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Does Housework Matter Anymore?
The Shifting Impact of Housework on Economic Inequality

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Abstract

In recent years, American women's housework time has declined while American men's housework time has risen. We examine how these changes have affected economic inequality in America. Using time-diary data from the Time Use in Economic and Social Accounts, 1975-76 (N=1,484) and the American Time Use Survey, 2003 (N=5,534), we assess the economic value of adults' housework and its influence on households' real access to goods and services in both years. Results suggest that housework reduces economic inequality. But, between 1975-76 and 2002-03, economic inequality rose largely because of the growing money income inequality and also, in part, because of modest growth in housework inequality. Demographic change, principally the rise in women's employment, partially inhibited the growth in inequality.

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DOES HOUSEWORK MATTER ANYMORE?

THE SHIFTING IMPACT OF HOUSEWORK ON ECONOMIC INEQUALITY

1. INTRODUCTION

While the economic value of housework has been recognized by family economists for many years (Reid, 1934; Warren, 1940; Wiegand, 1954; Wilson, 1929), it was not until the path-breaking work of Becker (1965) that more mainstream economists acknowledged that households enhance their access to goods and services by spending time doing both housework and market work. Today, there is no doubt among social scientists that the time spent by household members, cooking meals, laundering clothing, gardening, etcetera, enhances economic well-being. This recognition has led to an international literature seeking to incorporate housework and other nonmarket work (e.g., volunteer work) into a system of national accounts that document the economic activities of countries (see for example, Ironmonger, 1996; Landefeld and McCulla, 2000; Lutzel, 1996).

A much smaller literature has arisen that asks whether housework, when valued monetarily and added to household income, markedly changes the distribution of income. That is, whether housework worsens or ameliorates income inequalities. If low income households do more housework than high income households, and if the per hour value of low income households' housework is similar to that done by high income households, then housework makes the income distribution more equal. If, on the other hand, low income households do less housework than more affluent households or if the per hour value of housework is positively correlated with money income, then housework may well exacerbate income inequalities.

While economists define economic well-being conceptually to be the household's access

to goods and services, empirically it is almost always measured by money income.[1] Money

income provides a fairly accurate indicator of access to goods and services that can be purchased

in the marketplace, but it fails to measure access to goods and services that are a result of

household production. Such an omission means that empirical estimates of household economic

well-being based solely on money income are biased if money income and household production

are correlated.

Money income inequality has been rising in the United States since the late 1980s

(Cohen, Piketty and Saint-Paul, 2002). If the amount of housework done has been constant

through time, then adding the value of housework to money income would not affect this trend

toward greater income inequality. But, researchers who have looked at trends in housework find

that American women's time spent in housework has substantially declined over much of the

past century while American men's housework time has risen modestly (Aguiar & Hurst, 2006;

Bryant, 1996; Robinson and Godbey, 1997).

In this paper, we examine whether the decline in the total amount of housework done by

American women and the rise in housework done by American men have ameliorated or

exacerbated the rising inequality in money income, and therefore economic well-being, over the

past quarter century. Using time-diary data, we compare how adults' housework time influenced

households' real access to goods and services at two points in time, 1975-76 and 2002-03. We

also assess the extent to which any change in income inequality is associated with socio-

demographic changes that occurred over the past quarter century. To do this, we decompose the

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[1]Work has focused on valuing inkind and other transfer payments and examining how
such payments affect the income distribution. See, for example, Garfinkel, Rainwater, and
Smeedign, 2005; Smeeding, 1982).

change in the distribution of household income into: (a) socio-demographic shifts in marital status, race/ethnicity, age, number of minor children, and women's employment status, and (b) changes in preferences, household technology, and labor supply and demand (i.e., both paid market work and unpaid housework). By using data from 1975-76 and 2002-03, we assess change over a time period where the United States experienced considerable shifts in socio-demographic characteristics of American households.

2. PRIOR RESEARCH

To date, six studies have examined the impact of adding the value of household production to money income to arrive at a more complete measure of the distribution of economic well-being (Aslaksen and Koren, 1996; Bonke, 1992; Bryant and Zick, 1985; Frazis and Stewart, 2006; Gottschalk and Mayer, 2002; Zick and Bryant, 1990). While these studies are fairly similar in their income distribution analyses (e.g., calculation of Gini coefficients and/or percentile distributions), they reflect a range of choices with regard to conceptually defining, empirically measuring, and assigning a dollar value to housework.

The debate about the conceptual definition of housework centers around what gets categorized as productive time. Many researchers (Aslaken and Koren, 1996; Bonke, 1992; Frazis and Stewart, 2006) use Margaret Reid's (1934) criteria for including activities – that is, they conceptualize housework as those activities that produce goods and services that could have been purchased in the marketplace had some circumstances in the home been different. This has led researchers to define home production time as time spent in meal preparation and clean up, cleaning the house, laundry and care of clothing, shopping, repair and maintenance of dwellings, care of infants, children, or adults, gardening, pet care, bookkeeping related to household

management, and travel related to any of these activities.

Some time-use researchers make a conceptual and empirical distinction between "core housework" and childcare and/or shopping (Robinson and Godbey, 1997; U.S. Bureau of Labor Statistics, 2004). This is done because housework is typically thought to encompass those activities that enhance household economic well-being but provide little in the way of direct "process" enjoyment. In contrast, while time spent in shopping and child care also enhances the household's well-being, it can be argued that for many people these activities are as much "leisure" as they are "work." Bryant and Zick (1985), Zick and Bryant (1990) and Gottschalk and Mayer (2002) all used data from the Panel Study of Income Dynamics (PSID) where the empirical measure of housework is close to this concept of core housework.

Once housework is defined conceptually, the second key choice revolves around how to measure housework time empirically. There is general agreement in the time use literature that time diaries provide more valid and reliable measures of time use than do survey questions about typical time spent in various activities (Robinson and Bostrom, 1994; Robinson, 1985; Bryant, Kang, Zick, and Chan, 2004). Accordingly, Aslaken and Koren (1996), Bonke (1992) and Frazis and Stewart (2006) all use time diary surveys. Others (Bryant and Zick, 1985; Gottschalk and Mayer, 2002; Zick and Bryant, 1990) use questions about typical time spent in housework in the PSID, despite their potential reliability and validity problems because the PSID is the only U.S. data set that allows one to undertake analyses of housework and income inequality over time using the same panel.

Finally, the debate over the appropriate way to value unpaid work has resulted in a sizable literature extending over several decades (Bonke, 1992; Chadeau, 1992; Chiswick, 1982; Ferber and Birnbaum, 1980; Ironmonger, 1996; Zick and Bryant, 1990, 1983). In this literature,

two alternative concepts guide the construction of measures of the per hour value of housework: opportunity cost and replacement cost. Opportunity cost is the per hour value of the time a person could have been spending in alternative activities had he/she not done housework and it is typically approximated by the individual's market wage rate. Replacement cost is the per hour cost of the labor that could be hired to do the housework the person otherwise does. Bryant and Zick (1985) and Zick and Bryant (1990) use a wage-based opportunity cost measure. Aslaken and Koren (1996) and Frazis and Stewart (2006) use replacement cost measures. Bonke (1992) and Gottschalk and Mayer (2002) use both.

