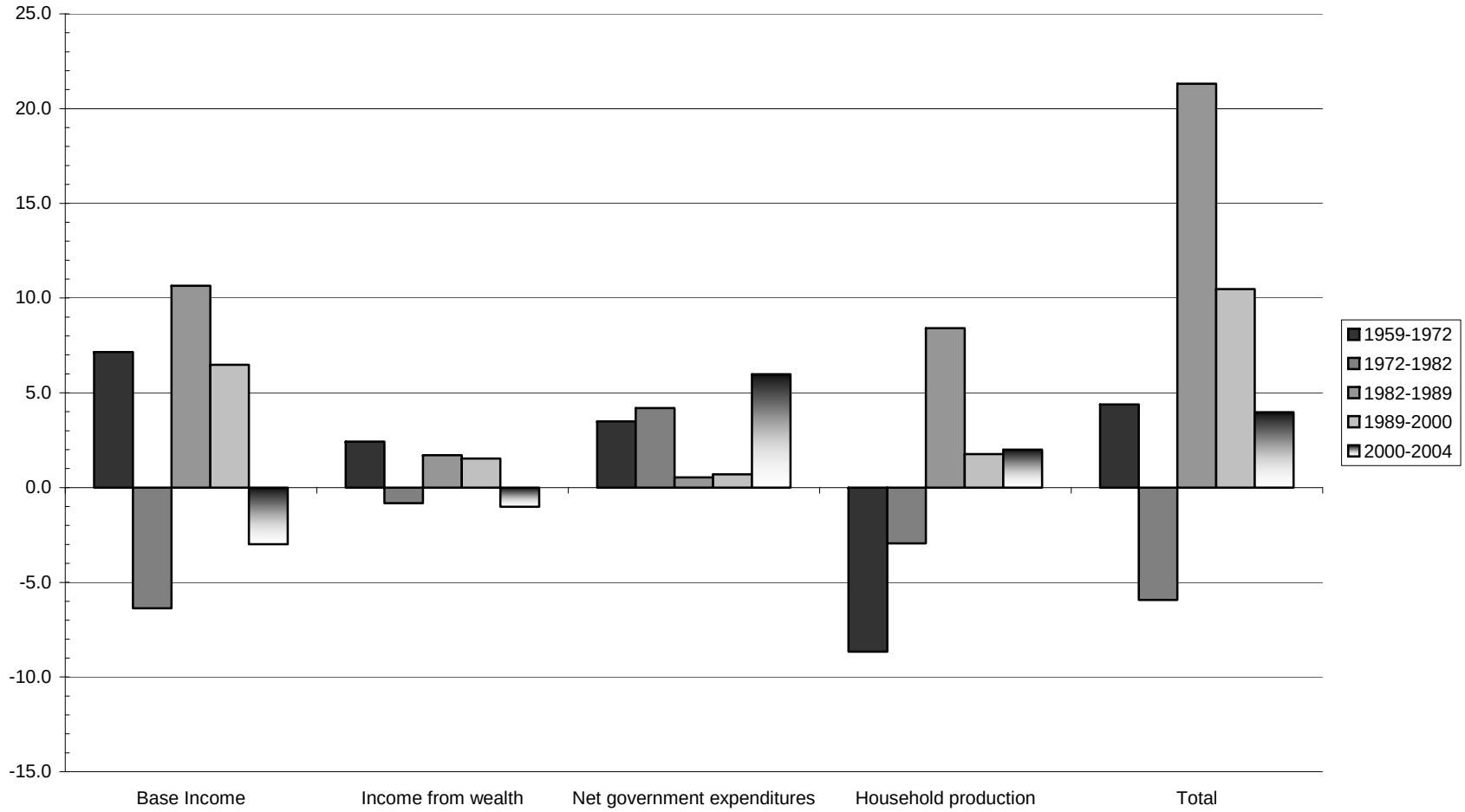


Figure 4A. Racial Disparity, 1959–2004 (Nonwhite/white ratio of mean values)

