

A Summary of Trends in U.S. Time Use: 1965 - 2005

Mark Aguiar
University of Rochester

Erik Hurst
University of Chicago

May 2008

Abstract: This paper summarizes the key findings about trends in individual time use over the last four decades for prime age individuals. In particular, we recount key findings from Aguiar and Hurst (2007 and 2008). In particular, we show that leisure has increased for both men and women since 1965 by roughly 5 and 3.5 hours per week, respectively. However, most of these gains occurred prior to 1985 and the trends for women have some been somewhat reversed over the last decade. In addition, we show that for both men and women, leisure inequality has increased, particularly after 1985. In particular, since 1965, lower educated men and women have experienced substantial leisure increases, while their higher educated counterparts have experienced little, if any, leisure gains. The trends in leisure were similar across educational groups were similar up through the early 1980s and then started diverging sharply. The increase in leisure inequality, particularly for men, has matched the timing of the well-documented increases in wage and consumption inequality.

I. Introduction

In this paper, we summarize the results from Aguiar and Hurst (2007, 2008) on the trends in time use for men and women in the United States between 1965 and recent years. In commonly used household surveys designed to measure labor market activity (such as the Current Population Survey (CPS) and the Panel Study of Income Dynamics (PSID)), the only category of time use that is consistently measured is market work hours.¹ As a result, leisure is almost universally defined as time spent away from market work. However, as noted by Becker (1965), households can also allocate time towards production outside the formal market sector. To the extent that non-market (home) production is important and changing over time, leisure time will be poorly proxied by time spent away from market work. By linking five decades of detailed time-use surveys, we are able empirically to draw the distinction between leisure and the complement of market work. In doing so, we document a set of facts about how home production and leisure have evolved for men and women of differing work status, marital status, and educational attainment during the last 40 years.

In particular, we summarize our findings in Aguiar and Hurst (2007, 2008) with respect to changes in leisure within the United States. We include in our measure of leisure all time households spend watching television, playing sports, socializing with friends and family, reading, engaging in hobbies, and relaxing. Our results indicate that leisure has increased for both men and women since 1965 by roughly 5 and 3.5 hours per week, respectively. However, most of these gains occurred prior to 1985 and the trends for women have some been somewhat reversed over the last decade.

¹ In some years, the PSID asks respondents to individually report the amount of time they spent on household chores during a given week. These data are exploited by Roberts and Rupert (1995) to document a decline in total work, which, for the overlapping periods, is consistent with the trends documented in this paper.

In addition, we show that for both men and women, leisure inequality has increased, particularly after 1985. In particular, since 1965, lower educated men and women have experienced substantial leisure increases, while their higher educated counterparts have experienced little, if any, leisure gains. The trends in leisure were similar across educational groups were similar up through the early 1980s and then started diverging sharply. The increase in leisure inequality, particularly for men, has matched the timing of the well-documented increases in wage and consumption inequality (see Katz and Autor (1999) and Attanasio et al. (2004) for wages and consumption, respectively). While higher educated men have made gains relative to their lower educated counterparts in terms of their income and consumption, the time spent in leisure has deteriorated for higher educated men relative to lower educated men.

The rest of this note is set up as follows. In section II, we briefly discuss the data and empirical methodology used to analyze the time trends in the U.S. over the last forty years. In section III, we summarize the classification used in Aguiar and Hurst (2007, 2008) to segment the data in the time use surveys into five broad classifications of household time. In section IV, we summarize some of the key results from Aguiar and Hurst (2007, 2008). The last section briefly concludes.

We also wish to note that all of these results come from Aguiar and Hurst (2007, 2008). The purpose of this note is to just summarize are existing results. Numbers differ slightly across the papers due to fact that the Aguiar and Hurst (2008) including more recent ATUS data and makes additional sample restrictions. Given that this note is just a summary of our previous work, we include only a sparse discussion of our analysis samples and empirical methodology. We refer readers to our primary work for a complete discussion of our work. As a result,

however, we prefer that all citations of our work be limited to either Aguiar and Hurst (2007) or Aguiar and Hurst (2008).

II. Summary of Data and Empirical Specification

To document the trends in the allocation of time over the last 40 years, we link five major time use surveys: *1965-1966 America's Use of Time*; *1975-1976 Time Use in Economics and Social Accounts*; *1985 Americans' Use of Time*; *1992-1994 National Human Activity Pattern Survey*; and the *2003-2005 American Time Use Survey*. We refer readers to Aguiar and Hurst (2007, 2008) for a full description of these data sets. In this paper, we characterize five major uses of time: market work, non-market production, child care, leisure, and “other”.