Despite the differences in the approaches used to define, measure, and value housework, the six studies that have been done to date reach remarkably similar conclusions. Indeed, all but one (Zick and Bryant, 1990) find that housework served to reduce economic inequality. This finding holds across different countries, survey years, measures of housework, and valuation techniques used.

Gottschalk and Mayer's (2002) study generates longitudinal estimates. They used data from the PSID to estimate the income distribution with and without the value of core housework for each year in the United States from 1976 to 1992. They find the addition of the value of core housework to money income reduces income inequality. But, whether measured by money income or by money income plus the value of housework, income inequality increases over these 16 years. They conclude that while the value of core housework serves to enhance income equality, it does not completely offset the general decline in money income equality that occurred during this period.

The current study builds on Gottschalk and Mayer's work in several ways. First, we use time diary data which are generally considered to be more accurate than data elicited by a single

retrospective question like the one in the PSID used in the Gottschalk and Mayer study (Bryant, Kang, Zick, and Chan, 2004; Robinson, 1985; Robinson and Bostrom, 1994). While Gottschalk and Mayer attempt to ameliorate this potential defect by including all leisure as household work in one estimate, this is a second best solution. Our analyses can help assess whether or not the Gottschalk and Mayer results are sensitive to the definitions and measurement methodologies used. Second, Gottschalk and Mayer's analysis ends with 1992 and thus it does not capture the economic changes during the 1992-2001 expansion that are encompassed in our time frame. Third, when using the opportunity cost to value household production, Gottschalk and Mayer use estimated gross wage rates which do not reflect the effect income taxes have upon the value of time nor the effect changes in marginal income tax rates have had on the opportunity cost of time over the study period. In contrast, we use estimated wage rates net of income taxes in both 1975 and 2003. Finally, we gain new insights regarding the forces behind changes in the distribution of housework by decomposing the observed change in economic inequality into the portion attributable to concurrent demographic shifts and the portion attributable to changes in labor markets, household technology, and leisure preferences.

3. METHODS

Data used in the current study come from two nationally representative diary-based, American time-use surveys. By using time diary data, we maximize the likelihood that our measures of housework time will be both valid and reliable. In addition, the use of diary-based data allows us to examine how different definitions of housework affect our estimates of full income inequality.

The first survey, *Time Use in Economic and Social Accounts, 1975-1976,* (TUESA)

(Juster et al., 2001) gathered 24-hour diary data on a random sample of 1519 adults aged 18 or older and the 887 spouses of the respondents who were married. The respondents and their spouses were interviewed on four separate occasions during 1975-76. In each interview, they were asked questions about their living arrangements, employment, etcetera. In addition, at the time of each interview, they were asked to complete a 24-hour time diary. Data from the four separate diaries, gathered across all four seasons and across two weekdays, a Saturday and a Sunday, were used to construct a "synthetic" or typical week of time use for each respondent and the respondent's spouse. The TUESA data set has two distinct advantages for the current analyses. First, the use of four different 24-hour diaries enhances the validity of the TUESA measure of usual housework time. Second, the TUESA is the earliest, nationally representative time diary data collection effort.[2] As such, when it is properly weighted, analyses of these data can be used to generalize to the larger U.S. population age 18 and older in 1975-76. In all of the analyses that follow, we use the panel loss weights to insure generalizability (Juster et al., 2001).

The second data set used in the analyses is the *2003 American Time Use Survey* (ATUS) (U.S. Bureau of Labor Statistics, 2006). The 2003 ATUS is the first annual American time-diary survey conducted by the U.S. Bureau of Labor Statistics. The 2003 sample of 20,070 individuals was drawn from households who had completed their final interview for the Current Population Survey. The ATUS respondent is randomly selected from among each household's members who are age 15 or older. Respondents are asked a series of questions that focus on household

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[2]While some authors have analyzed time diary data from the *Americans' Use of Time, 1965-1966* survey, these data cannot be used to generalize to the nation as a whole. Approximately one-third of the sample in that study was drawn from Jackson, MI, while the remaining two-thirds were drawn from a national sample of individuals living in cities with a population between 30,000 and 280,000. See Converse and Robinson (1980) for further information regarding this study.

composition, employment status, etcetera. They are also asked to complete one 24-hour time diary. Half of the respondents complete a diary for a weekday and half of the respondents complete a diary for a weekend day. While ATUS time diary information come from 2003, some questions used in the analyses refer to 2002 (e.g., income). Since we use both in the analyses that follow, we refer to this data set as the 2002-03 ATUS.

In order to obtain more detailed income data, we restrict our ATUS sub-sample to those respondents who also participated in the 2003 March Supplement to the Current Population Survey. Approximately one-third of the sample can be linked to the March Supplement. In our analyses of the ATUS, we follow the U.S. Bureau of Labor Statistics' recommendations on weighting to insure generalizability to the larger population (U.S. Bureau of Labor Statistics, 2005).

One additional restriction is placed on both data sets. Specifically, we restrict our samples to White, Black, and Hispanic respondents and their spouses (if present). The numbers of Asians, American Indians, and "others" are so small in both data sets as to preclude any attempt to control for cultural variations in their housework time. In addition, for the ATUS data, we further exclude respondents age 15-17 and respondents over age 18 who reside with their parents, to maximize comparability between the two data sets. The final household sample size for the TUESA is 1,484 and the final household sample size for the ATUS is 5,534.

Next, we turn to the definition of housework. In the light of the literature on the definition of housework, we elect to use two alternative measures. The first, more conservative definition, focuses only on time spent in core housework activities (i.e., time spent doing interior housework, laundry and textile repair, food and drink preparation, presentation and clean-up, interior and exterior maintenance, maintenance of lawn, garden, and houseplants, animal and pet

care, vehicle maintenance, appliance and tools maintenance, and household management). The second, more expansive definition adds shopping and child care time to core housework. The first measure encompasses those productive activities that typically enhance household well-being but that provide little in the way of direct enjoyment. The second measure is more consistent with Reid's (1934) criterion than is the first in that the second measure includes all household activities that could have been purchased in the marketplace if a household member had not spent time doing them (e.g., individuals can care for their children or pay someone else to provide such care).

Finally, we must assign an economic value to time spent in household production activities. We elect to use both replacement cost and opportunity cost estimates and compare the results across the two. Our replacement cost estimates are the median hourly wage rates for employed housekeepers adjusted for mandatory employer taxes at the time of each survey. In 2002-03, employers' mandatory social security, medicare, and unemployment insurance taxes were 13.85% of wages, while in 1975-76, they were 7.83% of wages (Padilla, 1981; Social Security Administration, 2002; U.S. Department of Labor, 2006).

