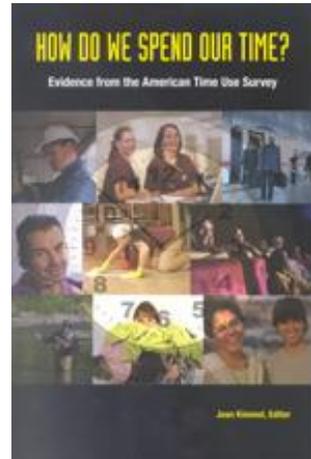

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Does Housework Continue to Narrow the Income Gap?

The Impact of American Housework on Economic Inequality over Time

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Anyone who has ever tackled a pile of dirty laundry, contemplated what to cook for dinner, helped a child with a homework problem, or tended a garden knows that time spent doing household chores enhances a household's overall quality of life. If a member of the household does not do the chore, the services must be purchased in the market at some cost or the task goes undone and the household's quality of life suffers. For example, if someone does not cook dinner, the alternatives are to purchase a prepared meal (at a full-service or fast-food restaurant) or snack on leftovers that require no preparation. Purchasing a prepared meal takes money that might be better spent on other things, and snacking on leftovers may not be desirable for aesthetic or health reasons (depending on how long the leftovers have been in the refrigerator). Thus, on many evenings, people devote time and energy to preparing their dinners.

Virtually all Americans dedicate some time and energy to housework with the aim of augmenting their quality of life. Data from the 2005 American Time Use Survey (ATUS) reveal that women age 15 and older devote an average of 28 hours per week to household chores, while men age 15 and older devote 16.1 hours. Housekeeping, meal

preparation and cleanup, shopping, and physical and nonphysical care of household members are the subcategories where women and men allocate the largest amounts of time. For women the average amount of time devoted to all household chores exceeds the average amount of time they devote to paid employment in a typical week, and for men it is slightly less than half the amount of time they spend in paid employment in an average week (U.S. Bureau of Labor Statistics 2006).

Despite the large amounts of time devoted to household chores, social scientists took little note of its economic importance until the 1960s and 1970s, when simplistic labor-leisure models of time allocation were expanded to incorporate unpaid productive activities in the home (Becker 1965; Gronau 1977). Today, there is no doubt among social scientists that the time spent cooking meals, laundering clothing, gardening, caring for children, and so forth, enhances both economic and social-psychological well-being (Becker 1991; Bianchi, Robinson, and Milkie 2006; Bryant and Zick 2006; Folbre and Bittman 2004; Hochschild 1989).

Recognition of the economic importance of household chores has led to an international literature seeking to incorporate housework and other nonmarket work (such as volunteer work) into a system of national accounts that document the economic activities of countries (see, for example, Ironmonger [1996]; Landefeld, Fraumeni, and Vojtech [2005]; Landefeld and McCulla [2000]; and Lutzel [1996]). At the same time, a much smaller literature has arisen that asks whether housework, when valued monetarily and added to household income, markedly changes the distribution of economic well-being within a society. 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 distribution of economic well-being more equal. If, on the other hand, low-income households do less housework than more affluent households and/or if the per hour value of housework is positively correlated with money income, then household chores may well exacerbate income inequality.

Does housework worsen or ameliorate income inequalities? Prior research that makes use of data from time diary surveys to address this question is limited to three studies. Research by Frazis and Stewart

(2006) using the ATUS data reveals that in the United States, including the value of household work in a more encompassing measure of income reduces income inequality by roughly 20 percent in 2003. The two other diary-based studies have been done using data from Denmark (Bonke 1992) and Norway (Aslaksen and Koren 1996). These are countries with much lower levels of income inequality than in the United States, yet the authors of these two studies also conclude that the monetary value of housework reduces income inequality by 10–30 percent.

Has housework always served as a moderate equalizing force within American society? Has its impact varied over time? Was housework a more potent force in earlier times, when the fraction of households headed by married couples was larger and it was more likely that the wife was a full-time homemaker with minor children in the home? Or, has its importance for economic well-being grown over time as Americans' incomes have grown more unequal?

