Household Production Time and Inequality in Material Living Standards in the U.S., 1965–2018*

Leila Gautham† and Nancy Folbre‡

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† Department of Economics, University of Leeds. Address: GM.20 Maurice Keyworth Building, Leeds LS2 9JT, United Kingdom. Email: l.gautham@leeds.ac.uk.
‡ Department of Economics, University of Massachusetts Amherst. Email: folbre@econs.umass.edu.

Abstract

We study how unpaid household production shapes trends in inequality in material living standards in the U.S. in the last five decades. We construct extended income and consumption measures that add the imputed value of household production to standard market concepts. Extended income and consumption are consistently more equal than their market counterparts. The imputed value of time devoted to household production has fallen considerably, with proportionately larger impacts on money-poor households. Inequality in extended measures has therefore risen more than for market income and consumption. In other words, the degree to which household production buffers inequality in market resources has fallen over time. This analysis applies a lower-bound replacement cost value to hours of time reported in household production and is robust to the use of different valuation and equivalence scales.

Keywords: income inequality, consumption inequality, household production, time use, extended income.

JEL Classification: D31, D12, J22.

1. Introduction

Attention to rising income and consumption inequality in the U.S. since the late 1970s has been accompanied by the recognition that market incomes or consumption yield an incomplete picture of inequality in material living standards. Some broader approaches to living standards on the household level, framed in terms of utility maximization, estimate "full income" by adding the imputed value of both household production and leisure to market income or consumption, based on opportunity cost (Schreyer and Diewert 2014). We focus instead on material living standards, providing estimates of "extended income" and "extended consumption," by adding the imputed value of labor devoted to household production to market income and consumption, based on its replacement cost. While leisure time is certainly relevant to living standards, its valuation requires stringent assumptions, and trends in leisure time invite separate consideration.[4]

We build on previous research finding that extended incomes tend to be more equally distributed than market incomes (Jenkins and O'Leary 1996; Frazis and Stewart 2011; Folbre et al. 2013; Ragnarsdottir, Kostecki, and Gornick 2023). This finding, however, has been primarily based on estimates at a single point in time. The few studies that have examined trends have omitted childcare (or important components of it) from household production, used coarse measures of market income, and covered a time period too narrow to inform estimates of distributional changes over the last five decades (Gottschalk and Mayer 2002; Wolff and Zacharias 2007; Zick et al 2008).

The last five decades have seen substantial increases in women's paid employment, the percentage of family households with dual earners (Blau and Winkler 2018), and single-parent families (McLanahan and Percheski 2008), alongside divergent trends in the amount and type of parental childcare provided across the

[4] A growing literature focuses on the implications of leisure consumption for inequality in economic wellbeing (Han et al. 2020; Attanasio and Pistaferri 2016; Aguiar and Hurst 2007). Recent literature focusing on household production is more limited.

income distribution (Flood et al. 2022). Additional relevant trends include fertility decline, changes in men's time allocation, and increases in the average age of the population. Rather than asking how these trends affected time devoted to household production, we concentrate on the consequences of changes in time allocation for the distribution of household extended income.

While unpaid household work (including family care) contributes significantly to material living standards, it seems unlikely that its productivity varies as much by educational credentials as market earnings. Also, the scope for technological innovation capitalizing on economies of scale is more limited in households than in firms. These two factors strengthen the rationale for imputing a value to household production based on replacement cost and explain why its valuation is likely to have an equalizing effect. In this, we follow the approach applied by the Bureau of Economic Analysis to use the wages of housekeepers to value time devoted to household production (see Bridgman et al. 2012, 2022; Bridgman 2016, 2022). We first examine how time devoted to household production changed across the distribution of market income and consumption. We then incorporate the imputed value of this time into household extended income and consumption, showing how it diverges from market income and consumption over an approximately fifty year period.

We rely on three data sources, the American Heritage Time Use Study (a database of national time-diary samples), the Current Population Survey's Annual Social and Economic Supplement (ASEC), and the Bureau of Labor Statistics' Consumer Expenditure Survey (CES), to examine how the distribution of market incomes, market consumption and time devoted to household production in the U.S. coevolved between 1965 and 2018. Our starting point of 1965 corresponds to the date of the first nationally representative U.S. time use survey, while the end point precedes the COVID pandemic. This period witnessed a substantial rise in inequality in household market income, particularly in the top half of the distribution (Blundell et al. 2018; Semega and Koller 2022). Consumption inequality also increased, though typically by less than

income inequality and with magnitudes that are sensitive to how one addresses measurement error in reported expenditures (Aguiar and Bils 2015; Fisher, Johnson and Smeeding 2013, 2015; Meyer and Sullivan 2023).

We study both income and consumption and ask how the inclusion of household production alters our assessment of changes in material living standards. Our results suggest that the rise in market income and consumption almost certainly overstates improvements in material living standards between 1965 and 2018. Monetary consumption for disadvantaged households has risen since the 1960s (Meyer and Sullivan 2012, 2023; Han et al. 2021). However, when we add the imputed value of household production to construct extended income and extended consumption, improvements at the bottom are extremely modest (extended consumption at the 10th percentile rises by only about 4 percent, and extended income actually declines slightly).

The equalizing effect of time devoted to household production has also declined over time, due to the decline in the imputed value of household production time relative to market income, especially among households low in market income. Between 1965 and 2018, the 90-10 log differential for market income rose by about 33 log points (from 1.83 to 2.17), while the corresponding 90-10 log differential for extended income rose by 51 log points (from about 1.15 to 1.66). The 90-10 log differential for market consumption increases only slightly (4 log points), whereas the 90–10 log differential for extended consumption rises by about 17 log points. For both income and consumption, our estimates of the change in the 50-10 log differential imply a non-trivial increase in inequality in the bottom half of the distribution once household production is considered, unlike estimates based exclusively on market incomes or market consumption. We therefore see a clear erosion of the equalizing “buffer” provided by unpaid work.

These patterns are robust to alternative inequality measures (i.e., percentile shares and the Gini index), valuation methods (using state-level minimum wages as well as

individual market wages to value household production), and equivalence scales (applying alternative assumptions about the weight of children relative to adults and economies of scale in household production). As a check on the robustness of our income results to underreporting and tax and transfer treatment, we also construct a complementary series using the post-tax distributional national accounts (DINA) developed by Piketty, Saez and Zucman (2018).

2. Background

Economists have devoted considerable attention to the causes and implications of rising wage inequality after the 1970s. Much of this rise took the form of widening gaps between the middle and top of the wage distribution ("polarization"), while gaps between the middle and bottom have remained roughly stable (Autor, Katz, and Kearney 2006; Aeppli and Wilmers 2022). Household market income inequality has tracked earnings inequality closely: between 1967 and 2018, the ratio of household market incomes at 90th percentile relative to the 10th percentile rose by about 40 percent, with much of the increase coming from divergence between the 90th and 50th percentiles (Semega and Koller 2022). Some of this increase in inequality can be attributed to assortative marriage and the rise in correlation between spousal earnings: the most rapid rise in female employment occurred among women married to high earning men (Larrimore 2014). While there is less agreement on the precise trajectory of consumption inequality, studies typically indicate a more modest increase (relative to income inequality) in the top half of the distribution, and small *decreases* in inequality in the bottom half (Heathcote, Perri, and Violante 2010; Aguiar and Bils 2015; Meyer and Sullivan 2023).

Yet market income and expenditures give an incomplete picture of material living standards. Consider two-adult family households with two children: on average,

dual-earner family households earn $151,200 annually, compared to $113,400 for those with only a single-earner.[5] Dual-earner families also have annual expenditures totaling $83,300 compared to $65,000 for single-earner families. However, the latter average about 47 hours more per week on household production.[6] If the rise in inequality in market income was caused partly by rising female employment, what are the implications of accompanying declines in time devoted to household production for inequality in living standards?

Inequality in extended income and consumption in the cross section

In typical household production models, higher potential wages go along with less time devoted to household production. Higher wages signify a greater opportunity cost of time and substitution effects are likely to predominate (Gronau 1986). While the extent of the negative gradient is mediated by preferences and household production technology, and higher individual wages do not necessarily map onto higher household market income, it is reasonable to expect a negative correlation between market income or expenditures and time devoted to household production.

Empirical evidence favors this hypothesis for certain categories of household production: Aguiar and Hurst (2005) find that food expenditures are substitutable with unpaid time devoted to food preparation after retirement. While Been et al. (2020) estimate that only 11 percent of consumption expenditures can be substituted with home production, they find an elasticity of substitution close to 1 for these. Gautham and Folbre (2024) find a high degree of substitutability between childcare expenditure

[5] Author calculations from the Panel Study of Income Dynamics, 2017 and 2019. Single (dual)-earner defined as only one (both) member(s) employed for at least 40 hours per week.
[6] Household production is defined as time devoted by both adults to housework, shopping, and childcare.

and unpaid time devoted to total childcare (a $1,000 increase in annual childcare expenditures is associated with an 80 hour decline in unpaid active and supervisory childcare per year).[7] However, overall levels of household production display either no relationship or a weak positive relationship with incomes (Frazis and Stewart 2011; Gautham and Folbre 2024).

Even if higher incomes are not associated with lower levels of household production, the value of household production varies much less than market income (due both to the low variability of hours devoted to household production, and its valuation at a relatively uniform rate). As a result, its inclusion has an equalizing effect. Both Bridgman et al. (2012) and Frazis and Stewart (2011), for instance, find that extended income is more equally distributed than market income in the U.S., because the imputed value of household production adds positive, roughly constant, amounts to market incomes. Similar results have been found for other industrialized countries (Folbre et al. 2013; Ragnarsdóttir et al. 2023). For consumption expenditures, Han et al. (2020) find a negative correlation of non-market time with consumption, and find that consumption, inclusive of the value of this non-market time, is more equally distributed.

Analysis of the joint distribution of household production and market incomes or expenditures is complicated by the fact that U.S. surveys rarely include information on both time use and income or expenditures for the same reference period and for every member of the household. For that reason, studies looking at the distribution of extended income using time use surveys are often forced to impute household incomes or time use for other household members (or both) and to rely on samples restricted to single-adult or married-couple families.[8] Notable exceptions are the post-2017 Panel Study of Income Dynamics (PSID) surveys that collect information both on household incomes, expenditures, and time use in a "typical week;" however,

[7] A more extensive literature looks at how leisure time declines with household incomes or expenditures (Aguiar and Hurst 2007, Han et al. 2020), and includes some components of household production (such as childcare or gardening) within definitions of leisure.

[8] For example, Frazis and Stewart (2011) link about one-third of their 2003 ATUS sample to March CPS Income Supplement interviews to get information on household income (imputing income for the rest).

these do not extend far enough back in time to generate meaningful estimates of trends for extended income.

Trends in household production over time

Time devoted to household production has declined over the last five decades (see Bridgman et al. [2022] for recent estimates from the Bureau of Economic Analysis (BEA) Household Production Satellite Accounts [HPSAs]). Much of this decline has come from reductions in time devoted by women to housework, particularly food preparation and cooking (Fisher et al. 2007). An increase in men's time devoted to household production has not been sufficient to offset this decline. An exception to the general decline in household production is time devoted to active childcare—an apparent doubling for women and a tripling for men (Bianchi and Raley 2005).

Existing research has typically excluded time devoted to the supervision of children from estimates of household production. However, young children cannot be left alone without someone available and on-call to provide supervision or assistance if needed, and this responsibility imposes significant constraints on parental time (Budig and Folbre 2004). Levels of supervisory childcare in the U.S. are substantial (Suh and Folbre 2016) and are highly sensitive to maternal employment: time devoted to child supervision, often joint with housework, declines much more with paid employment than active childcare time (Folbre and Suh 2025). College-educated parents (primarily mothers) have increasingly replaced parental supervision with paid childcare services (Flood et al. 2022). As we show later, measurement of time devoted to child supervision is consequential for estimates of changes in household production time.

Few papers examine the evolution of the *joint* distribution of market income and the imputed value of household production in the U.S. (and none, to the best of our

They restrict their sample to single-adult and married-couple households and estimate means of household production conditional on observable characteristics (because the ATUS only interviews a single household member).

knowledge, look at consumption and household production).[9] The first of these, Gottschalk and Mayer (2002), consider the period between 1976 and 1988. They exclude both active and supervisory childcare from household production time (information on time devoted tochildcare was not available in their dataset, the PSID, at the time). This is problematic, given evidence of extensive substitutability between paid and unpaid childcare (Gautham and Folbre 2024). Estimates from Wolff and Zacharias (2007) incorporate other components of household wellbeing (public consumption and benefits from asset ownership), in addition to market incomes and household production (including active but not supervisory childcare). These latter estimates, however, cover only the 1990s, and therefore yield little insight into longer trends in inequality.

Zick et al. (2008) span 1975–2003 and incorporate active childcare, but their coarse, categorical measure of household market income blunts the rise in inequality (we document the measure's problems below). They also restrict their attention to households with at most two adults, omit supervisory childcare, and end in 2003. Women's employment participation stalled around 2000 (England, Mishel, and Levine 2020) even as household income inequality continued to climb, yet the distributional implications for extended income remain unexamined. Our analysis closes these gaps: we explicitly account for supervisory childcare, extend the series through 2018, include households with more than two adults, and deploy a superior market-income measure. These improvements are substantive: they recover inequality changes masked by earlier measurement and compositional choices and generate a more accurate assessment of changes in the joint distribution of household production and market incomes.

Bridgman et al. (2012) speculate, on the basis of the drop in home production hours from 1965 to 2010, that the equalizing impact of home production on inequality

[9] Han et al. (2020) look at the joint distribution and leisure (defined both narrowly as recreational and social activities, and more broadly as non-market time).

has decreased over time. However, they are unable to test this hypothesis, since they limit their attention to the joint distribution of market incomes and home production hours in the 2003–2010 period. Our analysis, which spans 1965 to 2018, confirms their speculation.

3. Measuring household production and household incomes

The American Heritage Time Use Study

We utilize the American Heritage Time Use Study (AHTUS), a database of national time-diary samples collected over six decades (Fisher et al. 2007, 2018). Developed by the Centre for Time Use Research (CTUR), the AHTUS merges the new American Time Use Survey (ATUS), collected on a continuous basis beginning in 2003 by the U.S. Bureau of Labor Statistics (BLS), with previous national time-use studies in a harmonized format. The latter include the three surveys conducted by the University of Michigan in 1965–1966, 1975–1976, and 1985, and two surveys conducted by the University of Maryland in 1995 and 1998–1999. A description of each of these surveys can be found in Appendix A.1. We use IPUMS-provided sample weights that exclude low-quality diaries, correct for day-of-week composition, and inflate our sample observations to the number of person days in the (civilian non-institutionalized) population (Fisher et al. 2007).

Defining time in household production

Unpaid household work is defined in this section as the sum of housework and the active care of household children. Housework includes food preparation, cleaning, laundry, home and vehicle maintenance, purchasing goods and services, and travel related to consumption; active childcare includes the care of infants, general care of older children, medical care of children, playing or reading to or talking to children, helping children with homework, and travel related to childcare. Appendix Table A.1 lists the AHTUS activity codes that we include in unpaid work. We define time devoted to household production as the sum of all unpaid work by household adults.

Our definition follows the "third-person criterion" in the time use literature: an activity is treated as household production if it could, in principle, be delegated to a third person hired in the market (Abraham and Mackie 2005; Schreyer and Diewert 2014). In this sense, we count childcare activities (including playing or reading to children, talking with them, and helping with homework) as unpaid work because they are routinely supplied by paid childcare workers. At the same time, many of these activities clearly have an important relational component for parents, and the willingness to pay for a replacement is likely to vary across individuals and across contexts (for instance, while a parent is at work versus during weekends). As our goal is to construct a household-level measure that is comparable across households and over time, we abstract from this preference heterogeneity and rely on an activity-based classification, consistent with the approach in national household production satellite accounts (Bridgman et al. 2012, 2022). Our extended income or consumption measure should therefore be interpreted as valuing the flow of market-equivalent household services, rather than the utility parents derive from particular episodes of time use.

In principle, supervisory or "secondary" care of children that does not overlap with housework should also be included. We exclude it here because estimates from the early surveys are inconsistent with those recorded in the ATUS. Importantly, methods of collecting information on who else was present during a particular activity (a contextual variable often used to proxy for supervisory childcare) differ across surveys, and our attempts to use surveys with ATUS-consistent methodology in this respect (e.g., the 1975 Time Use in Economic and Social Accounts), yield implausibly small levels of time when children were present. In Section 5, however, we present estimates of unpaid work that include rough approximations of supervisory childcare imputed from the ATUS.

While the care of household adults should also be included in unpaid work, the earlier heritage surveys lumped together care for household adults and the care of children from other households (Fisher et al. 2018). The care of non-household

children conceptually does not belong to the production of the surveyed households. To err on the conservative side of estimating household production, we exclude merged time devoted to adult care and the care of non-household children altogether. This said, estimates from the ATUS suggest that average hours devoted to adult care are low, and concentrated among few households (Suh 2016).

Trends in time devoted to household production

Figure 1 plots trends in unpaid work from 1965 to 2018. Women's unpaid work declined from 37 to 24 hours per week (a 35 percent decline), coming mainly from a decline in housework time. Active childcare time is roughly constant: since fertility decreased over this period, this implies an increase in active childcare time per child. Men's unpaid work increased from 12 to 15 hours per week, an increase that only partially offsets the 13 hour decline for women, consistent with other research on long-term trends in the U.S. (Bridgman et al. 2012).

To what extent did this decline in time devoted to household production offset increases in market income or consumption? Answering this question requires information on both time use and market incomes and expenditures for households. Using data available in the AHTUS itself (as Zick et al. [2008] do, for instance) to compute inequality in extended income is inadequate for our purposes (and no measure of consumption expenditures exists in the AHTUS). First, as the AHTUS usually collected information on time use for a single family member (only in 1975 and 1985 were data collected for more than one household member), we would need to impute time devoted to unpaid work for other family members, to have an estimate of time devoted to household production. But the AHTUS does not include information (e.g., age, or sex, or employment status) for other household adults (i.e., adults other than the respondent and their spouse) for some of the included surveys. As a result, analysis would have to be restricted to families with no more than two adults.

A second set of problems relates to the measurement of household market income. Information on household market income is missing from the 1985 and 1995 surveys.

Even for the years when it is available, income categories are limited and coarse (such as only 7 categories for the 1998 survey), and both the number of categories and their thresholds differ across surveys. Reported AHTUS incomes are largely flat between 1975 and 2003 while household incomes in the ASEC indicate a rise.[10] As the highest income categories are fixed at relatively low thresholds (for example, at $150,000 for 2003-2018), trends in inequality are unlikely to be accurate. Therefore, our preferred strategy, which overcomes the limitations of poorly measured market incomes and a lack of information on time use for all household adults, as well as on household expenditures, is to use the AHTUS to predict unpaid work time for individuals in the ASEC and the CES.

Annual Social and Economic Supplement

For data on household market incomes, we use the nationally representative Annual Social and Economic Supplement (ASEC) of the CPS from extracts prepared by the Integrated Public Use Microdata Series database from 1962 to 2019 (Flood et al. 2018). Conducted by the U.S. Census Bureau, the ASEC serves as the source of official federal statistics on income, poverty, and health insurance coverage (U.S. Census Bureau 2019), and has long been the workhorse dataset for research on income inequality in the U.S. Household market income refers to total market income during the previous calendar year of all adult household members.[11] We use person-level ASEC weights for all estimates.

In the AHTUS, separately by year and gender, and for adults (i.e., aged 18 or over), we regress unpaid work time on dummy variables for age, the number of adults in the household, the number of children under 18, the number of children under 5, educational attainment (less than high school, high school, some college, a bachelor's

[10] See Appendix Figure C.1, which presents trends in market and extended household incomes using the AHTUS income variable (mid-points used to convert the categorical income variable to a continuous one), illustrating the problems involved in using this income variable.

[11] This includes this all pre-tax, post-transfer cash income or losses from all sources, including wage and salary income, business or farm income, and income from other sources such as social security payments, interest, rent, and public assistance, and excludes capital gains.

degree, and postgraduate degree), own employment status (not employed, and if employed, the number of paid hours worked in five categories), whether married and if married, whether the individual's spouse is employed, and race (whether Black or African American—finer disaggregations are not possible given lack of consistent information across surveys).[12] These predictors are variables common to both the AHTUS and ASEC, and are likely to be correlated with unpaid work time. Sample means for all covariates in the AHTUS are listed, by gender and year, in Appendix Tables C.1 and C.2, and regression output shown in Tables C.3 and C.4.[13] The resulting coefficients are used to predict time devoted to unpaid work for adults belonging to a particular gender and year in the ASEC.[14] We replace negative values for predicted unpaid work time with zeros, but the percentage of individuals (belonging to a particular gender or year) needing replacement with zero never exceeds 0.4 percent for any gender-year combination. This aspect of our imputation is not novel; similar approaches in combining U.S. time use data with income or expenditure surveys have been applied by Frazis and Stewart (2011) and Han, Meyer, and Sullivan (2020).

[12] The age categories used are: 18-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and over 60. Categories for the number of adults and children under 18 in the household are: 1, 2, 3, or over 4. Categories for the number of children under 5 are 0, 1, or over 2. Bins for hours in paid work are 1-25, 26-38, 39-45, 46-50, and over 50. The 1985 survey did not collect information on race, and the 1995 survey did not collect information on paid work hours or spousal employment. We impute paid work hours for 1995 based on the time devoted to paid work during the diary day (smoothing for day of the week and month) but exclude race as covariate for 1985, and spousal employment for 1995.

[13] For ease of presentation, we only report two years (2003 and 2012) from the regressions for the 2003-2018 ATUS survey. For both women and men, and across surveys, unpaid work is higher for older age groups relative to the 18–24-year-olds. As expected, unpaid work time declines with the number of adults in the household, increases with the number of children, declines with the individual's own usual paid work hours, and increases if one's spouse is employed (relative both to the unmarried). Married men with non-employed spouses do not do more unpaid work than their unmarried counterparts, but married women with non-employed spouses do more than unmarried women. Individuals who are Black or African American devoted less time to unpaid work across survey years. For the post-2003 period, higher levels of education among men are associated with more hours devoted to unpaid work (possibly due to changing social norms). Among women, in the post-2003 period, only having a bachelor's degree is associated with more unpaid work.

[14] As incomes in the ASEC are with reference to the previous calendar year, we pair time use surveys from a particular year, with the ASEC a year ahead (e.g., applying predictions from the 2018 time use survey to the ASEC collected in 2019). Household incomes were not collected before 1967, so we apply 1965 time use data to the 1968 ASEC.

We assess the accuracy of our prediction by comparing individuals in the 2003-2019 ASEC rounds to their corresponding ATUS interviews (we can only do this for a subset of the ASEC given the CPS rotation structure). Panel (a) of Figure 2 plots our predicted hours of unpaid work against "true" hours of unpaid work (derived from ATUS interviews of the previous diary day). A linear fit suggests a reasonably close correspondence between the two measures, though our imputations, unsurprisingly, show less variance than survey reports of unpaid work during diary days (standard deviations of predicted and actual unpaid work hours per week are 9.7 and 21.6, respectively). This reduction in the dispersion of unpaid work is consistent with our aim to predict long-term unpaid work (consistent with our annual income measure) rather than daily unpaid work.[15] The usefulness of our prediction hinges on the assumption that the residuals from our prediction of unpaid work time are uncorrelated with income. We assess whether the distance between predicted and reported (or "true") hours of unpaid work (as measured by the absolute value of the difference between the two measures) varies by income. As shown in panel (b) of Figure 2, this discrepancy shows no relationship with income.

Consumer Expenditure Surveys

For data on household market consumption, we rely on the U.S Consumer Expenditure Survey (CES) data, collected by the BLS in 1960-61, 1972-73, and 1985-2019. We follow a recent contribution to his debate (Meyer and Sullivan 2023) in measuring consumption from the CES Interview Survey as all expenditures minus out-of-pocket medical care, education, retirement contributions (pensions, Social Security), charitable contributions, and cash gifts to non-family. Meyer and Sullivan (2023) exclude medical care and education as investment rather than consumption expenditures, and expenditures on retirement, charitable contributions, and gifts as

[15] To the extent that not all variation that is residualized in our prediction of unpaid work time is transitory, we understate dispersion in long-run unpaid work time. In Online Appendix B we follow Han, Meyer, and Sullivan (2020) in adding a permanent component of the time use residual to our imputed unpaid work hours, calibrate the magnitude and within-household correlation of this component using panel PSID 2017–2019 data, and show that the rise in the extended-income 90-10 log differential remains essentially unchanged.

they do not contribute to current household consumption. Housing and vehicles are converted to service flows (rental equivalent for owner-occupied housing; predicted service flow from owned vehicles) and added to consumption (vehicle purchases and mortgage interest, property tax, and property insurance and maintenance payments are netted out).

Approaches to correcting for mismeasurement of CES data differ (Aguiar and Bils 2015; Heathcote, Perri, and Violante 2010; Kreuger et al. 2006). Aguiar and Bils (2015) estimate a demand-system correction exploiting shifts toward luxuries versus necessities to adjust for systematic mismeasurement, and find a large increase in consumption inequality. On the other hand, Meyer and Sullivan (2023) focus on "well-measured" components of consumption (food at home, housing, vehicles, utilities, fuel), and find a modest increase in inequality over five decades. Total consumption follows similar trends as well-measured consumption. Our choice to use total consumption following Meyer and Sullivan (2023) applies a conservative approach to measuring inequality, without additional refinements (we do not aim to contribute to the measurement debate).

We apply a similar process to predict time use for CES individuals, as with the ASEC. AHTUS regressions by year and gender on observed covariates (age, household composition and size, educational attainemnt, own and spousal employment, and race) are used to predict unpaid work time in the CES data. See Appendix A.2 for further details on the CES data and our prediction exercise.

Valuing time in household production

We sum up time devoted to unpaid work across adults belonging to a household as a measure of total household production time, and then calculate a lower bound value of household production by multiplying hours by year-specific wages of maids and housekeeping cleaners.[16] An advantage of imputing hours of unpaid work to each

[16] Occupation-specific wages are obtained from the CPS Annual Social and Economic Supplement. Annual wages for full-time workers are converted to hourly wages assuming 50 weeks at 40 hours per week. We use national year-specific medians for the wages of maids and housekeeping cleaners.

individual in the ASEC or CES is that we can aggregate hours of unpaid work up to arrive at a household-level measure. Market incomes, consumption, and the value of household production time are converted to constant 2018 dollars using the CPI deflator. Market incomes and consumption are equivalized using the square root scale: $(A + K)^{\frac{1}{2}}$, and household production time is equivalized using a scale adapted from Folbre, Murray-Close, and Suh (2018): $(A + 2K)^{\frac{1}{2}}$; where A and K denote the number of adults and children in the household, respectively. Children are weighted twice as much as adults in equivalizing time devoted to household production as children absorb the entirety of time devoted to childcare, as well as absorbing as much (if not more) of time devoted to housework as adults. We later assess the robustness of our results to using different parameters to equivalize household production time.

Our use of housekeeper wages is consistent with the replacement cost approach advocated in the recommendations of the National Research Council panel study on designing household production accounts for the United States (Abraham and Mackie 2005), as well as with existing practices followed by the BEA HPSAs (Bridgman et al. 2012, 2022).[17] Studies estimating the value of labor inputs to household production typically eschew an opportunity cost approach (i.e., valuing time at the market wage rate of the household member involved in the unpaid task) for both practical reasons (the wage rates for the non-employed are difficult to obtain) and conceptual ones:

Observations are too few (around 500 employees per year) to arrive at state-specific wage rates. Information on actual hours and weeks worked in the previous hour are only collected in the ASEC from 1976. Other data sources typically used to compute occupation-specific wage rates (such as the CPS Outgoing Rotation Group study or the BLS Occupational Employment Statistics program) do not extend back till 1965. However, in Figure C.2, we compare our wage measure with hourly wages obtained from the CPS ORG and the BEA NIPA tables (for all available years) and find reasonably similar trends. As our wage measure omits regional variation in the cost of replacing unpaid work, we reproduce our results using state-level minimum wages (as an alternative type of lower-bound valuation that incorporates regional variation).

[17] Variations of the replacement cost approach include the generalist wage approach (using the wage for a general-purpose domestic worker) and the specialist wage approach (using a vector of market wage rates, with each rate corresponding to a particular activity: for example, valuing an hour of time devoted to cleaning at the wage rate for janitors, and an hour of time devoted to cooking at the wage rate for chef, and so on). Given the difficulty associated with adjusting for quality differences when household tasks are performed by non-specialists (as would be required when applying a specialist wage), the BEA HPSAs follow a generalist wage approach and we do the same.

market wage rates pin down the marginal rather than the average value of unpaid work (House et al. 2008), and can be a poor proxy for the shadow price of time devoted to household production at the margin (Abraham and Mackie 2005; Schreyer and Diewert 2014). Market wages are likely to overstate differences in home productivity. That said, the replacement cost approach suffers from the opposite problem, in that it assumes away differences across individuals in home productivity. As there is no feasible way of measuring differences in the actual productivity of unpaid work within households, our main estimates are subject to this caveat.

In light of these trade-offs, our primary objective is to capture material living standards based on the flow of services that could, in principle, be purchased in the market, rather than to construct a full measure of utility. The replacement-cost valuation at housekeeper wages is therefore our baseline: it treats an hour of household production as equivalent to purchasing a similar service at a common wage, abstracting from heterogeneity in opportunity costs. We explore alternative valuations (including a valuation at individuals' own wages and imputed wages for the non-employed) that are closer to a "full income" concept. We interpret those exercises as sensitivity checks that shed light on how our conclusions change when we move from material living standards toward a potentially broader notion of welfare.