Data from the 1976 and 2003 March Supplements to the Current Population Survey are used to generate median housekeeper hourly wage rates for the 1975 and 2002 calendar years. Specifically, we restrict the 2003 March Supplement sample to the 1,120 respondents who identified their primary occupation in 2002 as "maid/housekeeper." The weighted median wage for this group is $7.36 per hour excluding outliers as defined by the top and bottom one percent of wage distribution. We then multiply $7.36 by 1.1385 to adjust for mandatory employer taxes. The resulting $8.38 per hour is the replacement cost we use for 2002-03. Similarly, the weighted median wage rate for the 451 individuals in the 1976 March Supplement who identified "private

household workers" as their primary occupation, is $1.93 per hour excluding the outliers as defined by the top and bottom one percent of the wage distribution. After adjusting for mandatory employer taxes and inflating the figure to 2002-03 dollars using the Social Security Administration's Average Wage Indexing Series (Social Security Administration, 2006), the 1975-76 replacement wage is $7.62 per hour.

Our opportunity cost measures of the value of an hour of housework are also generated using data from the 1976 and 2003 March Supplements to the Current Population Survey. We use individuals age 18 and older in the March Supplement to estimate offered wage equations that correct for sample selection bias using the techniques developed by Heckman (1979). The hourly wage rates used in the estimation are adjusted so that they reflect the after-tax marginal wage. Equations are estimated separately for each gender and marital status group in 1976 and 2003 using the appropriate CPS weights.[3] Coefficients from these equations are used to generate predicted opportunity costs of time for each individual in the TUESA and ATUS samples. Estimates of offered wage rates provide approximate opportunity cost estimates of the value of time for employed individuals and lower-bound estimates of the value of time for non-employed individuals (Zick and Bryant, 1990). For 2002-03, the median estimated hourly wages for men and women in the ATUS are $12.69 and $9.09, respectively. For 1976-75, the corresponding estimated median hourly wages are $12.66 and $7.98, measured in 2002-03 dollars.

Another set of methodological issues to be resolved revolve around harmonizing the time diary measures in the two data sets as much as possible. Although both data sets utilize valid and reliable time diary methods for gathering time use information, they differ in terms of the

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[3]Estimated equations are available from the authors upon request.

number of household members who were asked to complete diaries and the number of diaries

each household member was asked to complete. The TUESA survey gathered multiple diaries

on both respondents and spouses if married whereas the ATUS gathered only one 24-hour diary

from one randomly selected individual age 15 or older in the household regardless of marital

status. In the case of the TUESA data, the respondent burden was fairly high and thus only 704

of the 1,484 households in our sample have synthetic week data for both adults in the case of

married couples and one adult in the case of single households. For the ATUS data, one diary

reduces the respondent burden but it makes it difficult to capture typical time use over the course

of a year. In addition, if the ATUS respondent is married, the absence of time diary information

on the spouse makes it difficult to get a full accounting of adult housework time.

To maximize data comparability across the two surveys, we estimate housework

equations for both core housework and expanded housework. In the TUESA survey, these

equations are estimated using the 703 observations where we have synthetic week data. In the

ATUS, these equations are estimated using the 5,534 respondent observations and they control

for weekend versus weekday diaries. The TUESA equations are estimated using ordinary least

squares because virtually no respondents report zero time spent in housework over the course of

the synthetic week. The ATUS equations are estimated using tobit to account for the fact that

sizable numbers of respondents report doing no housework on their single diary day. Estimation

is done separately by gender and marital status in both years.[4]

The estimated coefficients from the TUESA OLS equations are used to generate

predicted values for minutes per week spent in housework for all respondents and spouses in

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[4]The resulting equations are available from the authors upon request.

1975-76. These predicted values are multiplied by 52 and divided by 60 to arrive at an estimate

of the annual hours spent in housework by each adult.

Similar to the approach taken by Frazis and Stewart (2006), we use the estimated

coefficients from the ATUS tobit equations to generate predicted values for weekday and

weekend housework time for all respondents and their spouses in 2003. To transform these

predictions of daily time spent in housework to annual values, the predicted weekday and

weekend values are multiplied by five and two respectively and then summed. This minutes per

week value is then multiplied by 52 and divided by 60 to arrive at an estimate of hours per year

spent in housework.

We also need to harmonize the measures of money income in the two data sets. For the

TUESA survey, questions about the amounts of specific income components (e.g., wage and

salary income, interest income, child support and alimony) received over the past year were

asked along with a categorical question about total money income. Two thirds of the

households had no missing data on the income components and thus, for them, responses on the

income components questions are summed to arrive at total money income. For the remaining

one-third, either some or all of the answers to the income components questions are missing. In

those cases, we transform the categorical responses to the total household income question to the

category midpoints and use this as the measure of total money income. In those few cases where

both the categorical and component data are missing, we assign the households the mean total

money income. As with the TUESA replacement wage data, the TUESA total money income

data are adjusted to 2002 dollars using the Social Security Administration's Average Wage

Indexing Series (Social Security Administration, 2006).

With our various measures constructed, we must select among the options for

summarizing the income distribution. Lorenz Curves and Gini Coefficients have been the traditional summary measures used in the income distribution literature. More recently, scholars working in this area have used the ratio of the 10th or 20th percentile ranking to the median and the ratio of the 80th or 90th percentile ranking to the median as measures of income inequality (Frazis and Stewart, 2006; Garfinkel, Rainwater, and Smeeding, 2005; Gottschalk and Mayer 2002). Such measures have the advantage of eliminating extreme values that may be of questionable validity and that may exercise undue influence on the calculated Gini Coefficient. The comparative percentile ranking approach is adopted in the following analyses.

4. EMPIRICAL FINDINGS

Table 1 shows the mean reported hours per year spent in housework for the two surveys. The statistics in this table are consistent with earlier work by Aguiar and Hurst (2006) and Robinson and Godbey (1997). That is, they confirm that over the past quarter century, women's housework time has fallen while men's housework time has risen. In absolute terms, we find that the mean increase in married men's core (expanded) housework offsets the mean decrease in married women's core (expanded) housework. In percentage terms, however, married men's housework has risen dramatically while the housework time of married women has experienced a more modest decline. The percentage changes for single men and single women parallel those of their married counterparts although the percentage increase for single men is more modest.

[Insert Table 1 Here]

Comparisons of the changes in the measures of core and expanded housework reveal that shopping and child care time increased over this historical period for everyone except single women. For married women, the rise in shopping and child care time was more than offset by a

decline in core housework so that total housework time fell. For single and married men, both time spent in core housework and time spent in shopping and child care rose.