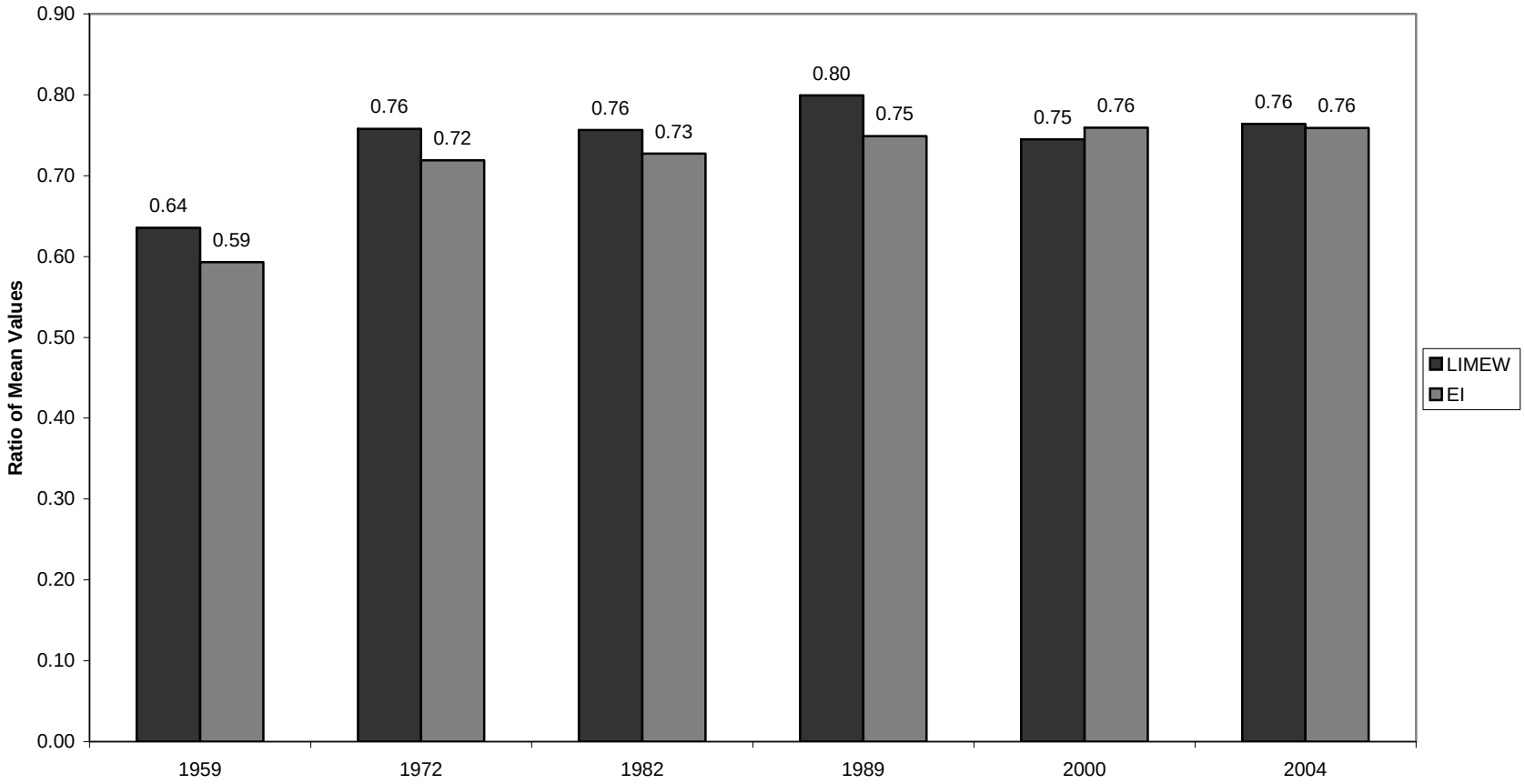


Figure 4B. Racial Disparity in Components, 1959–2004 (White minus Nonwhite mean values in thousands of 2007 dollars)