During the last 40 years, there have been significant demographic changes in the U.S. For example, since 1965, the average American has aged, become more educated, become more likely to be single, and had fewer children. All of these changes may affect how an individual chooses to allocate his or her time. Specifically, individuals in their late 50s spend less time in market work than individuals in their early 40s. It would not be surprising to see that time spent in market work per working-age adult has fallen during the last 40 years simply because the fraction of 50-year-olds relative to 40-year-olds has increased.

In reporting on how time use has evolved over the last 40 years, we condition the time use trends on demographics. By conditioning on these demographics, we are reporting how time spent in a given activity has changed during the last 40 years adjusted for demographic changes. Specifically, we look at demographic cells defined by certain attributes, such as age, family status, sex, educational attainment and employment status. When we report “demographically adjusted differences,” we construct cells defined by age and family status within each

educational category.² The cells are assigned weights that do not vary across educational attainment or across the relevant survey years. Specifically, they reflect the sample averages of family status and age for men regardless of education and year of survey. This uniform set of weights is then used to sum the cells within each educational category. This mean is conditional on demographics in the sense it holds the relative importance of young versus old and married versus single constant across educational categories.

Our primary sample consists of respondents aged 21 through 65 who are neither students nor retirees. We drop adults younger than 21 and adults older than 65 (as well as students and early retirees) to minimize the role of time allocation decisions that have a strong inter-temporal component, such as education and retirement. Moreover, the 1965 time-use survey excludes households with heads who are either retired or over the age of 65. We drop these households from subsequent surveys to ensure a consistent sample. Additionally, the 1965 and 1985 time-use surveys exclude individuals under the age of 18 or 19 from their samples. We also restricted the sample to include only observations that had a complete time diary report and who had non-missing variables for key co-variates. These restrictions, and their resulting impact on the size of our sample, are discussed in the Data Appendix. Overall, our analysis samples include 1,854, 1,673, 3,168, 5,347 and 34,697 individuals, respectively, from the 1965, 1975, 1985, 1992-1994, and 2003-2005 sample.³

² See Aguiar and Hurst (2007) for a complete description of our demographic adjustment.

³ When reporting the conditional means, we also weight the time-diary data using the weights provided by the surveys to make them nationally representative. Furthermore, we adjust the weights so that each day of the week and each survey is equally represented for the full sample of individuals.

III. Summary of Our Time Use Categorization

To summarize the trends in time use over the last forty years, we break the allocation of time into a number of broad time use categories. We construct the categories to be mutually exclusive and sum to the household's entire time endowment. *Total market work* includes all time spent working in the market sector on main jobs, second jobs, and overtime, including any time spent working for pay at home plus any time spent commuting to/from work, time spent on work related meals/activities, time spent searching for a job, and time spent working for pay in the informal sector.⁴ This latter category includes any activities where the individual earns income providing services outside of the formal sector, such as babysitting for pay, doing home improvements for pay, doing household chores for pay, selling items at a flea market, etc.

Total non-market work consists of three sub-categories: home and vehicle maintenance, obtaining goods and services, and all other home production. Time spent on *home and vehicle maintenance* includes any time spent cleaning or repairing home exteriors or vehicles. Examples include painting home exteriors, building a deck, cleaning a garage, shoveling snow, building a bird feeder, changing vehicle oil, restoring a car, washing a car, repairing a car, etc. Time spent *obtaining goods and services* includes all time spent acquiring any goods or services (excluding medical care, education, and restaurant meals). Examples include grocery shopping, shopping for other household items, comparison shopping, coupon clipping, going to the bank, going to a barber, going to the post office, and buying goods on-line. *All other home production* includes any time spent on meal preparation and cleanup, doing laundry, ironing, dusting, vacuuming,

⁴ Throughout the paper, time spent on an activity includes any time spent on transportation associated with that activity.

indoor household cleaning, and indoor design and maintenance (including indoor painting and decorating).