Table 2 shows the annual distributional breakdown of total money income, hours of core housework, hours of expanded housework, the replacement value and opportunity cost values of core housework and expanded housework for the two surveys. The first panel of Table 2 reflects the growing money income inequality between 1975-76 and 2002-03. Between these two time periods, real money income for the 10th percentile grew by only 4 percent while for the 50th percentile it grew by 7 percent, and for the 90th percentile it grew by 34 percent across the two surveys. Although the second and third panels reveal growing inequality in housework time too, the percentage changes are more modest. For instance, in the case of core housework, the percentage change for the 10th percentile is -2 percent, whereas for the 50th and 90th percentiles it is +1 percent and +4 percent, respectively. These percentages increase when one looks at the distribution of the annual replacement value of expanded housework because the real housekeeping wage rose by about 4 percent between 1975-76 and 2002-03 and mandatory employer taxes rose by approximately 6 percent. But, the largest changes are observed when we use opportunity costs to value housework. The last two panels of Table 2 show that the annual value of core (expanded) housework declines by 11 percent (18 percent) for the 10th percentile while it increases by 31 percent (38 percent) for the 90th percentile between the two surveys.

Earlier we noted that women's average time spent in housework has declined over the past 50 years while men's average time spent in housework has increased (Table 1). In Table 2, we see that mean total time spent in housework (i.e., wives' plus husbands' time in couple households) has increased by 3 percent for core housework and 11 percent for expanded housework. This suggests that in absolute terms the rise in married men's housework may be

off-setting the decline in married women's housework once you look at matched couples.

[Insert Table 2 Here]

Turn now to Figures 1 and 2 where we present the distribution of relative economic well-being as measured by money income plus the replacement value of housework for 2002-03 and 1975-76, respectively. Figure 1 reveals that the distribution of gross money income is quite large in 2002-03. As points of comparison, Garfinkel, Rainwater, and Smeeding (2005) report a P10/P50 ratio of 39 percent for personal disposable income in the United States in 2000. Their corresponding P90/P50 ratio is 210 percent. Our estimates are larger than the Garfinkel, Rainwater, and Smeeding estimates, in part because we use gross rather than disposable income and because we are looking at income for 2002 rather than 2000. In contrast, our 2002-03 money income distribution estimates are very similar to those of Frazis and Stewart (2006) who use a somewhat different sub-sample of the 2002-03 ATUS data. They report P10/P50 and P90/P50 ratios of 31 and 242, respectively, numbers quite close to the 28 and 254 ratios that we observe.

[Insert Figures 1 and 2 Here]

Figures 1 and 2 show that money income inequality (bottom bar in each figure) grew markedly over this time period primarily because of the growth in the top end of the income distribution. In 1975-76, the 90th percentile was 202 percent of median money income but by 2002-03, it was 254 percent of median money income. In contrast, the ratio of the 10th percentile to median money income changed hardly at all over this time period.

In both 1975-76 and 2002-03, the addition of the value of housework to money income (upper four bars in each figure) reduces economic inequality regardless of the valuation technique used. The reduction in economic inequality in absolute terms is greater in 1975-76

than in 2002-03. But, in relative terms, the reductions are almost identical. For example, look at

the change in the ratio of the 90th percentile to the 10th percentile in each of the years when the

replacement value of core housework is added to money income. For 1975-76, the addition of

core housework reduces this ratio by 28 percent (895 to 639). Similarly, in 2002-03, the ratio of

the 90th percentile to the 10th percentile is reduced by 29 percent when the replacement value of

core housework is added to money income. The reduction ranges from 20-37 percent for 2002-

03 and 29-40 percent for 1975-76 depending on the measure of housework and the valuation

technique that is used. Thus, when comparing 1975-76 and 2002-03, Figures 1 and 2 show that

the income equalizing effects of housework remain large and relatively similar in percentage

terms.

Over the 27 years spanned by the two surveys, Americans' socio-demographic

characteristics changed substantially. By 2002-03, Americans were older, less likely to be

white-nonhispanic, less likely to married/cohabitating, and had fewer children than in 1975-76.

In addition, women were much more likely to be employed outside of the home in 2002-03 than

they were in 1975-76. These differences are reflected in the socio-demographic composition of

the two surveys as noted in Table 3.

[Insert Table 3 Here]

Table 4 shows the median money income, opportunity cost, and replacement values of

core and expanded housework by socio-demographic subgroups using each of the valuation

techniques. Focus first on the marital status panel. Here we see that over the 1975-76 to 2002-

03 period, the median money income of married/cohabitating couples grew while the median

income of single females changed little and the median income of single males actually declined.

At the same time the median value of housework grew for married couples and single males but

fell for single females. This observation generally holds across the two definitions of housework and the two methods of valuation. Similarly, Table 4 reveals differential changes across time in median money income and the value of housework for various race/ethnicity groups, number of children groups, age groups, and women's employment status groups. Have shifts in the demographic composition of the population coupled with shifts in the money income and housework within these sub-groups exacerbated or ameliorated the changes in economic inequality that we observe between 1975-76 and 2002-03?

[Insert Table 4 Here]

Figure 3 presents the measures of relative economic well-being for 1975-76 weighted so that the sample reflects the marriage, race/ethnicity, number of children, age, and women's employment status composition of the 2002-03 sample. It shows what economic inequality would have looked like in the 1975-76 sample if the socio-demographic composition in 1975-76 had mirrored 2002-03. Comparisons of Figures 2 and 3 provide some insight as to how socio-demographic change impacted economic inequality. In absolute terms, if the 1975-76 sample had the socio-demographic make-up of the 2002-03 sample, it would have served to reduce economic inequality modestly by raising the lower end of the distribution relative to the median (i.e., raising the ratio of the 10th percentile to the 50th percentile) and by decreasing the high end of the distribution (i.e., decreasing the ratio of the 90th percentile to the 50th percentile). In essence, taken altogether, the socio-demographic changes that took place between 1975-76 and 2002-03 served to dampen the growth in economic inequality that would have otherwise occurred over this time period.

[Insert Figure 3 Here]

It is also useful to compare Figures 1 and 3. This comparison allows us to see the

changes in economic inequality between 1975-76 and 2002-03 that are attributable to factors

other than shifting soico-demographics. From an economic perspective, other factors that could

precipitate changes in economic inequality include shifts in the demand for labor (both paid

market work and unpaid housework), technical change within the household, and changes in

household preferences for leisure time. One or more of these factors clearly precipitated

considerable growth in money income inequality between 1975-76 and 2002-03. The ratio of the

10th percentile to the 50th percentile of money income declined by 15 percent (i.e., 28/33)

whereas the ratio of the 90th percentile to the 50th percentile grew by 25 percent (i.e., 254/203).

When the value of housework is added to money income, the effect is moderated somewhat

depending on how housework is measured and on the method used to value it.

Comparisons of Figures 1-3 suggest that the change in economic inequality between

1975-76 and 2002-03 would have been even greater if there had not been a simultaneous shift in

the socio-demographic composition of the population. Holding socio-demographics constant,

the ratio of P90/P10 for money income increases by 45.5 percent across these two samples (i.e.,

895/615). But, because the effect of socio-demographic change reduces money income

inequality, the overall growth in money income inequality is only 28 percent (i.e., 895/698).