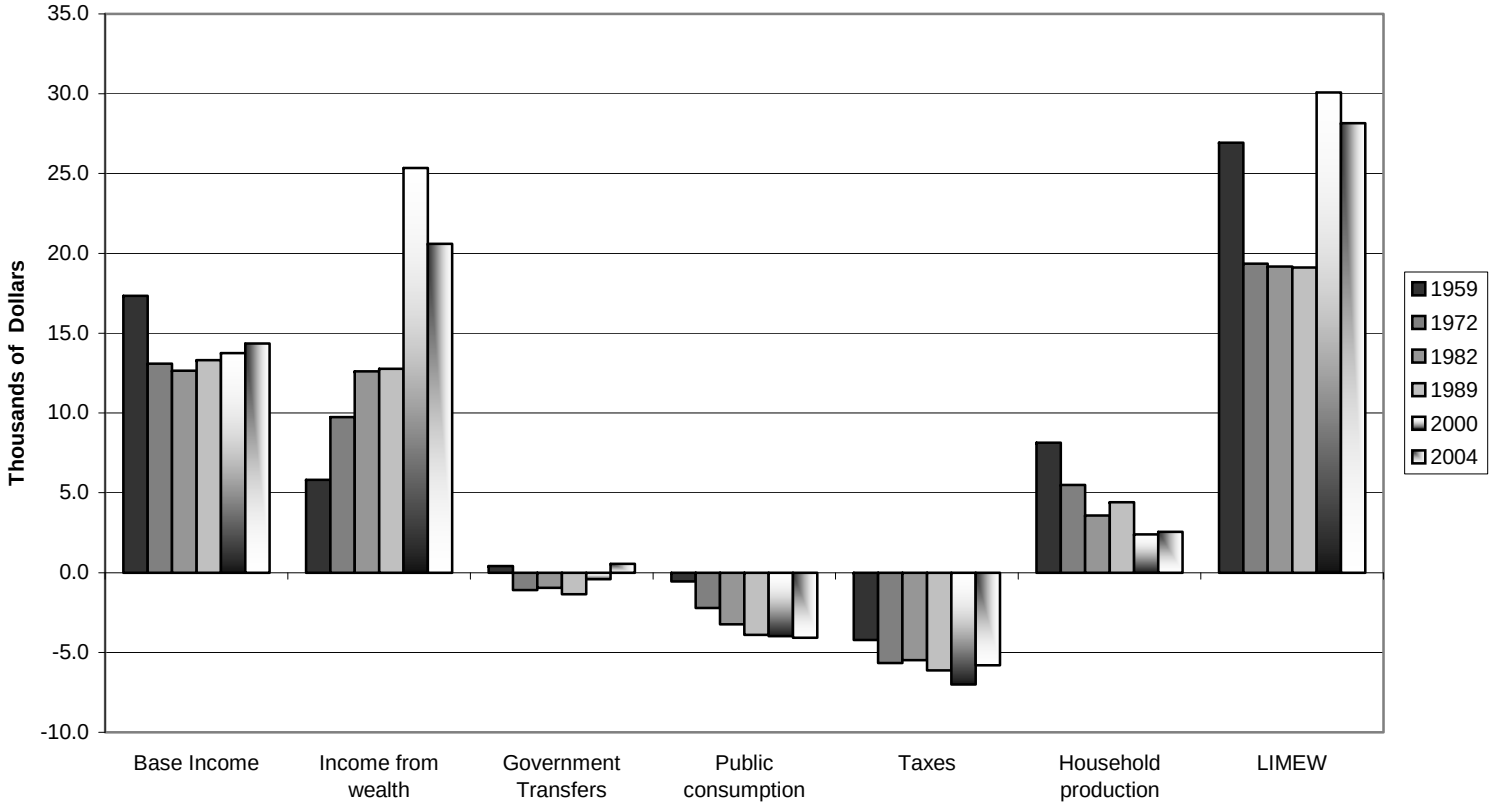


Figure 5A. Disparities between Types of Families, 1959- 2004 (Mean value of group as percent of married couples' mean value)