A related limitation concerns activities that are partly work-like and partly leisure-like, particularly in the domain of childcare. Our classification treats all active childcare activities that could be provided by paid workers (including playing or talking with children and helping with homework) as household production. A stricter definition that attempted to separate the "work" and "consumption" components of these activities would require information on parents' moment-to-moment preferences and motivations that is not available in our data, and would substantially complicate cross-household and intertemporal comparisons. In this respect, we reiterate that our extended income and consumption series are best viewed as a measure of material

living standards based on the value of services that could in principle be purchased in the market, rather than a full measure of welfare or well-being.

4. Trends in inequality in income and consumption

We first assess how time devoted to household production changed between 1965 and 2018 across the distribution of household market incomes and consumption. Overall, individual time devoted to unpaid work fell by 25 percent (from 25 to 19 hours per week), as did household production time (from 58 to 44 hours), and equivalized time in household production (i.e., household production time adjusted for changes in family size and composition) fell by 17 percent (from 29 to 24 hours), averaged across all households.

Declines in unpaid work were somewhat larger among households poor in consumption: Figure 3 plots average levels of equivalized household production hours by market income and consumption decile in each survey year.[18] Equivalized household production time declined by a similar magnitude at the bottom and top deciles (i.e., by about 6 hours, or 20 percent), with smaller declines in the middle of market income distribution (4-5 hours, or 14-16 percent, for the third to seventh deciles). Equivalized time shows a greater decline for households with low levels of market consumption (e.g., about 20 percent at the bottom decile, compared to only 9 percent at the top).

It is important to note that the imputed value of time in household production forms a greater share of extended income or consumption at the bottom of the respective market distribution: this is due both to low variation in household production time across the distribution of market incomes or consumption, and its valuation at a relatively uniform rate (the housekeeper wage). This means that a given decline in

[18] Patterns for individual unpaid work time and total household production time are shown in Figure C.3. See Figure C.4 for individual unpaid work, disaggregated by gender. The decline occurs entirely among women, with a 34 percent fall in weekly hours of unpaid work from 36.3 hours per week in 1965 to 23.9 hours in 2018. Men show a small increase from 12.5 to 13.6 hours per week, with a bigger increase among high-income men (possibly a reflection of dual-earner family status).

hours necessarily has a greater impact (in relative terms) for households with less market income or consumption. To put it differently, household production time has an equalizing effect on the income or consumption distribution, in the cross-section, due its low variance. Declining household production time then reduces this equalizing effect.

Figures 4 and 5 present trends in market income, market consumption, the imputed value of household production, and extended income and consumption. Panel (a) of Figure 4 shows that the average value of household production time fell by 25 percent, from $16,070 to $12,030, mirroring the fall in equivalized hours. While average market income increased by 69 percent, the increase in extended income was smaller (40 percent) because of the decline in household production. We observe similar trends at the median: extended income rose only by 22 percent (compared to the 46 percent increase in market income). Extended income at the bottom (the 10^{th} percentile) actually declined slightly, despite the 29 percent increase registered for market income. Consideration of market income alone almost certainly overstates improvements in consumption and living standards between 1965 and 2018. Similarly, extended consumption rose by less (15 percent) than market consumption (41 percent), with the latter overstating increases particularly at the bottom: a 41 percent increase at the 10^{th} percentile (but only a 4 percent increase in extended consumption) (see Table C.5 for percentile values across the four concepts).

Extended incomes and consumption are more equally distributed than their market counterparts in every time period. Here, we consider four summary measures of inequality: the 90-10 log differential (i.e., the log of the ratio of incomes or consumption at the 90^{th} and 10^{th} percentiles), the 50-10 log differential, the top 10 percent share, and the bottom 50 percent share.[19] The 90-10 log differential in extended incomes (consumption) lies well below the 90-10 differential for market incomes

[19] Following standard practice in the inequality literature, we use log differentials because they are unitinvariant and decompose additively, i.e., $ln(90/10) = ln(90/50) + ln(50/10)$. To summarize changes over time, we consider level changes in these ratios, which are also additive: $\Delta log(90/10) =$

(consumption), in every time period, and the share of the top 10 percent in extended income (consumption) is lower than their share in market income (consumption) (Figure 5). However, over time, given the decline in household production, this equalizing impact has fallen, and inequality *rose* more for extended income than for market income. The 90-10 log differential in market incomes rose by 33 log points between 1965 and 2018, and by 51 log points for extended incomes (Figure 4, panel b): i.e., inequality in extended income rose by 18 log points more than it did for market income. The buffering effect of time devoted to household production on extended household income has declined over time. Similarly, for consumption, the 90-10 log differential rose by only 4 log points when considering market consumption but by 17 log points for extended consumption. (Table C.6 presents our results for another commonly used measure of dispersion—the Gini index—with similar conclusions.)

Importantly, our results suggest that, unlike for wages or market incomes, inequality in the bottom half of the income distribution was *not* stable or falling over this period, and grew by at least as much as it did in the top half of the distribution. For instance, the 50-10 log differential for extended incomes grew by 25 log points (sizeable, compared to both the 12 log point increase in the 50-10 log differential for market incomes, and the 26 log point increase in the 90-50 log differential for extended incomes), while the 50-10 log differential for extended consumption grew by 5 log points (contrasted to the 7 log point *decline* in 50-10 log differential in market consumption, and the 12 log point increase in the 90-50 log differential for extended consumption). This asymmetry is also reflected in changes to the percentile shares: the share of the top 10 percent grew by 8.0 percentage points for extended income, but by 7.2 percentage points for market income (the difference in growth for market versus extended consumption is 2.8 versus 3.2 percentage points) (Figure 4, panel c). However, differences in the decline in the share of the bottom 50 percent are larger: it

$\Delta log(90/50) + \Delta log(50/10)$. We therefore omit showing trends for the 90-50 log differential, but Appendix Table C.5 contains all underlying percentile values.

fell by 5.1 percentage points for market income and by 7.3 percentage points for extended income. For consumption expenditures, the share of the bottom 50 percent fell by 1.6 percentage points, but shows a 3.3 percentage point decline for extended consumption. To put it differently, market measures overstate improvements for households at the bottom of both the income and consumption distribution relative to the inclusion of household production, and consequently also understate increases in inequality at the bottom half of the distribution.

Inequality in extended incomes between household types

We divide the households in our sample into four mutually exclusive (but not exhaustive) groups: single adults with a child under 18 in the household ("single parents"), married couples with a child under 18 in the household ("married parents"), married couples both aged under 65 without children in the household, and married couples with at least one of them aged 65 or over and without children in the household (unmarried people without children and married people living with one or two other adults form the rest of the sample). The share of couples with a household child has fallen considerably, reflecting the decline in fertility, while that of couples over 65 has risen slightly (Figure 6, panel a). Market incomes for all groups have increased between 1965 and 2018, with the smallest increase for single parents and the largest for married couples aged 65 or over (Figure C.5, panel a). When we look at market consumption instead, single parents see greater improvement than married parents (46 vs. 42 percent), similar to the 47 percent increase for married childless couples under 65 (Figure C.5, panel b), consistent with the literature showing improvements in the consumption of single mothers after the 1990s welfare and tax reforms (Meyer and Sullivan 2008; Bastian 2020; Han, Meyer and Sullivan 2021).

However, single parents have seen a larger decline (22 percent) in the value of household production time compared to married parents (8 percent) (Figure 6, panel d). Single parents (86 percent of whom are women) have also seen a steady increase in paid employment: from 55 percent in 1965 to 75 percent in 2018. While the increase

in the number of dual-earner families among married parents is also large (from 24 to 36 percent), the presence of a spouse to balance time constraints, even as women enter paid employment, might help explain why household production time has fallen less. Single parents appear to benefit the least from trends over these 50 years: they see the smallest increase (35 percent) in extended incomes compared to other groups: married parents see an increase of 68 percent, while couples without children under 65 and those 65 or over see increases of 54 and 75 percent, respectively. In terms of extended consumption, single parents do only as well as married parents (both experiencing a 26 percent increase), with the apparent greater improvement in market consumption wiped out. These results are consistent with Meyer and Sullivan's (2008) finding that the sharp rise in market work for single mothers during the 1990s came with a large loss of nonmarket time (see also Bastian 2020; Bastian and Lochner 2022), such that if that time is valued at even a modest fraction of the market wage, many single mothers in the bottom half of the distribution are worse off after welfare reform despite higher consumption.

Distributional national accounts (DINA) income

The ASEC underreports items like self-employment, asset income, and some transfers; income underreporting is also found to be large at the top of the distribution (Fixler and Johnson 2014; Fixler, Gindelsky, and Johnson 2022). Resources that are important for household living standards such as employer health insurance, Medicare or Medicaid, imputed rent for owner-occupied housing, and employer pension contributions are partially or fully absent from CPS money income. Excluding them distorts both levels and trends. As a further check on the robustness of our income results to under-reporting and tax and transfer treatment, we construct a complementary series using the post-tax distributional national accounts (DINA) developed by Piketty, Saez and Zucman (2018). Adding the value of household production time to a national accounts-style income concept therefore adds completeness (in terms of including noncash benefits and measuring the top tail) and

also generates estimates that are consistent with macroeconomic trends. The Bureau of Economic Analysis produces satellite accounts that include household production, but no distributional version of these accounts exists, as far as we are aware. In the BEA estimates, household production satellite accounts substantially raise the level of GDP, by 39 percent in 1965 and 26 percent in 2010; they also lower nominal GDP growth from 6.9 to 6.7 percent (Bridgman et al. 2012, 2022). Here, we unpack the distributional consequences of including household production in national income.

We use Piketty, Saez, and Zucman (PSZ) (2018) public-use microfiles for 1966–2018, a dataset of synthetic observations representative of the U.S. population containing the national accounts income variables, constructed combining tax, survey, and national account data. We define "extended DINA income" by adding the replacement-cost value of household production to post-tax, post-transfer income (see Appendix A.3 for details on how we impute time use from the AHTUS to the PSZ microfiles). Post-tax national income is individual income that sums to national income (by construction). Compared to our ASEC market income measure, it allocates capital and in-kind components missing from ASEC (employer benefits, pension fund returns, imputed rents, retained earnings) and adds public cash and in-kind transfers and public goods consumption, and then subtracts all taxes.

Extended DINA income rises by 47 percent between 1965 and 2018, compared to the 73 percent in DINA income (Figure C.6). Given that DINA income better captures capital income, non-cash transfers, and the top tail, inequality (as given by the top 10 percent share) is much higher for DINA income than it is in our ASEC market income measure. While extended DINA income is more equally distributed than DINA income (i.e., a smaller top 10 percent share, and a larger share for the bottom 50 percent), the fall in the share of the bottom 50 percent is larger for extended DINA income than for DINA income (8.3 versus 4.9 percentage points), and a correspondingly smaller fall for the middle 40 percent for extended national income (2.5 versus 5.7 percentage points) (the rise in the share of the top 10 percent share is only slightly higher). Broad patterns

for extended DINA incomes therefore corroborate our main conclusion: once household production is counted, the long-run rise in inequality is especially pronounced in the lower half of the income distribution.

Robustness to different equivalence scales

Do falling household size and number of children drive these results? If our equivalence scales for household production inaccurately assign too much or too little household production to children, the decline in fertility over the 1965-2018 period is likely to amplify biases in the measurement of inequality in extended income or consumption.[20] The number of children per household fell from 1.25 to 0.63 between 1965 and 2018. A similar concern applies to economies of scale: family size declined between 1965 and 2018 (from 3.5 to 2.8, entirely due to fewer children—the number of adults per household remains roughly the same). We recalculate our key metrics by applying different equivalence scales to household production: we first vary the weight assigned to children relative to adults (we weight children 1, 3, and 5 times as much as adults—the original scale weights them 2 times as much). We also vary the economies of scale parameter (0.5 in the original): from one-third (large economies of scale) to 1 (zero economies of scale).

Table 1 shows that our conclusions about inequality are robust to alternative equivalence scales for household production. Across all variants of equivalence scales that we consider, extended income (consumption) remains more equal than market income (consumption) in every year, but inequality in the 90-10 and 50-10 log differentials and the percentile shares increases more over time. For example, when we weight children the same as adults, the log 90-10 differential for extended incomes rises by 52 log points, whereas if we weight them 5 times as much, it rises by 48 log points; taking the economies of scale parameter to be one-third results in 52 log point increase, while zero economies scale result in a 49 log point increase. In this sense, the

[20]A distinct but related issue (that we do not examine in this paper) is that market income or consumption equivalence scales (such as the square root scale) fail to account for differences between households that utilize paid childcare services and those that do not (Folbre, Murray-Close, and Suh 2018).

erosion of the equalizing effect of household production is not an artefact of the particular equivalence scale that we have chosen.

Estimates using wages for maids and housekeeping cleaners

We reproduce our main results using state-level minium wages, incorporating regional variation in the replacement cost of unpaid work. [21] (It is worth noting here that while the real value of the federal minimum wage declined significantly after 1965, the real value of the average state-level minimum wage remained relatively constant.) Our results are largely unchanged (Figure C.7): the decline in the value of household production is smaller, at 20 percent, compared to when we use housekeeper wages. However, we see a similar rise in 90-10 log differential for extended incomes. This is unsurprising, as state-level minimum wages evolve in a roughly similar way to housekeeper wages. Both are outstripped by growth in hourly wages for all workers.

A natural concern with our baseline replacement cost valuation is that the observed housekeeper wage may understate the true cost of outsourcing household production. The wage of private household workers prices an hour of cleaning or childcare as if it could be scheduled in a convenient, continuous block. In practice, many domestic tasks must be performed at irregular and sometimes unpredictable times. Outsourcing them might require paying for on-call availability, idle time between tasks, or guaranteeing a fixed number of hours even if effective work time is lower. To gauge the sensitivity of our conclusions allowing for a higher replacement wage, we arbitrarily value each hour of unpaid work at *twice* the housekeeper wage (Figure C.8).

Mechanically, this doubles the level of imputed household production and strengthens its equalizing effect in levels. The same 25 percent decline in equivalized household-production hours between 1965 and 2018 now exerts a larger drag on average extended income, which rises by only about 25 percent over this period,

[21] Some valuation checks are only produced for the ASEC extended income estimates given limitations of the public-use CES data: e.g., absence of information on state of residence for older CES surveys to match against state-level minimum wages and absence of individual-level wages in the 1960-61 CES to compute opportunity cost estimates.

compared with 40 percent in the baseline specification. The key point, however, is that the divergence between market and extended income or consumption inequality is essentially unchanged. With the doubled wage, the log 90-10 extended income differential increases by 48 log points, and the log 90-10 extended consumption differential by 16 log points (under the baseline housekeeper wage these figures were 51 and 17 log points). Thus, even when we adopt a substantially higher replacement cost that amplifies the equalizing effect of household production, we still observe a greater rise in extended income or consumption inequality.

Estimates using opportunity costs

Finally, we consider an opportunity cost valuation that prices each adult's unpaid hours at their own market wage rate (with wages imputed for the non-employed by education–age–gender cell). Under this approach, the value of household production rises by about 46 percent between 1965 and 2018, and the 90-10 log differential for extended income increases by roughly 40 log points compared with 33 log points for market income (Figure C.9). The divergence between market and extended-income inequality therefore survives the move to an opportunity-cost valuation, but for a different reason: because wages at the top of the distribution have grown faster and assortative matching has strengthened, valuing each hour at the individual's own wage makes the imputed value of household production increasingly concentrated near the top. For the reasons discussed earlier, we see this as closer to a partial "full income" concept that embeds the entire wage distribution into household production; our baseline replacement-cost valuation is better suited to capturing changes in material living standards based on market-equivalent household services.

5. Accounting for supervisory childcare

The exclusion of supervisory childcare, in a context where richer families increasingly rely on paid substitutes for supervision, represents a significant limitation of the above analysis. Excluding supervisory childcare does not just underestimate the

value of household production (by a substantial magnitude, as indicated by estimates from Suh and Folbre [2016]), but also has systematically different effects on estimated changes in time devoted to household production across the income distribution: women's paid work increased the most for college- educated women (Figure C.10), with potentially bigger declines in supervisory childcare.

The ATUS captures supervisory childcare by explicitly asking adults if time diary episodes involved having a child under 13 "in their care" (Stewart and Allard 2016). A similar question was not included in the older surveys. Information on "who else was present" could substitute for the absence of this variable but methods of collecting co-presence during a particular activity differ across surveys. In particular, some surveys, such as 1965, asked respondents to report the presence of others only if they were participating in the same activity. Attempting to use the 1975 Time Use in Economic and Social Accounts (which had a similar definition of "with whom" as the ATUS—i.e., including the presence of others whether they were participating in the same activity or not) yields implausibly small levels of time when children were present during activities.

Here, we therefore apply rough approximations of supervisory childcare derived from the 2004-2018 American Time Use Survey. Specifically, we estimate the total time that an adult (living in a household with a child under 13) had a household child under 13 "in their care" (excluding overlaps with other unpaid work), conditional on covariates that include the number and age of children in the household,[22] and other individual characteristics such as age, education, marital status, own employment and work hours, spousal employment and hours, and race, by gender (regression output presented in Table C.7). We then apply these predictions to all adults (living in

[22] These include dummies for the number of household children under 5 (1, 2+), the number of household children between 5 and 12 (1, 2+), whether the household has a girl between 13 and 17, and whether the household has a boy between 13 and 17, as older children might be involved in the supervision of younger siblings.

households with children under 13) in the ASEC across the entire period (we do not compute corresponding predictions for the CES, given the absence of information on child age and gender in the earlier CES surveys). Housework and active childcare continue to be predicted using the AHTUS for the corresponding survey year (preserving year-specific coefficients).

Norms around children's supervision have shifted markedly since the 1960s (from "free-range" play toward more intensive, on-call parenting) so imputations based on recent ATUS patterns may overstate supervisory care in earlier periods and understate changes over time (Bianchi and Raley 2005; Flood et al. 2022). On the other hand, time spent supervising a small child (conditional on characteristics such as one's own work hours and the age of child) could be less susceptible to changes over time (such as those arising from changes in household technologies). In the absence of data on child supervision time over the years, we simply have no way of assessing how accurate our imputations are.

Unsurprisingly, including supervisory childcare yields higher levels of equivalized time devoted to household production: in 1965 and 2018, these levels are 34 and 26 hours, respectively (compared to 29 and 24 hours, for estimates that exclude supervisory childcare). The magnitude of the decline over time is larger, at 24 percent (compared to 17 percent, when excluding supervisory childcare). In particular, including supervisory childcare suggests bigger declines in the middle of the market income distribution: in Figure 7, we see that declines in unpaid work and equivalized household production time are the highest at the third to the sixth deciles of the market income distribution.

With the inclusion of supervisory childcare, the average value of household production time fell by 30 percent (from $19,355 to $13,521) and extended incomes increased by only 34 percent (Figure 7, panel c), smaller than the 40 percent rise in extended incomes excluding supervisory childcare. The rise in the 90-10 log differential for extended income is even larger, at 54 log points (Figure 7, panel d). Given that

declines in supervisory childcare were particularly large at the middle of the market income distribution, including supervisory childcare suggests a bigger increase in extended income inequality in the top half of the distribution (as the 23 log point increase in the 50-10 log differential is roughly similar to the 25 log point increase when we exclude supervisory childcare). However, the rise in the 50-10 log differential in extended income is still substantially higher, at 23 log points, than the corresponding 12 log point rise for market income.

6. Decomposing the increase in extended income inequality

Here, we attempt to answer two questions: first, what explains the rise in inequality in extended income and consumption, and its divergence from the growth in inequality in market income and consumption? We show that, in an accounting sense, the decline in household production time, combined with the fact that its value constitutes a larger share of extended income for poorer households, explains a substantial portion of this divergence. This leads to our second question: to what extent were compositional demographic changes associated with the fall in time devoted to household production, and the increase in extended income and consumption inequality?

The change in the 90-10 log differential for extended income between 1965 and 2018 can be decomposed into the difference in increases in log extended incomes at 90^{th} and 10^{th} percentiles (approximated by the corresponding centile group means). The change in log extended income at any percentile (approximated by its percentage change) can be further decomposed into the growth of market incomes and the value of household production at that percentile, weighted by initial (i.e., 1965) shares of each in extended income (Table 2, panel A).[23]

The share of the value of household production in extended income in 1965 for households belonging to the 10^{th} centile group of extended income was 56 percent,

[23] If X, Y, and H denote extended income, market income, and the value of time devoted to household production, respectively, then $\ln\left(\frac{X^{2018}}{X^{1965}}\right) \cong \frac{X^{2018}}{X^{1965}} - 1 = \left(\frac{Y^{2018}}{Y^{1965}} - 1\right).(1-\lambda) + \left(\frac{H^{2018}}{H^{1965}} - 1\right).(\lambda)$, where $\lambda = \frac{H^{1965}}{X^{1965}}$.

compared to only 21 percent for households belonging to the 90th centile group. Both sets of households experienced declines in the value of household production of around one-fourth: however, this decline (weighted by the 1965 share) contributed to only a 6 percentage point drop in the growth of extended income for 90th percentile households, compared to a 14 percentage point decline for 10th percentile households. The decline in the value of household production therefore contributed to an 8 percentage point increase (or roughly one-sixth) of the increase in the log 90-10 ratio for extended incomes (the remainder reflects faster growth of market income at the top than at the bottom). The impact of falling household production is even more pronounced for the 50-10 gap: declines in the value of household production at the bottom of the distribution account for about a fourth of the increase in the extended-income 50-10 log differential.[24] Panel B of Table 2 carries out the same exercise for consumption. Here, the greater impact of the decline in household production for extended consumption at the bottom relative to the top contributes to a 7 percentage point increase (i.e., almost half) of the 15 log point divergence between extended consumption growth for households at the 90th versus the 10th centile groups.

We next examine whether compositional demographic shifts can account for the decline in household production and the divergence between market- and extended-income inequality.[25] For instance, in 1965, households were more likely to have young children, less-educated (and therefore less likely to be employed) women, and the demographic changes since have tilted the population towards more elderly households, households with highly educated women, and households with fewer

[24] The inclusion of supervisory childcare (associated with larger declines in the value of household production) magnifies these effects (see Table C.8): here, about one-fifth of the increase in the 90-10 gap is attributable to the decline in household production.

[25] We do not implement an analogous reweighting for the CES data because the public-use CES files lack household rosters with sufficient longitudinal detail to jointly match age, sex, and child composition for all adults in the household in a way that is comparable to the ASEC.

young children. Indeed, much of the increase in female employment since 1965 was concentrated among highly-educated women (Figure C.10). We begin by focusing on core demographic characteristics that capture life-cycle and family-structure change: age (five groups: 18–27, 28–37, 38–48, 49–60, 60+), sex, whether married, and the presence of a young child (at least one child under age 5). We partition the ASEC into 36 such cells and reweight the 2018 sample so that its joint distribution across these cells matches that of 1965.[26] Using these adjusted weights, we recompute the distributions of market income, the value of household production, and extended income, as well as the associated percentile ratios. We then extend the exercise by also matching the 1965 education distribution (less than high school, high school, some college, college or more) (i.e., partitioning the ASEC sample into a 144 cells); this yields a second set of adjusted 2018 distributions (Table C.9 shows sample means for actual and adjusted distributions).

Table 3 shows that holding constant the 1965 distribution of core demographic characteristics modestly compresses the distributions of both market and extended income in 2018, but does little to alter their divergence (e.g., the difference in the rise of the 90-10 log differentials for market and extended incomes still remains at 18 log points) (see column 5). Adding education to the reweighting has a larger effect on extended income. Highly educated, dual-earner households tend to have high market incomes and to rely more on purchased services rather than their own household production; suppressing such households in 2018 therefore reduces extended income at the top of the distribution. Fixing the education mix at its 1965 level therefore dampens the increase in extended-income 90-10 inequality more than the increase in market-income 90-10 inequality. The difference in the rise of the 90-10 log differential for market and extended incomes is now 6 log points. To summarize, changes in age and family structure explain none of the divergence in inequality trends between

[26] For the 60+ age group we collapse the differentiation based on the presence of small children (as few elderly adults have small children).

market and extended incomes; educational attainment, with concomitant shifts in female employment, explains some but not all of this divergence.

A narrower counterfactual might be one that fixes the relationship between observable characteristics and unpaid work at its 1965 level (while allowing market incomes to evolve as observed). We re-estimate unpaid work in each year using the coefficients from regressions of unpaid work on observable characteristics in the 1965 time-use survey and then predict household production (and construct extended incomes) using these "1965" time-use coefficients. Unsurprisingly, under this "constant time-use" scenario, the resulting decline in individual unpaid work (now entirely a product of compositional changes between 1965 and 2018) is smaller: from 27 to 24 hours per week (a 3-hour decline, compared to the actual 8-hour decline) (Figure C.11). Nearly all of this decline is concentrated among women, reflecting the impact of increased female hours in paid work. Reflecting this smaller decline in the value of household production, the 90-10 log differential for extended income rises by 41 log points, 8 log points higher than the increase for market income. As with the previous counterfactual exercise, compositional shifts explain some, but not all, of the divergence between the growth of inequality for extended and market incomes.

7. Conclusion

This paper has examined how changes in unpaid household work have shaped the evolution of inequality in material living standards in the United States between 1965 and 2018. Using time use, income, and expenditure data, we construct extended income and extended consumption measures by adding a replacement cost value of household production to market income and consumption. While previous research has acknowledged the mitigating impact of unpaid household work on inequality in market income, we extend these results to market consumption and show how this equalizing impact has evolved over time. We find that the falling value of household production, combined with a more substantial reduction in this value (relative to market incomes or consumption) for poorer households, has resulted in a greater rise

in inequality between 1965 and 2018 for extended income or extended consumption than for their respective market counterparts.

Improvements in material living standards at the bottom of the distribution look much smaller once household production is taken into account. While market income and consumption have grown at the 10th percentile, gains in extended income and extended consumption at the bottom are extremely modest. Critically, our estimates imply a non-trivial increase in inequality in the bottom half of the distribution once household production is considered, unlike estimates based exclusively on market incomes or market consumption. Single-parent households, who have experienced both large increases in paid employment and large declines in household production time, see the smallest improvement in extended income and do no better than married parents in terms of extended consumption.

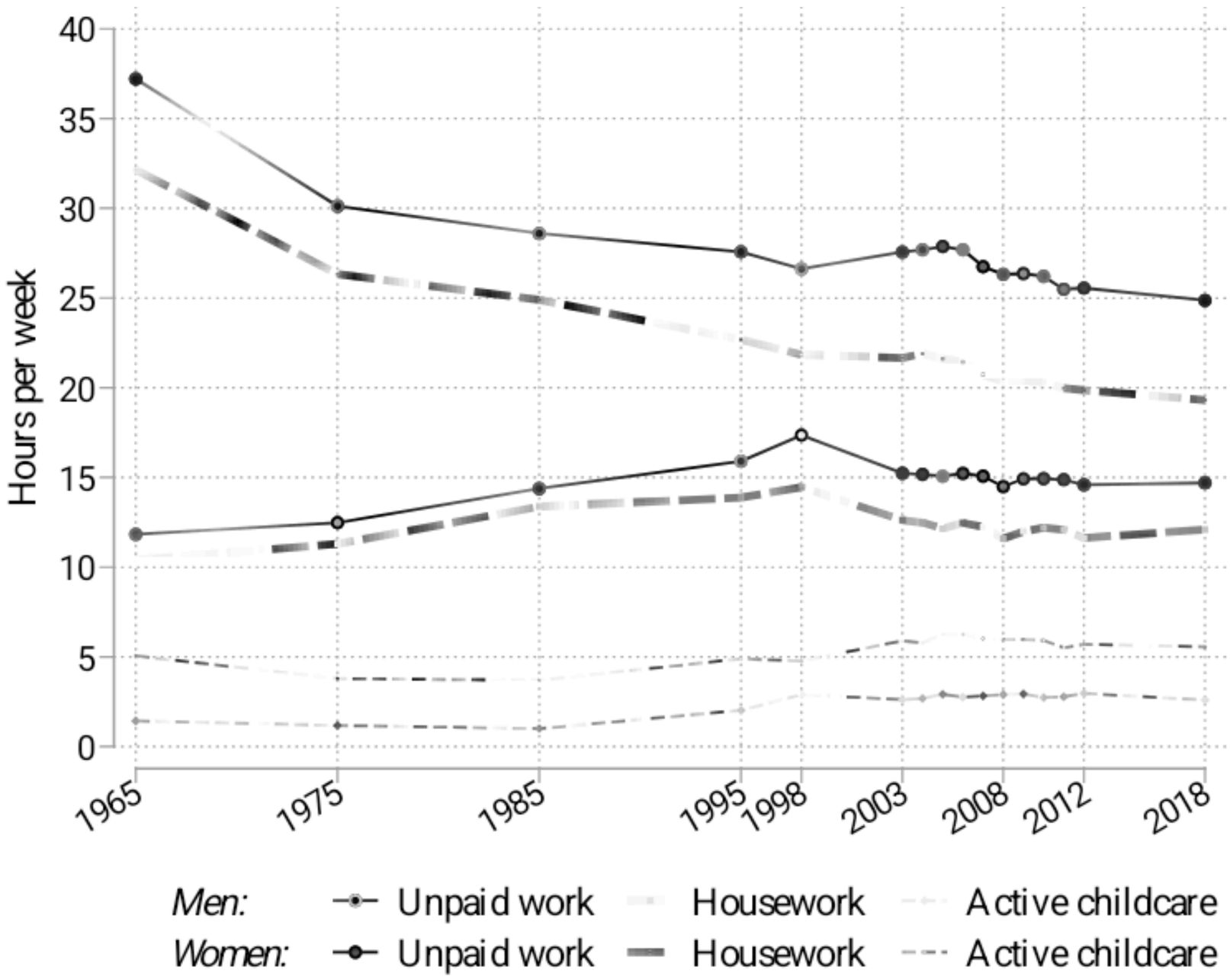
Incorporating rough estimates of supervisory childcare offers largely consistent results but suggests larger relative declines in the middle of the income distribution as well as the bottom. Changes in age and family structure explain none of the divergence in inequality trends between market and extended incomes; educational attainment, with concomitant shifts in female employment, explains some but not all of this divergence.