Overall economic inequality as measured by money income plus the value of housework

declined by somewhere between 0 and 11 percent (depending on how housework is measured

and time is valued) because of demographic shifts (i.e., 405/444, 444/495, 419/420, and

451/459). Indeed, if the 1975-76 sample had the socio-demographic characteristics of the 2002-

03 sample, we estimate that the increase in overall economic inequality would have been in the

range of 40 to 63 percent (depending on which of the four measures is used) instead of the

observed 28 percent.

Re-estimation with the 1975-76 weights adjusted for a change in each one of the socio-demographic factors separately suggests that the largest single influence on reducing the growth in economic inequality is the shift in women's employment patterns.[5] Specifically, the ratio of P90/P10 for the 1975-76 money income declines from 698 to 668 if the women's employment structure of 2002-03 is imposed on the 1975-76 weighted data. Likewise the ratio of P90/P10 drops from 495 (444) to 454 (424) when core (expanded) housework is added to money income using the replacement cost estimates. It declines from 459 (420) to 442 (418) when core (expanded) housework is added to money income using the opportunity cost estimates. Thus, women's increasing labor force participation rates over this period likely slowed the growth in economic inequality both in terms of money income and in terms of the value of housework.

5. DISCUSSION AND CONCLUSION

Does household work matter anymore? Our analyses suggest that whether it is defined narrowly by core activities or more broadly to include child care and shopping, housework serves to reduce economic inequality in the United States in both 1975-76 and 2002-03. In both years, the economic distance between the 10th and 90th percentiles shrinks when expanded housework is added to money income. These findings are consistent with recent cross-sectional work by Frazis and Stewart (2006) and the longitudinal work of Gottschalk and Mayer (2002). Like Frazis and Stewart (2006) and Gottschalk and Mayer (2002), we conclude that unpaid work done in the home for the benefit of household members continues to be a substantial force in reducing economic inequality in 2002-03 despite the shifts in housework time and changes in the

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[5]These estimates are available from the authors upon request.

larger economy that have occurred over the past quarter century.

The present study provides several new insights. It is clear that answers to the questions regarding how much the economic value of housework reduces money income inequality and the extent to which its impact has changed over time depend on the definition of housework and the method of valuation being used. Our analyses suggest that measures of core housework, such as those used by Gottschalk and Mayer (2002) Bryant and Zick (1985) and Zick and Bryant (1990), lead to modestly more conservative assessments of the income equalizing effects of housework. We estimate reductions in the P90/P10 ratios in the range of 30-34 percent in 1975-76 and 20-29 percent in 2002-03 when a core housework definition is used. In contrast, when the definition of housework is expanded to include time spent shopping and caring for children, we estimate the reductions in the P90/P10 ratios of 36-40 percent in 1975-76 and 24-27 percent in 2002-03.

Replacement cost estimates show a fairly consistent equalizing effect of housework across time – regardless of the method of valuation used. The reduction in the P90-P10 ratio is 29-30 percent for core housework and 36-37 percent for expanded housework in both years. In contrast, when the opportunity cost method of valuation is used, the income equalizing effects of housework appear to be stronger in 1975-76 than in 2002-03. This finding is consistent with prior research that has found that higher wage males are spending more time in housework in recent years (Bonke, Gupta, and Smith, 2005).

Although housework continues to serve as a partially equalizing economic force in any given year, the inequality in money income plus the replacement value of housework grew between 1975-76 and 2002-03. The P90/P10 ratio grew by a little more than 20 percent between the two surveys when looking at money income plus housework (measured either by core or expanded housework time). We find that this growth in economic inequality would have been

even greater if there had not been concurrent shifts in marital status, age, race/ethnicity, number of children, and women's employment. While the other demographic changes played their respective roles, women's shifting labor force participation rates appear to have been most important in slowing the growth in income inequality between 1975-76 and 2002-03.

Controlling for changes in the socio-demographic composition of the samples, we find that substantial growth in economic inequality continues to exist when comparing 1975-76 to 2002-03. This rise in economic inequality appears to be a function of modest growth in the inequality of housework coupled with more sizeable growth in money income inequality, particularly at the high end of the income distribution.

What factors are likely contributing to the growth in both housework and money income inequality holding socio-demographic characteristics constant? Three forces may be at work. First, there have been significant labor market shifts over this historical period. Technical change in the labor market increased the demand for highly educated individuals who also typically command high wage rates. The demand for less educated individuals concurrently declined as manufacturers have increasingly turned to international labor markets to fulfill their unskilled labor needs. Higher wage rates for highly educated individuals are likely to raise money income while simultaneously reducing time spent in housework because of the rising opportunity costs highly educated individuals face. At the other end of the spectrum, lower real wage rates for individuals with low levels of education will generally reduce money income and increase time spent in housework. Such shifts should increase both money income and housework time inequality.[6]

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[6] Whether or not these shifts would lead to an increase in overall economic inequality would depend in part on the method that is used to value housework. The replacement cost approach

that values an hour of housework at the same rate for all households should result in estimates of the economic value of housework that have the largest income equalizing impact. For example, take two hypothetical individuals, one who has a low money income and the other who has a high money income. The first individual does 30 hours of housework each week while the second individual does 10 hours of housework each week. Using a replacement cost estimate of $8/hr, the low income individual adds $240/wk to her full income while the high income individual adds only $80 to her full income. Now, take the same two hypothetical individuals but now assume that the high income individual has an opportunity cost of time estimated to be $30/hr resulting in an overall value of $300. In contrast, a low income individual has an opportunity cost of time estimated to be $6/hr resulting in an overall value of $180. In this latter example, the distribution of economic well-being would become more unequal when the opportunity cost approach is used.

Second, technical change within the household and the growth of the household service sector may have played a significant role in the growth of inequality as measured by money income plus the value of housework. If the early adoption of new household labor saving technologies (e.g., home computers that have the potential to reduce time spent shopping and managing household finances) is more likely to be done by high income households where the adults may already spend relatively less time in housework, such new technologies should further increase housework inequality. Likewise, the availability of housework substitutes such as housekeeping, lawn care, and catering services, has expanded. The gap between the housework time of the of high income and low income households should widen if these substitutes are most frequently purchased by the high income households.

Finally, education-related changes in preferences for leisure over this historical period may play a part in this story. Aguiar and Hurst (2006) find that between 1965 and 2003, the average American's leisure time increased, but it increased more for less-educated individuals and less for highly-educated individuals. If this uneven shift in leisure time is partly a function of education-related changes in leisure-related social mores, then this too may partially explain the widening economic gap between the rich and the poor.

In sum, our analyses show that despite the decline in women's housework time over the past quarter century, housework continues to be an important means by which households expand their access to goods and services. Households with lower money income continue to increase their access to goods and services proportionately more by doing housework than do households with higher money income, thus reducing economic inequality in the United States. Yet, between 1975-76 and 2002-03, economic inequality rose in the United States largely because of the growth in money income inequality but also, in part, because of modest growth in housework inequality. Demographic changes over this period, principally the rise in women's

paid employment, inhibited this growth somewhat. At the same time, some combination of changes in the labor market structure, technology within the home, and leisure preferences likely fueled the growth in economic inequality.