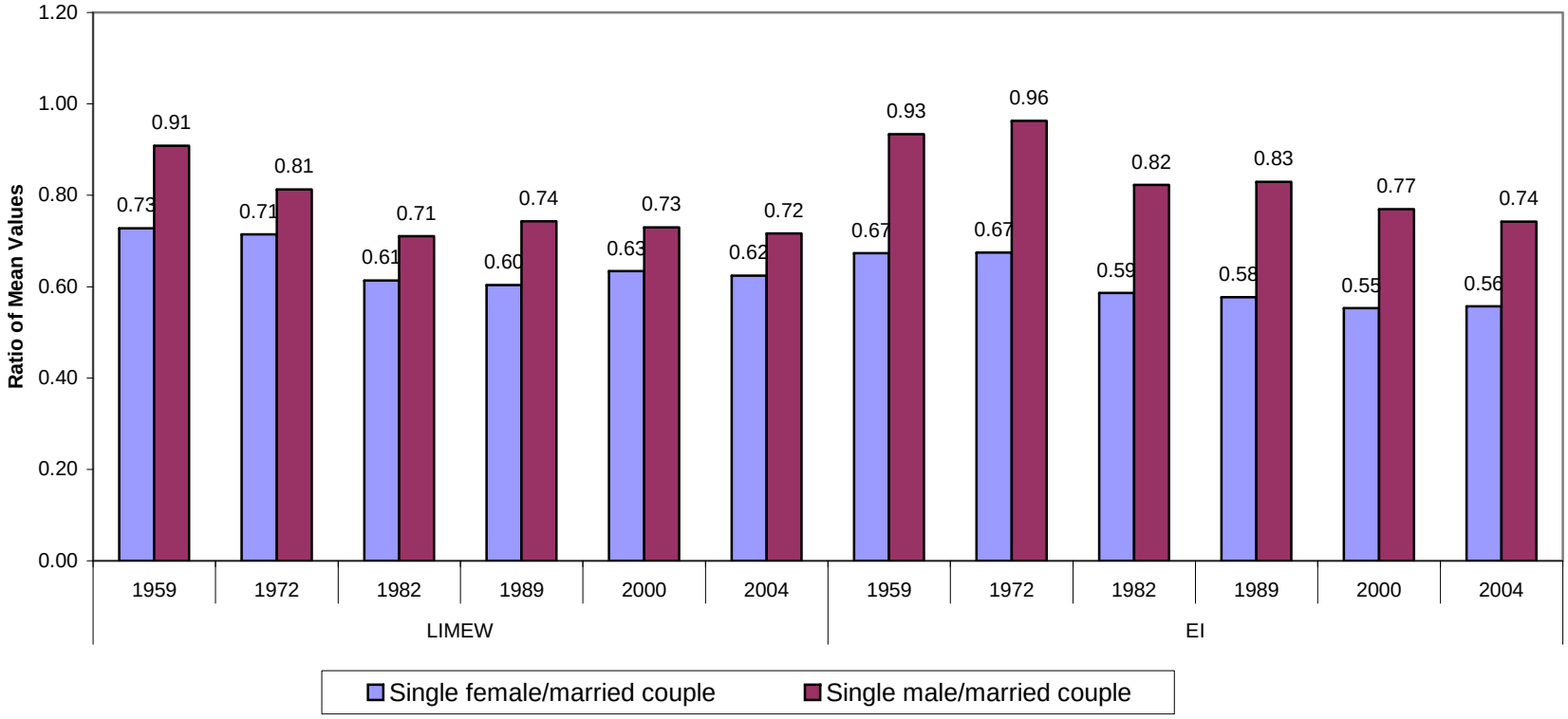


Figure 5B. Disparities between Single Female-Headed Families and Married-Couple Families by Component, 1959–2004 (Married-couple mean minus female-head mean in thousands of 2007$)

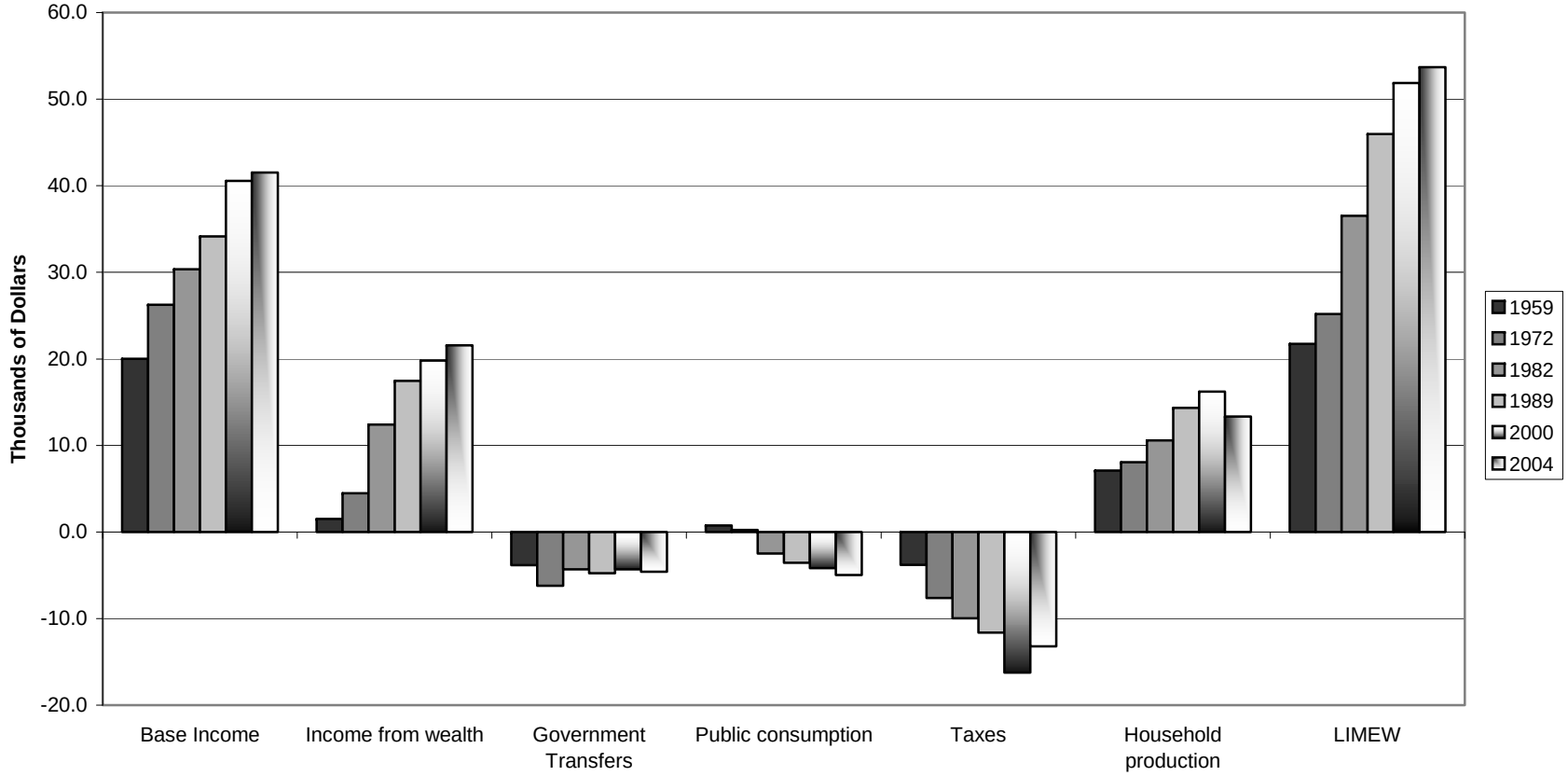


Figure 6A. Disparity between Elderly and Nonelderly Households, 1959–2004 (Elderly/nonelderly ratio of mean values)

