

Household Production and the Distribution of Economic Well-Being in the United States*

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Abstract: The purpose of this paper is to describe and analyze certain salient aspects of household production in the United States. Gender disparity in paid and household labor is examined among individuals according to their positions in the earnings distribution and household structure. The importance of household production for sustaining economic well-being is estimated by means of a valuation schema that is particularly suitable for distributional analysis. Augmented measures of economic well-being are used to discuss disparities among households and the relationship between household production and overall inequality. Estimates for 1989 and 2000 are developed from synthetic datasets created by statistically matching unofficial time-use surveys and official income-employment surveys.

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Introduction

The gender division of labor and the products of labor are crucial phenomena to be analyzed in understanding the economic well-being of individuals and households. Economic well-being can be considered as the command over, or access to products of social labor. Commodities form the bulk of such products in a modern capitalist economy and the vast majority of individuals exercise the command over commodities by selling for pay their capacity to work. While paid labor is a necessary condition for the reproduction of individuals under capitalism, it is not sufficient. Household labor—labor performed by members of the household for the members of the household—is also required. Both are integral components of the social labor process that provide the material basis for economic well-being.

This paper seeks to describe and analyze certain salient aspects of paid and household labor in the late twentieth century United States. Two years are chosen for study, 1989 and 2000. They may be considered as the terminal points of the last two, relatively long, periods of economic expansion (defined here as uninterrupted quarters of positive GDP growth) in the US. Economic growth was particularly strong in the 1990s with unemployment falling to levels not seen since the 1960s. Given that the employment-population ratio for men in the US has remained stuck in the 70-72 percent range for over the last thirty years, and, trends in labor productivity, it was unsurprising that the additional labor supply required to underwrite the growth process bifurcated along gender lines: the employment-population ratio for all women increased from 54.3 percent in 1989 to 57.5 percent in 2000, and, for married women it rose from 55.6 to 59.4 percent over the same period.

The voluminous literature on the labor market experiences of men and women and an appreciable amount of separate research on household labor have evolved somewhat separately on empirical lines, apart from the steady appearance of some household structure variables in earnings equations and some labor market variables in equations for the time spent on household production. Studies of the distributions of paid and unpaid

labor along with the distributions of earnings and income are relatively scarce. An important reason for the paucity in this regard is the sheer lack of data on household labor that is comparable in quality and scope with the data on paid labor. Accordingly, a central purpose of this paper is to provide estimates of both components of the social labor process using synthetic datasets that combine information from time-use and income-employment surveys. Certainly, synthetic data is not real data, but it may be better than no information at all.

The amount of earnings is usually employed to measure the magnitude of the command over commodities acquired via paid labor. Imputation is required for determining certain components of labor income at the level of the individual worker (e.g. employer-provided health insurance) but its overwhelming portion consists of wages and salaries received by employees. In contrast, the determination of the contribution of household labor in monetary terms must be wholly a process of imputation. While it is quite easy to identify problems with any method of imputation, the necessity of imputation remains if we wish to examine the relationship between household labor and economic well-being. To this end, a new method of valuation is deployed in the paper, which can be considered as a variant of the time-honored “housekeeper wage method.” The imputed value of household labor is combined with labor income and money income to develop, respectively, measures of “augmented labor income” and “augmented money income.”

Men and women are considered first solely in their identity as those performing labor—either paid or household labor. This starting point allows us to address the important question of how total social labor is divided along gender lines: who does what and how much? Further, using the measures of labor income, we provide estimates of how men and women are distributed along the distributions of labor and income from labor: are women the hardest workers and the lowest earners? Gender relations are intertwined with other power relations and therefore we also examine inequality in the distribution of labor income within gender.

The identities of women and men are also rooted in their living arrangements, and the next stage of analysis situates men and women in the context of their household structure. A large proportion of existing studies about gender disparities employ as their implicit or explicit notion of household the married couple family. Given that roughly 35 percent of adults in the United States lived outside of married couple households in 2000, any empirical analysis that leaves out other types of households is bound to be a partial description, especially because gender disparities in the society are, admittedly, not a just a matter of power relations between husbands and wives. With this consideration in mind, we examine trends in paid and domestic labor for men and women in a variety of household settings. Because the synthetic dataset contains estimates of household labor and paid labor for all adults in a household, we are also able to provide estimates of intrahousehold gender disparities in labor.

We then turn to examine the disparities in economic well-being among households differentiated by the living arrangements. Results based on augmented money income and money income are compared to highlight the importance of household production for sustaining the economic well-being of households. Taking into account the value of household production alters the extent of measured disparities among households. Furthermore, if we compare the progress in economic well-being against the growth in total labor hours worked by households, we end up with a much rosier picture of the 1990s boom, especially for single female-headed households. The question of whether household production has an inequality-enhancing or inequality-reducing effect at the aggregate level is also considered using decomposition techniques.

Data sources and methods

Our basic source of data is the public-use datafiles developed by the U.S. Bureau of the Census from the Current Population Survey's Annual Demographic Supplement (ADS). The survey included 59,941 and 78,054 households, respectively, for 1989 and 2000. The survey is the most comprehensive source of information that is available annually regarding household income, housing tenure, receipt of noncash transfers and a number

of key demographic characteristics of U.S. households. However, it has no information on patterns of time-use.

The most reliable sources of microdata for assessing household production are time-use surveys that use the time-diary method (Robinson and Godbey 2001: 58-67). Our data sources for household production are the Americans' Use of Time Project (AUTP), conducted in 1985 and the Family Interaction, Social Capital, and Trends in Time Use Study (FISCT), conducted during 1998-99. Although the data collected in these surveys belong to years different than the ones that we have chosen (1989 and 2000) they are the best available sources. Both surveys were undertaken at the Survey Research Center, University of Maryland. They used the time diary method and collected data for 5,358 and 1,151 individuals, respectively. However, demographic and economic information from respondents are quite limited as a result of limited questionnaire and nonresponse.

We statistically matched the adult records in the 1989 ADS and AUTP.¹ Statistical matching was also used to combine the 2000 ADS and FISCT. Separate matches were conducted for men and women. The strata variables used in the matching procedure are the dummy variables for being employed and being a parent. Within these strata, records are matched by minimizing a distance function based on the number of children under five, and dummy variables for marital status, unemployment, age, education and retirement. For women, a dummy variable for being a homemaker was also included. The weights of the match variables in the distance function are the coefficient estimates in a Tobit regression of weekly hours of housework on all the variables listed above.

Household labor consists of activities by the members of the household that result in the provisioning of a good or service that can be consumed by members of the household (see Table 1 for a list of activities included). Three broad categories of household labor can be identified: Core production (cooking, cleaning etc.), procurement (e.g. shopping for groceries), and care (e.g. reading to a child). Admittedly, a certain amount of arbitrariness cannot be avoided in drawing the line between household labor and other

¹ I am grateful to Asena Caner for devising the computer program for matching.

household activities. The central criterion employed here is whether a particular activity can be considered as labor incurred in the provisioning of a good or service that has an existence independently of the person performing the labor. Personal care, leisure and recreation, education, etc. were therefore left out from the category of household labor. Although derived using a different logic (i.e. the distinction between provisioning and consumption), the definition of household labor used here is identical to the one that may be derived on the basis of the so-called third party principle (Reid 1934).

Weekly hours of household labor were calculated by multiplying the reported daily hours by 7 and applying “day weights” available from the time-use surveys’ public use data files to adjust the reported hours for the day of the week the time diary was filled. Annual hours of household labor were calculated by multiplying the weekly hours by 52. The annual hours of paid labor were calculated by multiplying the usual weekly hours of paid work and weeks worked per year reported in the ADS. By summing household labor and paid labor, we arrived at an estimate of annual hours of total labor for each individual.

Valuation

One approach to valuation would be to multiply the relevant quantity of “output” associated with each household labor process with the corresponding price of a market substitute. Summing up across activities would then yield an aggregate value of the “product” of household labor. Even ignoring the difficult problems of defining “outputs” of several types of household labor processes, this approach is difficult to take because no quantity information is available for the United States or for most other countries regarding the products of household labor. Another approach to valuation is to multiply the quantities of inputs used (including the labor time spent) in each household labor process with their corresponding prices (Chadeau 1992: 90). The attractiveness of the second approach lies in the fact that at least partial information, in the form of time spent by individuals on household labor, is available from the time-use surveys to implement the approach.