SOCIODEMOGRAPHIC CHANGE

There have been profound sociodemographic changes over the past quarter century, many of which are intertwined with one another. While it is clearly beyond the scope of this chapter to disentangle the causal links among these phenomena, it is important to provide an overview of these simultaneous trends so that we have the appropriate context for assessing how housework time has shifted and what the shift implies for the distribution of economic well-being in the United States. Toward that end, we briefly describe six interrelated phenomena: the rise of diverse household types, the increases in women's educational levels and labor force participation rates, the decline in fertility rates, the changing racial/ethnic mix, and the aging of the population.

U.S. census data show that in 1970, 69.4 percent of all households in the United States were married couple households. By 2000, this number had dropped to 51.7 percent. At the same time all other household types grew: other family households (e.g., single parents) increased from 10.9 percent to 16.4 percent, one-person households rose from 17.6 percent to 25.8 percent, and nonfamily households (e.g., room-

mates) went from 2.1 percent to 6.1 percent (Hobbs and Stoops 2002). In terms of our living arrangements, America essentially became a more demographically heterogeneous nation over this period.

In 1970, 1 in 7 American males and 1 in 12 American females had completed four or more years of college. Over the next 35 years, the educational attainment of American men and women grew precipitously, with the rate of gain for women being slightly larger than for men. By 2005, 26.5 percent of American women had completed four or more years of college while 28.9 percent of American men achieved this benchmark (U.S. Census Bureau 2007, Table A-2).

As American women's educational levels rose, so too did their labor force participation rates. In 1970, 43.3 percent of all women aged 16 and older were employed outside of the home. By 2000, this number had increased to 59.5 percent (U.S. Bureau of the Census 2007, Table 575). Perhaps even more noteworthy is the fact that the growth in the labor force participation rates of married women with one or more children under age six—typically the group that spends the most time doing household chores—outpaced the growth in the overall labor force participation rates for American women. Between 1975 and 2003, the employment rates of married mothers with children under age six grew from 36.7 percent to 59.8 percent (U.S. Census Bureau 2007, Table 585).

While women's education levels and labor force participation rates were rising, American fertility rates were moving in the opposite direction. In 1976, the average number of children ever born to women aged 40–44 was 3.09. By 2004, the number had plummeted to 1.90. The drop in fertility was slightly larger for ever-married women, but the overall decline was offset somewhat by an increase in children born to never-married women (U.S. Census Bureau 2007, Table H2).

Interwoven with changes in Americans' household composition, educational attainment, and labor supply has been a trend toward greater racial/ethnic diversity. In 1970, 87.5 percent of Americans were white, 11.1 percent were black, and 1.4 percent were of other races. By the 2000 census, only 75.1 percent of Americans were white, 12.3 percent were black, and 12.5 percent were of other races. Simultaneously, between the 1980 and 2000 censuses, the Hispanic population in

the United States climbed from 6.4 percent to 12.5 percent (Hobbs and Stoops 2002, Figures 3-3 and 3-5).

Finally, the American population has grown older over the past several decades. In 1970, the median age in the United States was 28.1. By 2000, it had risen to 35.3 (Hobbs and Stoops 2002, Figure 2-5). This substantial increase in the median age reflects the aging of the relatively large baby boom generation and the relatively smaller baby bust generation that has followed.

IMPLICATIONS OF SOCIODEMOGRAPHIC CHANGE FOR HOUSEHOLD INCOME

The sociodemographic trends described above, along with alterations in labor markets, have triggered changes in household income over the past 40 years. For instance, in households headed by married couples with minor children present, the increase in women's labor force participation rates has been a contributing factor to the growth in median household income. Real median household income for the married-couple households grew by 25.3 percent between 1969 and 1996 (McNeil 1998). Yet, for much of this time span, married males' real earnings remained relatively constant. By sending a second earner into the labor market, these families were able to improve their monetary standard of living. Indeed, when the earnings of wives are excluded from the calculation of the change in median income over this period, the real growth rate for married couples with minor children is only 1.5 percent (McNeil 1998).

At the same time, the proliferation of racially and demographically diverse household types, coupled with growing earnings disparities by education level, has precipitated an increase in money income inequality. Households headed by single individuals typically have lower incomes than households headed by married couples. Similarly, households headed by racial minorities typically have lower incomes than households headed by whites. Both the growing diversity of household types and the greater racial and ethnic heterogeneity have contributed to the increase in household income inequality. Analysis of income data

from the current population survey reveal that income inequality increased by 25 percent between 1970 and 2003 (DeNavas-Walt, Proctor, and Lee 2006).