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Table 1. Mean Hours per Year Spent in Housework for White, Black, and Hispanic Households: 1975-76 and 2002-03.

	1975-76			2002-03			Percentage Change Between 1975-76 and 2002-03	
	N[a]	Core Housework	Expanded Housework	N	Core Housework	Expanded Housework	Core Housework	Expanded Housework
Single Women	219	860	1,297	1,353	736	1,156	-14.4%	-10.9%
Single Men	100	413	630	737	420	712	1.7%	13.0%
Married Women	384	1,236	1,872	1,816	1,046	1,789	-15.4%	-4.0%
Married men	384	436	729	1,628	627	1,046	43.6%	43.5%

[a] Means for the 1975-76 sample make use of the 703 households that have synthetic week data for both adults in the case of married couples and for the one adult in the case of the single households.

Table 2. Distribution of Annual Reported Money Income, Predicted Housework Time, and the Predicted Replacement Value of Housework: 1975-76 and 2003.

	1975-76[a]	2002-03[b]	Percentage Change
Annual Total Money Income[a]			
10%tile	12,444	13,000	4%
50%tile	43,005	46,000	7%
90%tile	86,925	116,335	34%
Mean	50,310	60,350	20%
Annual Hours of Core Housework			
10%tile	495	487	-2%
50%tile	1,508	1,527	1%
90%tile	1,994	2,070	4%
Mean	1,357	1,399	3%
Annual Hours of Expanded Housework			
10%tile	754	784	4%
50%tile	2,342	2,550	9%
90%tile	2,946	3,498	19%
Mean	2,056	2,274	11%
Annual Replacement Value of Core Housework[c]			
10%tile	3,767	4,083	8%
50%tile	11,488	12,798	11%
90%tile	15,193	17,353	14%
Mean	10,332	11,725	13%
Annual Replacement Value of Expanded Housework[c]			
10%tile	5,746	6,573	14%
50%tile	17,827	21,369	20%
90%tile	22,437	29,310	31%
Mean	15,657	19,055	22%
Annual Opportunity Cost Value of Core Housework[c]			
10%tile	3,891	3,464	-11%
50%tile	13,915	14,854	7%
90%tile	18,654	25,835	38%

Mean	12,640	14,720	16%
Annual Opportunity Cost Value of Expanded Housework[c]			
10%tile	6,288	5,158	-18%
50%tile	19,960	23,755	19%
90%tile	29,600	44,911	52%
Mean	19,361	24,432	26%

[a] Predicted values were generated for all White, Black, and Hispanic households in the data set (N=1,484).

[b] Predicted values were generated for all respondents and their spouses/partners, if they were married or cohabitating.

[c] All 1975-76 dollar figures have been inflated to 2002 dollars using the Average Wage Indexing Series (Social Security Administration, 2006).

Table 3. Socio-Demographic Breakdown of the Two Samples.

	1975-76 (N=1,484)	2002-03 (N=5,534)
Marital Status		
Married/Cohabitating[a]	.65	.62
Single Female	.23	.25
Single Male	.12	.13
Race/Ethnicity		
White-Nonhispanic	.89	.76
Black-Nonhispanic	.09	.12
Hispanic	.02	.11
Number of Minor Children		
0	.59	.56
1	.13	.18
2	.14	.17
3	.08	.06
4 or More	.06	.03
Age of Respondent		
<30	.26	.12
30-44	.29	.35
45-64	.27	.35
>64	.19	.18
Women's Employment Status[b]		
Employed	.44	.70
Not Employed	.56	.30

[a] In 1975-76 survey, cohabitating individuals would have reported their marital status as "single" and there is no mechanism that can be used to separate cohabitators from those respondents who are truly single. In the 2002-03 data, we can identify those who are cohabitating separately from those who are married or single. For 2003-03, we elect to group the cohabitators with the married individuals because we believe their household time use is likely to be more similar to that of married couples. This means that part of the difference in the "married/cohabitating" rates across the two surveys is attributable to this change in categorization.
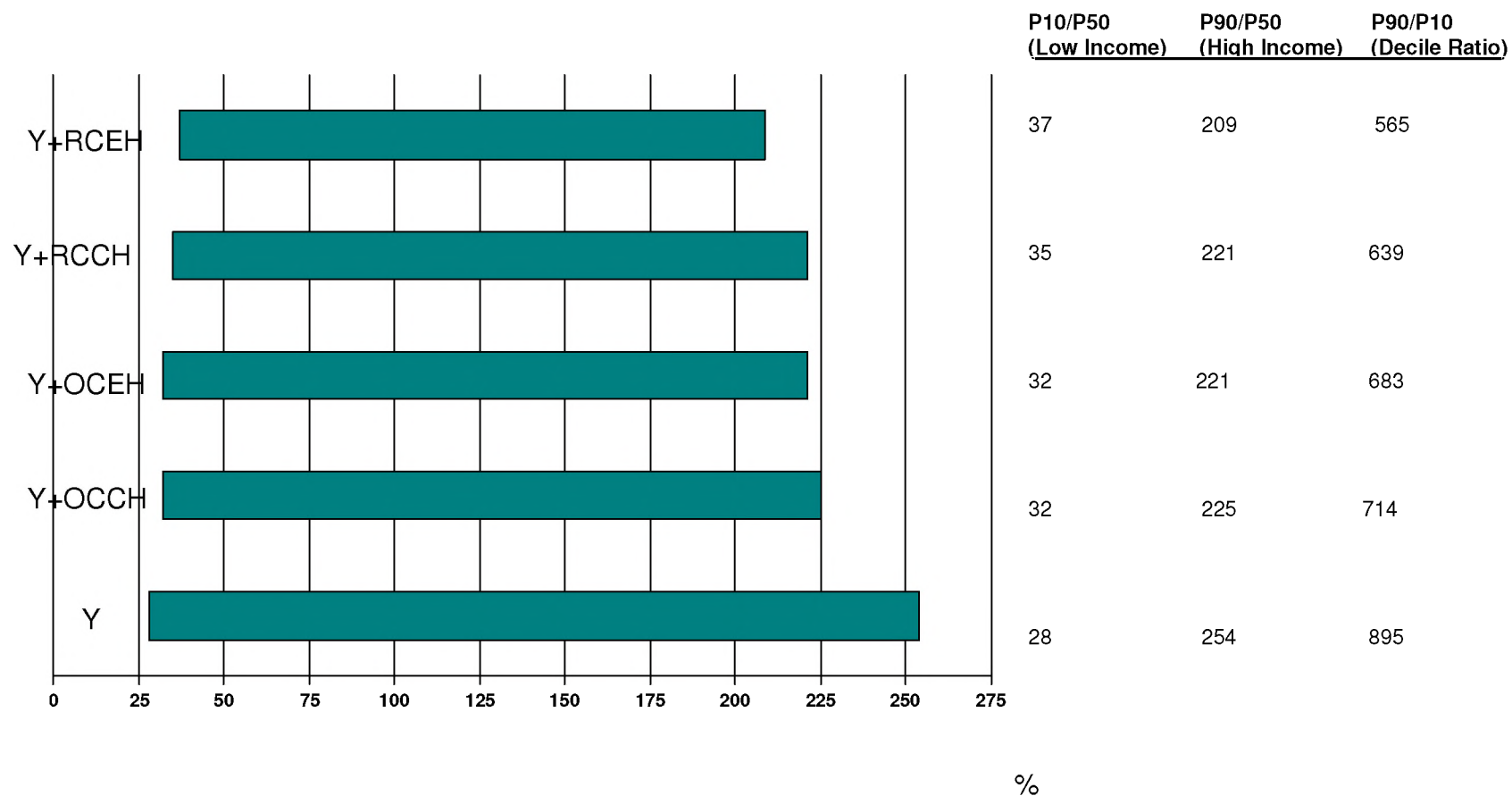[b] Calculated excluding single, male households.