Our estimates rely on lower-bound estimates of the replacement cost of time devoted to household production, primarily the housekeeper wage. As a result, we are unable to capture differences in the productivity of unpaid household work across individuals or over time. However, as noted earlier, we believe that these differences are probably considerably smaller than differences in market earnings, a factor that deserves consideration in assessments of trends in living standards. The wages of housekeepers are a reasonable lower-bound estimate of the cost of purchasing housework and childcare services, and we obtain similar results when we use state- and year-specific minimum wages or double the housekeeper wage as alternative valuation strategies.

Since market purchases of food away from home and childcare services increased over the period, it seems likely that many households found such substitutions efficient, even if costly. Increases in the provision of public services over this time period also affected household consumption. While our estimates of the increased inequality in extended income or consumption resulting from declines in time devoted to household production are approximate, they invite greater theoretical and empirical attention to the relationship between market income, consumption, and household living standards.

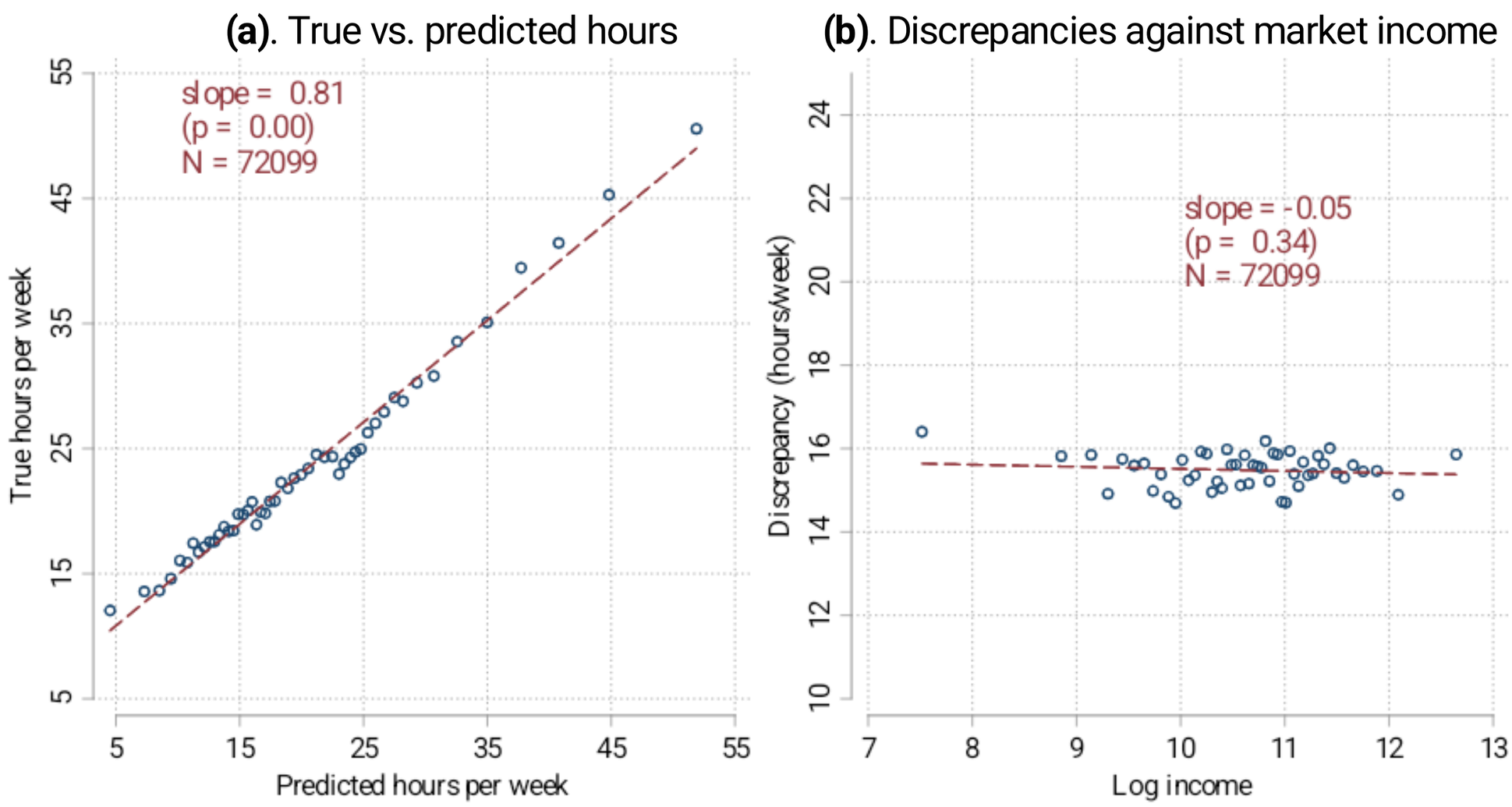
Figures

Figure 1. *Average hours of unpaid work, by gender.*



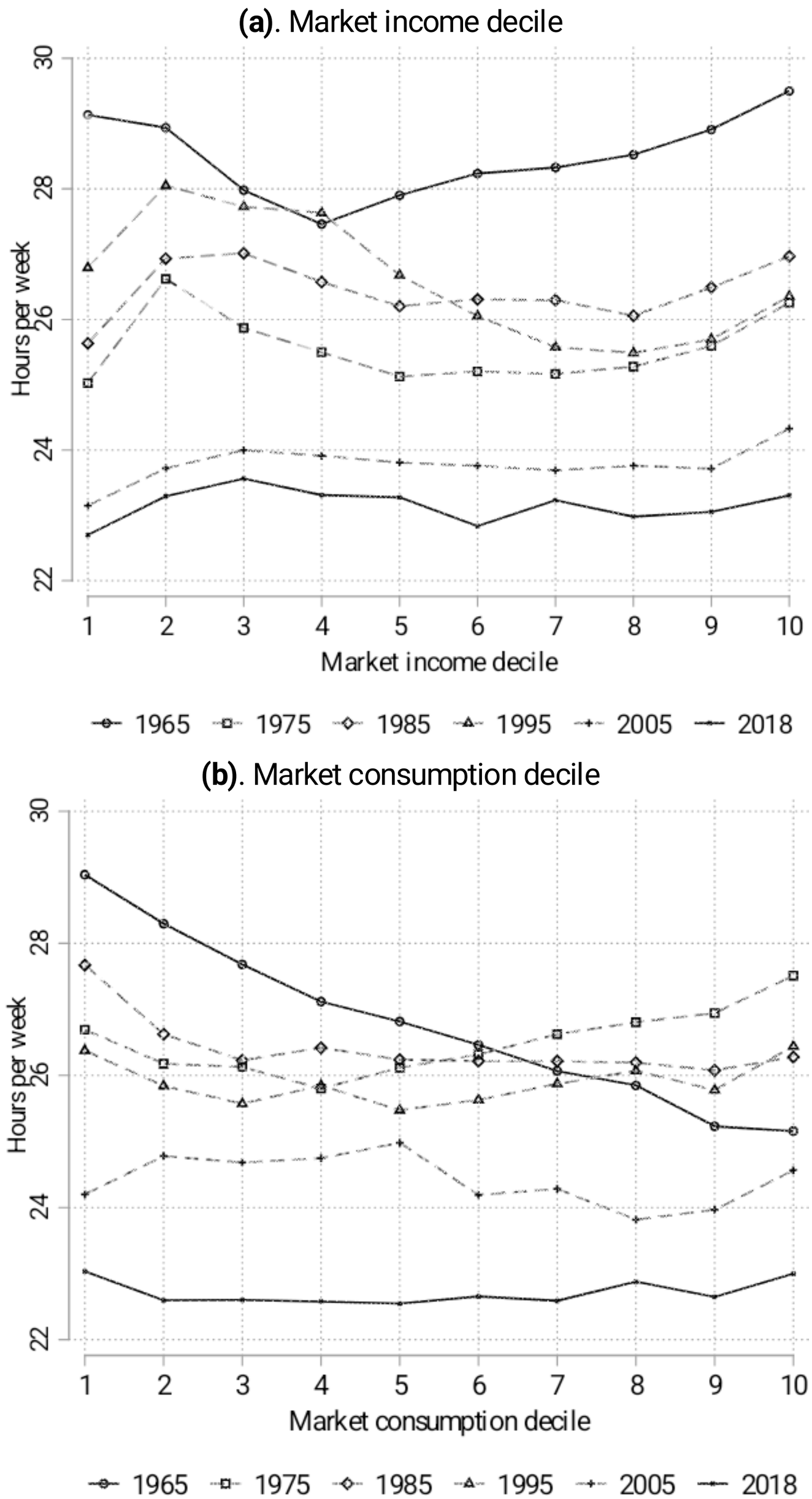
Source: American Heritage Time Use Study (AHTUS) 1965-2018, individuals aged 18+. Housework includes food preparation, cleaning, laundry, home and vehicle maintenance, purchasing goods and services, and travel related to consumption; active childcare includes the care of infants, general care of older children, medical care of children, playing or reading to or talking to children, helping children with homework, and travel related to childcare. Unpaid work is the sum of housework and childcare (see Appendix Table A.1 for AHTUS activity codes). Daily minutes converted to weekly hours by multiplying by 7 and dividing by 60.

Figure 2. *Predicted and "true" unpaid work for subset of 2003-2019 ASEC.*



Source: American Time Use Survey (ATUS) for 2003-2019, and CPS ASEC 2003-2019. ASEC matched to ATUS using unique CPS longitudinal identifiers. Sample limited to subset matched (N= 74,780). Inconsistent gender and age matches discarded. Market income converted to 2018 dollars. In panels (a) and (b), the variable on the horizontal axis is grouped into bins, and mean values of the variable on the y-axis, within that bin, are plotted. Discrepancies in panel (b) computed as the absolute value of the difference between "true" and predicted hours per week of unpaid work.

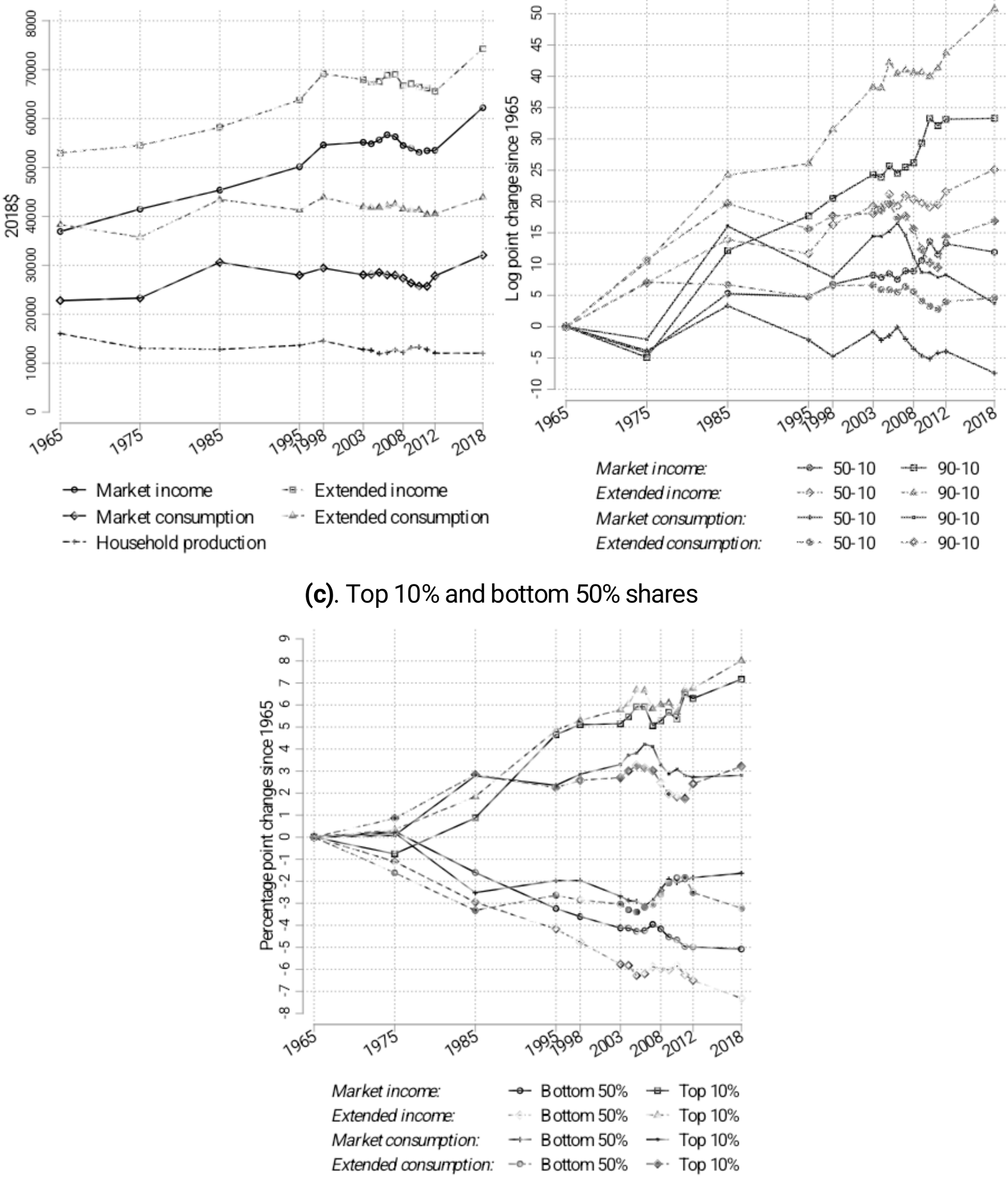
Figure 3. *Equivalized time in household production by income and consumption deciles*.



Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. See text for details on how AHTUS was combined with ASEC and CES. Market incomes and monetary consumption are equivalized by square root scale. Total household production defined as sum of unpaid work time by all household adults. Equivalized time defined as total time divided by the equivalence scale $\sqrt{A + 2K}$ *where A and K are the numbers of adults and children, respectively. Households assigned to decile groups by market income or consumption*

distribution in each year, and mean unpaid work, total and equivalized household production time within decile group is computed.

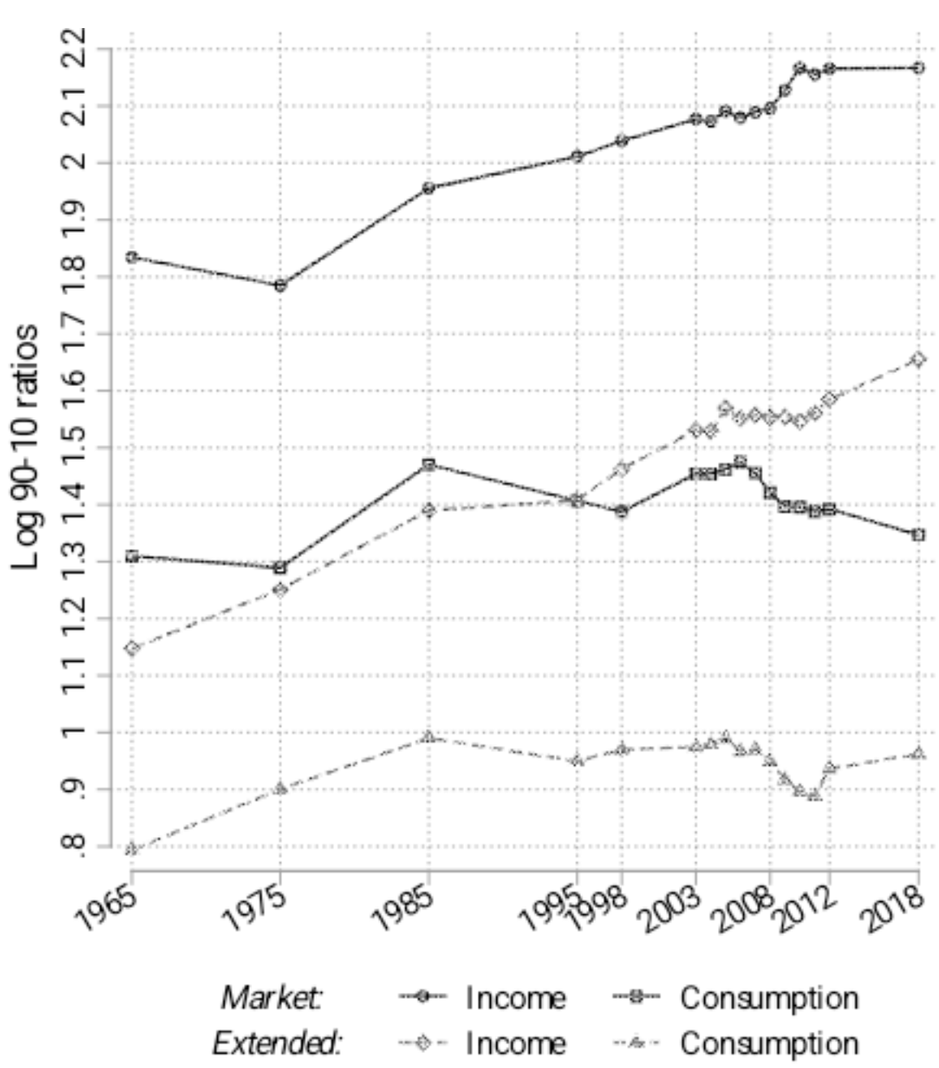
Figure 4. *Trends in market and extended incomes and consumption*.



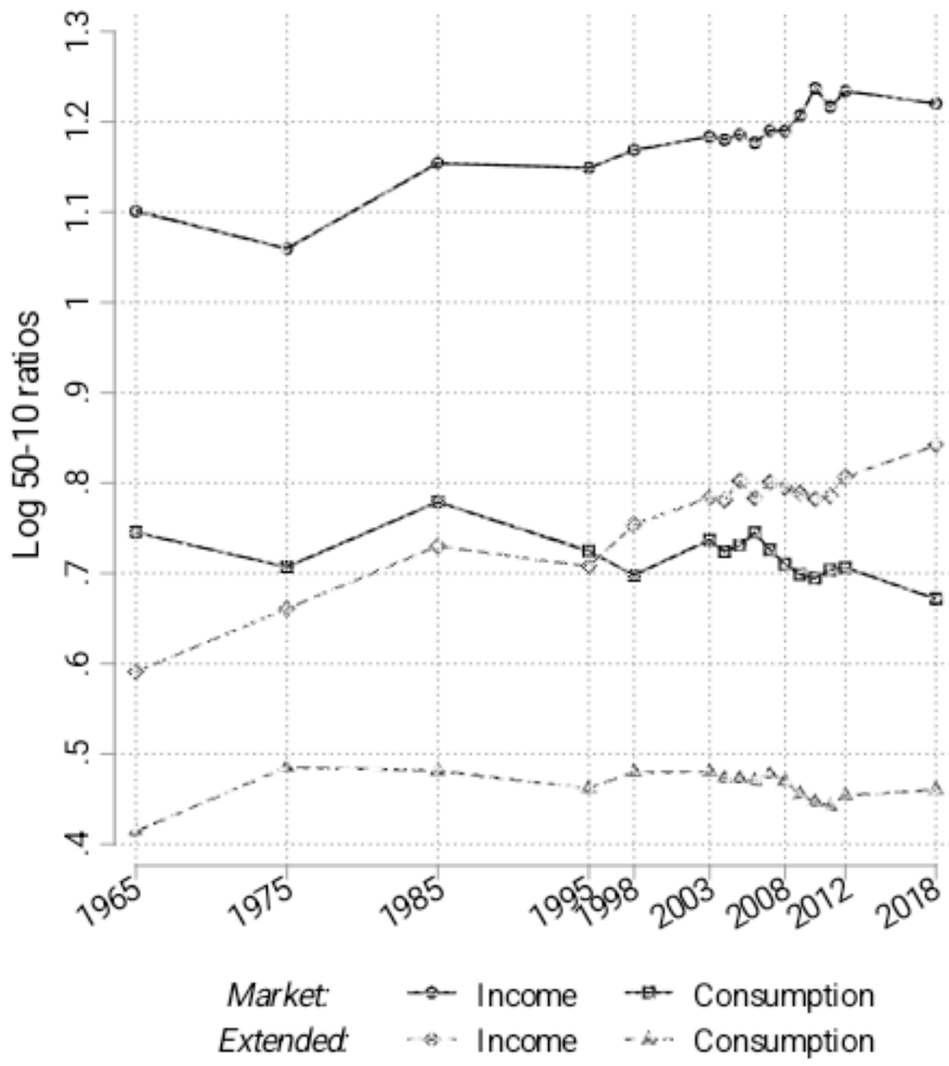
Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. See text for details on how AHTUS was combined with ASEC and CES. Market income, monetary consumption, and time devoted household production (valued at housekeeper wages) are equivalized and expressed in 2018 dollars. Extended income (consumption) is the sum of market income (consumption) and the imputed value of time devoted to household production.

Figure 5. *Trends in inequality in market and extended incomes and consumption*.

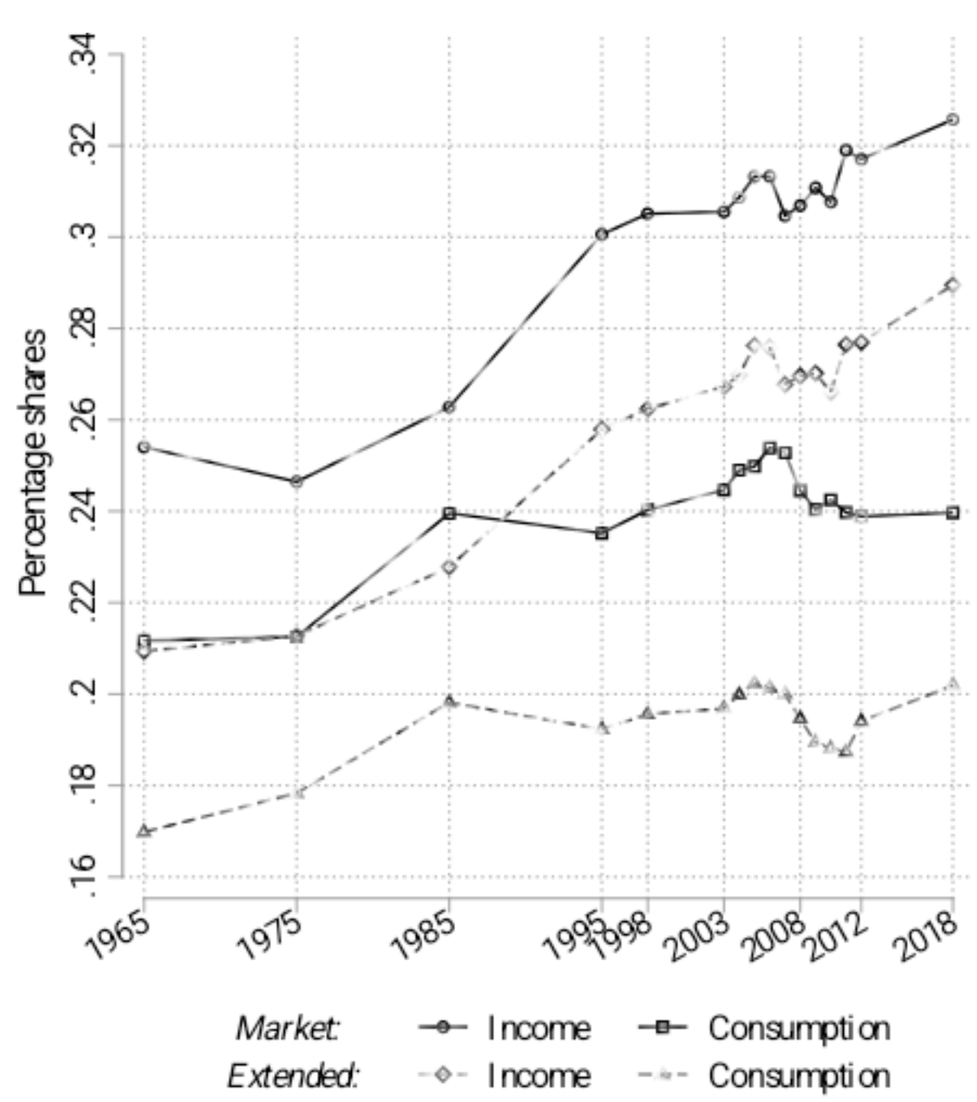
(a). ***90-10 log differentials***



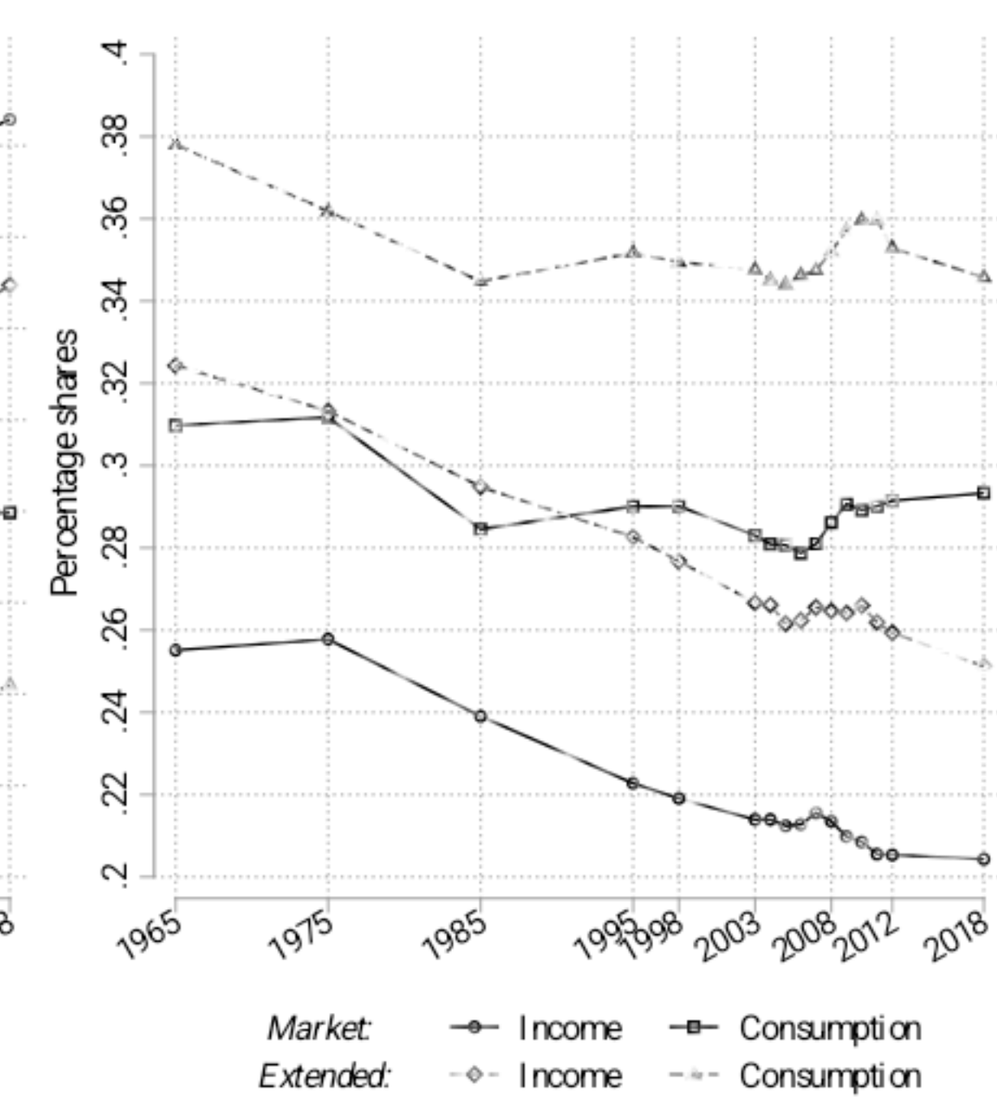
(b). ***50-10 log differentials***



(c). ***Top 10 percent share***

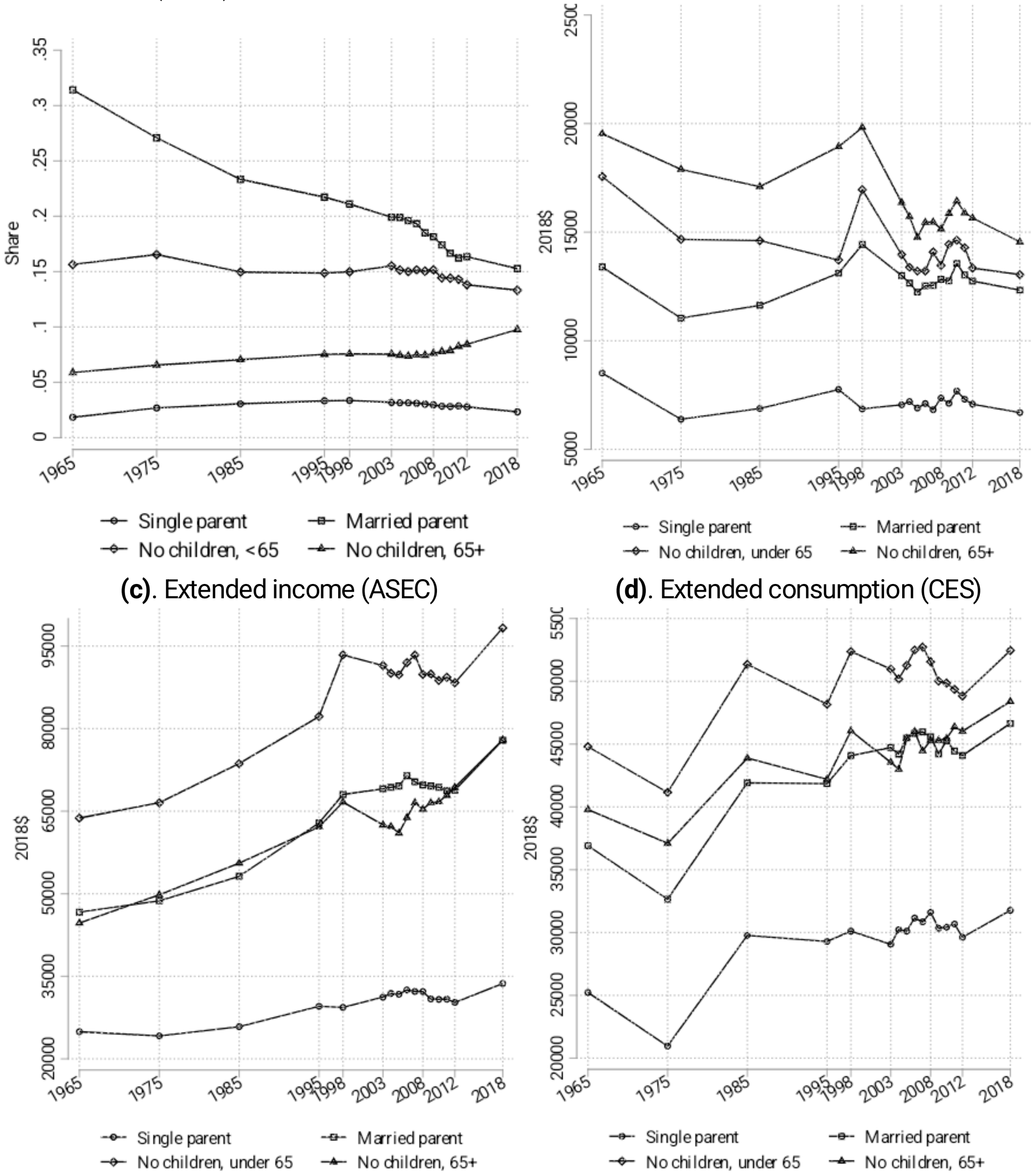


(d). ***Bottom 50 percent share***



Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. See text for details on how AHTUS was combined with ASEC and CES. Market income, monetary consumption, and time devoted household production (valued at housekeeper wages) are equivalized and expressed in 2018 dollars. Extended income (consumption) is the sum of market income (consumption) and the imputed value of time devoted to household production.