Consequently, estimates of the value of household production have generally been made using the second approach. There are three variants of the “input cost” approach. The first one, based on neoclassical considerations, would use the opportunity cost incurred by the person in performing household labor. An appropriate wage rate can be readily found for those employed and potential wages can be imputed for those who are not employed. The other two variants aim to approximate the replacement cost of provisioning done by household labor. The difference between them stems from the wage rate chosen for imputation. The generalist variant would use the average wage of a domestic servant or housekeeper while the specialist variant would use the wages of specialists such as cooks, gardeners, etc.² Both approaches require no additional information than what is available from standard sources of data on earnings and compensation are therefore relatively easy to implement.

In our view, the opportunity cost method is not appropriate to approximate the value of household production. Wages, after all, are determined by to a large extent by industry and occupation (Goldschmidt-Clermont 1993: 422). The asymmetry between paid labor and household labor in terms of their respective constraints and conditions also precludes the key underlying assumption of substitutability between the two that underpins the opportunity cost approach. Replacement cost using specialist wages is also problematic for several reasons; the main difficulty is that the rhythm, organization and intensity of the labor process of specialist workers are completely distinct from the work performed at home by members of the households.³

The replacement cost using the generalist wage was followed in a study sponsored by the United Nations Development Program (conducted for the Human Development Report Office) on the grounds that the labor performed by this type of worker offers the closest match in terms of the labor process involved in household production (Goldschmidt-Clermont and Pagnossin-Aligisakis 1999). We tend to concur with this view, although

² See the discussion in the appendix to Wolff, Zacharias and Caner (2004) for an evaluation of the alternatives and references; see also National Research Council (2005:68-73).

³ For a graphic, first-hand description of the labor process in the house cleaning industry in the contemporary U.S., see (Ehrenreich 2001: 51-101).

this measure is also far from perfect. A serious source of bias is that the range and timing of activities included under household labor is most likely to be outside the scope of the normal work of private household employees. Another potential source of bias is that in the US, a significant chunk of private household employees work in the “underground economy” for relatively low pay. The observed average wage of private household employees may be biased upward because many of the underground workers will not report wages.

Another set of difficulties emerge when we consider that by adopting the generalist wage we are, in effect, setting the unit price of the product of household labor equal to the average wage of private household employees. It is perhaps best to consider it as the “unadjusted price” of the composite output of household labor. Adjustments are required to reflect the real differences that exist among households due to the heterogeneity of the output (in both quality and kinds of products or services) and household technology. Some adjustment should also be made to account for the differences in the quality and efficiency of the labor time spent by different individuals. While this is an area where much more research is needed, available evidence suggest that such differences are correlated with the resources available to the households (income and wealth) and characteristics of individuals such as the influence of parental education on childrearing practices (Yeung and Stafford 2003). An attempt was made to capture these effects by constructing a discount or premium factor for each adult individual. The factor is constructed as a composite index of years of household income, years of schooling, and time available for household labor. Ideally, the weights assigned to these variables (and other relevant ones) should reflect their relative importance. Due to the absence of such we weighted them equally in the index.

The average hourly earnings of private household employees (estimated from the Outgoing Rotations of the CPS) was multiplied by the index to derive an estimate of hourly replacement cost for each adult’s household labor. The replacement cost for each adult’s annual hours of household labor was derived by multiplying the replacement cost

with the annual hours of household labor that was obtained from the synthetic dataset created in the matching process described in the previous section.

Household labor, paid labor and gender disparities

Overall trends among individuals

The standard of living in an economy is sustained by the labor performed by men and women. In the United States, the total annual hours of labor per working person—someone who engaged in either paid or household labor—was higher in 2000 than 1989 by 5.1 percent or 131 hours (Table 2). Total annual labor hours for those engaged in paid work rose somewhat faster at 6 percent or 174 hours, lending support to the idea that Americans are indeed “overworked” (Schor 1992). Schor’s estimates for work burden faced by those in paid work indicated that annual hours of total work increased by 162 hours between 1969 and 1987, with all of the increase stemming from paid labor (Table 2.3, p.35). In contrast, 51 out of the extra 131 hours (about 40 percent) that Americans worked in 2000 as compared to 1989 were due to household labor.

Men and women were both affected by the increase in work burden, but men’s total hours increased by twice as much that of women’s in absolute terms. The result was a decline in gender disparity, measured as the ratio of women’s hours to men’s hours, from 1.04 to 1.00 for all adults and from 1.08 to 1.03 for employed adults. Among adult women, hours of household labor actually declined for all, while for those in paid employment there was no change. Thus, the increase in women’s total labor was due to their increased paid labor, suggestive of the so-called “second-shift” (Hochschild 1989). In contrast, men engaged in more household and paid labor in 2000 compared to 1989, with household labor accounting for over three quarters of the increase in total labor. As a result of these shifts, there was greater gender parity in paid and household labor in 2000 than 1989. Comparisons among all working persons indicate that the disparity in paid labor was 0.68 in 2000 as against 0.62 in 1989. Disparity in household labor was also lower at 1.52 in 2000 compared to 1.81 in 1989. Thus, while the disparity between men and women has narrowed in terms of total labor, the separation between them in terms of spheres of

labor—household for women and workplace for men—is still a dominant feature of the gender division of labor in the US.

How was the change in gender disparity in household labor and increased labor market involvement by women reflected in the composition of household labor? Our estimates suggest that the allocation of time by men and women among the three main categories of household labor—core production, procurement and childcare—has become more similar. In particular, the increased household labor by men have gone mainly into childcare while women have cut back on core production and procurement in favor of childcare. The pattern is similar for all working persons and those in paid employment and hence the estimates are shown only for the latter group (Figure 1). Since women in paid employment has not reduced their household labor, the shift in time allocation suggests that increased paid labor by women has not come at the expense of childcare, a finding that is consistent with previous research (Sandberg and Hofferth 2001; Bianchi 2001).

Next, we turn to the question of trends in the income from labor. For income from paid work, or labor income (LI), we use the standard measure of earnings available in the ADS plus the imputed value of employer contributions for health insurance, also available in the ADS. The value of household production, calculated in the manner described earlier, is added to labor income to obtain a measure of augmented labor income (ALI). Because private household employees earn wages that are substantially below the average wage and because average hours of household are roughly similar to paid hours, we expect ALI to be below LI on an hourly basis. The estimates shown in Table 3 confirm this expectation.

While there is near parity in total labor between men and women in 2000, disparity persisted in augmented labor income (ALI), as shown in Figure 2. Gender disparity in ALI as measured by the ratio of mean values of women to men's was roughly at the same level, about 0.7, in 2000 and 1989. However, when measured in terms of the ratio of median values, disparity declined due to stagnation in men's earnings and improvement

in earnings for women (Table 3). The higher relative value of household labor for women is largely a reflection of their greater time availability, given their lower participation rate in paid work and lower average hours of paid work. However, the relative advantage for women in this respect is small compared to their relative disadvantage in labor income and, hence, the overall disparity between men and women in terms of rewards to labor closely mirrors their disparity in earnings.

While the average values are indicative of the quantitative dimensions of the gender hierarchy, it is also instructive to examine the distribution of men and women across the distributions of total labor hours and augmented labor income (ALI) in the economy. The proportion of women in selected fractiles of total labor hours and ALI are shown in Figure 3. If women and men were represented according to their shares in the total number of persons with positive ALI then there would be roughly 52 percent of women in each fractile. The patterned line with arrowheads shows this benchmark value in the figure. Women are disproportionately represented in the bottom and top thirds of the distribution of total labor hours in both years, although this pattern was more pronounced in 1989. A sharp drop in the percentage of women can be found at the 30-35 percentiles⁴, followed by a series of values in the middle of the distribution that generally lie below the benchmark value till almost the 70th percentile and then a spurt in the percentage of women at the top fractiles. It appears that the distribution of total labor hours is relatively “hollow” in the middle with respect to women. In contrast, the bottom two-thirds of the distribution of labor rewards is relatively “dense” with women and their percentage share declines rather sharply after the 75th percentile. Taken together, the distribution of men and women across the spectrum of effort and rewards suggests the following picture: women are overrepresented among the hardest workers while men are overrepresented among those enjoying the highest rewards from work.