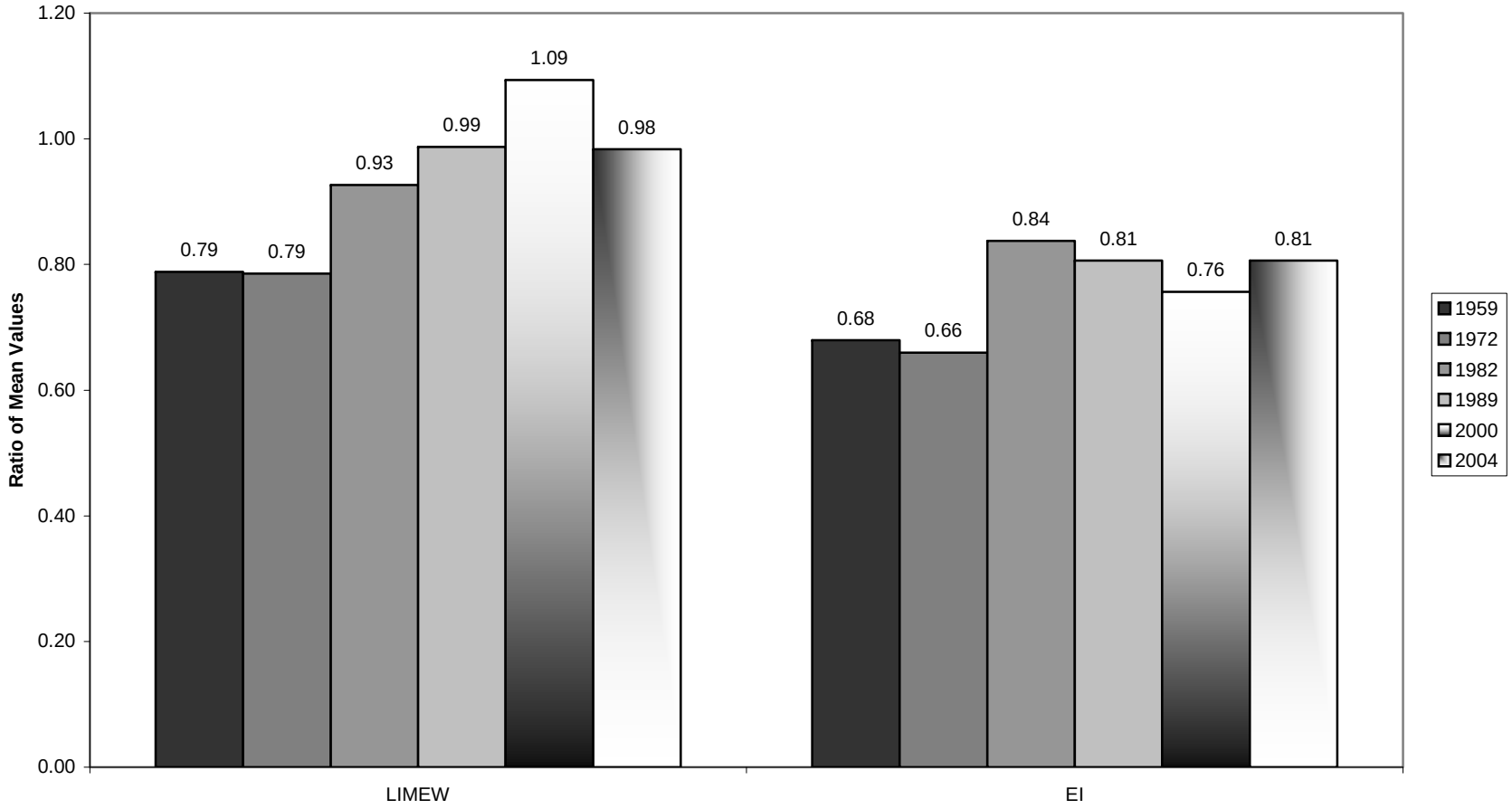


Figure 6B. Disparities between the Elderly and Nonelderly Households by Component, 1959–2004 (Nonelderly mean minus elderly mean in thousands of 2007$)