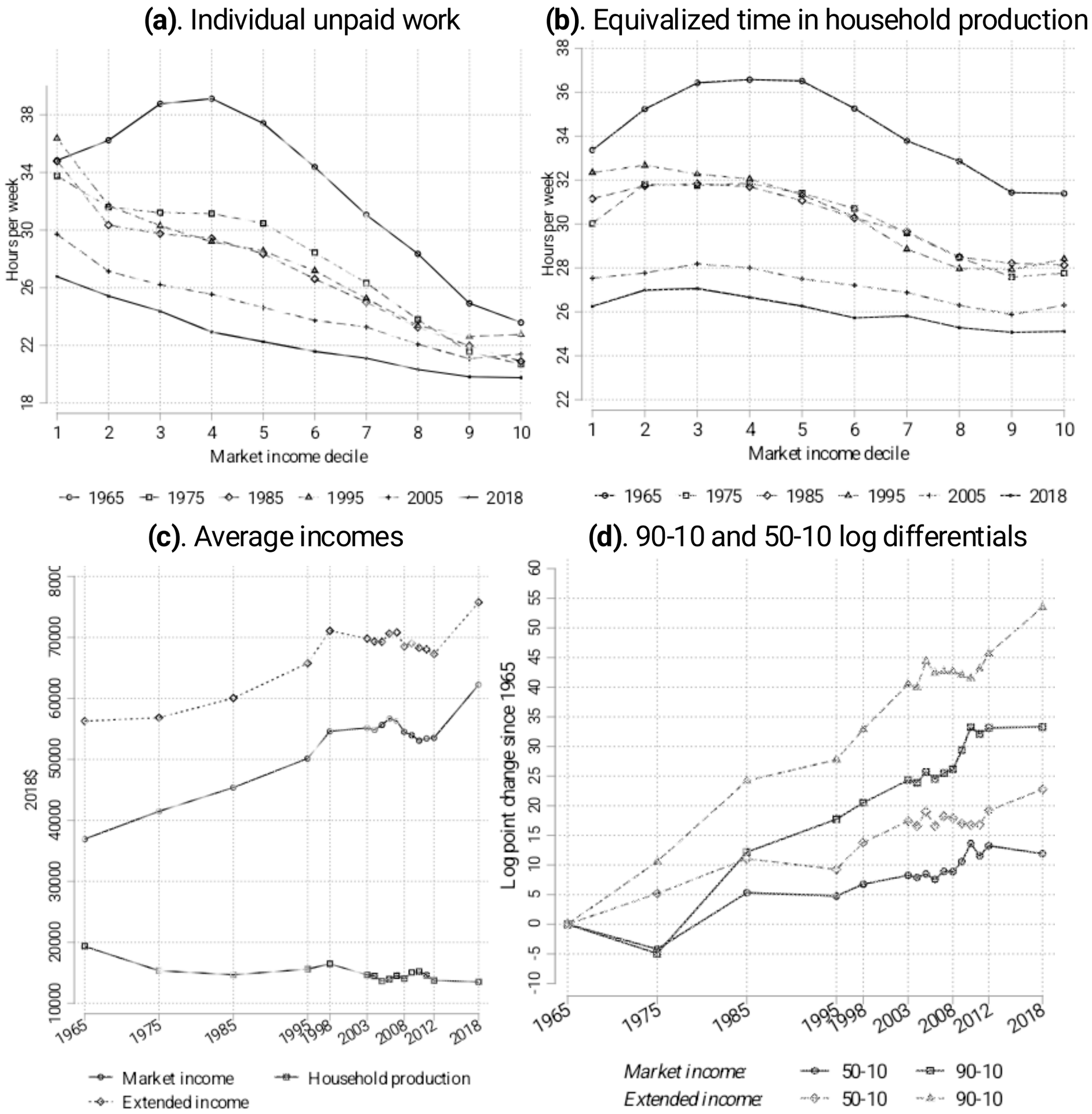
Figure 6. *Trends in average incomes by household composition*.



Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. Households divided into mutually exclusive (but not exhaustive) groups: single adults with a child under 18 in the household ("single parents"), married couples with a child under 18 in the household ("married parents"), married couples both aged under 65 without children in the household, and married couples with at least one of them aged 65 or over and without children in the household. Unmarried people without children and married people living with one or two other adults form the rest of the sample. Panel (a) reports shares out of all households; because the

share of households with children has declined over time, the share of "single-parent" (one-adult-with-child) households among all households is relatively flat even though single-parenthood among families with children rose.

Figure 7. *Extended incomes (including supervisory childcare).*



Source: American Heritage Time Use Study (AHTUS) for 1965-2018 and CPS ASEC 1968-2019. Household production now includes estimates of supervisory childcare from 2004-2018 ATUS. See text for details on imputation of time devoted to supervisory childcare.

Tables

Table 1. *Extended income with different equivalence scales for household production*

	Log(90-10)		*Log (50-10)*		*Bottom 50% share*		*Top 10% share*	
	1965	2018	1965	2018	1965	2018	1965	2018
A. Incomes								
Market	1.834	2.167	1.101	1.220	0.255	0.204	0.254	0.326
Extended								
$(A + 2K)^{\frac{1}{2}}$	1.147	1.655	0.591	0.842	0.324	0.251	0.209	0.289
Weight assigned to children								
$(A + K)^{\frac{1}{2}}$	1.106	1.628	0.577	0.822	0.331	0.254	0.205	0.287
$(A + 3K)^{\frac{1}{2}}$	1.175	1.674	0.601	0.854	0.320	0.249	0.212	0.291
$(A + 5K)^{\frac{1}{2}}$	1.214	1.697	0.618	0.869	0.314	0.247	0.216	0.293
Economies of scale								
$(A + 2K)^{\frac{1}{3}}$	1.068	1.590	0.560	0.808	0.337	0.260	0.200	0.282
$A + 2K$	1.313	1.798	0.673	0.932	0.300	0.235	0.226	0.303
B. Consumption								
Market	1.310	1.347	0.746	0.672	0.310	0.293	0.212	0.240
Extended								
$(A + 2K)^{\frac{1}{2}}$	0.667	0.962	0.366	0.460	0.402	0.346	0.145	0.202
Weight assigned to children								

$(A + K)^{\frac{1}{2}}$	0.602	0.954	0.404	0.463	0.412	0.348	0.137	0.199
$(A + 3K)^{\frac{1}{2}}$	0.728	0.975	0.369	0.463	0.389	0.344	0.151	0.204
$(A + 5K)^{\frac{1}{2}}$	0.848	1.001	0.400	0.477	0.367	0.341	0.160	0.206
Economies of scale								
$(A + 2K)^{\frac{1}{3}}$	0.726	0.951	0.524	0.478	0.399	0.350	0.146	0.195
$A + 2K$	0.999	1.094	0.573	0.521	0.348	0.327	0.157	0.216

Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. See text for details on how AHTUS was combined with ASEC and CES. Market income, monetary consumption, and time devoted household production (valued at housekeeper wages) are equivalized and expressed in 2018 dollars. Extended income (consumption) is the sum of market income (consumption) and the imputed value of time devoted to household production. For equivalence scales, A and K refer to the number of adults and children in the household.

Table 2. *Decomposing growth in extended income and consumption inequality.*

	1965	*2018*	*Change*	*1965 share*	*Change (weighted)*
A. *Incomes*					
10th centile group mean					
Extended income	26200	24705	-5.7%		
Market income	11491	13536	17.8%	0.439	7.8
Household production time	14709	11169	-24.1%	0.561	-13.5
50th centile group mean					
Extended income	47647	57195	20.0%		
Market income	31837	45213	42.0%	0.668	28.1
Household production time	15810	11982	-24.2%	0.332	-8.0
90th centile group mean					
Extended income	82527	126089	52.8%		
Market income	65255	113587	74.1%	0.791	58.6
Household production time	17272	12502	-27.6%	0.209	-5.8
B. *Consumption*					
10th centile group mean					
Extended income	23622	25085	6.2%		
Market income	10986	15516	41.2%	0.465	19.2
Household production time	12636	9569	-24.3%	0.535	-13.0
50th centile group mean					
Extended income	36235	39920	10.2%		
Market income	21154	26934	27.3%	0.584	16.0
Household production time	15081	12986	-13.9%	0.416	-5.8
90th centile group mean					
Extended income	52894	65277	23.4%		
Market income	35106	52586	49.8%	0.664	33.0
Household production time	17788	14691	-17.4%	0.336	-5.9
C. Level change in log differentials					
Extended incomes					
50-10	0.598	0.839	0.24		
90-50	0.549	0.791	0.24		
90-10	1.147	1.630	0.48		
Extended consumption					
50-10	0.428	0.465	0.04		
90-50	0.378	0.492	0.11		
90-10	0.806	0.956	0.15		

Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. Market income, monetary consumption, and time devoted household production (valued at housekeeper wages) are equivalized and expressed in 2018 dollars. Extended income (consumption) is the sum of market income (consumption) and the imputed value of time devoted to household production. Households are sorted by extended income within each year and assigned to centile groups. For each centile group, the table reports the CPS-weighted mean of market income, the imputed value of household production, and extended income among households in that centile group. Numeric values can therefore differ slightly from the exact 10th/50th/90th percentile cutoffs of the

corresponding distributions. Within the table, the growth in percentile ratios obtained from differencing growth at different percentiles may not be exactly equal to values in panel C due to the log approximation.

Table 3. *Trends in market and extended incomes, adjusting for demographic composition*.

	1965	2018			Changes, 1965-2018		
	Actual	Actual	Adjusted (core)	Adjusted (core + education)	Actual	Adjusted (core)	Adjusted (core + education)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Market income							
Average	36928	62239	63231	45287	69%	71%	23%
10th percentile	10631	13754	14838	10597	29%	40%	0%
Median	31972	46601	47584	33498	46%	49%	5%
90th percentile	66536	120094	120701	86968	80%	81%	31%
Average value, household production	16070	12030	12608	12761	-25%	-22%	-21%
Extended income							
Average	52998	74269	75839	58049	40%	43%	10%
10th percentile	26556	25273	27107	22780	-5%	2%	-14%
Median	47949	58654	60244	46419	22%	26%	-3%
90th percentile	83654	132275	133251	99955	58%	59%	19%
Log differentials							
Market incomes							
90-10	1.834	2.167	2.096	2.105	0.333	0.262	0.271
50-10	1.101	1.220	1.165	1.151	0.119	0.064	0.050
90-50	0.733	0.947	0.931	0.954	0.214	0.198	0.221
Extended incomes							
90-10	1.147	1.655	1.592	1.479	0.508	0.445	0.331

50-10	0.591	0.842	0.799	0.712	0.251	0.208	0.121
90-50	0.557	0.813	0.794	0.767	0.257	0.237	0.210

Source: American Heritage Time Use Study (AHTUS) for 1965-2018, and CPS ASEC 1968-2019. Column (1) reports 1965 statistics. Column (2) reports 2018 statistics using the original ASEC weights. Column (3) ("Adjusted (core)") reweights the 2018 ASEC so that the joint distribution of age (18–27, 28–37, 38–48, 49–60, 60+), sex, marital status (married vs. not married), and the presence of a child under age 5 matches the 1965 distribution. Column (4) ("Adjusted (core + education)") additionally reweights the 2018 ASEC to match the 1965 distribution of education (less than high school, high school, some college, college or more). Columns (5)–(7) report percentage changes between 1965 and each 2018 scenario for the corresponding statistic in columns (2)–(4). Percentile ratios are defined using the equivalized distributions of household market and extended income.

References

Aeppli, C., and Wilmers, N. (2022). Rapid wage growth at the bottom has offset rising US inequality. *Proceedings of the National Academy of Sciences*, 119(42), e2204305119.

Aguiar, M., & Hurst, E. (2005). Consumption versus expenditure. *Journal of Political Economy*, 113(5), 919-948.

Aguiar, M., & Hurst, E. (2007). Measuring trends in leisure: The allocation of time over five decades. *The Quarterly Journal of Economics*, 122(3), 969-1006.

Aguiar, M., & Hurst, E. (2009). A summary of trends in American time allocation: 1965–2005. *Social Indicators Research*, 93, 57-64.

Attanasio, O. P., & Pistaferri, L. (2016). Consumption inequality. *Journal of Economic Perspectives*, 30(2), 3-28.

Autor, D. H., Katz, L. F., & Kearney, M. S. (2006). The polarization of the US labor market. *American Economic Review*, 96(2), 189-194.

Becker, G. S. (1965). A theory of the allocation of time. *Economic Journal*, 75(299), 493-517. doi:10.2307/2228937.

Been, J., Rohwedder S., and Hurd, M. (2020). Does home production replace consumption spending? Evidence from shocks in housing wealth in the Great Recession. *Review of Economics and Statistics* 102(1), 113-128.

Bianchi, S. M., & Raley, S. (2005). Time allocation in working families. In *Work, family, health, and well-being*, eds. Bianchi Suzanne M., Casper Lynne M., King Rosalind B., 21–42. Mahwah: NJ: Lawrence Erlbaum.

Blundell, R., Joyce, R., Keiller, A. N., & Ziliak, J. P. (2018). Income inequality and the labour market in Britain and the US. *Journal of Public Economics*, 162, 48-62.

Bridgman, B., Dugan, A., Lal, M., Osborne, M., & Villones, S. (2012). Accounting for household production in the national accounts, 1965–2010. *Survey of Current Business* 92(5), 23-36.

Bridgman, B. (2016). Home productivity. *Journal of Economic Dynamics and Control*, 71, 60-76.

Bridgman, B. (2022). A Disaggregated View of Household Production Trends. *AEA Papers and Proceedings* 113, 619-622.

Bridgman, B., Craig, A., & Kanal, D. (2022). Accounting for household production in the national accounts. *Survey of Current Business*, 102(2), 1-3.

Budig, M. J., & Nancy Folbre. (2004). Activity, proximity, or responsibility? Measuring parental childcare time. In N. Folbre and M. Bittman (Eds.), *Family Time: The Social Organization of Care*. New York: Routledge.

Citro, C. F., Michael, R. T., 1995. *Measuring Poverty: A New Approach*. National Academy Press, Washington, D.C.

Fisher, K., Egerton, M., Gershuny, J. I., & Robinson, J. P. (2007). Gender convergence in the American Heritage Time Use Study (AHTUS). *Social Indicators Research*, 82, 1-33.

Fisher, Kimberly Jonathan Gershuny, Sarah M. Flood, Joan Garcia Roman and Sandra L. Hofferth. American Heritage Time Use Study Extract Builder: Version 1.2 [dataset]. Minneapolis, MN: IPUMS, 2018. https://doi.org/10.18128/D061.V1.2

Flood. Sarah. Joel McMurrv. Aaron Soiourner. and Matthew Wiswall (2022) Inequality in early care experienced by US children. *Journal of Economic Perspectives* 36(2),199-222.

Flood, Sarah, Miriam King, Renae Rodgers, Steven Ruggles and J. Robert Warren. (2020). Integrated Public Use Microdata Series, Current Population Survey: Version 7.0 [dataset]. Minneapolis, MN: IPUMS, 2020. https://doi.org/10.18128/D030.V7.0

Folbre, N., Gornick, J. C., Connolly, H., & Munzi, T. (2013). Women's employment, unpaid work and economic inequality. In *Income inequality: Economic disparities and the middle class in affluent countries* (pp. 234-260). Stanford University Press.

Folbre, N., Murray-Close, M., & Suh, J. (2018). Equivalence scales for extended income in the US. *Review of Economics of the Household*, 16, 189-227.

Folbre, N.,&Suh, J. (2025). The temporal demands of parental child care: Evidence from the American Time Use Survey. PERI Working Paper Series, 624.

Frazis, H., & Stewart, J. (2011). How does household production affect measured income inequality? *Journal of Population Economics*, 24, 3-22.
Frick, J. R., Grabka, M. M., & Groh-Samberg, O. (2012). The impact of home production on economic inequality in Germany. *Empirical Economics*, 43, 1143-1169.
Gautham, L., and Folbre, N. (2024). Child Care, Household Expenditures and Consumption of Unpaid Services: Evidence from the U.S. Panel Study of Income Dynamics." *Review of Income and Wealth*, 70(4), 1011-1036.
Gottschalk, P., & Mayer, S. (2002). Changes in home production and trends in economic inequality. In *The new economics of rising inequality*, 265-284.
Gronau, Reuben, (1986). Home production—a survey. In Ashenfelter O, Layard R (eds), *Handbook of Labor Economics*, vol. 1, North Holland, Amsterdam, pp. 273-304.
Han, J., Meyer, B. D., & Sullivan, J. X. (2020). Inequality in the joint distribution of consumption and time use. *Journal of Public Economics*, 191, 104106.
House, C., Laitner, J., & Stolyarov, D. (2008). Valuing lost home production of dual earner couples. *International Economic Review*, 49(2), 701-736.
Jenkins, S. P., & O'Leary, N. C. (1996). Household income plus household production: the distribution of extended income in the UK. *Review of Income and Wealth*, 42(4), 401-419.
Landefeld, J. S., Fraumeni, B. M., & Vojtech, C. M. (2009). Accounting for household production: A prototype satellite account using the American Time Use Survey. *Review of Income and Wealth*, 55(2), 205-225.
Larrimore, J. (2014). Accounting for United States Household Income Inequality Trends: The Changing Importance of Household Structure and Male and Female Labor Earnings Inequality. *Review of Income and Wealth*, 60(4), 683-701.
Piketty, Thomas, Emmanuel Saez, and Gabriel Zucman. 2018. "Distributional National Accounts: Methods and Estimates for the United States." *Quarterly Journal of Economics* 133(2): 553–609.
Ragnarsdóttir, B. H., Kostecki, S., & Gornick, J. (2023). Accounting for the value of unpaid domestic work: A cross-national study of variation across household types. *European Sociological Review*, 39(2), 262-279.
Ramey, V. A. (2009). Time spent in home production in the twentieth-century United States: New estimates from old data. *The Journal of Economic History*, 69(1), 1-47.
Ramey, V. A., & Francis, N. (2009). A century of work and leisure. *American Economic Journal: Macroeconomics*, 1(2), 189-224.
Semega, Jessica, & Melissa Kollar. (2022). *Income in the United States: 2021*. U.S. Census Bureau, Current Population Reports, P60-276. U.S. Government Publishing Office, Washington, DC, September 2022.
Schreyer, P., & Diewert, W. E. (2014). Household production, leisure, and living standards. In *Measuring economic sustainability and progress* (pp. 89-114). University of Chicago Press.
Suh, J. 2016. Measuring the "sandwich": Care for children and adults in the American Time Use Survey 2003–2012. *Journal of Family and Economic Issues* 37. 197-211.
Suh, J., and Folbre, N. 2016. Valuing unpaid child care in the U.S.: A prototype satellite account using the American Time Use Survey. *Review of Income and Wealth,* 62(4), 668-684.
U.S. Census Bureau. 2019. *Current Population Survey: Design and Methodology*. Technical Paper 77, October 2019.
Wolff, E.N. and Zacharias, A., 2007. The Levy Institute Measure of Economic Well-Being United States, 1989-2001. *Eastern Economic Journal*, 33(4), 443-470.
Zick, C. D., Bryant, W. K., & Srisukhumbowornchai, S. (2008). Does housework matter anymore? The shifting impact of housework on economic inequality. *Review of Economics of the Household*, 6, 1-28.

Online Appendix

Appendix A

A.1. The American Heritage Time Use Survey (AHTUS)

We use the American Heritage Time Use Study (AHTUS), a database of national time-diary samples collected over six decades, includes individual and family background, activity, location, mode of transport and who else was present variables (Fisher et al. 2018). Developed by the Centre for Time Use Research (CTUR) the AHTUS merges the new American Time Use Survey, collected on a continuous basis beginning in 2003 by the U.S. Bureau of Labor Statistics (BLS) with four previous national time-use studies collected by two academic survey centers, in a harmonized format (Fisher et al. 2007). We use the following surveys to compute time use estimates for each of these years in our sample:

1965: Multinational Comparative Time-Budget Research Project, including a Jackson, Michigan and a national USA sample, conducted by the Survey Research at the University of Michigan and the Social Relations Department at Harvard University, with funding from the National Science Foundation (part of the Szalai Multinational Time Budget Research Project). This survey only covered people aged 18–65. As the remaining surveys include the 66+ age group, we follow Landefeld et al. (2009) in adjusting the sample for 1965 to include people 66+ based on data from the 66+ subgroup in the 1975–76 survey.

1975: Time Use in Economic and Social Accounts, a panel study designed and administered by the Survey Research Center at the University of Michigan with funding

from the National Science Foundation and the US Department of Health, Education, and Welfare.

1985: America's Use of Time, administered by the Survey Research Center, University of Michigan.

1995: National Time-Diary Study (an extension of the National Human Activity Patterns Survey), administered by the Survey Research Center at the University of Maryland on commission for the Environmental Protection Agency to produce data on exposure to environmental pollutants.

1998: This data set combines two small-scale surveys collected by the University of Maryland Survey Research Centre, the 1998-99 Family Interaction, Social Capital, and Trends in Time Use Study, a small-scale contiguous state sample funded by the National Science Foundation, and the 1999-2001 National Survey of Parents (NSP), funded by the Sloane Foundation. We drop the 1999-2001 NSP because this component oversampled parents, resulting in higher proportion of households with children in this wave (compared to both preceding and following waves of 1995 and 2003, and to the 1998 ASEC), despite the use of AHTUS provided weights.

2003-2018: American Time Use Survey (ATUS) conducted the United States Census Bureau and funded and co-ordinated by the United States Bureau of Labor Statistics, which collected diaries from a sub-sample of the population that had just completed the last of eight waves of the Current Population Study.

We exclude the 1992-94 NHAPS because of known undercounts of household production (Ramey 2009) and restrict the sample to all those aged 18 or over (i.e., adults).

Table A.1. Detailed AHTUS activity codes for unpaid work

AHTUS codes	*ATUS concordance*
20: food preparation, cooking	food&drink preparation

	food presentation
21: set table, wash/put away dishes	kitchen and food clean-up
	food&drink clean-up nec
22: cleaning	interior cleaning
	interior arrangement, decoration, repair
	interior maintenance nec
	exterior cleaning
23: laundry, ironing, clothing repair	laundry
	sewing, repair textiles
24: home repairs, maintain vehicle	build, repair furniture
	maintain heating/cooling
	exterior repair, improvement
	exterior repair, maintenance nec
	maintain ponds, pools, hot tubs
	vehicle repair, maintenance
	repair vehicles nec
	appliance&tool set-up, repair
	appliance&tool nec
25: other domestic work	store interior household items
	housework nec
	financial management
	household&personal organization
	home security
	household management nec

	household activities nec
26: purchase routine goods	store interior household items
	housework nec
	financial management
	household&personal organization
	home security
	household management nec
	household activities nec
27: purchase consumer durables	purchasing gas
	shopping nec
	comparison shopping
	research purchases nec
	security procedures related to purchase
	security procedures nec
	consumer purchases nec
	calls from salespeople
28: purchase personal services	using personal care services
	waiting associated with personal care
	personal care services nec
	calls from professional, care services
29: purchase medical services	use health care services outside home
	use health care service inside home
	waiting associated with health care
	medical services nec

	use veterinary services
	waiting for veterinary services
	veterinary services nec
30: purchase repair, laundry services	use interior cleaning service
	use clothing repair or cleaning service
	waiting associated with household serv
	household cleaning services nec
	use home maintenance service
	waiting associated with home maintain
	home maintenance service nec
	use pet services
	waiting associated with pet services
	use pet services nec
	use lawn/garden service
	waiting associated with garden service
	use garden service nec
	vehicle maintenance service
	waiting for vehicle maintenance
	vehicle maintenance service nec
	household services nec
	calls from household services providers
31: financial/government services	banking services
	other financial services
	waiting associated with banking

	financial services nec
	using police, fire services
	using social services
	obtain license, pay fines or taxes
	government services nec
	waiting for police/fire services
	waiting for license/taxes
	waiting for government nec
	security procedures for government
	security procedures for gov nec
	government services nec
	calls from government officials
32: purchase other services	use legal services
	waiting associated with legal services
	using legal services nec
	real estate services
	waiting associated with real estate
	security related to services
	security related to services nec
	professional services nec
33: care of infants	Same as for 34: look at “who” in care information.
34: general care of older children	physical care for children
	organization and planning for children
	looking after children

	care for children nec
	use paid childcare
	waiting associated with paid childcare
	use paid childcare nec
	calls from childcare providers
35: medical care of children	provide medical care to children
	obtain medical care for children
	waiting associated with child's health
	activity for child health nec
36: play with children	play with children, not sports
37: supervise/help with homework	arts&crafts with children
	help/teach children
	help with homework
	meetings at school
	home schooling of children
	waiting associated with child education
	activity related to child's education nec
38: read to/with, talk with children	read to/with children
	talk with/listen to children
39: other childcare	attend children's events
	waiting for children
	picking up/dropping off children
	other caring for household children nec
95: travel related to	travel related to housework

consumption	travel to/from grocery store
	travel to/from other stores
	travel for shopping nec
	travel related to professional services
	travel related to household services
	travel related to government services
	travel related to gov services nec
96: travel related to childcare	travel related to care of own child
	travel related to care nec

Source: AHTUS documentation: Fisher and Altintas (2013) (accessed here: https://www.timeuse.org/ahtus/documentation). nec (“not elsewhere classified).

A.2. Constructing Extended Consumption

We obtain the 1960-61 and 1972-73 CES files from ICPSR, and data for 1985 onwards is downloaded from BLS public microdata files. As with the construction of the extended income measure, in the AHTUS, separately by year and gender, we regress unpaid work time on age, the number of adults in the household, the number of children under 18, the number of children under 5, educational attainment (less than high school, high school, some college, a bachelor’s degree, and postgraduate degree), own employment status (not employed, and if employed, the number of paid hours worked in five categories), whether married and if married, whether the individual’s spouse is employed, and race (whether Black or African American). Our prediction process is somewhat different for the 1960-61 survey because of the absence of a household roster file. Here, we apply the following predictors based on data availability: race, sex, age, and education (5 categories: less than high school, high school, some college, college graduate, master’s degree or higher) ofthe household head, dummy variables for the number of adults, children, and elderly in the household, as well as dummy variables for the total number of earners and total number of full-time (48+ weeks/year and 35+ hours/week) earners in the household.

We then use the resulting coefficients to predict time devoted to unpaid work for adults belonging to a particular year or gender in the CES. We apply the 1965 and 1975

AHTUS coefficients to the 1960-61 and 1972-73 CES data, respectively, given the absence of a 1965 or 1975 CES. We label the resulting data points as “1965” or “1975.” Finally, we sum up time devoted to unpaid work by all household adults and compute its value by multiplying hours by housekeeper wages.

Market consumption is equivalized using the square root scale, and household production by the scale $(A + 2K)^{0.5}$. The sum of equivalized market consumption and the value of household production time is our extended consumption measure. For all analysis involving the CES, we apply the BLS final household weights from the Interview files so that our measures of (extended) consumption are nationally representative of the civilian non-institutionalized U.S. population in each survey year.