Gender inequalities are embedded in other social hierarchies such as that of class or race. Therefore, it is important to look at inequalities among men and women as well as between them along several dimensions. Here we consider this aspect of the issue by

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using our measures of labor income and augmented labor income. Estimates shown in Table 4 are for persons with positive income from paid labor. It is well known that earnings inequality was higher in 2000 than in 1989 and the estimates for labor income are consistent with this observation. The gender disaggregation indicates that much of this growth in inequality has been due to the rapid growth in inequality among men. While inequality among women was substantially higher than among men in 1989, the increase in inequality among men since then has actually reversed the situation. As we would expect, the addition of the value of household production to earnings lowers inequality for both groups, most notably among women. However, augmented labor income shows a higher amount of growth in inequality between 1989 and 2000 as compared to the standard measure (3.26 Gini points vs. 2.70 Gini points).

Household structure, intrahousehold disparities and household well-being

We now turn to examine patterns of household and paid labor of men and women by placing them in the context of their household arrangements and relate these patterns to their household economic well-being. As a measure of the latter, we will use augmented money income (AMI) that is equal to the sum of household money income and the value of household production for the household as a whole. The latter is obtained by summing within the household, the value of household production associated with each adult member of the household.

Household labor and household structure

An important factor that governs the differences among individuals in the quantity of household labor performed is obviously whether the individual belongs to a family household or not.⁵ This is quite natural because of the larger average size of a family household and because children can be found generally only in such households.⁶ As can

⁵ A family household is, according to the US Census Bureau, a household with two or more members related by blood, marriage or adoption.

⁶ In both the years studied here, family households make up for about 70 percent of all households and 85 percent of all persons live in such households. The share of family households in total household labor in both years was roughly 84 percent, in line with their share of total population.

be seen from Table 5, in 1989, the annual hours of household labor by men in family households is about 13 percent higher than men in nonfamily households and for women it is about 26 percent higher. The disparities widened in 2000 between men since the household labor hours of men in family households grew at about double the rate of that of men in nonfamily households. For women too, the disparities grew, but, due to a different reason: The women in nonfamily households experienced a faster decline in their household labor than women in family households (-9 percent vs. -2 percent). Among family households, men and women in households with children perform more household labor as one would expect from the additional work involved with caring for children and maintaining a household for children (cleaning up after them, shopping for them etc.). In 1989, the extra amount of work was only about 2 percent for men while it was about 9 percent for women. However, by 2000, because household labor hours for the men in family households with children grew much faster than that for men in all family households (31 percent as against 18 percent), the disparity between them widened. Between women, in contrast, the disparity narrowed because in households with children women spent about the same hours in household labor in 2000 as they did in 1989, while for women in all family households, household labor declined by 2 percent. Women in single female-headed family households, especially in those with children were the only group to experience an increase in their hours of household labor.

There are some significant differences in paid labor among men and women in different types of households. Women living in a nonfamily household with a single male householder did the most paid work on average in both years, followed by women in single female-headed families (1,439 and 1,124 hours, respectively, in 1989). But, the gap between them narrowed to 123 hours in 2000 as the women in the latter type of household experienced a 22 percent increase in their hours of paid labor, to reach a level of 1,366 hours. Compared to the women in these two groups, the women in other groups—in married-couple families and single male-headed family households—generally engage in lower amounts of paid work and the differentials among them are rather small, with women in single female-headed nonfamily households registering the lowest amount of paid labor.

Married men in families with children the worked longest in both years (1,994 in 2000). Men in single male-headed families with children and in single female-headed nonfamily households occupied, respectively, the second and third position with respect to annual hours of paid labor (1,763 and 1,744 hours, respectively, in 2000). Men in single-female headed households worked the lowest amount of paid hours in both years, though their average of 1,423 hours in 2000 represented a level that was 18 percent higher than in 1989, making them the group that experienced the fastest growth in paid labor.

Gender disparities implied by the different patterns of paid and household labor among men and women discussed above are shown in Table 6. Disparity in total labor (measured by the ratio of women's to men's hours) is highest in single female-headed family households with children while it is the lowest in single-male headed families with children. Gender disparity in total labor diminished among all household types between 1989 and 2000, with the number of types of household where women worked less total hours than men doubling from three to six. Any significant disparity in total labor was found in 2000 only among family households headed by a single female and nonfamily households headed by a single male. Most notably, among married couples with children, average women have gone from a situation where they worked 2 percent more than men in 1989 to a situation where they actually worked 6 percent less than men in 2000.

The reduction in disparities in total labor was accompanied, as we saw earlier at the aggregate level, by greater parity in paid work and household labor among all types of households. Parity in paid labor is the greatest in single female-headed family households and single male-headed nonfamily households and lowest in married couple households with children and single female-headed, nonfamily households. On the other hand, parity in household labor is the lowest among single female-headed family households with children and highest among single male-headed family households with children. However, there is not a single type of household where there is gender parity in paid or household labor, with men consistently engaged in more paid labor and less household labor than women.

In single female-headed households women work nearly as much as men in paid labor, but they also work far more than men in household labor, so that their total labor is much greater than men. The gender disparity in household labor in married-couple households is comparable to that in single female-headed households in 2000 (1.58 vs. 1.68), but women in the former engage in only 65 percent as much paid labor as men so that in overall labor they attain parity with men. The difference between women in these two types of families in the number of children does not appear to be strong enough to explain why the disparity in household labor is quite similar: Women in both households have the same median value for all children (2.0) and children under 6 (1) in both years.⁷

Intrahousehold division of labor

The estimates discussed so far in this section pertained to average values for men and women differentiated by their living arrangements. Intrahousehold gender disparity is another essential component of overall gender disparity. An advantage of our matched datasets is that we can arrive at some estimates of the magnitude of this form of gender disparity. As indicated before, the design of existing and ongoing national time-use surveys in the United States precludes considerations of intrahousehold disparities. While intrahousehold gender disparity is defined only for households with at least two members of the opposite sex, it is quite possible that such households might have more than one adult member of the same sex. In order to adjust for such differences we take the mean values of labor hours by sex within each household. We then add up the mean labor hours for men and women in each household to derive a household-level size-adjusted sum of labor hours for paid, household and total labor.

The gender disparity in either category of labor (household or paid) is calculated as the difference between women and men's annual hours divided by the household-level sum of total labor. This index will take a value of zero if men and women work equal hours in total labor. If men's hours of total labor equal the household-level sum of total labor, then

⁷ The mean values of children and young children also are quite close: 1.9 for married-couple versus 1.8 for single-female family heads and 1.4 for young children in both groups (estimates for 2000).

the index will be equal to -1 and, at the opposite extreme, if women's total labor equal the household-level sum of total labor, then it will be equal to $+1$. If the index takes value between 0 and -1 , it can be interpreted as the "excess" hours that women work expressed as a percentage of the household-level sum of total labor and a value between 0 and $+1$ is the "deficit" of women's hours of work, once again expressed as a percentage of the household-level sum of total labor. The excess and deficit hours are defined here relative to a situation of complete equality in hours. For either component of total labor, i.e., paid or household labor, we calculate the index in the same way and express the difference between women and men's hours as a percentage of the household-level sum of total labor. The advantages of defining the index this way are that it makes clear the direction of disparity and renders the disparity in total labor as the sum of the disparities in paid and household labor.

The average values of the intrahousehold index for different types of household are shown in Table 7. For family households, the picture regarding the division of total labor that emerges from this exercise is quite similar to that we obtained by examining the ratio of mean values (Table 6): married-couples moved from a situation of slight disparity against women in 1989 to virtual parity in 2000; single-female headed households saw a reduction in disparity; and, gender disparity against men grew in single male-headed households. However, for single-female headed nonfamily households in 1989, the index suggests a rather substantial gender disparity against women, while the ratio of mean values suggest that women actually performed less total labor than men. It should be noted that the values of the intrahousehold index and the mean values by household type both indicate the world of work and household labor continue to be colored strongly by gender divisions. We can observe the gender division using the intrahousehold index by noting that its value is consistently negative in the paid labor column and consistently positive in the household labor column (Table 7). Similarly, using the ratio of mean values, it can be seen that the values in the paid labor column are consistently below unity while those in the household labor are consistently above that value (Table 6).

Household labor and well-being

We begin by looking at how important household labor performed by the members of the household is to the economic well-being of the household. A crude way to judge the importance is to examine the percentage share of the value of household production in an augmented measure of economic well-being. We employ as the latter money income plus the value of household production, defined earlier as augmented money income (AMI). Money income is far from being a perfect measure of economic well-being. As has been discussed several authors (**add references**), a number of adjustments are required to transform it into even reflect in a better way a household's command over commodities. We do not attempt such modifications here due to two reasons. First, money income is the official measure and has been the most frequently measure of economic well-being in studies on the level and distribution of economic well-being. Second, the particular effects of adding the value of household production on the official measure may be observed in a more transparent manner if no additional adjustments are made to it.