IMPLICATIONS OF SOCIODEMOGRAPHIC CHANGE FOR HOUSEWORK

What have these sociodemographic changes wrought for the time Americans spend doing household chores? Lower fertility rates reduce the demand for housework, especially child care. As more women have earned college degrees and entered the paid labor market, the opportunity costs of doing housework have also increased. This has likely led to the substitution of some male time for female time spent doing household chores. Simultaneously, these forces have also likely encouraged households to substitute capital for labor in the home by adopting new, labor-saving household technologies (such as dishwashers) and purchasing substitute services in the marketplace (such as lawn care services).

Analyses of time diary data collected in surveys done periodically over the past four decades reveal that married women's housework time has declined while the housework time of married men rose over this same period. The average housework time of single individuals has always been less than that of their married counterparts. Thus, the decline in housework time for all adult females has been even sharper, and the growth for all adult males has been more modest because of the simultaneous increase in nonmarried households over this period. For example, Sayer's (2005) analysis of historical time diary data reveals that the typical American mother spent about 4.5 hours per day in housework in 1965. By 1998 this average had declined to 2.7 hours per day. The comparable figures for all women (i.e., mothers and nonmothers) was 4.0 hours per day in 1965 and 2.2 hours per day in 1998. Fathers in 1965 averaged 38 minutes per day in household chores, but by 1998 their average climbed to 1.7 hours per day. When looking at all adult males, the increase is slightly more modest, however, changing from 37 minutes per day in 1965 to 1.6 hours per day in 1998.

Has the reduction in housework been strictly a phenomenon experienced by the rich? If so, then the reduction in housework would serve to offset the growing dispersion in income. But, if the decline in housework was unrelated to household income, or if it was disproportionately a phenomenon experienced by poor households, then it would serve to widen the economic gap between the rich and the poor.

MEASURING HOUSEWORK IN 1975 AND 2003

We use data from two nationally representative time diary surveys to assess changes in the impact of housework on income inequality in the United States. 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 1,519 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, and during each interview they were asked a number of questions about their living arrangements, employment, and so forth. In addition, at the time of each interview, they completed a 24-hour time diary. The TUESA data set is the earliest, nationally representative U.S. time diary data collection effort. The TUESA sample used in the analyses that follow includes the 1,484 households that provided time diary information.

The second data set used in the analyses is the *2003 American Time Use Survey* (ATUS) (U.S. Bureau of Labor Statistics 2006) described in the introductory chapter in this volume. In order to obtain detailed income data, we restrict our ATUS sample to those respondents who participated in the 2003 March supplement to the Current Population Survey. Approximately one-third of the sample can be linked to the March supplement. We also exclude ATUS respondents aged 15–17 and respondents over age 18 who reside with their parents, in order to maximize comparability between the TUESA and ATUS samples. The ATUS gathers a single time diary for one randomly selected respondent in the household. We used these reports to generate estimates of housework time for both respondents and their spouses. The estimates for both are generated from multiple regression equations that include

known sociodemographic and economic characteristics of the respondent and the spouse. The final sample size for the ATUS in the analyses that follow is 5,534 households. Further details on the construction of the TUESA and ATUS samples are available in Zick, Bryant, and Srisukhumbowornchai (2007).

In both data sets, we define housework to include reports of 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; household management; caring for family members; and shopping. This measure is consistent with the criteria typically used by economists to measure housework in that it includes all activities that could have been purchased in the marketplace if a household member had not spent time doing them (for example, individuals can make their own dinner or pay someone else to prepare a meal).

In the case of the ATUS, daily time spent in household activities based on the diary reports is estimated using multivariate regressions undertaken separately by marital status and gender. From these regressions, predicted housework times are generated, adjusted for day of the week (i.e., weekend versus weekday), and then converted to estimates of annual hours of housework. For the TUESA data, weekly time spent in housework is estimated based on a similar regression approach. The predicted values are multiplied by 52 to get annual hours of housework.