A.3. Constructing Distributional National Accounts (DINA) Income

To construct a measure of distributional-national accounts (DINA) style post-tax income, we apply our imputations for household production time to Piketty, Saez and Zucman (2018) (henceforth PSZ) microfiles for distributional national accounts, a dataset of synthetic observations representative of the U.S. population containing the national accounts income variables, constructed combining tax, survey, and national account data. Our prediction exercise differs from our other estimate in that these files are available for adults aged 20+ (rather than 18+) and can be aggregated at the level of the tax unit (rather than household). Socio-demographic covariates used to predict time use are also more limited: these include age in 3 categories (20-44, 45-64, and 65+), gender, marital status, number of dependent children, own and spousal employment (based on positive employment income), and, because education is not available, quartile of household income (the only income variable available directly in the AHTUS that is consistent over the years). We also use 1966 in lieu of 1965 (no available samples of individual income tax returns in 1965).

The PSZ income concept that we use is pre-tax national income, which we add up for all adults in tax unit (deflated using national income deflator). Post-tax national income is individual income that sums to national income (by construction). Compared to our ASEC money income measure, it allocated capital and in-kind components missing from ASEC (employer benefits, pension fund returns, imputed rents, retained earnings) and adds public cash and in-kind transfers and public goods consumption, and then subtracts all taxes. It differs both from PSZ’s factor income concept (which does not net out taxes from labour or capital income and does not distribute government

transfers) and their pre-tax national income concept (which takes into account pensions and disability and unemployment insurance, but not other taxes and transfers).

Appendix B

We assess how our main results change when we allow some of the residual variation in household production time to be permanent and potentially correlated across adults within the same household. Suppose that long-run unpaid work is given by:

$$UW_{it}^{*} = \beta' X_{it} + \epsilon_i$$

where UW_{it}^{*} is the annual average of weekly hours devoted to unpaid work by individual i at time t, X_{it} is the vector containing the covariates used in our prediction exercise, and ϵ_i is an individual-specific permanent error component,

What we observe in the data, however, is actual daily unpaid work UW_{it} (converted to weekly hours), including a transitory error component u_{it} that reflects day-to-day variation or measurement error:

$$UW_{it} = \beta' X_{it} + \epsilon_i + u_{it}$$

When we estimate the above equation using OLS, and then use the conditional mean of unpaid work (i.e., $\widehat{UW}_{it}^{*} = \hat{\beta}' X_{it}$), we are understating the dispersion of long-run unpaid work, especially if the variance of the person-specific permanent component (i.e., σ_{ϵ}^{2}) is large relative to the variance of the transitory component (σ_{u}^{2}).

Han, Meyer, and Sullivan (2020) show that only a small fraction of residual variation in time use appears to be permanent, but this evidence is based on older data (from 1975) and on leisure rather than household production. We implement three related robustness exercises: first, adding a small permanent component of the time-use residual to each individual's imputed household-production hours following Han et al. (2020); second, allowing this permanent component to be positively correlated within households; and third, calibrating both the size and within-household correlation of the permanent component using recent PSID panel data.

B.1. Adding a small permanent component of the residual

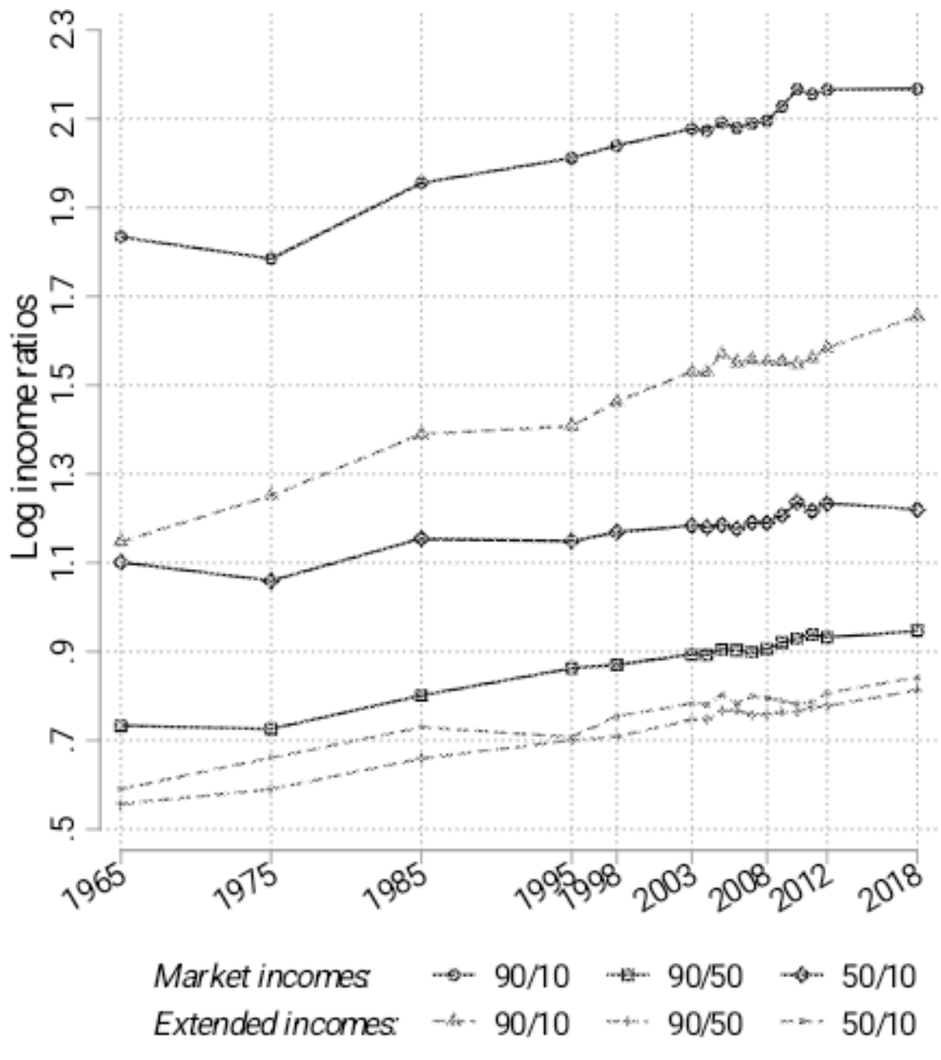
We start by following Han, Meyer, and Sullivan (2020, fn. 28) in adding back a small permanent component of the time-use residual to our imputed household-production hours.

Specifically, we first re-estimate our household production time prediction model in the AHTUS data, obtain residuals, and save the residual distribution separately within year–sex cells. We then return to the ASEC file and randomly match each adult with a residual from the corresponding year–sex cell in the time-use residual pool. We construct an alternative household production time measure by adding a small fraction α of this draw (with α set to 0.10, following Han et al.) to the original predicted household production time, and then aggregate this time at the household level (and value at the usual replacement wage).

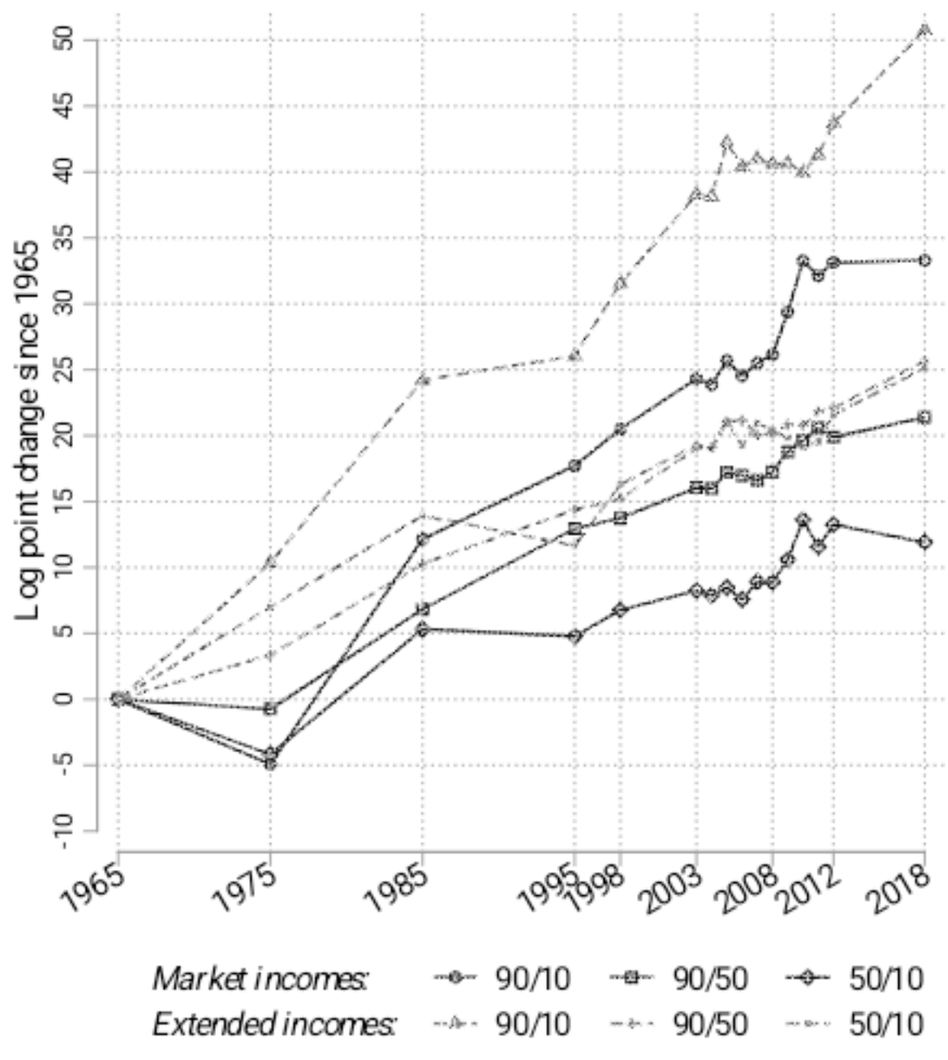
When we do this (see Figure B.1 below), our results are the same: the 90-10 log differential for extended incomes rises by 50.7 log points, rather than 50.8 log points.

Figure B.1. *Trends in market and extended household incomes (AHTUS and CPS ASEC).*

(a). Log differentials



(b). Log differentials (level change from 1965)



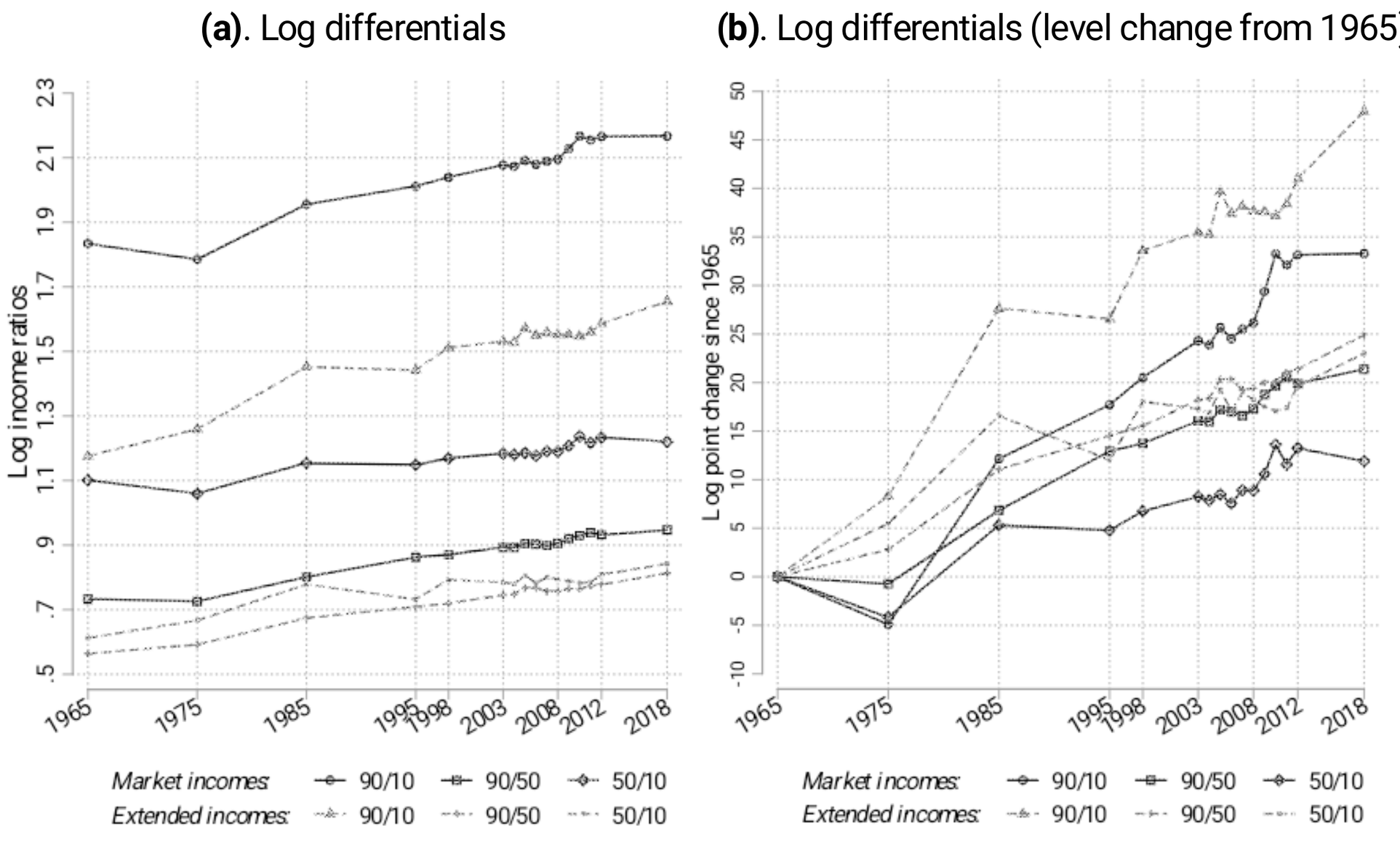
Source: Same as Figure 4. Market income and time devoted household production (valued at housekeeper wages) are equivalized and expressed in 2018 dollars. Extended incomes are the sum of market incomes and the imputed value of time devoted to household production.

B.2. Allowing for within-household correlation in permanent residuals

As we aggregate time devoted to household production at the household level, the correlation in permanent residual components across adults in the same household could matter for the distribution of extended income. To explore this, we allow the permanent residual component to have both an idiosyncratic and a shared household component.

First, as before, in the AHTUS we estimate year- and sex-specific regressions of unpaid work on observables and save the distribution of residuals for each year-sex cell. When we move to the ASEC, for each adult we then draw *two* residuals from the corresponding AHTUS residual pool: a household-level draw that is common to all members of the same household, and an individual-level draw that is independent across adults. We construct a composite residual that is average of these two components (both weighted equally) (i.e., the household-level correlation of the added permanent residual component is 0.5 by construction). We then add 10 percent of this composite term to the predicted unpaid work hours for each adult. This induces a moderate positive within-household correlation in the permanent residual (through the shared household draw) while preserving idiosyncratic variation across adults. When we do this, the rise in extended income inequality as measured by the logged 90-10 ratio is slightly smaller (47.9 log points) (see Figure B.2 below).[27]

Figure B.2. *Trends in market and extended household incomes (AHTUS and CPS ASEC).*



Source: Same as Figure 4. Market income and time devoted household production (valued at housekeeper wages) are equivalized and expressed in 2018 dollars. Extended incomes are the sum of market incomes and the imputed value of time devoted to household production.

[27] We also considered the case where we might have specialization within the household: that is, permanent residual components could be negatively correlated across spouses within the same household. That is, if one adult draws a positive permanent residual, their spouse should be more likely to draw a negative one. But when we add up household production time, these effects would cancel each other. So, at the household level, this scenario would be observationally similar to not adding any permanent residual at all.

B.3. Calibrating permanence and within-household correlation using the PSID

The previous exercises take the fraction of residual variation that is permanent to be 10 percent (based on Han et al.'s leisure estimates) and arbitrarily assume degree of within-household correlation to be 0.5. To discipline these choices with data on household production, we use the 2017–2019 waves of the Panel Study of Income Dynamics (PSID), which collect stylized weekly hours of housework and childcare for both the household respondent and spouse, following the same individuals over both waves.[28] These data allow us to estimate both the share of residual variation in unpaid work that is permanent and the correlation of the permanent component across spouses in two-adult households.

Some caveats remain: the 2017 and 2019 waves include a 2-year difference while our ideal "long-run" reference period would be shorter (e.g., one year). Also, information on time use is collected via a stylized question (e.g., "how much do you spend on housework in a typical week?") rather than a time diary. However, Insolera et al. (2019) show that PSID time use averages for housework and childcare are reasonably close to corresponding averages in the ATUS, particularly when supervisory childcare is folded into the ATUS measure of childcare.

First, we construct unpaid work time for adults in the PSID by adding up time devoted in a typical week to both housework and childcare. Then, we regress weekly unpaid work hours against our usual predictors (i.e., those used to predict household production time in the AHTUS: age, education, the number of children under 5 and under 18 in the household, a dummy for single adult households, own employment and usual hours, and spousal employment and hours: all interacted with gender and year), including random effects at the individual level. As the PSID only collects information for the respondent and their spouse, we limit our attention to households with at most two adults ($N = 28{,}556$).

That is, we estimate the following equation using a random effects model:

$$UW_{it} = \beta' \mathrm{X}_{it} + \epsilon_i + u_{it}$$

where UW_{it} is weekly hours devoted to unpaid work by individual i at time t, X_{it} is the vector containing the observed predictors listed above, ϵ_i is the permanent error

[28] Questions on time use (beyond just housework and paid work) were only incorporated in the PSID after 2017, and while 2021 and 2023 PSID files are available, time use in this period is likely to be affected by pandemic-related restrictions, also exceeding the temporal scope of our original analysis.

component, and u_{it} is the transitory error component. The random-effects specification allows us to decompose the variance of the residual into the variance of the person-specific permanent component (i.e., σ_{ϵ}^{2}) and the variance of the transitory component (σ_{u}^{2}) (see Table B.1 below).

From the estimated variance components, we compute the share of the residual variance that is permanent, i.e., $\alpha = \frac{\sigma_{\epsilon}^{2}}{\sigma_{\epsilon}^{2} + \sigma_{u}^{2}}$. This parameter measures the fraction of the unexplained variation in unpaid work that reflects persistent, person-specific differences rather than transitory shocks. This is about 32 percent. It is higher than the value reported in Han et al. for leisure in the 1975 data (about 10 percent) but still suggests that the majority of unexplained variation is just noise.

Next, we use the fitted person effects from the random-effects model to construct an estimate of each individual's permanent residual in the PSID and study how these permanent components correlate within households. Focusing on adult couples observed in both PSID waves, we compute the correlation, denote by ρ_{hh}, of the permanent residuals between spouses (e.g., $\rho_{hh} > 0$ might indicate shared preferences or constraints that raise unpaid work for both spouses). In the PSID data, spouses have a positive correlation between their error components of about 31 percent. (For comparison with Han et al. (2020), we repeat the same exercise for leisure time: the share of the permanent component in total error variance for leisure time is almost 40 percent, and the correlation in the permanent component between spouses is 54 percent.)

Table B.1. *Variance decomposition (ATUS 2018 and PSID 2017-2019)*

	Variance of actual time	Variance of predicted time	Permanent variance (σ_{ϵ}^{2})	Transitory variance (σ_{u}^{2})	Spousal correlation of permanent residuals (ρ_{hh})
ATUS 2018					
Unpaid work	419.1	311.3	-	-	-
PSID 2017-2018					
Unpaid work	2109.5	785.7	424.9	884.6	0.3072
Leisure	201.6	19.9	72.8	110.5	0.5385

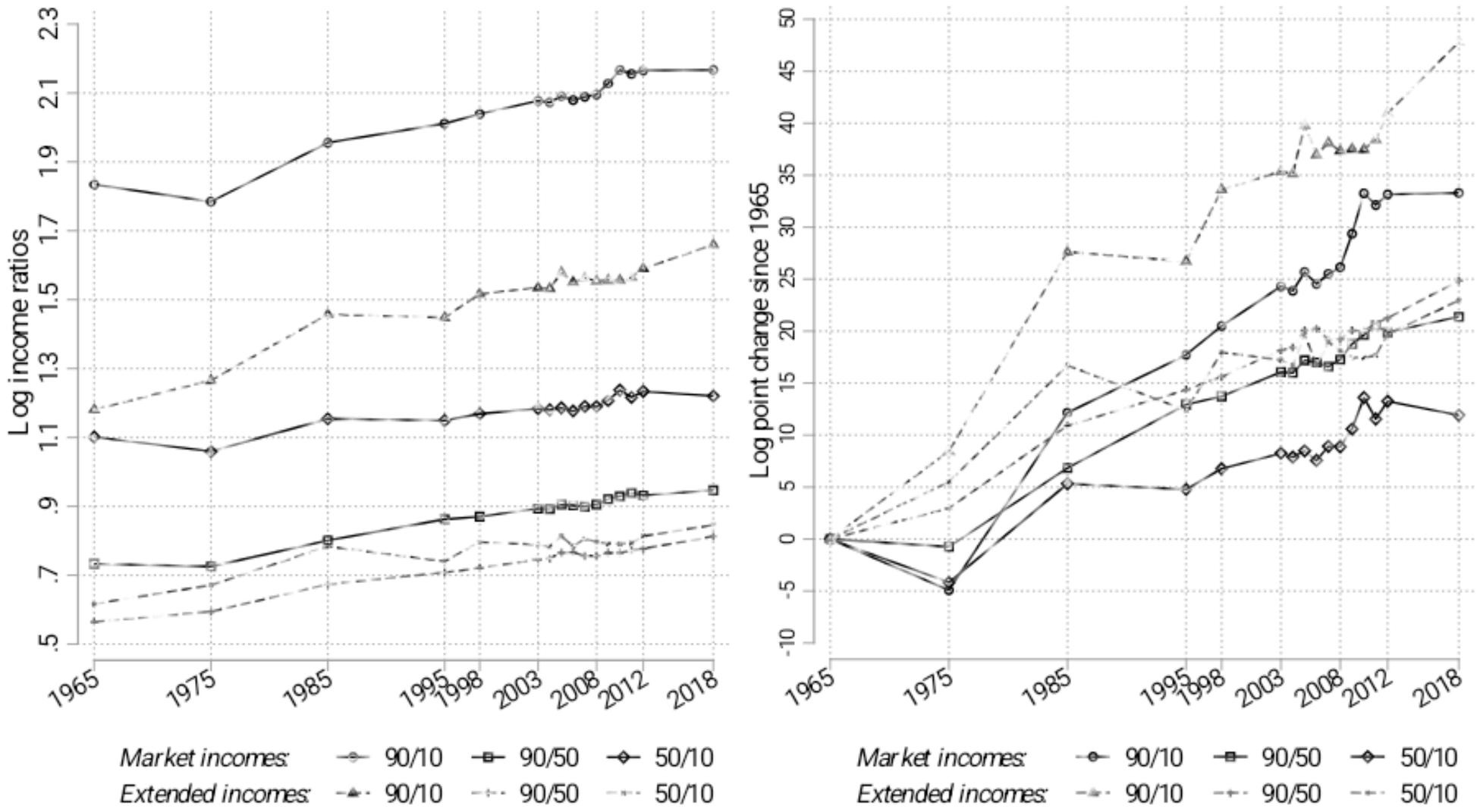
Source: ATUS 2018 and PSID 2017-2019. See text above for details on how variance components are computed. All time amounts expressed in hours per week.

We then use these PSID-based parameters to discipline the way we add back residual variation in our main AHTUS-ASEC exercise. In the AHTUS, we re-estimate our year- and sex-specific prediction models for unpaid work and retain the residuals by year-sex cell. When imputing unpaid work in the ASEC, we draw for each adult a residual that is the sum of a household-level component and an individual-level component, each taken from the appropriate AHTUS residual pool. We scale and combine these two components so that the variance of the added residual matches $\alpha = 0.32$ times the residual variance in the AHTUS regressions, and the correlation of the added residual across adults in the same household equals $\rho_{hh} = 0.31$. In practice, this means adding $\alpha \cdot (\sqrt{\rho_{hh}} \cdot U_h + \sqrt{(1 - \rho_{hh})} \cdot V_{ih})$ to each individual's predicted unpaid work, where U_h and V_{ih} are the independent residual draws.

Finally, we recompute our household-level measures of total and valued household production, extended income, and their distributions using these PSID-calibrated permanent residuals. This procedure allows us to assess the sensitivity of our results to plausible amounts of permanent, unobserved heterogeneity in household production and to realistic patterns of within-household correlation, rather than treating the residual as purely transitory or purely idiosyncratic. When we do this, the rise in the 90-10 log differential in extended incomes is not noticeably different at 47.8 log points (see Figure B.3 below).

Figure B.3. *Trends in market and extended household incomes (AHTUS and CPS ASEC).*

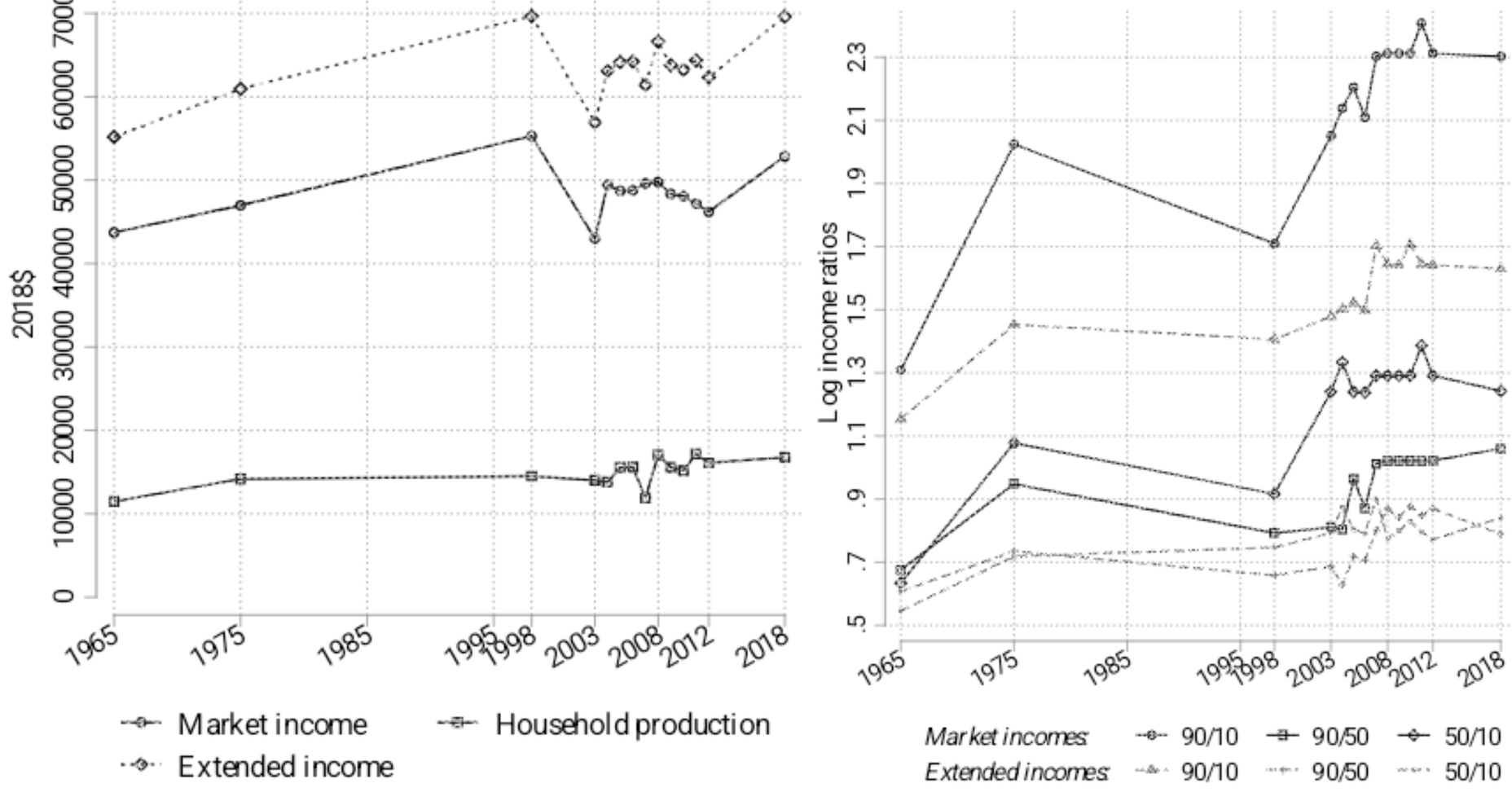
(a). Inequality measures **(b)**. Log differentials (level change from 1965)



Source: Same as Figure 4. Market income and time devoted household production (valued at housekeeper wages) are equivalized and expressed in 2018 dollars. Extended incomes are the sum of market incomes and the imputed value of time devoted to household production.