We treat *child care* as a separate time use category. Total time spent in *child care* combines time spent caring for a child (breast feeding, changing diapers, etc.), teaching a child (reading to a child, disciplining a child, parent-teacher conferences, etc.), and playing with a child (including watching a children in sporting events). *Gardening, lawn care, and pet care* consists of time spent gardening, doing yard work, playing with one's pet, walking the dog, etc. Child care and gardening, lawn care and pet care may conceptually be considered non-market work. However, at least elements of these categories (for example, playing with one's child or pet or gardening) may be viewed as leisure activities. We do not take a stand on the issue of whether these categories are leisure or home production activities and, as a result, we have chosen to treat these categories separately.

As argued in Aguiar and Hurst (2008), one definition of "leisure" is as a characterization of technology, that is, how substitutable are time and goods in the production of the ultimate consumption commodity. Activities which directly yield utility are obvious candidates for designation as leisure. Our measure of leisure therefore sums together time spent watching television, socializing (relaxing with friends and family, playing games with friends and family, talking on the telephone, attending/hosting social events, etc.), in exercise/sports (playing sports, attending sporting events, exercising, running, etc.), reading (reading books and magazines, reading personal mail, reading personal email, etc.), entertainment/hobbies (going to the movies or theatre, listening to music, using the computer for leisure, doing arts and crafts, playing a musical instrument, etc.), and all other similar activities. We also include in our leisure measure activities that provide direct utility but may also be viewed as intermediate inputs such as

sleeping, eating, and personal care. While we exclude own medical care, we include such activities as grooming, having sex, sleeping or napping, and eating at home or in restaurants.⁵ For the key analyses performed in this paper, we also report detailed sub-categories of leisure. This allows the reader to see which components of the total leisure measure are driving the results.

The final time use categories are time spent on one's *education, own medical care, care of other adults, and civic/religious activities*. All residual time use categories are collected in *other* so that our time use categories encompass all activities performed by an individual during a day. A full list of the time use categories analyzed in this paper is discussed in Aguiar and Hurst (2007).

IV. Summary of Our Results

A. Summary of Trends in Aggregate Time Allocation

The last forty years have witnessed dramatic shifts in how individuals allocate their time. We summarize key trends in Figure 1 (men) and Figure 2 (women), adjusting for demographics as described in the previous section. The most obvious change is observed in market work. According to time diaries, the average man currently (in 2003-2005) works 40 hours per week, including commuting time. Adjusting for changing demographics, the average for men in 1985 was 43.5 hours per week, and the average in 1965 was about 51 hours per week.⁶ While men

⁵ This measure of leisure is equivalent to the leisure measure 2 of Aguiar and Hurst (2007) minus time spent gardening, in lawn care or in pet care. We should note that the coding of eating at work has changed across surveys, an issue discussed at length in the robustness appendix to Aguiar and Hurst (2007). See http://troi.cc.rochester.edu/~maguiar/timeuse_data/robustness_appendix.pdf.

⁶ The 1965 survey sample was drawn from households where at least one person was employed during the previous year. This potentially biases upward the employment rates. However, the reported employment rates for men in the

experienced a decline of nearly 12 hours per week in market work, women recorded an increase of about 3.5 hours per week. Specifically, women currently work 25.5 hours per week, as opposed to 23 hours per week in 1985 and 22 hours per week in 1965.

For understandable reasons, relative to other categories, time spent in market work has received the lion's share of attention.⁷ Standard household surveys, such as the Current Population Survey (CPS), typically restrict time allocation questions to the hours spent in market work. As a result, non-market time is frequently lumped together into a catch-all "leisure" measure. However, households also allocate time to production outside the formal market sector. To the extent that non-market (home) production is important and changing over time, changes in leisure time will be poorly proxied by changes in time spent away from market work.

Detailed time diaries allow us to take a more refined approach to non-market time. For example, the increase in market work for women was accompanied by a decline of 10.4 hours per week in housework and shopping (excluding child care), while men increased non-market work (excluding child care) by roughly 4 hours per week. Both men and women increased time spent on child care by nearly 2 hours per week. These shifts clearly indicate that market work provides an incomplete measure of trends in "total" work.

To obtain a clearer picture of changing trends in "leisure", we can start by examining the time spent in core leisure activities (including watching TV, socializing, participating in or watching sports, reading, engaging in hobbies, or spending time in other entertainment activities). In 1965, the average person spent nearly 31 hours per week in these activities. The corresponding number in both 1985 and in 2003-2005 was 35 hours per week. This net increase

1965 sample do not differ markedly from the nationally representative 1968 PSID. This issue is discussed in the appendix of Aguiar and Hurst (2007).