Table 4. Median Annual Value of Money Income and Housework (in 2002 dollars) by Socio-Demographic Subgroups: 1975-76 and 2003.

		1975-76						2002-03				
	N	Replacement Cost Estimates		Opportunity Cost Estimates		Money Income	N	Replacement Cost Estimates		Opportunity Cost Estimates		Money Income
		Core Housework	Expanded Housework	Core Housework	Expanded Housework			Core Housework	Expanded Housework	Core Housework	Expanded Housework	
Marital Status												
Married	961	13,162	19,553	15,796	23,806	51,972	3,444	14,690	23,499	18,892	30,100	57,180
Single Female	349	6,992	10,366	9,185	13,767	23,790	1,353	6,892	10,402	5,382	8,596	23,432
Single Male	174	3,361	4,437	4,003	5,630	43,005	737	4,105	6,026	3,919	5,996	33,985
Race/Ethnicity												
White-Nonhispanic	1327	11,947	18,113	14,461	20,588	43,005	4,226	13,660	22,146	17,276	26,893	51,540
Black-Nonhispanic	127	6,565	12,243	8,146	14,504	24,193	673	6,559	10,392	6,755	11,516	30,175
Hispanic	30	11,229	18,442	12,601	21,153	36,600	635	12,059	21,606	10,610	18,681	33,000
Number of Minor Children												
0	874	9,074	12,762	12,683	17,140	40,930	3,104	11,885	18,357	12,771	18,346	40,720
1	200	11,576	19,065	14,328	22,883	49,044	1,001	12,777	23,284	16,393	28,488	55,090
2	202	12,341	20,066	15,062	24,111	54,022	953	13,507	26,454	17,679	33,833	55,000
3	117	12,727	21,083	15,574	25,966	54,900	343	14,139	29,232	17,295	36,437	55,001
4 or More	62	13,650	22,072	16,524	26,981	54,900	133	14,540	33,048	17,630	37,805	39,103

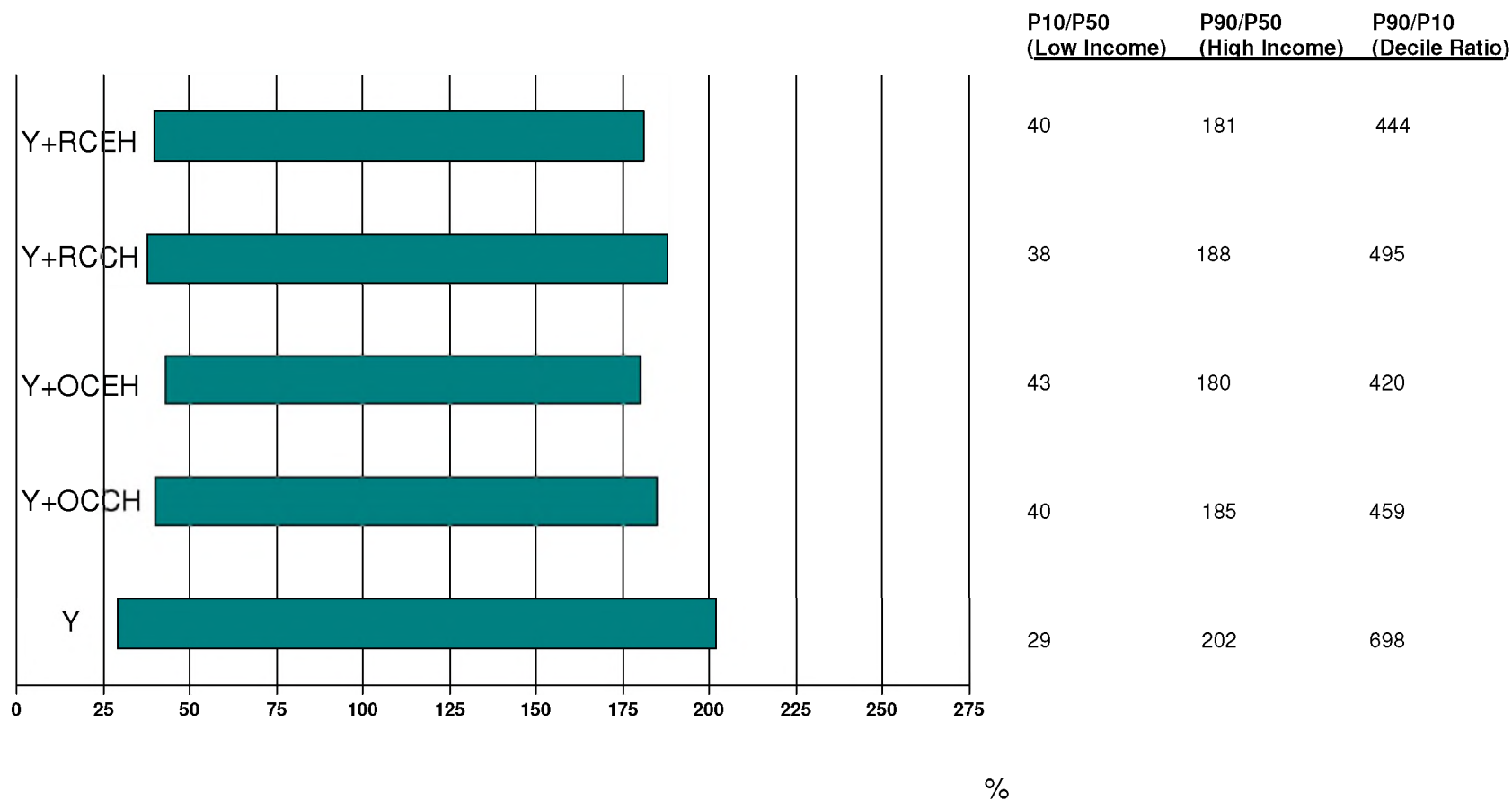|												
Age of Respondent												
<30	390	7,820	13,187	8,261	14,670	43,005	629	7,545	14,086	7,140	13,981	31,000
30-44	422	12,163	18,909	15,215	24,006	58,560	1,931	12,695	22,692	16,640	29,173	54,816
45-64	400	13,108	18,292	16,012	22,315	43,005	1954	14,445	21,656	19,076	27,746	57,700
>64	272	12,035	17,466	14,007	18,285	24,868	1,020	14,856	37,140	11,310	15,079	26,230
Women's Employment Status[a]												
Employed	579	11,554	18,123	14,373	21,758	50,325	3,148	13,261	22,269	17,427	28,478	57,604
Not Employed	731	12,664	18,758	14,825	21,075	41,267	1,649	14,363	22,284	14,654	21,913	30,596

[a] These calculations exclude single male households.