We use a replacement cost approach to derive an economic value for each hour spent doing household chores.¹ That is, we assess what it would cost to hire someone to do the housework if it was not done by a household member.² Our replacement cost estimates of the hourly value of housework are derived from multiple regressions where the hourly wage rate for housekeepers is regressed on region of residence and urban/rural location to adjust for local differences in housekeepers' wage rates. Data from the annual March supplements to the Current Population Survey are used in these estimating equations. Specifically, we restrict the 2003 March supplement to those respondents who identified their primary occupations as "maid/housekeeper," while the 1976 March supplement sample is restricted to those respondents who identified "private household workers" as their primary occupation.³

The wage regression coefficients are used to generate predicted replacement wages for household members in the ATUS and TUESA based on region of residence and urban/rural location. In the 1975 TUESA, the hourly replacement wage varies from a low of \$3.27/hr. for households living in the rural west to \$4.62/hr. for households living in the urban northeast (measured in 2002 dollars). In contrast, the lowest replacement wage in the 2003 ATUS is \$6.33/hr. in the rural south, and the highest replacement wage is \$8.00/hr. in the urban northeast (measured in 2002 dollars).

To obtain an estimate of the economic value of housework, we multiply the hourly value of housework by estimates of the annual time spent in housework for each adult in the household. These figures are then summed across adults in the household to arrive at an overall measure of the economic value of housework done in each household during the year.

Annual household income figures for the ATUS sample are drawn from the March supplement to the Current Population Survey. Annual household income figures for the TUESA sample are taken directly from the TUESA survey. These latter figures are inflated to 2003 dollars using the Personal Consumption Expenditure Deflator (Federal Reserve Bank of St. Louis 2007). Both income measures are adjusted for federal income taxes so that they reflect the household's after-tax access to purchased goods and services in the marketplace. All of the analyses that follow have been weighted using the recommended sampling weights so that the results can be generalized to the larger U.S. population as it was constituted in 1975 and 2003.

THE DISTRIBUTION OF INCOME AND HOUSEWORK IN 1975 AND 2003

The mean values for annual hours of housework in each year by gender and marital status appear in Table 3.1. These figures confirm the general trends in women's and men's housework reported in other diary-based studies (Bianchi, Robinson, and Milkie 2006; Sayer 2005). In 1975, married women averaged 36 hours per week in housework, fol-

Table 3.1 Mean Hours per Year Spent in Housework: 1975 and 2003

	1975	2003	Percentage change
Single women	1,297	1,156	-10.9
Single men	630	712	13.0
Married women	1,874	1,789	-4.5
Married men	735	1,046	42.0

SOURCE: Authors' calculations.

lowed by single women at 25 hours per week, married men at 14 hours per week, and single men at 12 hours per week. By 2003, both married and single women's average time spent in housework had declined by about three hours per week. In contrast, single men's housework time had increased by almost two hours per week, and married men's time had increased by almost six hours per week.

One strategy for summarizing income inequality is to rank households from the very poorest to the very richest and then selectively compare incomes at various percentiles. Table 3.2 shows the distributions of annual income, the estimated replacement value of housework time, and the sum of income plus the replacement value of housework (i.e., what we call extended income) in 1975 and 2003 at the 90th, 50th, and 10th percentiles. By making comparisons between these percentiles, we provide a picture of the distribution of economic well-being while avoiding the extreme values that may be subject to serious reporting error.

The first panel of Table 3.2 illustrates the growth in income inequality between 1975 and 2003. Across the two surveys, real income for the 10th percentile grew by only 29 percent, while for the 90th percentile it grew by 75 percent. The second panel also reveals growth in the inequality of housework over this era: those at the 10th percentile increased their housework by 88 percent and those at the 90th percentile increased their value of housework by 118 percent. However, the households whose members are doing little housework may be rich or poor from a monetary perspective. Thus, to get the complete picture, we need to look at the last panel where extended income—that is, the sum of income and the value of housework—has been ranked. Here we see that while there have been economic gains over time across the extended income distribution, these gains have been relatively greater

Table 3.2 Distribution of the Components of Extended Income: 1975 and 2003

	1975 ^a	2002–03	Percentage change from 1975 to 2002–03
After-tax income			
10th Percentile	9,275	11,928	29
50th Percentile	28,548	40,100	41
90th Percentile	54,307	94,993	75
Mean	31,891	50,357	58
Value of housework			
10th Percentile	2,924	5,508	88
50th Percentile	7,818	17,509	124
90th Percentile	11,489	25,017	118
Mean	7,391	16,027	117
Extended income (i.e., income + value of housework)			
10th Percentile	14,314	21,504	50
50th Percentile	36,122	56,745	57
90th Percentile	64,988	115,597	78
Mean	39,312	66,384	69

^a All 1975–1976 dollar figures have been inflated to 2002 dollars using the Personal Consumption Expenditure Deflator (Federal Reserve Bank of St. Louis 2007).