⁷ See Aguiar and Hurst (2007) for a complete literature review of the existing work on trends in time use. We omit that discussion here for reasons of space.

in core leisure was about 4.3 hours per week for the average person, reflecting an increase of about 5 hours per week for men and 3.5 hours per week for women. However, we note that almost all of these increases occurred in the 20 years prior to 1985. For women, there was reversal in leisure trends during the 1990s.

A broader measure of leisure includes the above activities as well as time spent eating, sleeping, and in personal grooming (but not on own medical care). This measure of leisure will be the basis of the analyses that follow and is the leisure measure reported in Figures 1 and 2. The trends in the broader measure of leisure mimic the trends in the narrower measure of leisure. In summary, men increased their leisure by about 5 hours per week since 1965 while women only increased their leisure by about 3.5 hours per week since 1965.

B. Summary of Trends in Time Allocation by Educational Attainment

One must be careful considering averages, even conditional on sex, as the gains in leisure may not be shared uniformly across the population. In fact, the changes in leisure differ markedly by educational attainment.

Figures 3 and 4 breaks down the changes in time allocated to leisure between 1965 and 2003 by both sex and educational attainment. A striking fact presented noted in Aguiar and Hurst (2007, 2008)) is the similarity of time allocation across educational attainment in 1965. For example, in 1965, men with at least 16 years of schooling spent the same amount of time in leisure (101.9 hours per week) as did men with exactly 12 years of schooling (101.2 hours per week). Men with less than a high school degree took only 2.4 hours per week more of leisure than college educated men. By 2003-2005, however, there is substantial difference in leisure by educational attainment. Men with at least 16 years of schooling only spend less than 100 hours

per week in leisure while men with exactly 12 years of schooling and less than 12 years of schooling experience, respectively, spend 108 and 113 hours per week of leisure. In other words, on average, there was a slight decline in leisure for college educated men between 1965 and 2003-2005. All of the increase in leisure for the “average” man is driven by the leisure increases of men with less than a high school degree, a high school degree, or some college training. In summary, Figure 3 shows that leisure increased by between roughly 7 and 9 hours per week for men with a high school degree and less than a high school degree, respectively, since 1965. However, for men with a college degree, leisure time actually decreased by roughly 2 hours per week.

Moreover, the divergence in leisure started post 1985. In 1985, both college educated men and high school educated men allocated roughly the same amount of time to leisure (105.8 vs. 107.3 hours per week). As was the case in 1965, there was little cross sectional variation in leisure by educational attainment in 1985. The dispersion in leisure by educational attainment found in the 2003-2005 time use data started post 1985. The timing of the changing inequality in leisure across education groups mirrors the well documented timing of the changing inequality in wages and consumption (see Aguiar and Hurst (2007, 2008) for a full discussion). Interestingly, while almost all of the increase in leisure for the average individual occurred between 1965 and 1985, the increase in leisure inequality for men occurred post 1985.

The pattern is similar for women, save for when the divergence begins. As was the case for men, the increase in leisure between 1965 and 2003-2005 for women with a high school degree (4.8 hours per week) was much larger than the change in leisure for college educated women (-0.2 hours per week). However, roughly half of the dispersion in leisure between high and low educated women occurred prior to 1985. In other words, the dispersion in leisure

between more and less educated women post 1985 is less dramatic than the dispersion in leisure between more and less educated men post 1985.

One major concern with dividing our sample by educational attainment centers on the fact that a larger fraction of men are going to college today relative to the 1980s. In our sample, 45 percent of the men had at least some college education in 1985. In the 2003-2005 sample, that fraction increased to 56 percent. Therefore, the education groups reflect different segments of the population in 1985 versus 2003-2005 and this potentially could explain why the differences in leisure across educational attainment have grown.

There are two facts that mitigate this concern. The first is that the dispersion in leisure has occurred throughout the distribution, and is not simply an artifact of self-selection out of the less educated category and into more educated. This result is shown in Aguiar and Hurst (2008). Additionally, as we have shown in other work (Aguiar and Hurst 2007), the increasing dispersion in leisure has occurred at nearly every percentile of the leisure distribution.

The second fact is that we can identify categories of educational attainment that include similar fractions of the population in each sample. Specifically, roughly 30 percent of men in both samples have a college diploma or better, while those who do not finish high school comprise 13 percent of the sample in 1985 and 12 percent in 2003-2005. These two categories thus represent fairly stable fractions of the population. Although the fraction of the sample in each category is the same in 1985 and 2003-2005, Figures 3 and 4 clearly indicates that the average amount of leisure taken by individuals in these two educational categories diverge post 1985.