Figure 1. Relative Economic Well-Being as Measured by Money Income Plus the Value of Housework: 2002-03*

	P10/P50 (Low Income)	P90/P50 (High Income)	P90/P10 (Decile Ratio)
Y+RCEH	37	209	565
Y+RCCH	35	221	639
Y+OCEH	32	221	683
Y+OCCH	32	225	714
Y	28	254	895

%

*Length of bars represents the gap between high and low income households. For example, in the case of money income, those in the 10th percentile have only 28 percent of the median income while those in the 90th percentile have 254 percent Of the median income. Numbers in the first two columns of the table are the percent of median household income. Numbers in the last column of the table represent the 90th percentile income as a percent of the 10th percentile income. Y=money income, CHOC=opportunity cost value of core housework, EHOC=opportunity cost value of expanded housework, RCCH=replacement cost value of core housework, RCEH=replacement cost value of expanded housework

Figure 2. Relative Economic Well-Being as Measured by Money Income Plus the Value of Housework: 1975-76*

	P10/P50 (Low Income)	P90/P50 (High Income)	P90/P10 (Decile Ratio)
Y+RCEH	40	181	444
Y+RCCH	38	188	495
Y+OCEH	43	180	420
Y+OCCH	40	185	459
Y	29	202	698

%

*Length of bars represents the gap between high and low income households. Numbers in the first two columns of the table are the percent of median household income. Numbers in the last column of the table represent the 90th percentile income as a percent of the 10th percentile income.
Y=money income, CHOC=opportunity cost value of core housework, EHOC=opportunity cost value of expanded housework, RCCH=replacement cost value of core housework, RCEH=replacement cost value of expanded housework
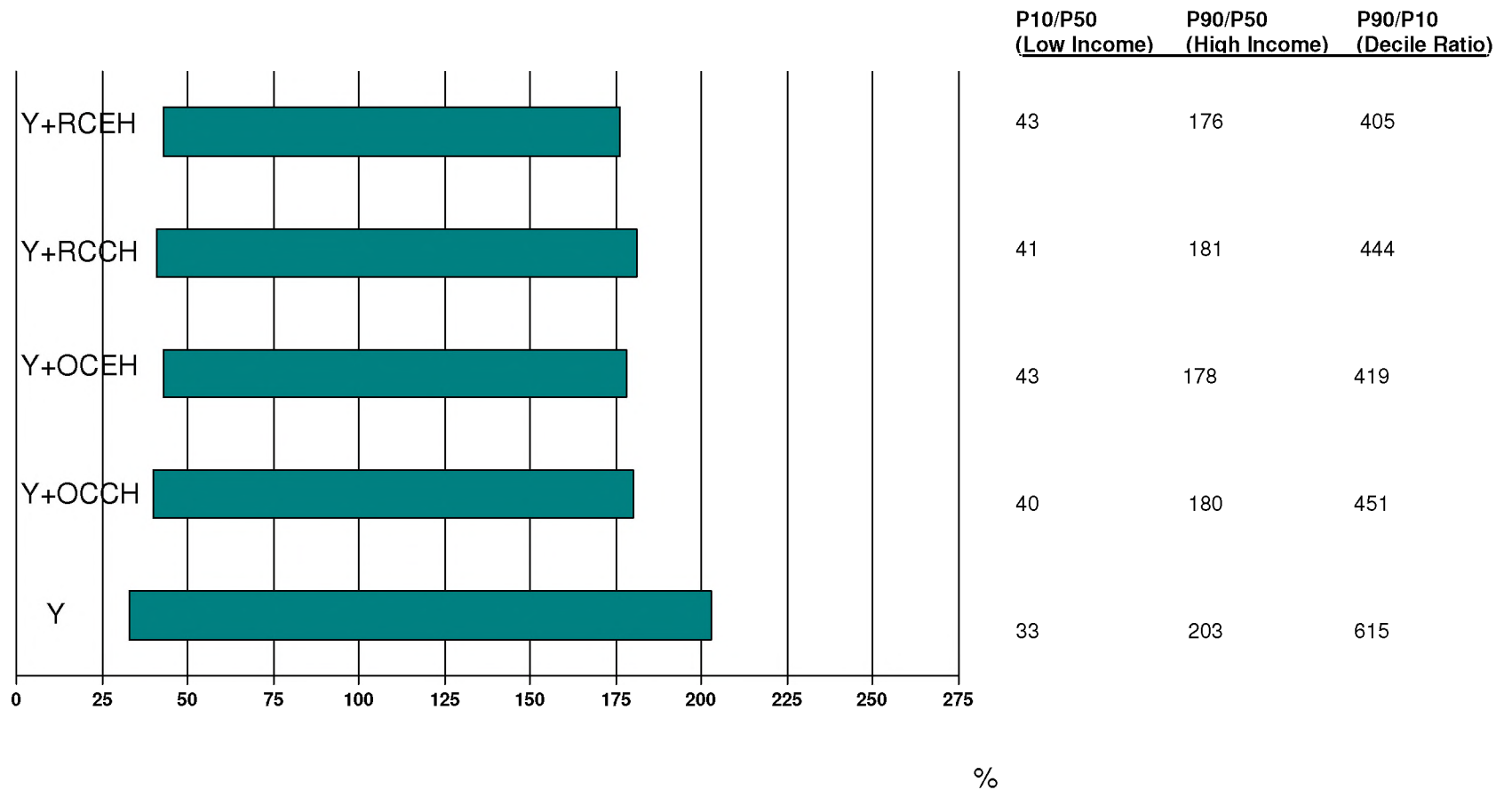
Figure 3. Relative Economic Well-Being: 1975-76 Estimates Standardized to the Marriage, Racial, Child, Age, and Women's Employment Status Composition of 2002-03*

	P10/P50 (Low Income)	P90/P50 (High Income)	P90/P10 (Decile Ratio)
Y+RCEH	43	176	405
Y+RCCH	41	181	444
Y+OCEH	43	178	419
Y+OCCH	40	180	451
Y	33	203	615

%

*Length of bars represents the gap between high and low income households. Numbers in the first two columns of the table are the percent of median household income. Numbers in the last column of the table represent the 90th percentile income as a percent of the 10th percentile income.
Y=money income, CHOC=opportunity cost value of core housework, EHOC=opportunity cost value of expanded housework, RCCH=replacement cost value of core housework, RCEH=replacement cost value of expanded housework