SOURCE: Authors' calculations.

for those at the higher end of the distribution. Specifically, those in the 90th percentile experienced an 80 percent increase in extended income, while those households at the 10th percentile experienced only a 50 percent increase.

Another way to assess the change is to look at how the economic value of housework changed for households in the bottom 10 percent of the money income distribution compared to how it changed for households in the top 10 percent. Our calculations (not shown in Table 3.2) reveal that the median economic value of housework increased by 30 percent over this 28-year period for those in the bottom decile of the after-tax income distribution. In contrast, the median value of housework rose by 100 percent for those in the top after-tax income decile. The

bottom line is that overall economic inequality grew over this period because both after-tax income and the economic value of housework became more unequally distributed.

THE IMPACT OF SOCIODEMOGRAPHIC CHANGE ON ECONOMIC INEQUALITY

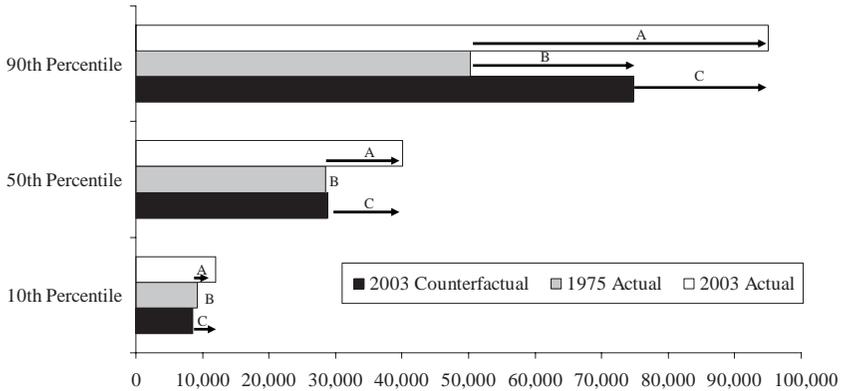
Over the years spanned by the two surveys, Americans' sociodemographic characteristics changed substantially. As noted earlier, by 2003, Americans were older, less likely to be white-non-hispanic, less likely to be married/cohabitating, and had fewer children than in 1975. In addition, women were more highly educated and more likely to be employed outside of the home. Have shifts in the sociodemographic composition of the population exacerbated or ameliorated the changes in economic inequality in extended income that we observe between 1975 and 2003?

To assess the impact of the sociodemographic shifts in the population, we undertake a counterfactual analysis. To do this, we impose the sociodemographic structure of the 1975 sample on the 2003 sample. For instance, this means that we place an increased emphasis on those households where the wife was not employed in 2003 while deemphasizing those households where the wife was employed. This is done by making adjustments to the sample weights so that the sociodemographic picture portrayed in the 2003 ATUS mirrors the sociodemographic characteristics of the 1975 TUESA sample.

Figure 3.1 shows the distribution of income in 1975 and 2003. It also shows the 2003 counterfactual distribution; that is, it shows what the distribution of income would have looked like in 2003 had there been no sociodemographic change between 1975 and 2003. Comparison of the 2003 counterfactual distribution with the actual 2003 distribution reveals that if the sociodemographic characteristics of the population had not changed, income would have been lower at the 90th, 50th, and 10th percentiles.

Comparisons between the 1975 income distribution and the counterfactual 2003 income distribution show how much economic well-

Figure 3.1 Decomposition of the Change in Income Distribution: 1975–2003 (\$ per year)

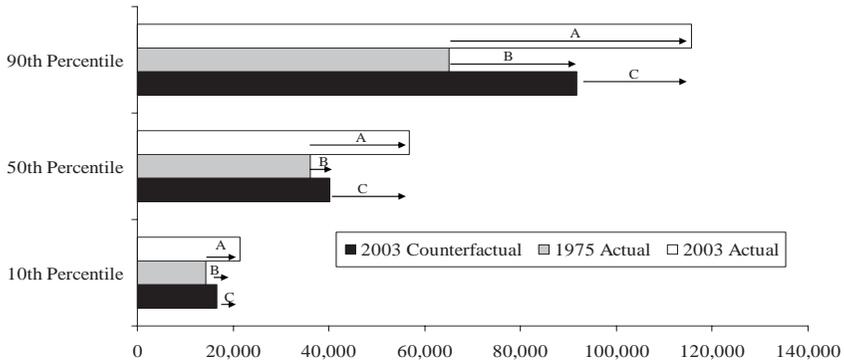


NOTE: A is overall change. B is residual change. C is change due to demographics.
 SOURCE: Authors’ calculations.