Our estimates indicate that household production contributes substantially to household well-being (Figure 4).⁸ As a percentage of AMI in 2000, household production amount to 25 percent for all households. It is the highest for single female-headed family households (30 percent) and lowest for single male-headed nonfamily households (15 percent). The difference between these two groups is completely explained by their respective values of household production because their values of AMI are almost identical.⁹

Interhousehold disparities in well-being change somewhat depending on whether household production is taken into account (Figure 5). To adjust for differences we have followed the standard procedure for adjustment using an equivalence scale (Short 2001).¹⁰ The bars labeled "MI" show the ratio between the equivalence scale-adjusted

⁸ The estimates for 1989 are similar and hence are not shown here.

⁹ The mean values of AMI for single female-headed family households and single male-headed nonfamily households were, respectively, \$51,940 and \$50,762.

¹⁰ For single parents, the scale is $(A+0.8+0.5*(C-1))^{0.7}$, while for all other households, it is $(A+0.5*C)^{0.7}$, where A is the number of adults and C is the number of children.

household money income of a particular group and average the equivalence scale-adjusted household money income for all households. Similar definition also holds for AMI. The economic advantage enjoyed by single male-headed nonfamily households over the average household disappears once we adjust for the value of household production, while for the married couple the advantage appears a little larger. The difference might perhaps be explained to a large extent by the lower mean number of children and young children between in the former group (1.60 and 1.44 vs. 1.93 and 1.20) as well as the fact that the difference between MI and AMI increases with the number of adults in the household. Family households headed by single males appear to be at a greater disadvantage when their economic well-being is reckoned in terms of AMI rather than MI, while the disadvantage of families headed by single-females and married couple families appear somewhat diminished. Once again, differences in household composition and size—number of children and number of adults per household—could account for the bulk of the variations.

It is also interesting to examine how far our picture regarding trends in economic well-being is affected if the income measure for the household is adjusted by the total labor hours. Of course, there are a number of items in money income that are not related to labor hours at all (e.g. Social Security, disability assistance etc.). Thus, we cannot interpret AMI per hour (HAMI) in the usual manner as say hourly earnings. Yet, in so far as AMI represents the command over commodities and household production available to a household, it may be instructive to how the *change* in the magnitude of command is related to the *change* in total labor hours.

Estimates are shown in Figure 6 for the percent change between 1989 and 2000 in MI, AMI and HAMI. The trend in economic well-being for households in all groups (with the exceptions of single male-headed family and nonfamily households) appear to be a little less when AMI is used as the yardstick for economic well-being, but the range of variation in the amount of change is almost identical (the max/min ratio is about 3 for MI while it is 2.3 for AMI). However, once we take the change in the hours of labor by individuals in different household groups, there are huge variations in the trend of

economic well-being. Especially striking is the situation of families headed by single persons, whose increase in real economic well-being per hour worked between 1989 and 2000 to be a mere 1-2 percent. For example, the percent change in MI for single female-headed families was 24 percent, but only 2 percent in HAMI. The economic well-being of the married-couple families also grew by a smaller extent when HAMI is used as the yardstick rather than MI (13 percent vs. 20 percent). The lower growth in HAMI as compared to MI has to be due to the lower growth in money income and the replacement cost of household labor relative to the growth in hours of paid labor and household labor. The trends in the latter are shown in Figure 7 where in addition to HAMI, we have also plotted hourly money income (HMI, money income divided by hours of paid labor) and hourly replacement cost of household labor (HHL) by type of family household and gender. Compared to men and women in married couple families men and women in single person-headed families earn far lower growth in hourly money income; for women in single-female headed families, hourly money income actually fell by 3 percent.

Does adding household production to the income measure increase measured inequality between households? Previous literature that examined this issue has suggested some mixed results (e.g. Jenkins and Leary 1996). In light of the alternative method of valuation that we have adopted, it is interesting to examine the relationship between household production and overall inequality. Here we address this issue using decomposition analysis following the method discussed in Lerman (1999). The overall degree of inequality in AMI can be expressed as resulting from the “contributions” made by household income and value of household production. The contribution made by each component can be calculated as the product of its concentration coefficient and its share in total income (Yao 1999, pp.1252–1253). In order to highlight the role of the individual components, it is convenient to divide the contribution of each component by the overall degree of inequality and express the result as a percentage showing the share of each component in total inequality. The estimated shares of the two components in the overall inequality of AMI are shown in Table 8. The share of household production in total inequality in AMI is somewhat smaller than its share in AMI, suggestive of a marginal effect that is inequality-reducing. This is not surprising, given that the

distribution of household production is bound to be more equal than the distribution of money income so that adding the former to money income would have an inequality-reducing effect. The results of the decomposition analysis confirm this intuition.

Conclusions

Annual total labor hours (sum of paid and household labor) worked by the average adult in the United States was higher in 2000 than in 1989 by about 131 hours or 5.1 percent. The increase in work burden for the average adult engaged in paid labor was even higher at 174 hours or 6 percent of the 1989 level. Our estimates suggest that the trend toward longer working hours discussed widely (e.g. Schor 1993) might have continued in the 1990s too. The growth in annual total labor affected men and women to differing extent, with the increase faced by men amounting to nearly double the size of that for women. Increased hours of household labor accounted for 75 percent of the increase in the total labor hours of men. As a result of these changes, men and women worked roughly the same amount of total hours, although the separation between them in terms of spheres of labor—household for women and workplace for men—is alive and well. Our examination of the distribution of men and women across the distributions of total labor and augmented labor income (labor income plus the value of household production) suggests that women are disproportionately represented among the higher rungs of labor and the lower rungs of labor income. Strikingly, the “70 cents to a dollar” rule applies for augmented labor income between women and men. The rule appears to work with equal force in 2000 as in 1989.

There are systematic differences in patterns of paid labor and household labor by men and women according to their household structure. While women generally faced unchanged or lower hours of household labor in 2000 than in 1989, women in single female-headed families faced an increase in household labor, along with increased hours of paid labor. Gender disparities in total labor diminished among all types of household (differentiated by their structure), especially among married couples with children. However, just as at the aggregate level, across all types of living arrangements a common

theme of gender division is visible with women consistently engaged more in household labor and men in paid labor.

Disparities in economic well-being among households differentiated by their structure is affected considerably by whether the value of household production is taken into account. In particular, the relative advantage enjoyed by single male-headed nonfamily households appears to be extinguished when household money income is adjusted for household production. Taking household production into account is also important for assessing the trends in economic well-being. Our estimates show that when the progress in economic well-being during the 1990s boom is much lower when we take into account the increase in total labor performed by the household members. Most strikingly, while the money income for single female-headed families in 2000 was 22 percent higher than in 1989 according to augmented money income, on an hourly basis the increase was only a mere 2 percent.

Several aspects related to household labor and economic well-being require further research. The estimates presented here should be considered with caution since they are based on synthetic datasets. It will be interesting to examine (using, for example, the newly available ATUS data in conjunction with the income/employment survey) how far, the trends documented here have been reversed as a consequence of generally less robust labor market since 2001.

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Table 1 Unpaid activities included under household labor

Core production	Child care	Procurement
Food preparation	Baby care	Shopping for food
Food cleanup	Child care	Shopping for clothes/HH items
Cleaning house	Helping/teaching	Personal care services
Outdoor cleaning	Talking/reading	Medical appointments
Clothes care	Indoor playing	Govt/financial services
Car repair/maintenance	Outdoor playing	Car repair services
Other repairs	Medical care-child	Other repair services
Plant care	Other child care	Other services
Animal care	Travel, child care	Errands
Other household		Travel, goods and services

Source: Robinson, John P., Suzanne M. Bianchi and Stanley Presser. *Family Interaction, Social Capital, and Trends in Time Use (FISCT), 1998-1999*: [United States] [Computer File]. ICPSR version. College Park, MD: University of Maryland Survey Research Center [producer], 1999. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2001.