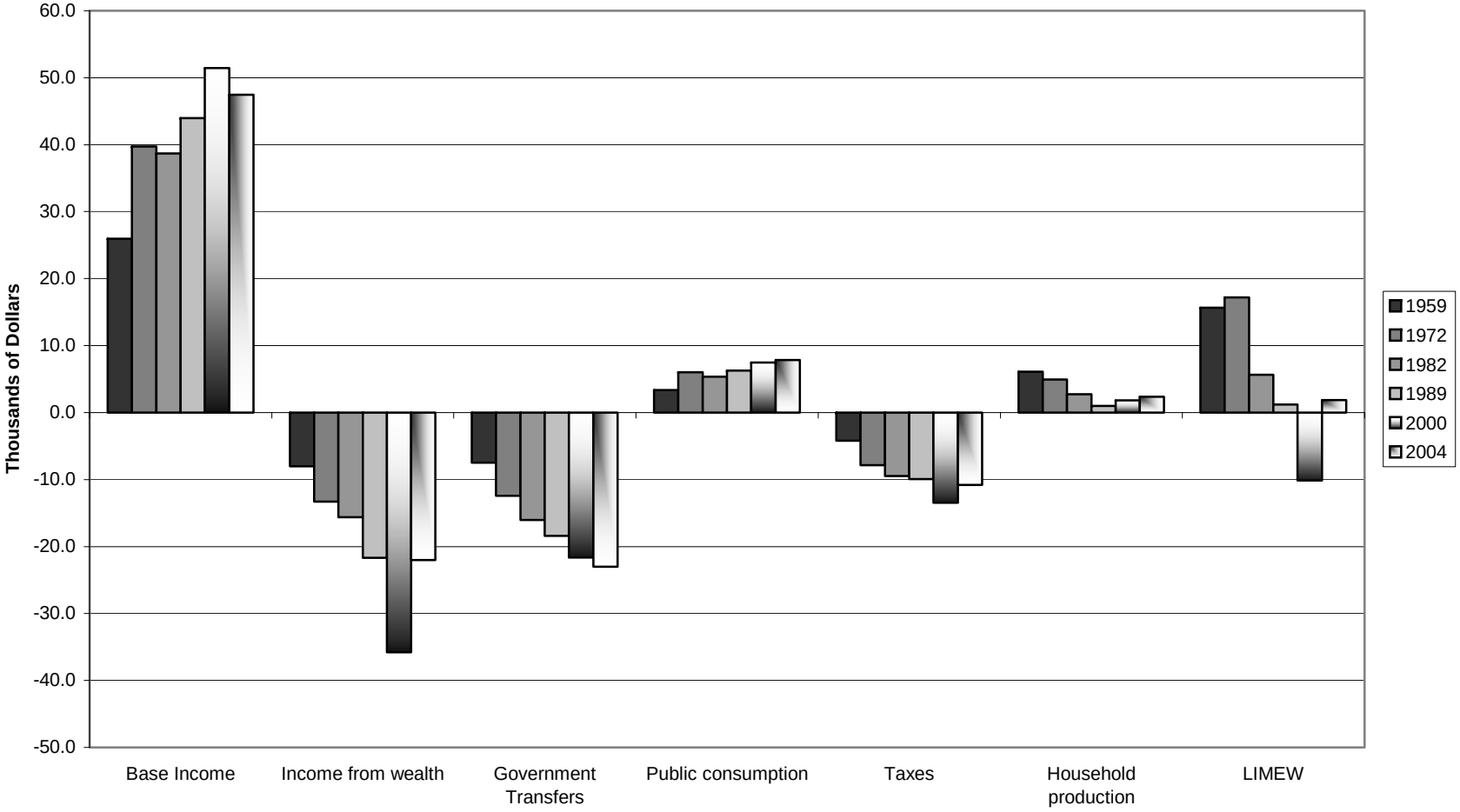


Figure 7A. Disparities by Educational Attainment, 1959–2004 (Percent of college graduates' mean value)