Appendix C

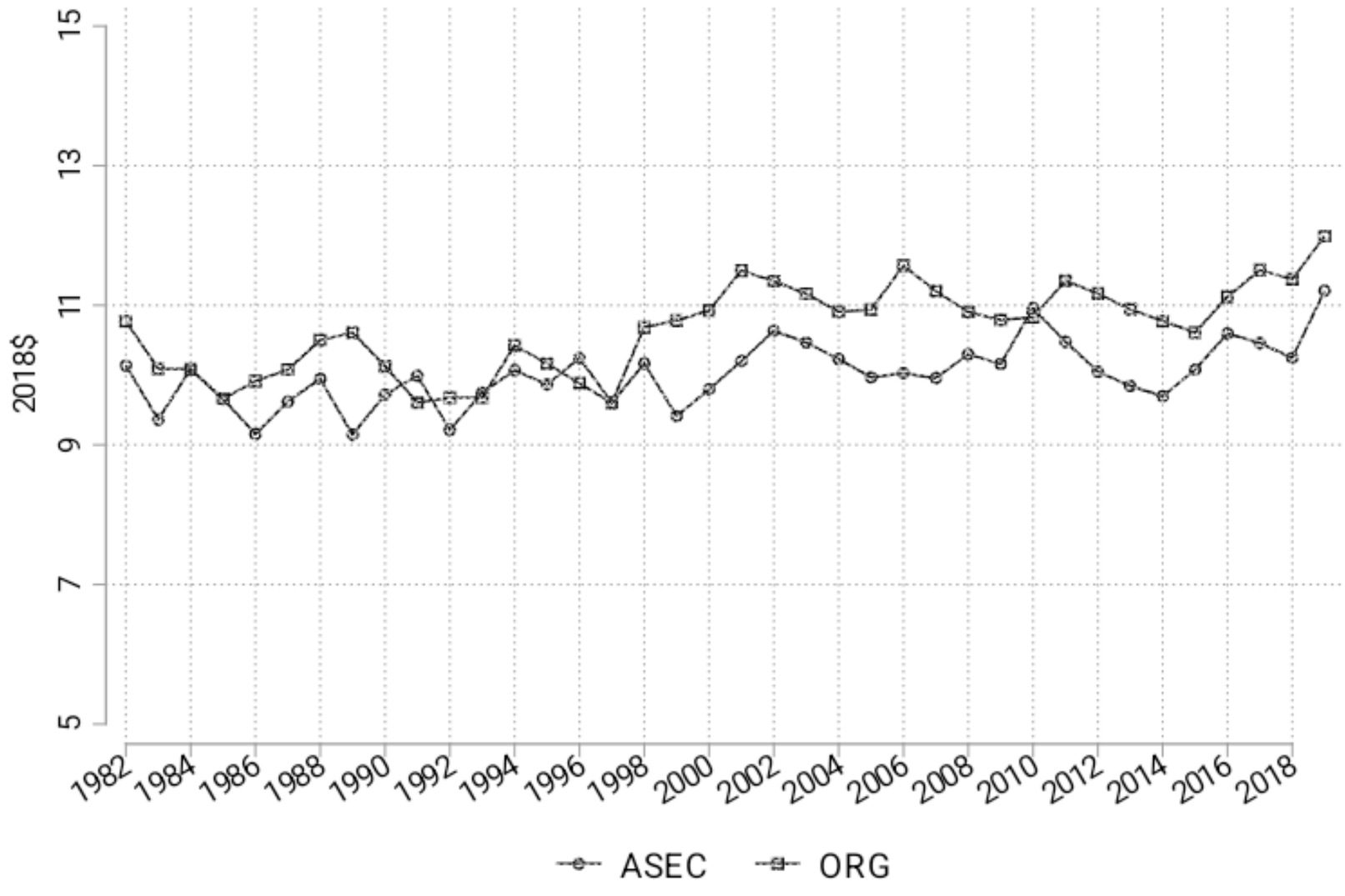
Figure C.1. *Trends in market and extended household incomes (AHTUS).*



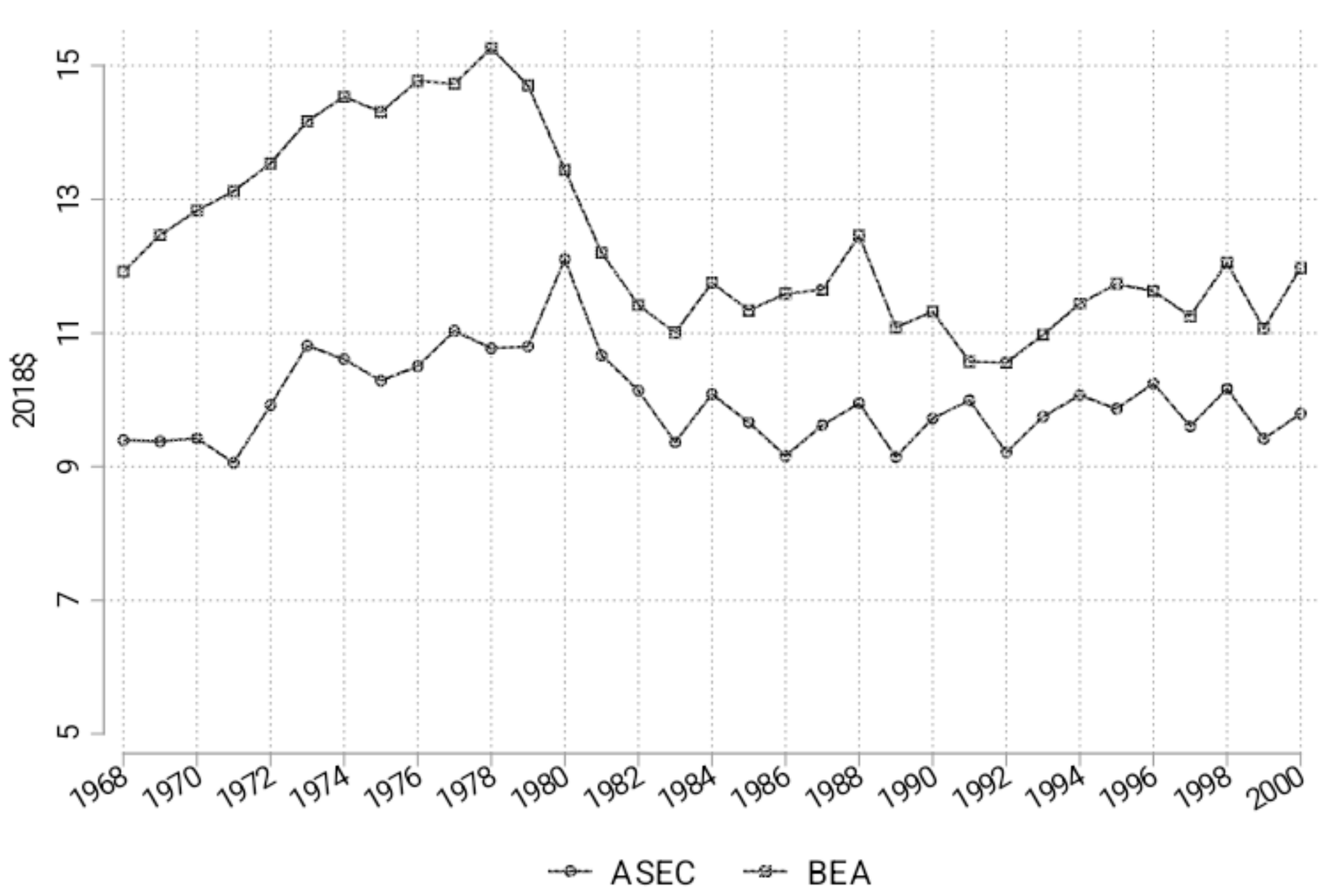
Source: American Heritage Time Use Study (AHTUS) for families with at most two (married) adults. 1985 and 1995 excluded as data on household incomes not collected. Extended income defined as the sum of market income and a replacement cost valuation of household production time at wages of maids and housekeeping cleaners. We use mid-points for market income categories and apply a 1.5 conversion for the top income category (for e.g., for the 2003-2018 samples, all incomes over $150,000 were grouped under a single category, to which we apply a value of $225,000. We use CPI deflators to convert household incomes to 2018 dollars. We estimate mean time devoted to housework and childcare for non-respondents based on their own and (if married) their spouse's employment characteristics and hours of work, the presence of children under 18 and under 5, age, and educational attainment. We restrict our attention to single-adult households or to households with at most two (married) adults. Market incomes are equivalized using the square root scale $(A + K)^{0.5}$*, and the value of household production is equivalized by* $(A + 2K)^{0.5}$*; where A and K denote the number of adults and children in the household, respectively.*

Figure C.2. *Wages of maids and housekeepers (ORG, BEA, and ASEC).*

(a). *Comparing ORG with ASEC (1982-2018)*

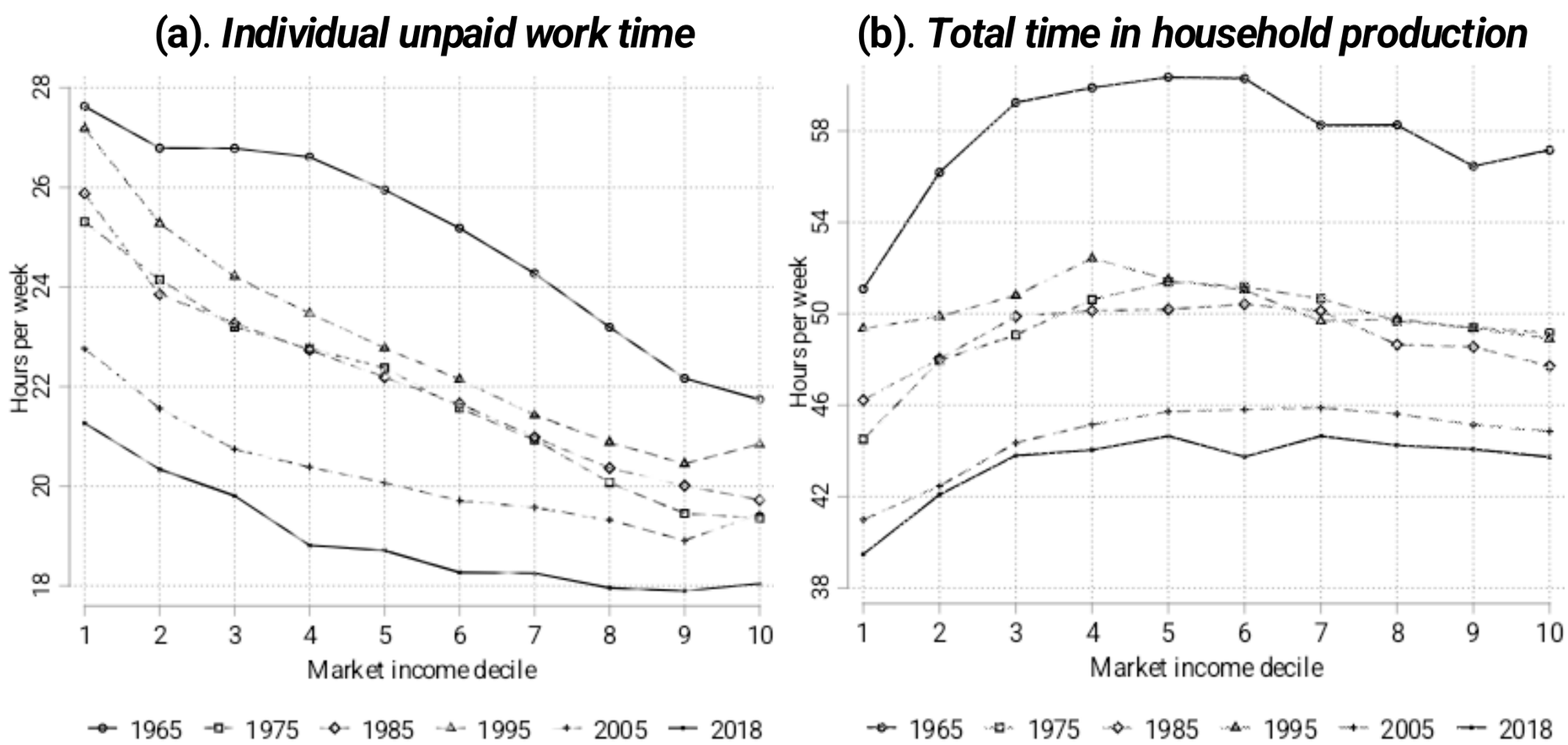


(b). *Comparing BEA with ASEC (1968-2000)*



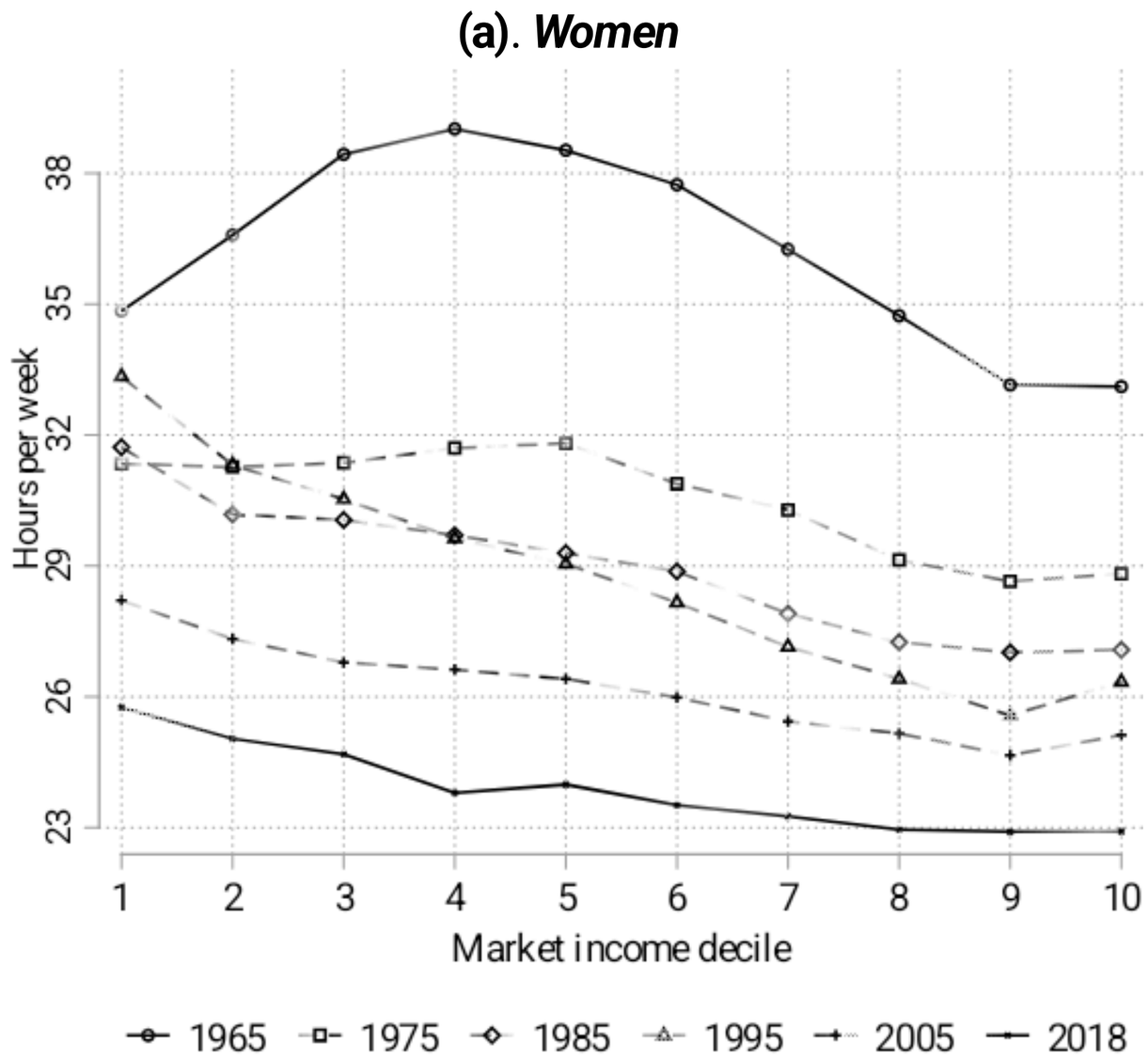
Source: *CPS ASEC and ORG. National year-specific medians for the wages of maids and housekeeping cleaners used. ORG hourly wages used for workers who reported being paid by the hour. BEA wages, following Bridgman (2016) are obtained from compensation and full time equivalent (FTE) employees of private households, NIPA tables 6.2 and 6.5 for "private households". Converted to hourly compensation by assuming a FTE works 2080 hours a week. Tables for 2000 onwards do not contain "private households" owing to a change in industry codes (from SIC to NAICS). Note that in panel (b), the BEA wages series is based on industry rather than occupational category and uses an average rather median wage measure.*

Figure C.3. *Unpaid work time and total household production by income deciles*.

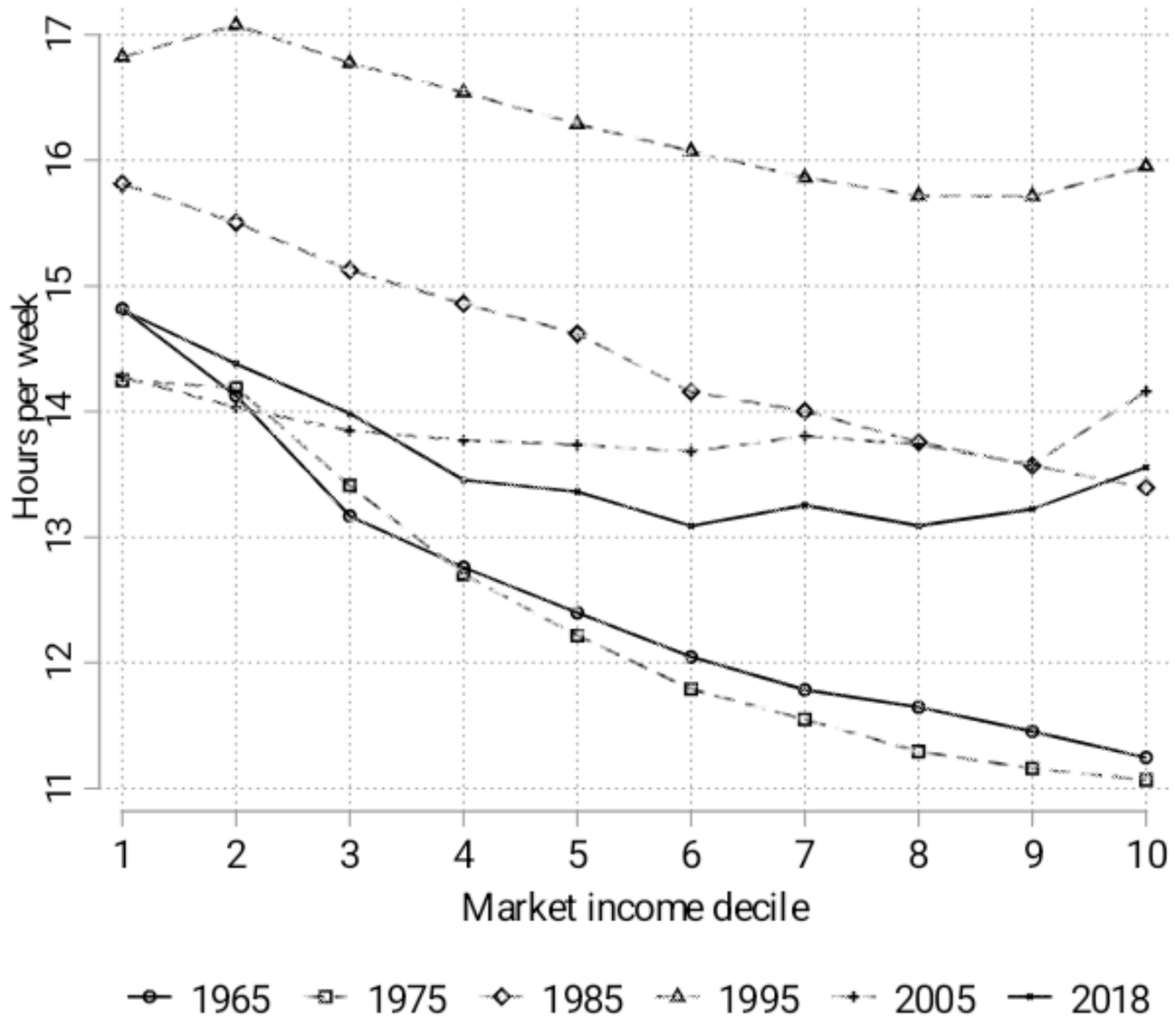


Source: American Heritage Time Use Study (AHTUS) for 1965-2018, and CPS ASEC 1968-2019. See text for details on how AHTUS was combined with ASEC. Market incomes equivalized by square root scale. Total household production defined as sum of unpaid work time by all household adults. Households assigned to decile groups by market income distribution in each year and mean unpaid work and total household production time within decile group is computed.

Figure C.4. *Individual unpaid work time by market income decile*.

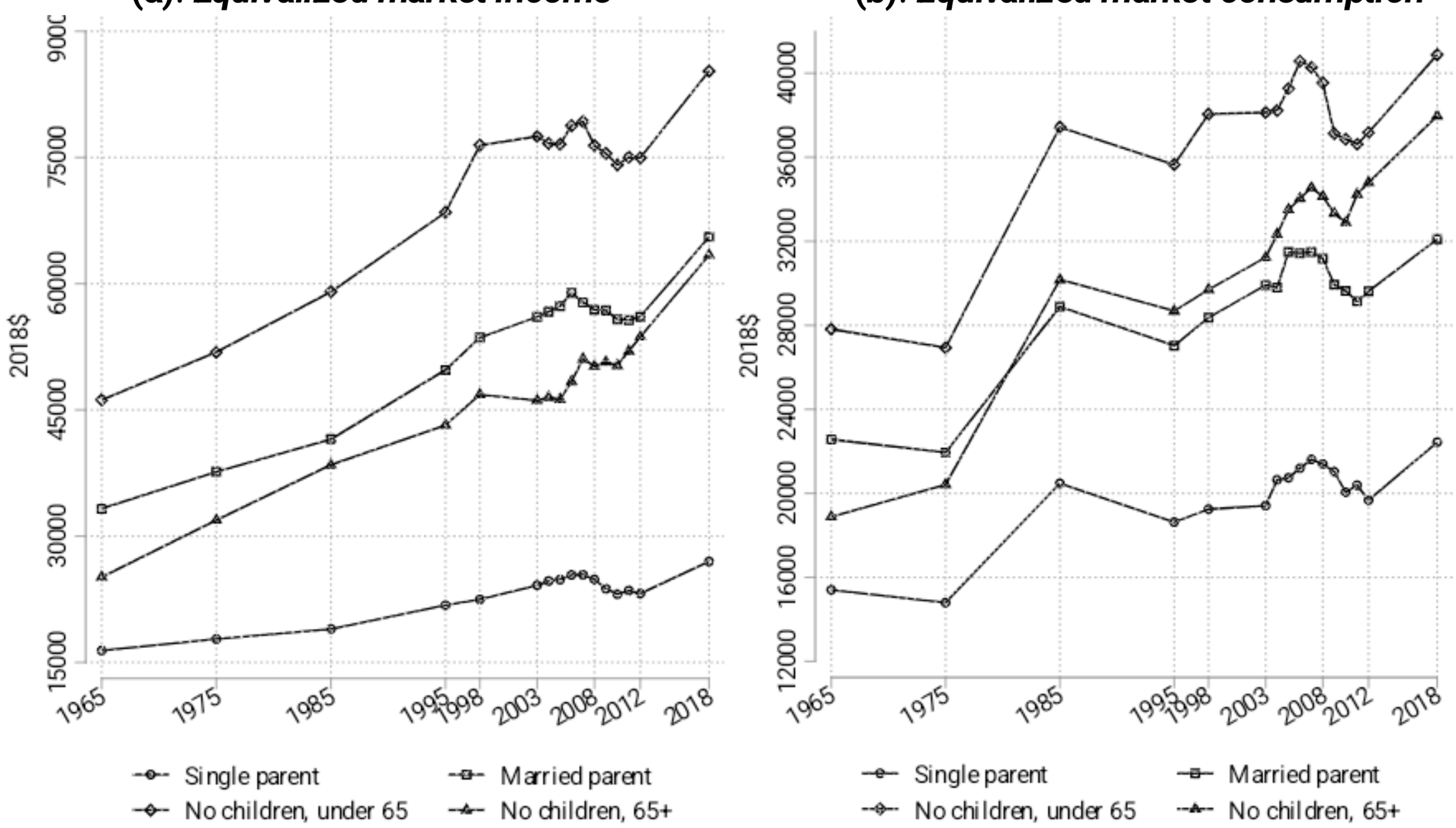


(b). *Men*



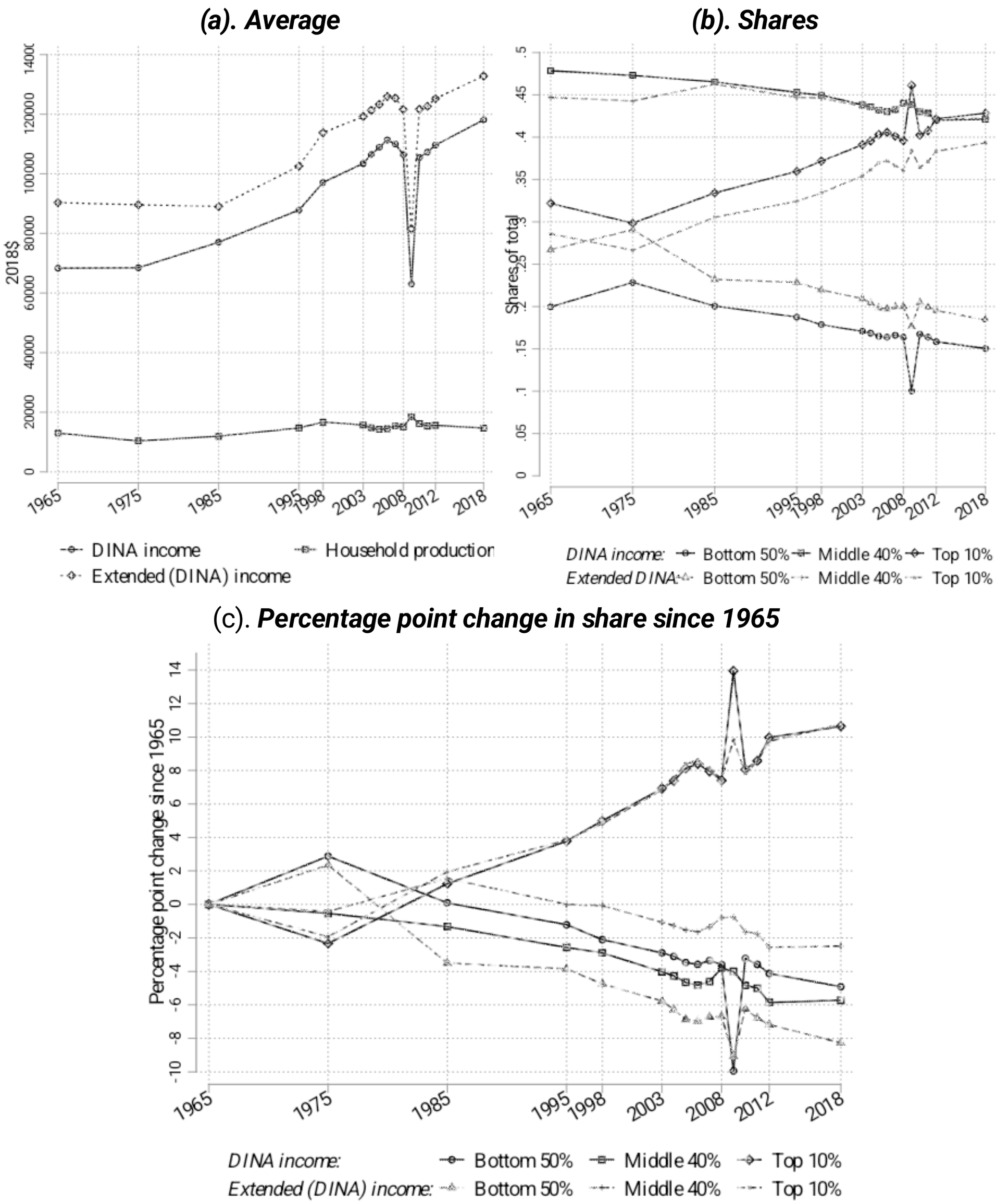
Source: American Heritage Time Use Study (AHTUS) for 1965-2018, and CPS ASEC 1968-2019. See text for details on how AHTUS was combined with ASEC. Market incomes equivalized by square root scale. Households assigned to decile groups by market income distribution in each year and mean unpaid work by gender within decile group is computed.