Table 2 Annual hours of total, paid and household labor, 1989 and 2000

	1989					
	All adults who worked			Adults in paid work		
	All	Men	Women	All	Men	Women
Total	2,567	2,519	2,609	2,879	2,778	2,997
Paid labor	1,309	1,639	1,013	1,815	1,992	1,607
Household labor	1,258	881	1,596	1,064	786	1,390
	2000					
	All adults who worked			Adults in paid work		
	All	Men	Women	All	Men	Women
Total	2,698	2,696	2,700	3,053	3,009	3,102
Paid labor	1,389	1,665	1,136	1,891	2,050	1,713
Household labor	1,309	1,030	1,564	1,162	959	1,389
	Percent change, 1989 to 2000					
	All adults who worked			Adults in paid work		
	All	Men	Women	All	Men	Women
Total	5.1	7.0	3.5	6.0	8.3	3.5
Paid labor	6.1	1.6	12.1	4.2	2.9	6.5
Household labor	4.1	17.0	-2.0	9.2	22.0	0.0
	Absolute change, 1989 to 2000					
	All adults who worked			Adults in paid work		
	All	Men	Women	All	Men	Women
Total	131	176	91	174	231	105
Paid labor	80	27	123	76	58	105
Household labor	51	149	-32	98	173	0

Table 3 Augmented labor income (ALI), labor income (LI) and value of household production (VHP), dollars per hour (in 2000 dollars), 1989 and 2000

	1989					
	Mean			Median		
	All	Men	Women	All	Men	Women
ALI	11.7	14.2	9.5	9.3	11.4	8.3
LI	16.9	19.8	13.4	13.1	15.6	10.8
VHP	7.0	6.7	7.3	6.8	6.4	7.0
	2000					
	Mean			Median		
	All	Men	Women	All	Men	Women
ALI	13.3	16.0	10.8	10.0	11.4	9.2
LI	20.0	23.1	16.4	13.9	15.8	12.1
VHP	7.4	7.1	7.7	7.2	6.8	7.5
	Percent change, 1989 to 2000					
	Mean			Median		
	All	Men	Women	All	Men	Women
ALI	13.6	13.0	14.0	7.1	-0.3	10.8
LI	18.4	16.8	22.5	6.0	1.4	11.9
VHP	5.5	5.6	5.5	6.5	5.8	6.8

Notes:

(i) ALI = LI + VHP

(ii) LI is the sum of earnings and the imputed value of employer contributions for health insurance

(iii) VHP is the value of household production (hourly replacement cost of household labor)

**Table 4 Inequality in augmented labor income and labor income, 1989 and 2000
(Gini coefficient x 100)**

	Labor income		Augmented labor income	
	1989	2000	1989	2000
All	45.0	47.7	39.2	42.5
Men	41.6	46.8	39.2	44.0
Women	44.5	44.8	37.0	38.9

Notes:

(i) $ALI = LI + VHP$

(ii) LI is the sum of earnings and the imputed value of employer contributions for health insurance

(iii) VHP is the value of household production (hourly replacement cost of household labor)

(iv) Estimates are only for those with positive labor income

Table 5 Total, paid and household annual hours of labor by type of household and gender, 1989 and 2000 (mean values)

	1989			2000			Percent Change		
	Total	Paid	Household	Total	Paid	Household	Total	Paid	Household
Family households									
Men	2,483	1,604	878	2,663	1,627	1,036	7	1	18
Women	2,668	1,015	1,653	2,735	1,120	1,615	3	10	-2
<i>Married</i>									
Men	2,543	1,650	893	2,723	1,666	1,057	7	1	18
Women	2,716	999	1,717	2,755	1,090	1,665	1	9	-3
<i>Single female</i>									
Men	1,935	1,173	761	2,166	1,282	884	12	9	16
Women	2,520	1,083	1,437	2,729	1,240	1,489	8	14	4
<i>Single male</i>									
Men	2,323	1,504	818	2,559	1,574	985	10	5	20
Women	2,308	970	1,338	2,320	1,055	1,265	0	9	-6
Family households with children									
Men	2,805	1,909	897	3,106	1,930	1,175	11	1	31
Women	2,872	1,066	1,806	3,011	1,213	1,799	5	14	0
<i>Married</i>									
Men	2,887	1,976	911	3,204	1,994	1,209	11	1	33
Women	2,955	1,050	1,905	3,025	1,162	1,863	2	11	-2
<i>Single female</i>									
Men	1,919	1,202	717	2,270	1,423	846	18	18	18
Women	2,650	1,124	1,526	3,052	1,366	1,686	15	22	10
<i>Single male</i>									
Men	2,610	1,725	885	2,915	1,763	1,152	12	2	30
Women	2,442	996	1,446	2,417	1,135	1,282	-1	14	-11
Nonfamily households									
Men	2,358	1,585	772	2,412	1,566	845	2	-1	9
Women	2,293	980	1,313	2,270	1,071	1,199	-1	9	-9
<i>Single female</i>									
Men	2,356	1,621	735	2,545	1,744	801	8	8	9
Women	2,271	935	1,336	2,237	1,021	1,216	-1	9	-9
<i>Single male</i>									
Men	2,358	1,582	776	2,398	1,548	850	2	-2	10
Women	2,515	1,439	1,075	2,542	1,489	1,053	1	3	-2

Note: The type of household is designated by the marital status of the householder and his/her relations with other members of the household. Householder is the person under whose name the housing unit is rented or owned. In case of joint ownership or tenancy, the status of the householder is assigned randomly. Family is defined as a group of two or more persons living together who are related by blood, marriage or adoption.

Table 6 Gender disparities by type of household (ratio of women to men's mean annual hours), 1989 and 2000

	1989			2000		
	Total	Paid	Household	Total	Paid	Household
Family households	1.07	0.63	1.88	1.03	0.69	1.56
Married	1.07	0.61	1.92	1.01	0.65	1.58
Single female	1.30	0.92	1.89	1.26	0.97	1.68
Single male	0.99	0.64	1.64	0.91	0.67	1.28
Family households with children	1.02	0.56	2.01	0.97	0.63	1.53
Married	1.02	0.53	2.09	0.94	0.58	1.54
Single female	1.38	0.94	2.13	1.34	0.96	1.99
Single male	0.94	0.58	1.63	0.83	0.64	1.11
Nonfamily households	0.97	0.62	1.70	0.94	0.68	1.42
Single female	0.96	0.58	1.82	0.88	0.59	1.52
Single male	1.07	0.91	1.39	1.06	0.96	1.24

Note: See notes to Table 5 for an explanation about classification of households.

Table 7 Intrahousehold gender disparities by type of household in total, paid and household labor, 1989 and 2000 (mean values)

	1989			2000		
	Total	Paid	Household	Total	Paid	Household
Family households						
Married couple	2.3	-13.4	15.8	-0.2	-11.7	11.5
Single female	12.0	-3.4	15.5	8.7	-2.0	10.7
Single male	-3.7	-13.4	9.6	-9.4	-12.3	2.8
Nonfamily households						
Single female	3.5	-2.7	6.2	0.4	-4.1	4.5
Single male	-1.4	-8.4	6.9	-2.8	-6.6	3.9
All households	2.7	-12.5	15.2	0.0	-10.7	10.8

Notes:

(i) See text for an explanation of the index of intrahousehold disparity.

(ii) See notes to Table 5 for an explanation of the classification of households

Table 8A Contribution of household production to overall inequality

	1989		2000	
	Income share	Share in inequality	Income share	Share in inequality
Money income	73.8	76.0	75.3	78.6
Household production	26.2	24.0	24.7	21.4
Total	100.0	100.0	100.0	100.0

Note: See text for details

Table 8B Reranking and gap-narrowing effects of household production

	1989	2000
A. Gini coefficients		
Money income (MI)	0.418	0.460
Augmented money income (AMI)	0.389	0.423
B. Difference between the coefficients		
G(MI) - G(AMI)	-0.029	-0.038
Reranking	0.018	0.019
<i>(Percent of total change)</i>	<i>-60%</i>	<i>-52%</i>
Changing gaps	-0.047	-0.057
<i>(Percent of total change)</i>	<i>160%</i>	<i>152%</i>
Memo item:		
<i>Concentration coefficient for AMI with respect to MI</i>	0.372	0.403

Figure 1. Composition of household labor, 1989 and 2000 (in percent)