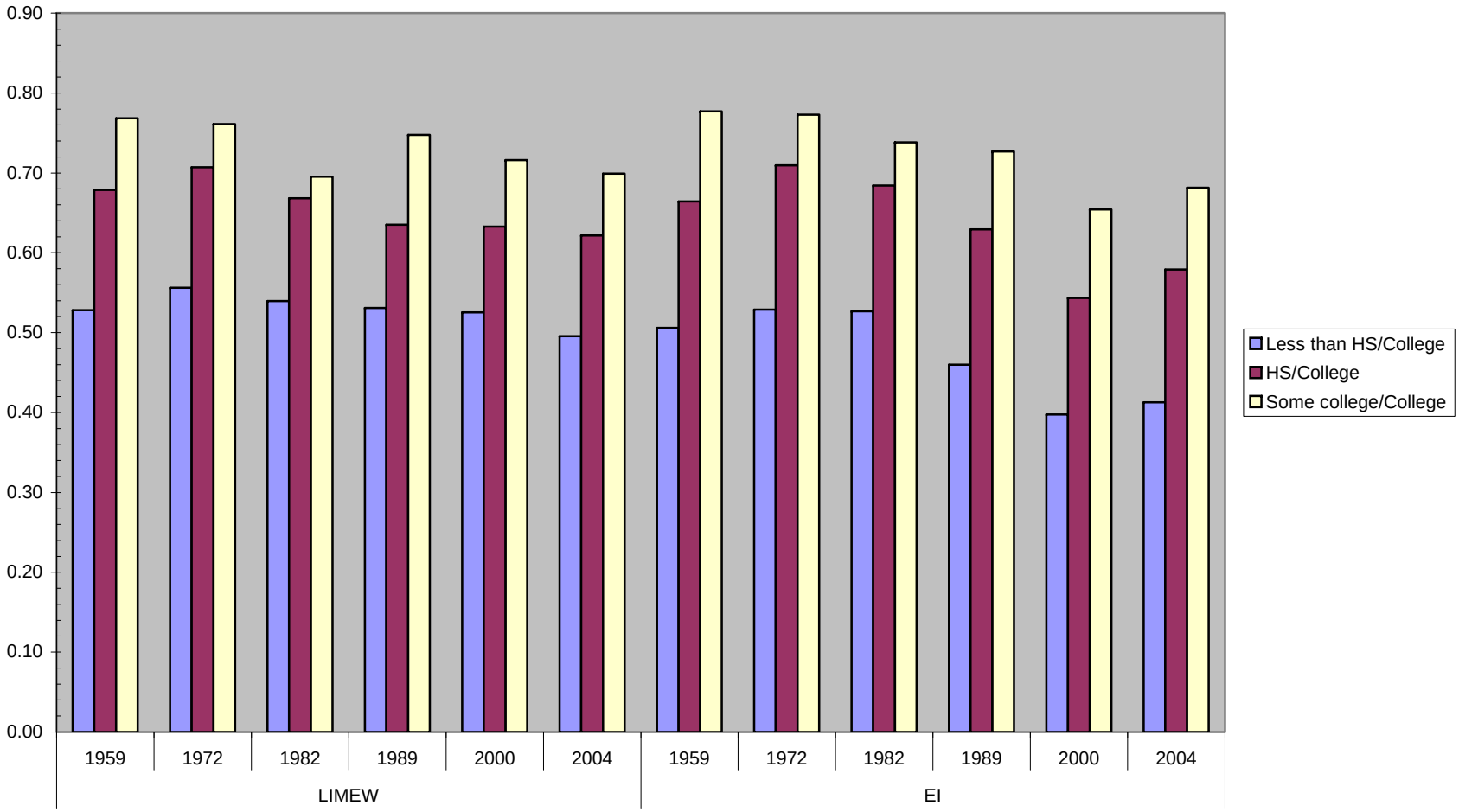


Figure 7B. Disparities between High School and College Graduate–Headed Households by Component, 1959–2004 (College grad mean minus HS grad mean in thousands of 2007 dollars)