Figure C.5. *Trends in average market incomes and consumption by household composition.*



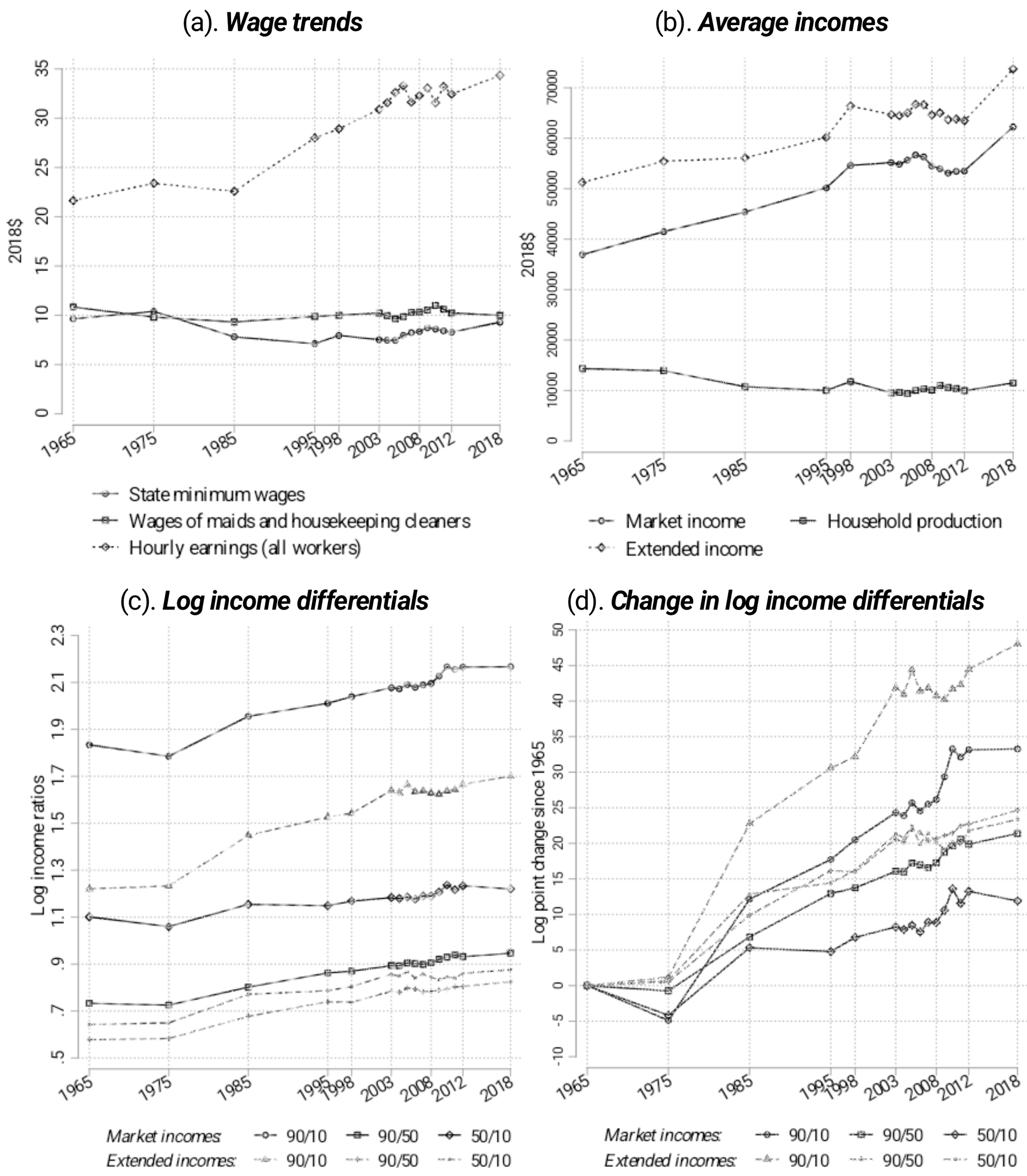
Source: *Same as Figure 4. Households divided into four mutually exclusive (but not exhaustive) groups: single adults with a child under 18 in the household ("single parents"), married couples with a child under 18 in the household ("married parents"), married couples both aged under 65 without children in the household, and married couples with at least one of them aged 65 or over and without children in the household. Unmarried people without children and married people living with one or two other adults form the rest of the sample. Panel (a) reports shares out of all households; because the share of households with children has declined over time, the share of "single-parent" (one-adult-with-child) households among all households is relatively flat even though single-parenthood among families with children rose.*

Figure C.6. *Post-tax DINA and extended DINA income (AHTUS and PSZ-DINA).*



Source: PSZ microfiles (1966-2018) and American Heritage Time Use Study (AHTUS) for 1965-2018. See Appendix A.3 for definition of DINA income, and extended DINA income and details on how AHTUS combined with PSZ-DINA. In panel (c), percentage point changes are constructed by subtracting the 1965 share from the current share and multiplying by 100.

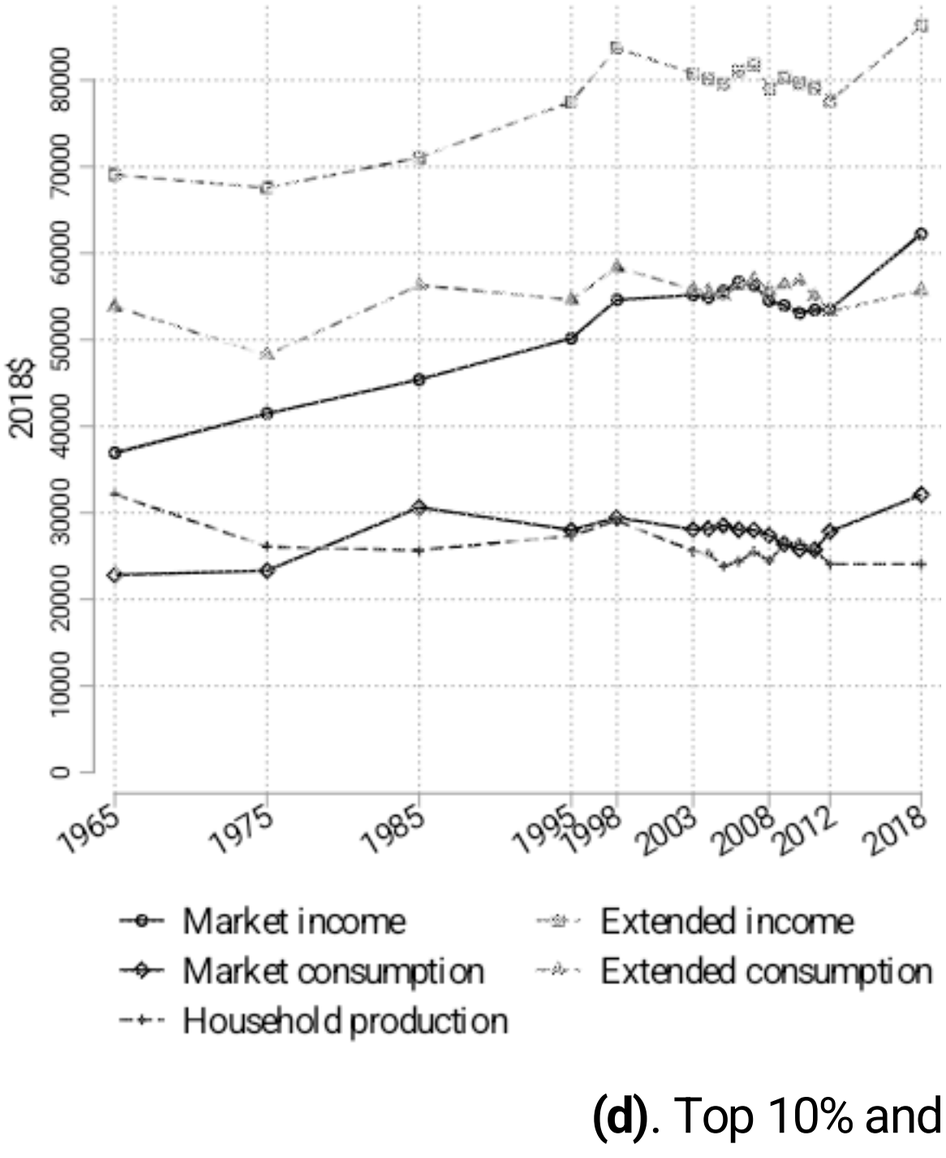
Figure C.7. *Trends in market and extended household incomes (AHTUS and CPS ASEC): State-level minimum wages used to value household production time.*



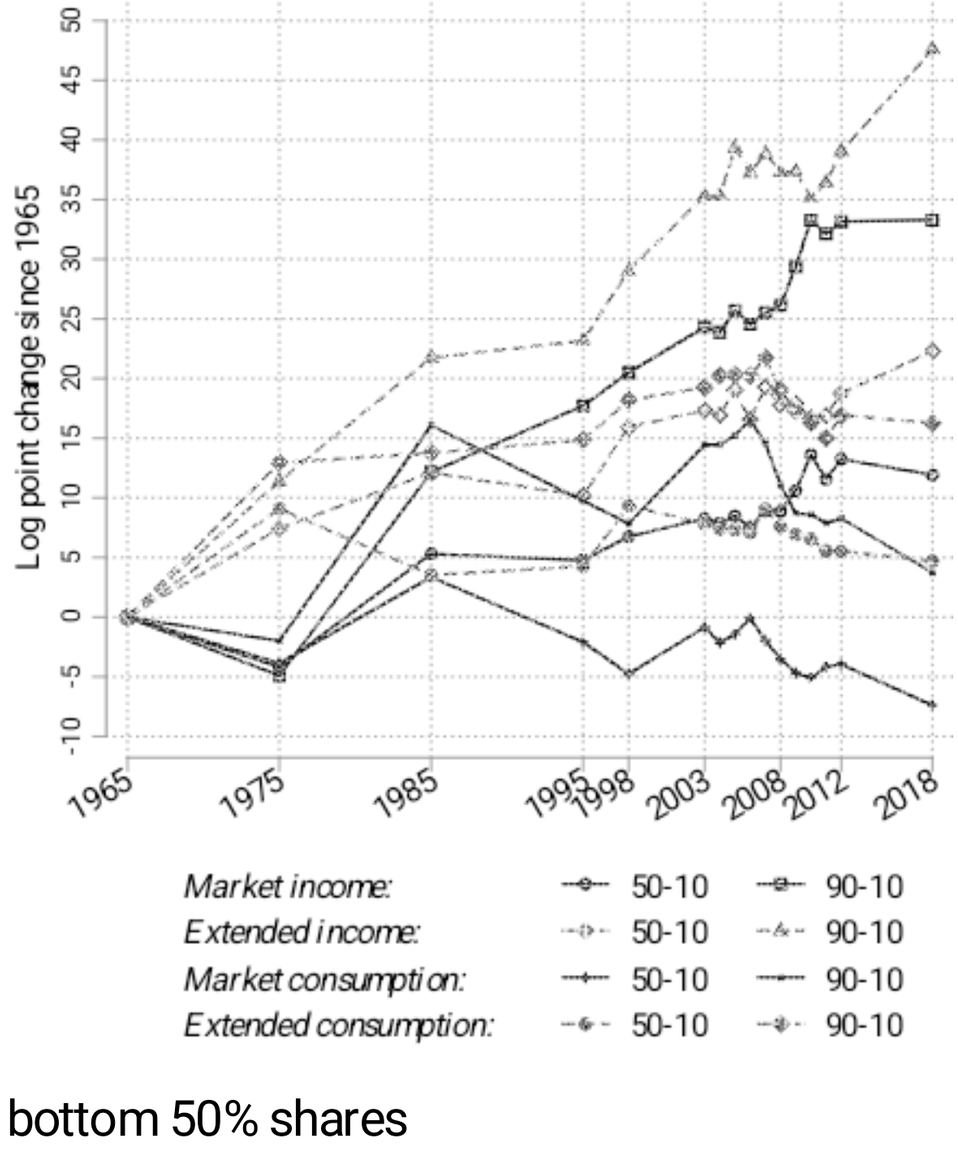
Source: Same as Figure 4. State-level minimum wages in panel (a) are weighted by state populations. Hourly earnings for all workers are year-specific national median hourly wages calculated for all full-time adult workers in the CPS ASEC. Panels (b)-(d) use the state-level minimum wage to value time devoted to household production.

Figure C.8. *Trends in market and extended household incomes (household production time valued at twice the housekeeper wage)*.

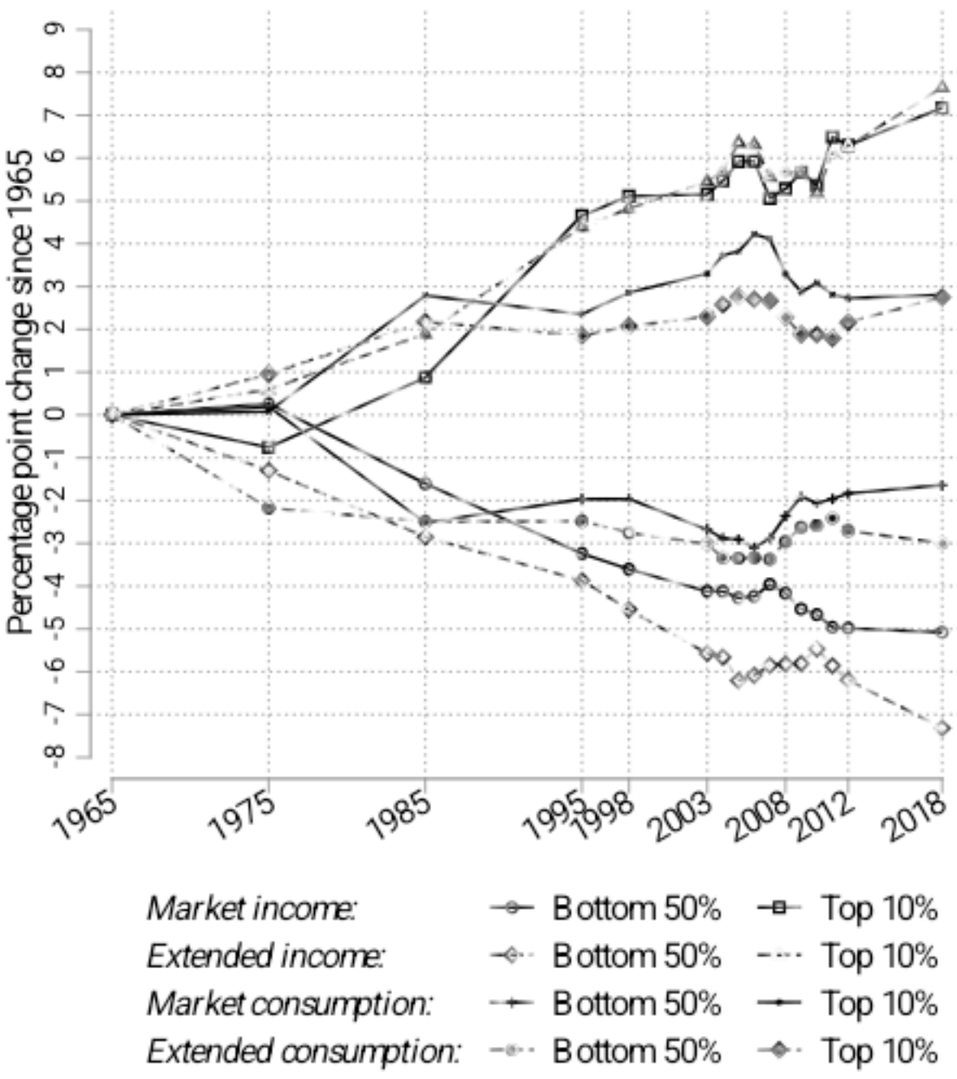
(a). Averages



(b). 90-10 and 50-10 log differentials

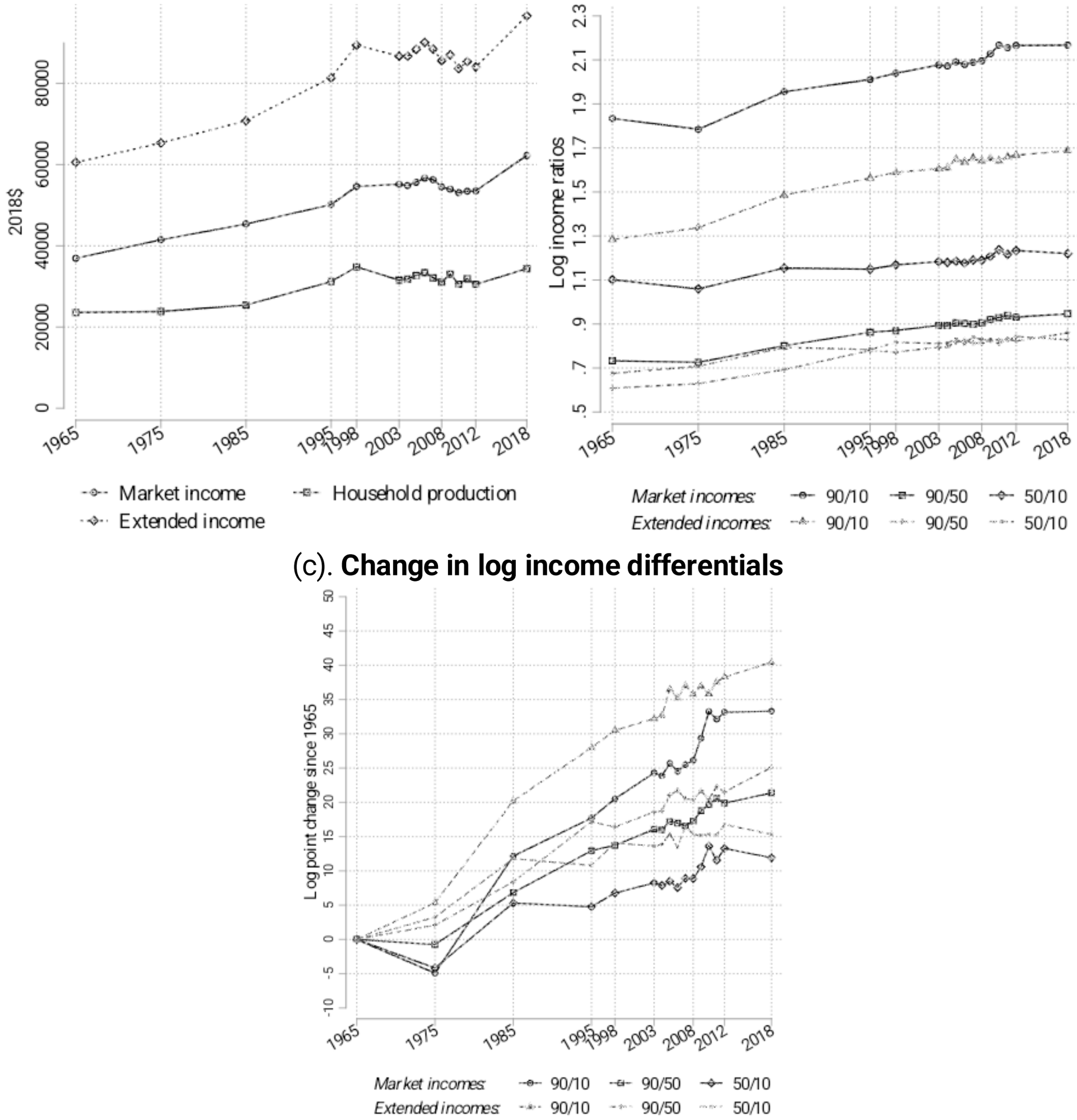


(d). Top 10% and bottom 50% shares



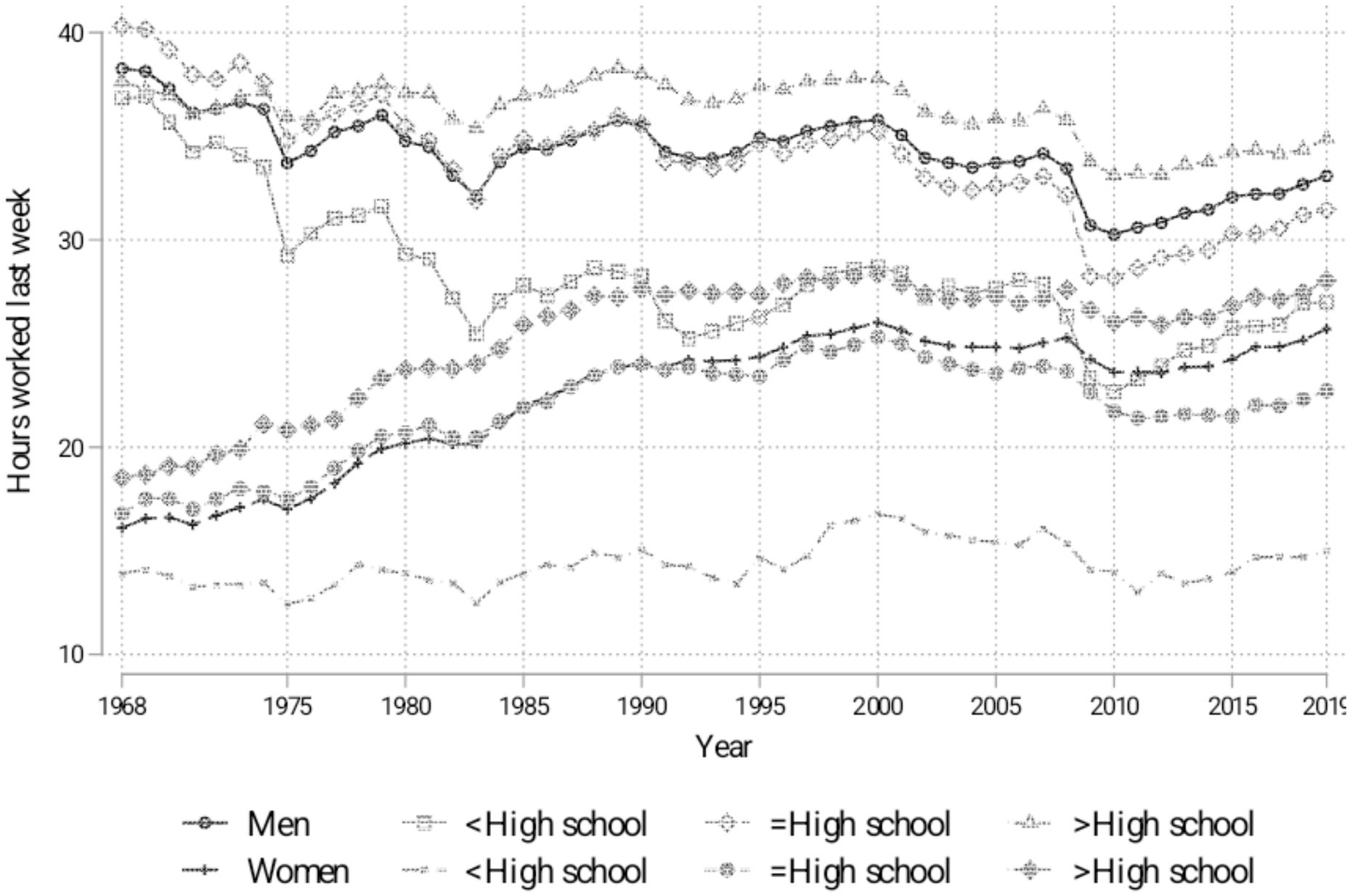
Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. See text for details on how AHTUS was combined with ASEC and CES. Market income, monetary consumption, and time devoted household production (valued at twice the housekeeper wage) are equivalized and expressed in 2018 dollars. Extended income (consumption) is the sum of market income (consumption) and the imputed value of time devoted to household production.

Figure C.9. *Trends in market and extended household incomes (household production time valued at opportunity cost).*



Source: American Heritage Time Use Study (AHTUS) for 1965-2018, and CPS ASEC 1968-2019. See text for definition of household production and details on how AHTUS was combined with ASEC. Market income and time devoted to household production (valued at individual wage rates) are equivalized and expressed in 2018 dollars. Wage rates for the non-employed imputed from median wages in their respective education-age (9 groups)-gender group wages in the ASEC. Extended incomes are the sum of market incomes and the imputed value of time devoted to household production.

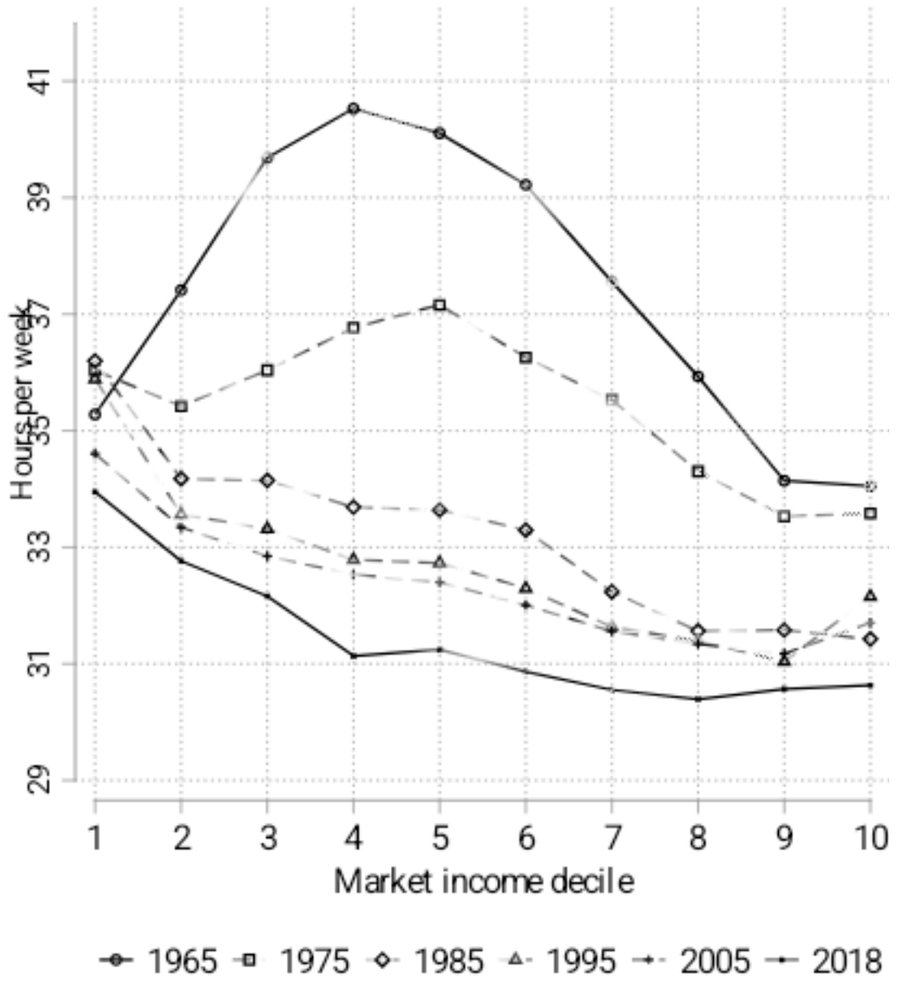
Figure C.10. *Average hours of paid work, by gender and education.*



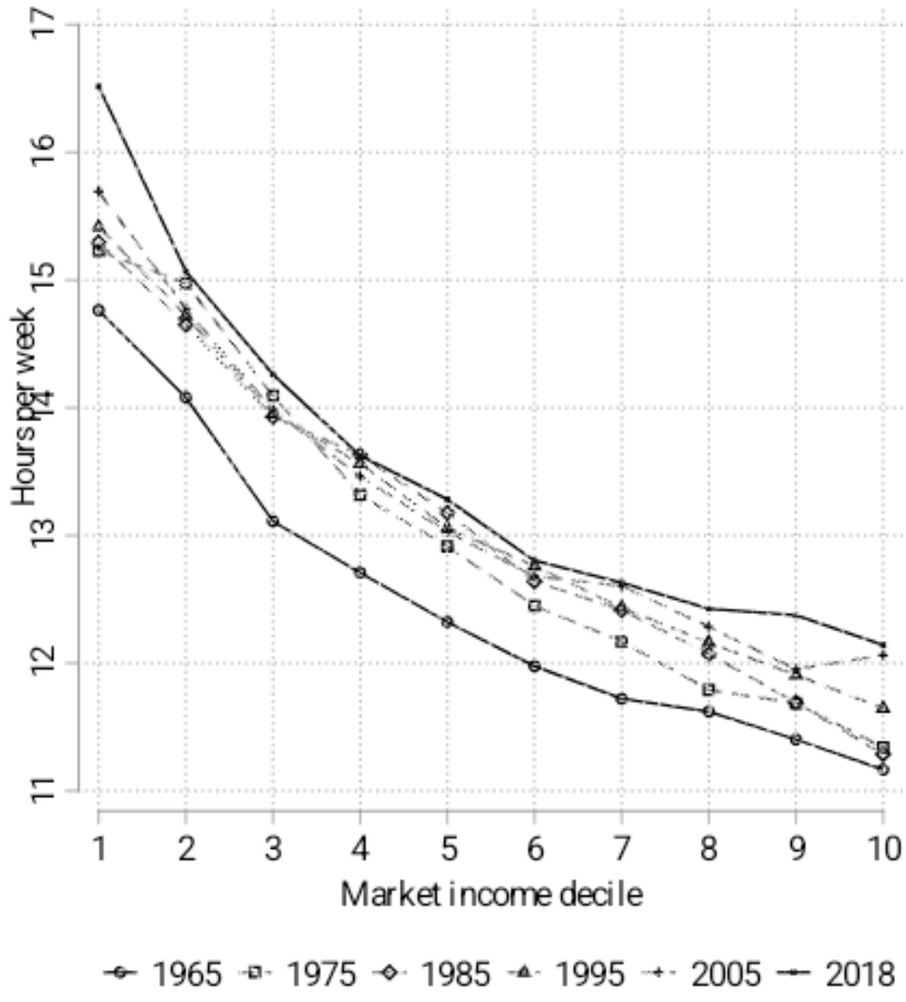
Source: CPS Annual Social and Economic Supplement (ASEC), ages 20-60. Hours are not conditional on being employed (i.e., zero hours for the non-employed are included).

Figure C.11. *Time devoted to household production (1965 coefficients).*

(a). ***Individual unpaid work (women)***



(b). ***Individual unpaid work (men)***



(c). ***Average incomes differentials***

(d). ***Change in log income***

Source: Same as Figure 3. In our predictions of unpaid work for individuals in the ASEC, we use coefficients from regressions of unpaid work on observable characteristics from the 1965 time use survey.