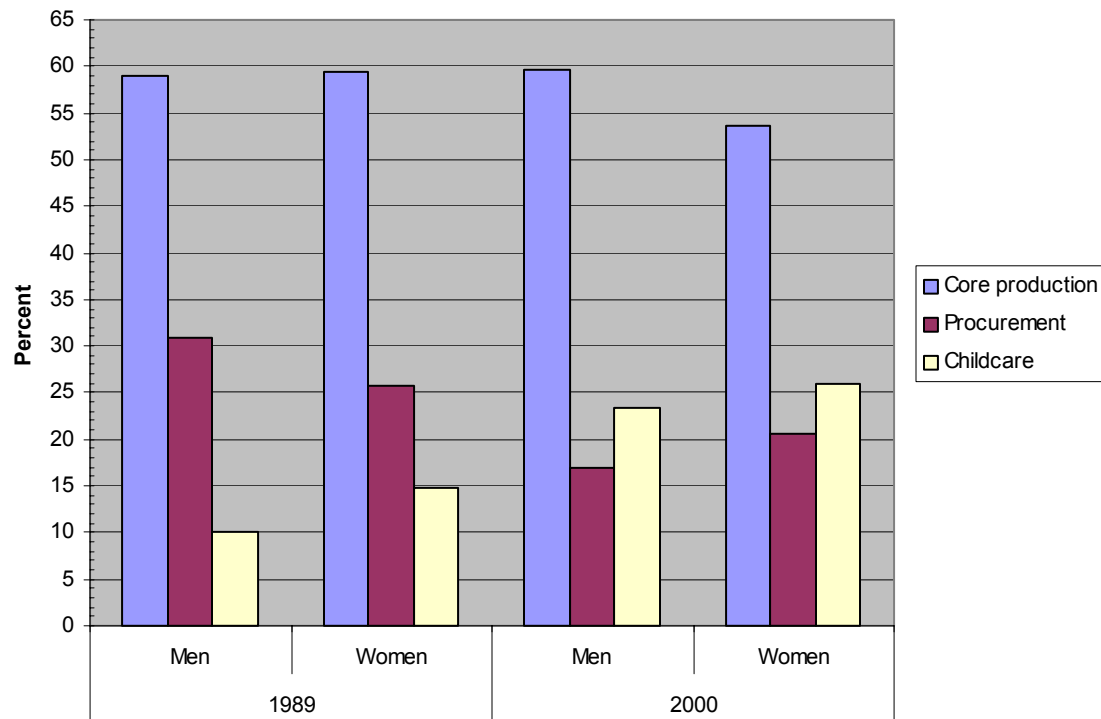
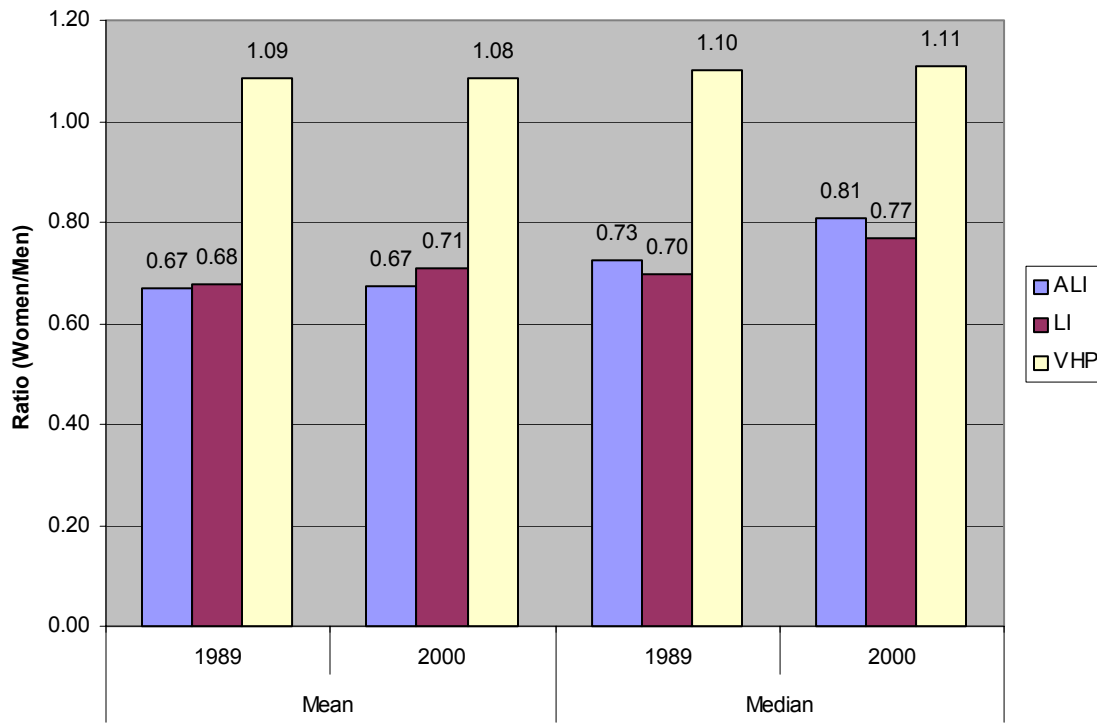


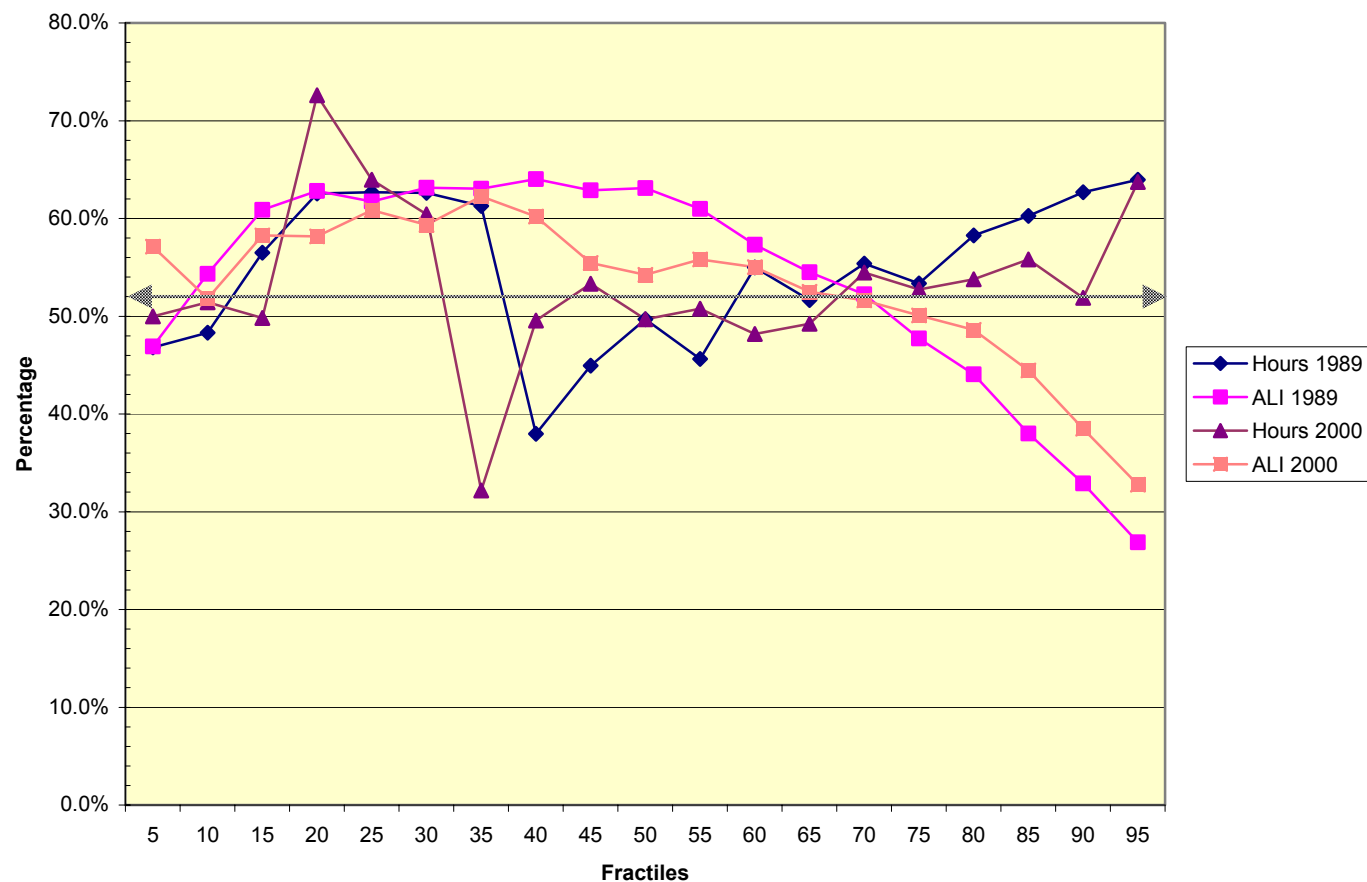
Figure 2. Gender disparity in augmented labor income (ALI), labor income (LI) and value of household production (VHP), (ratio of women to men's mean hourly amounts)



Notes:

- (i) $ALI = LI + VHP$
- (ii) LI is the sum of earnings and the imputed value of employer contributions for health insurance
- (iii) VHP is the value of household production (hourly replacement cost of household labor)

Figure 3. Percentage of women in selected fractiles of total labor hours and augmented labor income (ALI)



Notes:

(i) Total labor hours is the sum of annual hours of paid labor and household labor.