being changed for reasons other than sociodemographic shifts. These comparisons hold the sociodemographic composition of the two samples constant. As such, they measure the “residual” change attributable to factors other than sociodemographic trends. These changes could be the result of such things as advances in household technology, shifts in the demand for paid and unpaid labor, and the impact of ever-evolving social norms with regard to paid employment, housework, and leisure. Figure 3.1 reveals that these combined effects were very small in the middle and the lower tail of the distribution. However, at the upper end (i.e., the 90th percentile), they served to increase income substantially.

Figure 3.2 presents the decomposition of the change in extended income between 1975 and 2003. The pattern that emerges is quite similar to the one presented in Figure 3.1. Comparisons of the 2003 counterfactual extended income distribution to the actual 2003 income distribution reveal that sociodemographic shifts in the population were responsible for much of the growth in extended income that occurred over this period. Holding sociodemographics constant (i.e., comparing the 2003 counterfactual bars to the 1975 actual bars), we see that other forces had only modest impact except, again, at the very high end of

Figure 3.2 Decomposition of the Change in Income Plus Housework Distribution: 1975–2003 (\$ per year)



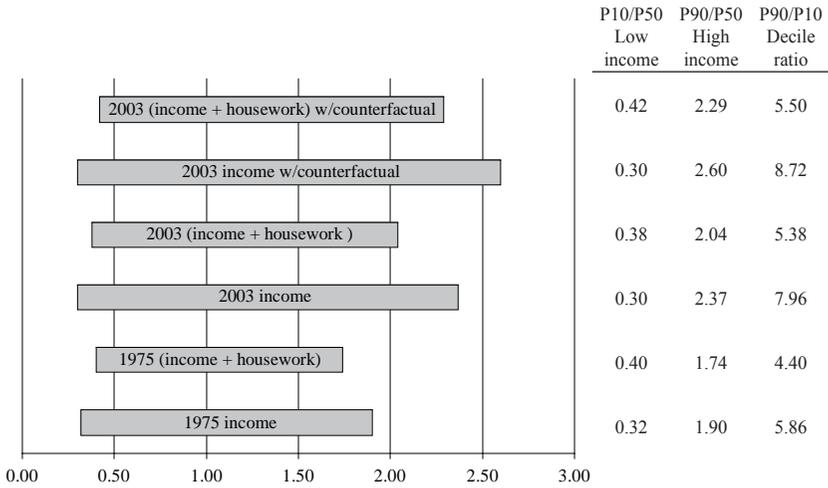
NOTE: A is overall change. B is residual change. C is change due to demographics.
SOURCE: Authors' calculations.

the distribution. The net effect (i.e., comparing 1975 actual with 2003 actual) was that extended income grew more at the 90th percentile than it did at the 10th percentile, thus increasing economic inequality over this time period.

The growth in economic inequality is depicted in Figure 3.3. The bottom bar on the graph represents the gap between high- and low-income households in 1975, while the third bar from the bottom represents the same comparison in 2003. The figure shows that the increase in income inequality over this period is primarily attributable to the relatively greater increase in after-tax income experienced by those at the top end of the income distribution. That is, “the rich got richer” compared to the average household while the poor’s position changed little relative to the average.

In both 1975 and 2003, the addition of the value of housework to income to form extended income (second bar from the bottom and third bar from the top) reduces economic inequality. The reduction in economic inequality in absolute terms is greater in 1975 than in 2003. 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 of extended income in each of the years. For 1975, the addition of house-

Figure 3.3 Relative Economic Well-Being as Measured by Income Plus the Value of Housework in 1975 and 2003



NOTE: Length of bars represents the gap between high- and low-income households. For example, in 1975, those in the 10th percentile have only 32 percent of the median income while those in the 90th percentile have 190 percent of the median income. Numbers in the first two columns of the table are the fraction of median household income. Numbers in the last column of the table represent the 90th percentile income as a fraction of the 10th percentile income.