Table C.1. Sample means for AHTUS (Men)

	1965	1975	1985	1995	1998	2003	2012
Unpaid work time (hours per week)	11.83	12.48	14.38	15.91	17.36	15.23	14.59
Age (ref: 18-24)							
25-29	0.10	0.12	0.13	0.10	0.10	0.08	0.08
30-34	0.08	0.11	0.12	0.12	0.10	0.12	0.10
35-39	0.11	0.09	0.12	0.12	0.08	0.10	0.09
40-44	0.10	0.09	0.08	0.11	0.08	0.11	0.09
45-49	0.10	0.08	0.07	0.09	0.07	0.10	0.09
50-54	0.09	0.05	0.08	0.07	0.07	0.09	0.10
55-59	0.08	0.08	0.06	0.07	0.07	0.07	0.09
60+	0.21	0.23	0.18	0.20	0.25	0.19	0.24
# adults (ref: 1)							
2	0.74	0.67	0.60	0.60	0.57	0.60	0.54
3	0.13	0.14	0.17	0.10	0.13	0.13	0.13
4+	0.03	0.04	0.12	0.05	0.07	0.06	0.07
# children (ref: 0)							
1	0.17	0.15	0.19	0.16	0.15	0.18	0.17
2	0.17	0.15	0.13	0.13	0.11	0.16	0.15
3	0.10	0.08	0.04	0.05	0.04	0.06	0.06
4+	0.09	0.07	0.02	0.02	0.04	0.02	0.02
# children<5 (ref: 0)							
1	0.15	0.10	0.08	0.12	0.12	0.12	0.12
2+	0.10	0.04	0.03	0.04	0.06	0.05	0.04
Education (ref:<HS)							
HS	0.32	0.32	0.40	0.30	0.33	0.28	0.27
Some College	0.14	0.15	0.17	0.26	0.24	0.19	0.20
Bachelor's	0.12	0.11	0.17	0.19	0.17	0.27	0.29
Post-college	0.04	0.12	0.09	0.14	0.18	0.11	0.12
Paid work hours (ref: zero)							
1-25	0.04	0.05	0.07	0.21	0.04	0.05	0.06
26-38	0.07	0.05	0.05	0.03	0.05	0.06	0.06
39-45	0.35	0.36	0.35	0.14	0.28	0.35	0.34
46-50	0.17	0.14	0.10	0.23	0.17	0.11	0.09
51+	0.23	0.15	0.14	0.21	0.19	0.14	0.11
Spouse's employment (ref: not married)							
Not employed	0.58	0.43	0.33	0.55	0.19	0.25	0.23
Employed	0.26	0.31	0.36	0.40	0.35	0.38	0.33
Black	0.06	0.05		0.12	0.08	0.10	0.14
Weekend	0.28	0.28	0.29	0.29	0.28	0.29	0.29

N	1216	1964	1340	485	494	8570	5285

Source: AHTUS, men aged 18+. For readability, only the years 2003 and 2012 of the ATUS are shown.

Table C.2. Sample means for AHTUS (Women)

	1965	1975	1985	1995	1998	2003	2012
Unpaid work time (hours per week)	37.21	30.12	28.59	27.57	26.62	27.56	25.56
Age (ref: 18-24)							
25-29	0.09	0.11	0.12	0.09	0.06	0.07	0.08
30-34	0.09	0.10	0.12	0.12	0.10	0.11	0.10
35-39	0.09	0.09	0.12	0.10	0.07	0.10	0.08
40-44	0.11	0.06	0.09	0.10	0.08	0.10	0.08
45-49	0.09	0.09	0.08	0.09	0.09	0.10	0.09
50-54	0.09	0.08	0.07	0.08	0.06	0.09	0.09
55-59	0.07	0.07	0.07	0.05	0.11	0.08	0.09
60+	0.22	0.26	0.19	0.24	0.29	0.23	0.26
# adults (ref: 1)							
2	0.66	0.57	0.56	0.57	0.53	0.54	0.48
3	0.12	0.10	0.16	0.10	0.12	0.11	0.12
4+	0.03	0.04	0.09	0.06	0.06	0.05	0.05
# children (ref: 0)							
1	0.14	0.16	0.18	0.19	0.18	0.20	0.19
2	0.16	0.15	0.13	0.13	0.14	0.18	0.17
3	0.10	0.10	0.04	0.08	0.05	0.06	0.06
4+	0.09	0.06	0.02	0.03	0.02	0.02	0.03
# children<5 (ref: 0)							
1	0.13	0.10	0.08	0.12	0.12	0.14	0.13
2+	0.08	0.03	0.03	0.06	0.08	0.05	0.05
Education (ref:<HS)							
HS	0.40	0.43	0.45	0.35	0.31	0.30	0.26
Some College	0.13	0.16	0.19	0.28	0.32	0.20	0.20
Bachelor's	0.08	0.07	0.15	0.17	0.17	0.27	0.31
Post-college	0.02	0.04	0.06	0.07	0.12	0.09	0.12
Paid work hours (ref: zero)							
1-25	0.06	0.10	0.12	0.19	0.11	0.10	0.11
26-38	0.08	0.09	0.10	0.02	0.09	0.10	0.10
39-45	0.22	0.21	0.22	0.12	0.31	0.28	0.25
46-50	0.04	0.03	0.04	0.22	0.07	0.04	0.04
51+	0.03	0.02	0.04	0.14	0.08	0.04	0.04
Spouse's employment (ref: not married)							
Not employed	0.08	0.23	0.17	0.51	0.14	0.12	0.12
Employed	0.62	0.37	0.44	0.44	0.39	0.42	0.36
Black	0.06	0.08	0.08	0.15	0.14	0.13	0.17
Weekend	0.29	0.28	0.29	0.29	0.29	0.29	0.29

N	1563	2620	1581	714	657	11189	6690

Source: AHTUS, women aged 18+. For readability, only the years 2003 and 2012 of the ATUS are shown.

Table C.3. Predicting Unpaid Work in the AHTUS (Men)

	1965	1975	1985	1995	1998	2003	2012
Age (ref: 18-24)							
25-29	3.7**	2.4*	0.5	-3.5	1.3	0.8	3.9***
	(1.7)	(1.4)	(1.9)	(3.8)	(3.6)	(0.9)	(1.1)
30-34	2.9	2.5	3.5*	1.1	9.1**	2.5***	3.4***
	(1.9)	(1.5)	(1.9)	(3.7)	(3.6)	(0.9)	(1.1)
35-39	3.7**	2.6	3.9*	3.9	6.3*	3.3***	4.6***
	(1.8)	(1.7)	(2.0)	(3.8)	(3.8)	(0.9)	(1.2)
40-44	4.3**	1.6	5.4**	2.3	8.0**	3.6***	3.8***
	(1.8)	(1.6)	(2.3)	(3.9)	(3.9)	(0.9)	(1.2)
45-49	3.9**	4.4**	2.3	9.6**	4.8	2.6***	3.9***
	(1.8)	(1.7)	(2.3)	(4.0)	(4.0)	(0.9)	(1.2)
50-54	4.2**	7.4***	0.5	3.4	0.7	2.7***	4.4***
	(1.8)	(1.9)	(2.3)	(4.3)	(4.1)	(0.9)	(1.1)
55-59	7.3***	4.1**	3.8	4.4	13.1***	4.4***	4.7***
	(1.9)	(1.6)	(2.4)	(4.6)	(4.1)	(1.0)	(1.2)
60+	4.3**	7.0***	4.5**	8.3**	4.6	2.5***	3.6***
	(1.7)	(1.5)	(2.0)	(3.8)	(3.5)	(0.9)	(1.0)
# adults (ref: 1)							
2	-3.1*	-3.0**	-2.5	-0.9	-1.1	-3.0***	-1.0
	(1.6)	(1.4)	(1.8)	(2.7)	(2.8)	(0.8)	(0.9)
3	-3.9**	-3.1**	-1.5	-3.2	0.2	-4.8***	-3.4***
	(1.8)	(1.5)	(1.9)	(3.7)	(3.4)	(0.8)	(1.0)
4+	-5.6**	-6.5***	-4.2**	-5.3	-2.1	-5.1***	-3.7***
	(2.5)	(2.3)	(2.1)	(4.6)	(3.9)	(1.0)	(1.2)
# children (ref: 0)							
1	3.0**	2.2*	2.4*	0.9	1.0	4.4***	3.5***
	(1.3)	(1.2)	(1.3)	(3.1)	(2.7)	(0.6)	(0.8)
2	4.8***	3.3**	0.6	6.6**	5.4	6.2***	6.0***
	(1.4)	(1.3)	(1.6)	(3.2)	(3.7)	(0.7)	(0.9)
3	3.9**	3.3**	5.1*	9.8**	7.5	7.4***	6.3***
	(1.7)	(1.5)	(2.6)	(4.7)	(5.0)	(0.9)	(1.2)
4+	4.1**	2.8*	11.9***	8.6	6.6	7.9***	6.3***
	(1.8)	(1.6)	(3.6)	(6.7)	(5.1)	(1.4)	(1.7)
# children<5 (ref: 0)							
1	-0.5	1.8	1.7	6.9*	7.8**	3.8***	6.3***
	(1.4)	(1.3)	(1.9)	(3.6)	(3.4)	(0.7)	(0.9)
2+	1.0	3.0	1.4	2.1	5.7	6.6***	6.6***
	(1.8)	(2.0)	(2.8)	(5.4)	(4.6)	(1.1)	(1.4)
Education (ref:<HS)							
HS	1.6	0.0	1.0	-1.2	-3.5	2.8***	1.4*

	(1.0)	(1.0)	(1.3)	(3.1)	(3.4)	(0.6)	(0.8)
Some College	0.3	0.5	-0.0	0.7	-4.1	3.6***	2.7***
	(1.3)	(1.2)	(1.6)	(3.1)	(3.6)	(0.7)	(0.9)
Bachelor's	2.1	1.7	2.3	4.5	-4.2	4.3***	2.9***
	(1.3)	(1.3)	(1.6)	(3.4)	(3.8)	(0.7)	(0.8)
Post-college	-0.1	-0.7	1.3	-1.4	-4.2	4.3***	3.6***
	(2.1)	(1.2)	(1.9)	(3.6)	(3.7)	(0.8)	(1.0)
Paid work hours (ref: zero)							
1-25	-2.8	-4.6***	-3.8**	3.2	-2.4	-5.1***	-3.4***
	(2.4)	(1.7)	(1.9)	(3.3)	(4.4)	(0.9)	(1.0)
26-38	-8.6***	-5.0***	-5.5***	2.7	-6.5	-5.7***	-6.2***
	(2.0)	(1.7)	(2.1)	(5.6)	(4.2)	(0.9)	(1.1)
39-45	-8.5***	-5.4***	-4.8***	-1.5	-5.4**	-6.3***	-5.8***
	(1.5)	(1.1)	(1.3)	(3.4)	(2.6)	(0.6)	(0.6)
46-50	-9.4***	-5.4***	-8.1***	-5.8*	-7.5**	-8.5***	-9.5***
	(1.7)	(1.4)	(1.7)	(3.2)	(3.1)	(0.7)	(0.9)
51+	-11.8***	-8.6***	-9.0***	-6.6**	-4.5	-8.4***	-10.2***
	(1.6)	(1.3)	(1.6)	(3.2)	(3.0)	(0.7)	(0.9)
Spouse's employment (ref: not married)							
Not employed	0.5	1.3	0.4	-0.9	6.1*	0.8	1.0
	(1.4)	(1.3)	(1.6)	(2.5)	(3.3)	(0.8)	(0.9)
Employed	1.9	2.3*	3.7**	0.0	6.2**	3.3***	4.1***
	(1.5)	(1.3)	(1.5)	(.)	(2.7)	(0.7)	(0.9)
Black	-0.8	-2.2		-4.9*	-8.0***	-2.7***	-1.3*
	(1.7)	(1.6)		(2.7)	(3.1)	(0.7)	(0.7)
Constant	15.4***	13.1***	14.7***	13.6***	15.8***	13.0***	10.3***
	(2.1)	(1.6)	(2.3)	(4.6)	(4.6)	(1.0)	(1.2)
Observations	1216	1964	1340	485	494	8570	5285
R-squared	0.09	0.08	0.08	0.14	0.17	0.09	0.11

Source: AHTUS, men aged 18+. For readability, only the years 2003 and 2012 of the ATUS are shown.
Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table C.4. Predicting Unpaid Work in the AHTUS (Women)

	1965	1975	1985	1995	1998	2003	2012
Age (ref: 18-24)							
25-29	6.6***	8.9***	3.5*	2.5	5.0	5.9***	5.2***
	(2.1)	(1.6)	(1.9)	(3.9)	(4.1)	(0.9)	(1.2)
30-34	7.5***	5.2***	5.6***	5.5	8.3**	6.0***	7.4***
	(2.2)	(1.6)	(2.0)	(3.7)	(3.7)	(0.9)	(1.1)
35-39	6.1***	4.8***	6.7***	3.5	9.6**	10.5***	7.5***
	(2.2)	(1.8)	(2.0)	(3.8)	(4.3)	(0.9)	(1.2)
40-44	6.6***	7.6***	6.6***	4.1	9.2**	9.9***	9.2***
	(2.1)	(1.9)	(2.2)	(3.9)	(4.0)	(0.9)	(1.2)
45-49	11.7***	8.4***	5.6**	9.0**	4.6	8.9***	9.8***
	(2.1)	(1.7)	(2.2)	(4.0)	(3.9)	(0.9)	(1.2)
50-54	10.3***	13.7***	3.6	10.0**	11.3***	8.7***	6.9***
	(2.2)	(1.7)	(2.3)	(4.1)	(4.3)	(0.9)	(1.1)
55-59	11.6***	14.0***	7.6***	3.8	5.5	8.0***	8.8***
	(2.3)	(1.8)	(2.3)	(5.0)	(3.8)	(0.9)	(1.2)
60+	4.1**	7.2***	4.9***	5.5	4.1	7.9***	7.6***
	(2.1)	(1.5)	(1.9)	(3.7)	(3.5)	(0.8)	(1.0)
# adults (ref: 1)							
2	1.9	1.5	-3.3**	0.5	1.4	0.2	-2.4***
	(1.8)	(1.2)	(1.6)	(2.7)	(2.8)	(0.7)	(0.8)
3	-0.5	1.2	-4.0**	-2.9	-0.4	-2.8***	-4.5***
	(2.0)	(1.6)	(1.8)	(3.6)	(3.4)	(0.8)	(1.0)
4+	2.6	-1.1	-6.9***	-4.0	-4.9	-1.0	-6.7***
	(3.1)	(2.0)	(2.1)	(4.3)	(4.0)	(1.0)	(1.3)
# children (ref: 0)							
1	6.3***	5.1***	3.9***	9.5***	6.1**	6.3***	8.0***
	(1.7)	(1.3)	(1.4)	(2.8)	(2.7)	(0.6)	(0.8)
2	8.2***	10.5***	4.6***	13.5***	5.0	11.4***	12.0***
	(1.7)	(1.3)	(1.7)	(3.2)	(3.4)	(0.7)	(0.9)
3	14.5***	11.7***	1.4	16.3***	10.3**	14.6***	14.8***
	(2.1)	(1.6)	(2.8)	(4.0)	(4.7)	(0.9)	(1.2)
4+	15.1***	15.6***	8.3**	20.9***	14.9**	15.8***	14.7***
	(2.3)	(1.9)	(3.5)	(6.2)	(6.4)	(1.4)	(1.6)
# children<5 (ref: 0)							
1	6.8***	4.7***	14.0***	10.5***	8.1**	9.3***	8.3***
	(1.7)	(1.4)	(2.0)	(3.2)	(3.2)	(0.7)	(0.9)
2+	11.5***	10.4***	20.7***	4.8	15.7***	12.4***	15.1***
	(2.2)	(2.5)	(3.3)	(4.5)	(4.2)	(1.0)	(1.3)
Education (ref:<HS)							
HS	-0.5	-3.7***	1.7	-3.6	3.8	2.0***	1.4

	(1.1)	(1.0)	(1.4)	(2.9)	(3.4)	(0.6)	(0.9)
Some College	-2.3	-1.1	1.5	-0.8	0.7	0.6	1.2
	(1.5)	(1.2)	(1.7)	(3.0)	(3.4)	(0.7)	(0.9)
Bachelor's	3.7**	-0.4	2.0	2.9	3.9	1.9***	2.8***
	(1.8)	(1.6)	(1.8)	(3.3)	(3.8)	(0.7)	(0.9)
Post-college	-3.3	-2.9	1.9	-3.2	-0.2	1.1	0.5
	(3.1)	(1.9)	(2.3)	(4.2)	(3.9)	(0.8)	(1.0)
Paid work hours (ref: zero)							
1-25	-9.4***	-5.0***	-6.1***	-6.4**	-4.4	-4.2***	-3.5***
	(2.1)	(1.3)	(1.5)	(2.7)	(3.1)	(0.7)	(0.8)
26-38	-12.6***	-10.5***	-11.6***	-11.6	-10.1***	-8.1***	-8.7***
	(1.8)	(1.3)	(1.7)	(7.2)	(3.3)	(0.7)	(0.9)
39-45	-14.7***	-12.4***	-11.4***	-13.7***	-14.1***	-11.0***	-10.3***
	(1.3)	(1.0)	(1.3)	(3.1)	(2.5)	(0.5)	(0.7)
46-50	-17.3***	-16.3***	-17.3***	-12.7***	-17.3***	-11.4***	-12.4***
	(2.4)	(2.4)	(2.5)	(2.7)	(3.8)	(1.0)	(1.3)
51+	-17.5***	-16.6***	-10.8***	-20.7***	-16.4***	-13.3***	-14.1***
	(2.8)	(2.9)	(2.5)	(3.0)	(3.6)	(1.0)	(1.3)
Spouse's employment (ref: not married)							
Not employed	1.9	4.3***	8.7***	4.4*	6.1*	4.0***	6.2***
	(2.1)	(1.2)	(1.6)	(2.4)	(3.2)	(0.8)	(1.0)
Employed	6.4***	6.4***	10.9***	0.0	5.7**	5.6***	6.5***
	(1.7)	(1.2)	(1.4)	(.)	(2.7)	(0.7)	(0.8)
Black	-1.4	-5.0***	0.0	-6.4**	-2.6	-4.2***	-3.1***
	(1.9)	(1.4)	(.)	(2.5)	(2.5)	(0.6)	(0.7)
Constant	25.3***	20.8***	21.8***	24.9***	19.6***	15.7***	14.8***
	(2.3)	(1.7)	(2.2)	(4.4)	(4.6)	(0.9)	(1.2)
Observations	1563	2620	1581	714	657	11189	6690
R-squared	0.39	0.25	0.29	0.24	0.25	0.25	0.26

Source: AHTUS, women aged 18+. For readability, only the years 2003 and 2012 of the ATUS are shown.
Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table C.5. *Trends in income and consumption*.

	Market						Extended					
	Average	*Percentiles*			*Shares*			*Percentiles*			*Shares*	
Year		90th	50th	10th	Bottom 50%	Top 10%	Average	90th	50th	10th	Bottom 50%	Top 10%
A. ***Incomes***												
1965	36928	66536	31972	10631	0.255	0.254	52998	83654	47949	26556	0.324	0.209
1975	41488	75142	36375	12610	0.258	0.246	54523	88907	49278	25447	0.313	0.213
1985	45385	85317	38285	12070	0.239	0.263	58218	98847	51118	24629	0.295	0.228
1995	50161	93805	39601	12553	0.223	0.301	63822	107412	53318	26279	0.283	0.258
1998	54615	102172	42795	13297	0.219	0.305	69173	117088	57639	27122	0.277	0.262
2003	55165	104638	42817	13109	0.214	0.306	67955	117916	55878	25519	0.267	0.267
2004	54850	103673	42453	13045	0.214	0.309	67492	116404	55118	25238	0.266	0.270
2005	55659	105881	42835	13084	0.212	0.313	67585	117947	54768	24550	0.262	0.276
2006	56681	107450	43567	13431	0.213	0.313	68864	119720	55538	25368	0.262	0.276
2007	56294	107658	43823	13328	0.216	0.305	69037	121014	56758	25488	0.266	0.268
2008	54504	104043	42065	12799	0.214	0.307	66739	116557	54587	24654	0.265	0.270
2009	53971	103741	41316	12357	0.210	0.311	67140	117345	54606	24811	0.264	0.270
2010	53089	103475	40851	11854	0.208	0.308	66388	116812	54381	24868	0.266	0.266
2011	53444	102783	40203	11909	0.206	0.319	66263	115849	53402	24332	0.262	0.277
2012	53521	103133	40619	11828	0.205	0.317	65564	115126	52898	23606	0.259	0.277
2018	62239	120094	46601	13754	0.204	0.326	74269	132275	58654	25273	0.251	0.289
B. ***Consumption***												
1965	22807	36878	20981	9955	0.310	0.212	38318	53479	36599	24187	0.378	0.170
1975	23312	37990	21220	10463	0.312	0.212	35761	51925	34294	21103	0.362	0.178
1985	30624	52814	26457	12139	0.285	0.240	43455	65835	39574	24455	0.345	0.198
1995	27994	47781	24149	11699	0.290	0.235	41303	61737	37913	23890	0.352	0.192

1998	29440	50240	25194	12538	0.290	0.240	43899	65816	40315	24947	0.349	0.196
2003	28076	48821	23835	11404	0.283	0.245	41951	63026	38445	23779	0.348	0.197
2004	28147	48998	23616	11448	0.281	0.249	41886	63182	38084	23724	0.345	0.200
2005	28551	49705	23935	11521	0.281	0.250	41843	63501	37863	23596	0.344	0.202
2006	28050	48837	23530	11172	0.279	0.254	42155	63103	38377	23989	0.346	0.201
2007	28009	48697	23486	11362	0.281	0.253	42482	63382	38761	24028	0.347	0.200
2008	27385	47314	23259	11430	0.286	0.245	41546	61715	38216	23884	0.352	0.195
2009	26394	45374	22587	11228	0.291	0.240	41412	60977	38437	24372	0.357	0.189
2010	25756	44214	21931	10949	0.289	0.243	41281	60023	38311	24502	0.360	0.188
2011	25734	43711	22043	10905	0.290	0.240	40378	58505	37457	24071	0.360	0.187
2012	27833	47545	23940	11815	0.291	0.239	40541	60213	37176	23607	0.353	0.194
2018	32092	53856	27410	14003	0.293	0.240	43903	65717	39779	25106	0.346	0.202

Source: American Heritage Time Use Study (AHTUS) for 1965-2018, CPS ASEC 1968-2019, and Consumer Expenditure Surveys (CES) 1960-61, 1972-73, and 1985-2018. See text for details on how AHTUS was combined with ASEC and CES. Market incomes and monetary consumption are equivalized by square root scale. Total household production defined as sum of unpaid work time by all household adults. Equivalized time defined as total time divided by the equivalence scale √(A+2K) where A and K are the numbers of adults and children, respectively. Market income, market consumption, and time devoted household production (valued at housekeeper wages) are expressed in 2018 dollars. Extended income (consumption) is the sum of market income (consumption) and the imputed value of time devoted to household production.

Table C.6. Alternative inequality measures (Gini index)

	1965	2018	Difference
Incomes			
Market	0.36	0.44	0.08
Extended	0.26	0.37	0.11
Consumption			
Market	0.30	0.31	0.01
Extended	0.18	0.22	0.04

Source: Same as Figure 4. Market income and time devoted household production (valued at state-level minimum wages) are equivalized and expressed in 2018 dollars. Extended incomes are the sum of market income and the imputed value of time devoted to household production.

Table C.7. *Predicting Supervisory Childcare in the ATUS*.

	Women	Men
Age (ref: 18-24)		
25-29	4.1***	5.6***
	(0.5)	(0.7)
30-34	2.6***	5.4***
	(0.5)	(0.7)
35-39	2.6***	5.6***
	(0.5)	(0.7)
40-44	2.9***	5.7***
	(0.6)	(0.7)
45-49	3.2***	7.1***
	(0.6)	(0.8)
50-54	-1.2	4.7***
	(0.8)	(0.9)
55-59	-4.8***	4.3***
	(1.0)	(1.1)
60+	-9.8***	-0.5
	(0.8)	(1.0)
Household adults (ref: 1)		
2	-2.2***	4.4***
	(0.5)	(0.9)
3	-6.8***	-0.4
	(0.5)	(0.9)
4+	-9.7***	-3.8***
	(0.6)	(1.0)
Household children under 5 (ref: 0)		
1	4.1***	2.8***
	(0.4)	(0.4)
2+	4.5***	2.5***
	(0.5)	(0.6)
Household children aged 5-12 (ref: 0)		
1	1.5***	1.8***
	(0.4)	(0.5)
2+	2.4***	3.7***
	(0.4)	(0.5)
Whether female child aged 13-17	-1.9***	-0.5
	(0.4)	(0.5)
Whether male child aged 13-17	-1.6***	0.0
	(0.4)	(0.5)
Education (ref:<HS)		
HS	0.5	0.2

	(0.4)	(0.5)
Some College	-0.6	-0.7
	(0.4)	(0.5)
Bachelor's	-1.2**	-0.3
	(0.5)	(0.6)
Post-college	-2.6***	-0.8
	(0.5)	(0.6)
Paid work hours (ref: zero)		
1-25	-3.7***	-3.5***
	(0.4)	(1.0)
26-38	-5.6***	-2.2***
	(0.4)	(0.8)
39-45	-8.1***	-3.4***
	(0.3)	(0.4)
46-50	-8.7***	-5.1***
	(0.8)	(0.6)
51+	-5.2***	-6.4***
	(0.9)	(0.6)
Spouse's paid work hours (ref: not married)		
Spouse not employed	4.1***	7.1***
	(0.5)	(0.5)
Spouse employed, hours:<25	4.2***	8.2***
	(1.2)	(0.7)
Spouse employed, hours: 25-38	2.4***	7.5***
	(0.9)	(0.7)
Spouse employed, hours: 39-45	5.1***	7.5***
	(0.4)	(0.5)
Spouse employed, hours: 46-50	5.7***	6.8***
	(0.6)	(1.1)
Spouse employed, hours: 51+	5.0***	8.9***
	(0.6)	(1.3)
Black	0.4	0.2
	(0.4)	(0.5)
Constant	30.1***	10.3***
	(0.7)	(1.2)
Observations	36776	26435
R-squared	0.07	0.06

Source: ATUS 2004-2018, individuals aged 18+ with a household child under 13. The year 2003 is not included due to a change in survey question wording (in 2003, individuals were asked: Was a household or own non-household child<13 in your care during this activity? For the subsequent years, this was broken down into three separate questions based on whether it was an own household child, a non-own household child, or an own non-household child in one's care). Supervisory childcare here is defined as total time (in hours per week) spent during activity when a household child under 13 is in the respondent's care (when no

*other unpaid work undertaken). Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.*

Table C.8. *Decomposing growth in extended income inequality (including supervisory childcare)*

	1965	*2018*	*Change*	*Change (weighted)*
10th centile group mean				
Extended income	28544	26032	-8.8%	
Market income	11505	14374	24.9%	10.1%
Value of household production time	17039	11658	-31.6%	-18.9%
Value of household production time (share)	59.7%	44.8%		
50th centile group mean				
Extended income	52233	59310	13.5%	
Market income	31984	45282	41.6%	25.5%
Value of household production time	20249	14028	-30.7%	-11.9%
Value of household production time (share)	38.8%	23.7%		
90th centile group mean				
Extended income	84405	127516	51.1%	
Market income	64962	113237	74.3%	57.2%
Value of household production time	19443	14279	-26.6%	-6.1%
Value of household production time (share)	23.0%	11.2%		
Extended income inequality				
Log 50-10 ratio	0.604	0.823	0.22	
Log 90-50 ratio	0.480	0.765	0.29	
Log 90-10 ratio	1.084	1.589	0.50	

Source: American Heritage Time Use Study (AHTUS) for 1965-2018, and CPS ASEC 1968-2019. All incomes in 2018$. Households are sorted by extended income within each year and assigned to centile groups. For each centile group, the table reports the CPS-weighted mean of market income, the imputed value of household production, and extended income among households in that centile group. Numeric values can therefore differ slightly from the exact 10th/50th/90th percentile cutoffs of the corresponding marginal distributions. Within the table, the growth in percentile ratios obtained from differencing growth at different percentiles may not be exactly equal to actual growth in the percentile ratio due to the log approximation.

Table C.9. Sample means, adjusting for demographic composition

	1965	2018		
	Actual	Actual	Adjusted (core)	Adjusted (core + education)
Age categories (ref: 18-27)				
28-37	0.18	0.18	0.18	0.18
38-48	0.21	0.18	0.21	0.21
49-60	0.19	0.20	0.19	0.19
60+	0.20	0.28	0.20	0.20
female	0.53	0.52	0.53	0.53
Education (ref:<HS)				
HS	0.35	0.28	0.27	0.35
Some college	0.12	0.28	0.28	0.12
Bachelor's or higher	0.10	0.33	0.35	0.10
# children<5 (ref: 0)				
1+	0.22	0.12	0.22	0.22
Not married	0.30	0.49	0.30	0.30
# adults (ref: 1)				
2	0.59	0.53	0.61	0.56
3	0.21	0.18	0.16	0.19
4+	0.10	0.12	0.12	0.15
# children (ref: 0)				
1	0.17	0.15	0.19	0.19
2	0.15	0.12	0.17	0.17
3	0.10	0.05	0.07	0.08
4+	0.10	0.02	0.03	0.05
Black	0.10	0.13	0.11	0.12
Observations	95694	132868	132868	132868

Source: CPS ASEC. *Column (1) reports 1965 statistics. Column (2) reports 2018 statistics using the original ASEC weights. Column (3) ("Adjusted (core)") reweights the 2018 ASEC so that the joint distribution of age (18–27, 28–37, 38–48, 49–60, 60+), sex, marital status (married vs. not married), and the presence of a child under age 5 matches the 1965 distribution. Column (4) ("Adjusted (core + education)") additionally reweights the 2018 ASEC to match the 1965 distribution of education (less than high school, high school, some college, college or more).*