(ii) Augmented labor income (ALI) is the sum of earnings, employer contributions for health insurance and value of household production

Figure 4 Share of the value of household production in augmented money income by type of household, 2000 (in percent)

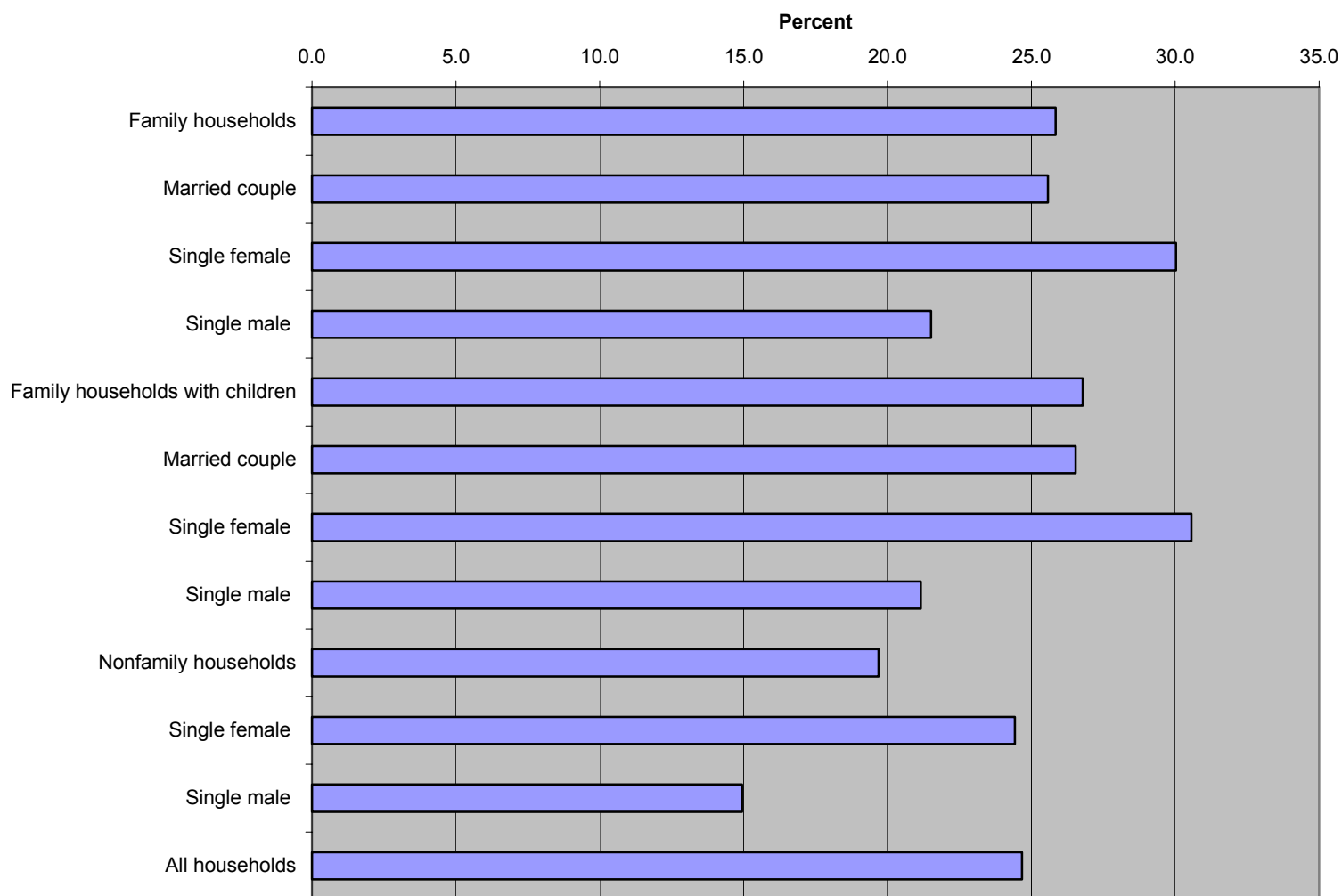
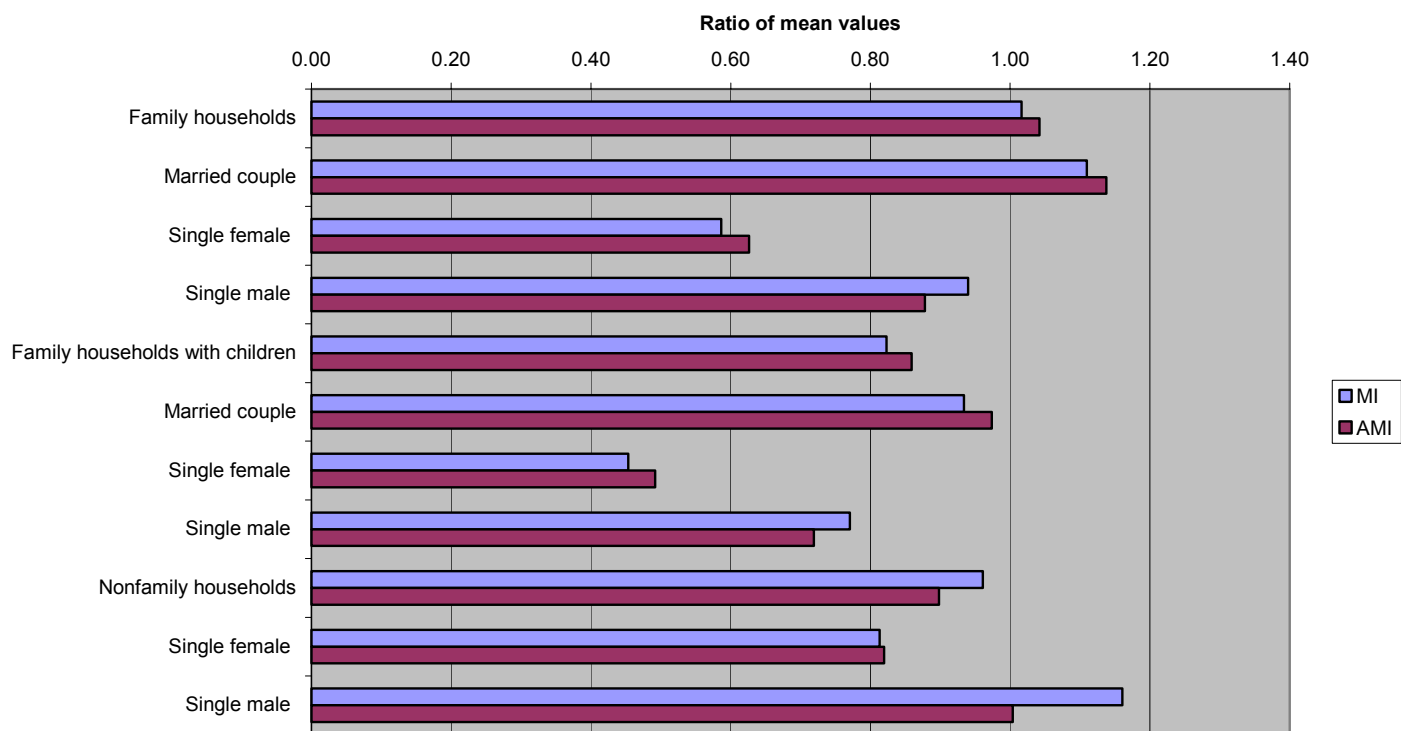
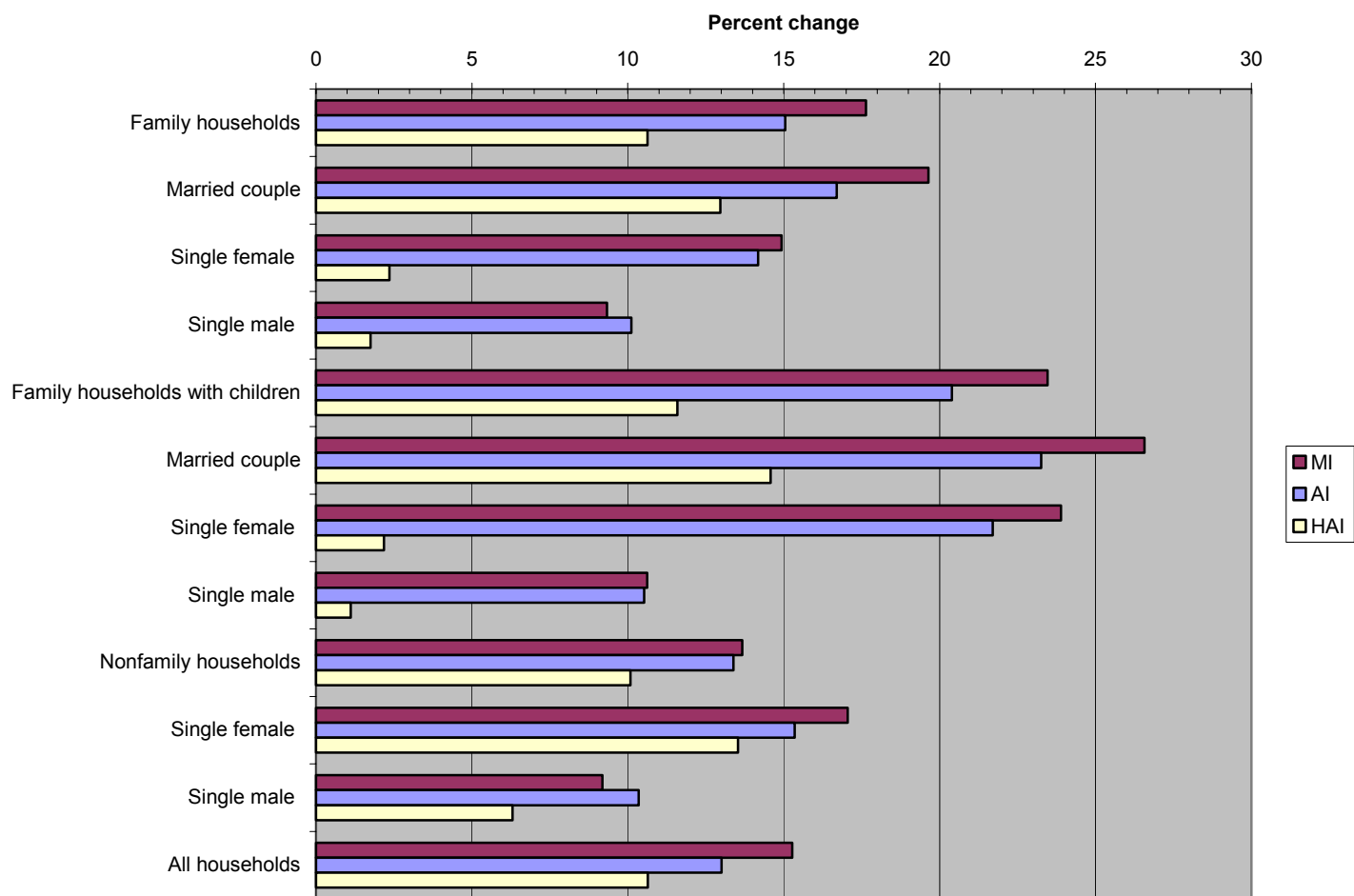