SOURCE: Authors' calculations.

work reduces this ratio by 34 percent (5.83 to 4.40). Similarly, in 2003, the ratio of the 90th percentile to the 10th percentile is reduced by 32 percent when the value of housework is added to income. Thus, when comparing 1975 and 2003, Figure 3.3 shows that the income equalizing effects of housework are substantial and relatively similar in percentage terms in each of these years.

The two uppermost panels in Figure 3.3 depict relative economic well-being for the 2003 ATUS sample standardized to the sociodemographic profile present in the 1975 TUESA sample. They show what relative economic inequality would have looked like in the 2003 sample if the sociodemographic composition in 1975 had remained unchanged through 2003. This diagram shows clearly that both income and extended income would have grown even more unequal if the American

population had not concurrently experienced considerable sociodemographic change. Again, this is especially true for the high end of the income distribution.

Without sociodemographic change, households in the 90th percentile would have had 8.72 times the income that households in the 10th percentile had. But, with the sociodemographic changes, the ratio of incomes for households in the 90th percentile to the extended incomes of households in the 10th percentile was only 7.96. Similarly, inequality in extended income would have been higher with households in the 90th percentile having 5.50 times the extended income of households in the 10th percentile. Instead, the actual difference was that households in the 90th percentile had 5.38 times the income of households in the 10th percentile.

Comparisons of the top two bars with the bottom two bars in Figure 3.3 are also useful. It allows us to see the changes in economic inequality between 1975 and 2003 that are attributable to factors other than shifting sociodemographics (i.e., the residual change). Figure 3.3 reveals that one or more of these residual factors precipitated growth in economic inequality between 1975 and 2003 by disproportionately increasing extended income at the upper end of the distribution.

DISCUSSION AND CONCLUSION

Does household work reduce the economic gap between the rich and the poor in 2003 to the same degree it did in 1975? Our analyses suggest that housework serves to reduce economic inequality in the United States in 1975 and 2003. In 1975, the economic distance between the 10th and 90th percentiles shrinks by about 25 percent when the economic value of housework is added to income. In 2003, the decline in the distance between the 10th and 90th percentiles is 32 percent. Both of these figures are in keeping with the findings of the three prior studies that have been done on this topic (Aslaksan and Koren 1996; Bonke 1992; Frazis and Stewart 2006). We conclude that unpaid work performed in the home for the benefit of household members continues to be a substantial force in reducing economic inequality in 2003 de-

spite the shifts in housework time and changes in the larger economy that have occurred over the past quarter century.

Although housework continues to serve as a partially equalizing economic force, the income inequality plus the value of housework (i.e., extended income) grew between 1975 and 2003. The P90/P10 ratio of extended income grew by a little more than 22 percent between the two surveys when looking at income plus housework. We find that this growth in economic inequality would have been moderately greater (25 percent) if there had not been concurrent shifts in marital status, age, race/ethnicity, number of children, women's education, and women's employment.

When we investigated the impact of the sociodemographic shifts one by one (not shown in the figures), we find that declines in marriage and fertility coupled with growing racial diversity served to increase income inequality between 1975 and 2003. In contrast, increases in women's education levels and labor force participation rates coupled with the general aging of the population served to reduce income inequality. On balance, these latter sociodemographic effects outweighed the former. We also find that the more modest growth in housework inequality is fueled in part by shifts in women's education and employment and by the decline in married couple households. Interestingly, the decline in the fertility rate served to reduce housework inequality over this time period.

Our analyses suggest that changes in women's educational attainment and labor market behaviors have been particularly important in raising the average income level and slowing the growth in income inequality between 1975 and 2003. As more women have entered the labor market, they have, however, cut back on housework. The time trade-off, however, has not been one-for-one. Moreover, married men have concurrently increased their housework and thus partially compensated for the reduction in their wives' housework time. While the employment and education-induced reductions in women's housework have precipitated modest growth in housework inequality between 1975 and 2003, the growth would have been even greater had it not been for the concurrent increase in married men's housework.

Controlling for changes in the sociodemographic composition of the samples, we find substantial growth in economic inequality when

comparing 1975 to 2003. This rise in economic inequality appears to be a function of modest growth in the inequality of housework coupled with more sizeable growth in income inequality, particularly at the high end of the income distribution.