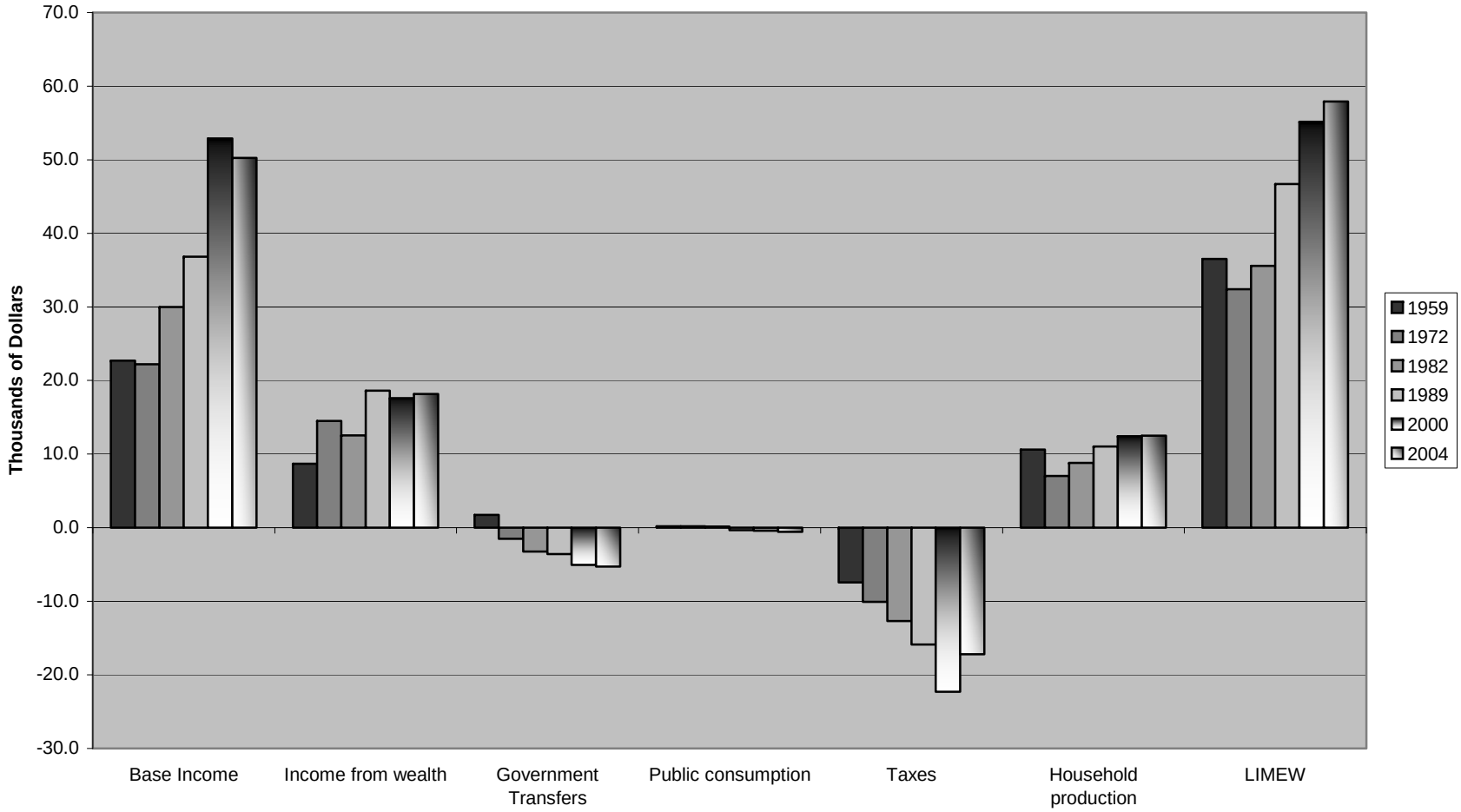
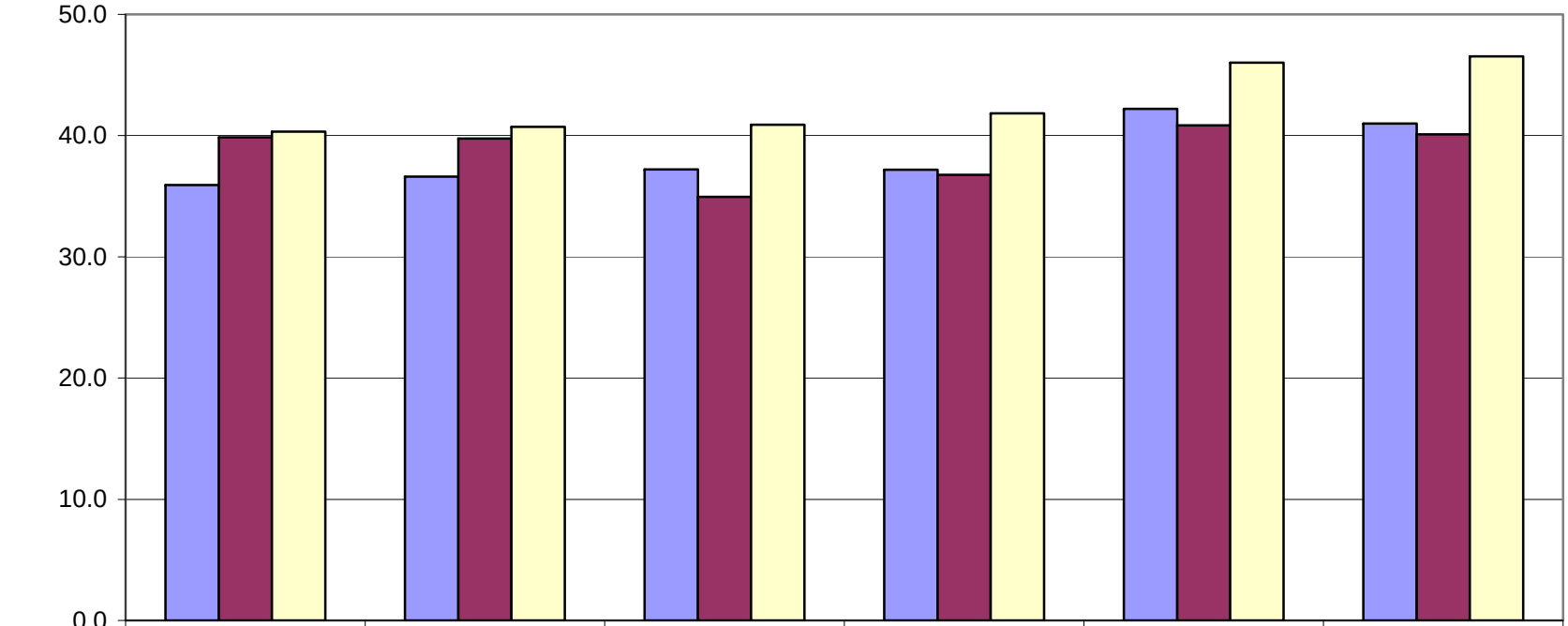


Figure 8. Economic Inequality by Measure 1959 to 2004 (Gini x 100)



	1959	1972	1982	1989	2000	2004
LIMEW	35.9	36.6	37.2	37.2	42.2	41.0
EI	39.8	39.8	34.9	36.8	40.8	40.1
MI	40.3	40.7	40.9	41.8	46.0	46.5