Figure 5 Interhousehold disparities in well-being by type of household and equivalence-scale adjusted measure (ratio of the mean values of households in the group to all households), 2000



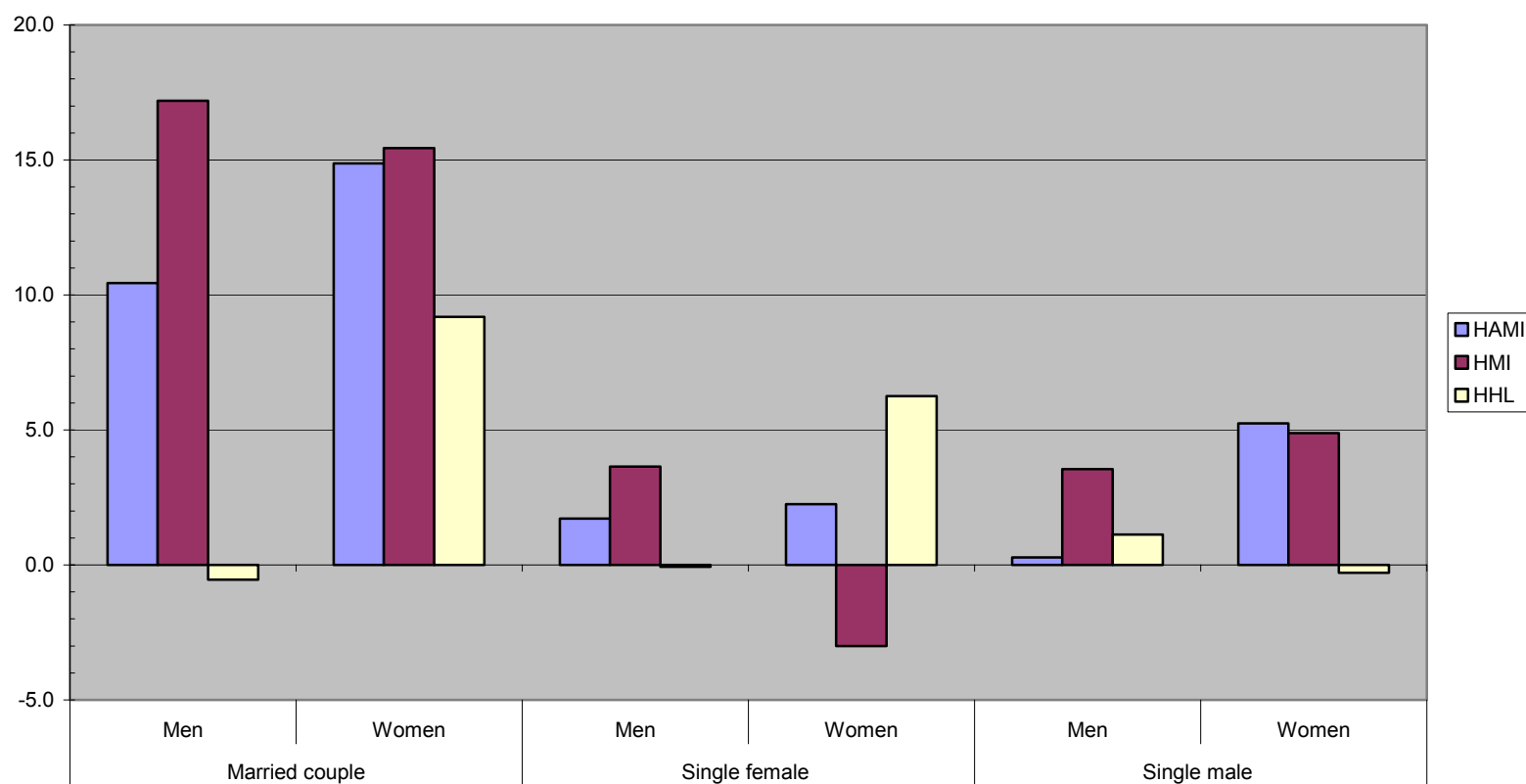
Notes: MI and AMI indicate respectively money income and augmented money income. Both are adjusted using the equivalence scale discussed in Short (2001).

Figure 6 Percent change in economic well-being, by type of household and measure, 1989 to 2000



Notes: (i) MI is money income and AI is augmented money income (ii) HAI is augmented money income divided by total annual hours of labor

Figure 7 Percent change in economic well-being per hour, by type of household and measure, 1989 to 2000



Notes: (i) HAMI is augmented money income divided by total annual hours of labor (ii) HMI is money income divided by annual hours of paid labor (iii) HLL is annual value of household production divided by annual hours of household labor