What factors are likely contributing to the growth in housework and income inequality, holding sociodemographic characteristics constant? We speculate that three forces may be at work. First, there have been significant labor market shifts over this historical period. Technological changes in the job skills required increased the demand for highly educated individuals who also typically command high wage rates. The demand for less-educated individuals concurrently declined as manufacturers increasingly turned to international labor markets to fulfill their unskilled labor needs. Higher wage rates for highly educated individuals are likely to raise income while simultaneously reducing time spent in housework because of the rising opportunity costs that 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 income and increase time spent on housework. Such shifts should increase income inequality while at the same time producing greater equalizing effects of housework.

Second, technological change in household production may have played a significant role in changing the distribution of the economic value of housework. Economists argue that the adoption of new technologies serves to expand family choice, which is likely to lead to an increase in the demand for time spent in productive activities within the home. At the same time, if the new technology is labor saving, it will precipitate a decline in housework. But if it is money saving, it will foster an increase in housework time. On balance then, the expected impact on housework of adopting new technologies within the home is ambiguous. (See Bryant and Zick [2006] for a more detailed discussion of this point.)

Over the past few decades, Americans have experienced considerable technological change within the household. In particular, personal computers did not even exist in 1970, but by 2003, 61.8 percent of American households owned at least one personal computer and 54.7 percent of American households had a computer with Internet access (Day, Janus, and Davis 2005). Personal computers and access to the

Internet have allowed households to change the way they shop (both in terms of gathering prepurchase information as well as making actual purchases), manage their finances, etc. But this important shift in household technology has not been evenly distributed across all income levels. The most recent statistics show that 92.2 percent of American households with incomes at or above \$100,000 per year have at least one computer with Internet access in the home. In contrast, among households where the annual income is less than \$25,000 per year, computer ownership is only 41 percent and Internet access is 30.7 percent (Day, Janus, and Davis 2005).

The income-related differences in computer ownership and access to the Internet may have contributed to the recent growth in housework inequality. If computer ownership increases the household's demand for all goods and services (including those "produced" at home), then time spent in housework may increase. This increase in demand may offset any labor-saving aspects of computer ownership.

Finally, education-related changes in preferences for leisure or education-related changes in opportunity costs over this historical period may play a part in this story. In their recently completed longitudinal study, Aguiar and Hurst (2007) 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. Likewise, Robinson and Godbey (1997) report that between 1965 and 1985, the "free time" of high school graduates rose on average by 6.5 hours per week. In contrast, the free time of college graduates rose on average by only 1.1 hours per week and for individuals with advanced degrees free time did not change at all over this 20-year period. If this uneven shift in leisure time is partly a function of education-related changes in social mores about leisure activities or changes in educationally related opportunity costs, 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 incomes continue to increase their access to goods and services proportionately more by doing housework than do households with higher incomes, thus reducing

economic inequality in the United States. Yet, between 1975 and 2003, economic inequality rose in the United States largely because of the growth in after-tax 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 and women's educational attainment, raised the economic status of the average household and somewhat inhibited the growth in economic inequality. At the same time, some combination of changes in the labor market structure, technology within the home, leisure opportunity costs, and/or leisure preferences likely fueled its growth.

Notes

1. Alternatively, some researchers have used an opportunity cost measure of time spent in housework (Bonke 1992; Bryant and Zick 1985). This involves estimating the economic value of time spent in the "next best" activity that has been foregone to do housework. Typically, this next best activity is market work. As such, an individual's market wage rate, adjusted for the respondent's marginal tax rate, is used as the opportunity cost measure of an hour of housework.
2. Here we use a general housekeeper wage, but another option would be to use a weighted average replacement cost wage. For instance, the wage rate paid to cooks could be multiplied by the average fraction of time spent cooking and added to the wage rate paid for child care multiplied by the average fraction of time spent caring for children, etc. Since it is unlikely that a household would be able to hire all of these professionals separately for such small amounts of time (e.g., a part-time cook, a part-time bookkeeper, a part-time launderer), we elect to use the more realistic housekeeper wage rate.
3. The Current Population Survey occupational label for housekeepers changed between these two years. Thus, while the names were changed, we are measuring the same occupation in both 1976 and 2003.

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