V. Conclusion

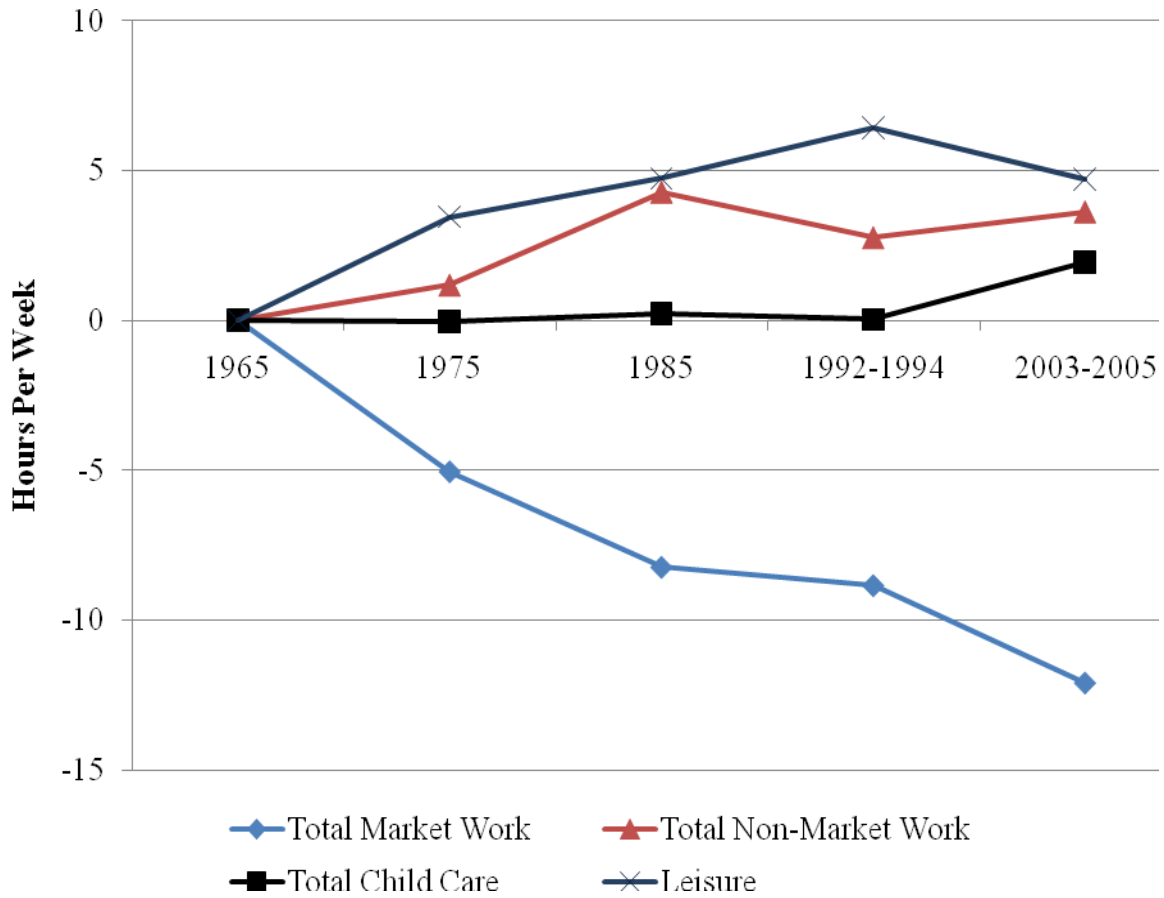
In this note, we briefly summarize the results of Aguiar and Hurst (2007, 2008). In doing so, we have shown that the amount of leisure enjoyed by the average American has increased substantially over the last 40 years. Specifically, the average man and average women have increased leisure by roughly 5.0 and 3.5 hours per week, respectively, since 1965. Our results control for the changing nature of demographics that have occurred during this time. We note two other phenomenons. First, almost all the increase in leisure occurred prior to 1985. Second, during the last decade, the trends have been reversed for women.

Our results also document a dramatic increase in the dispersion of leisure. In particular, we find that less-educated adults have increased their relative consumption of leisure, particularly in the last 20 years. This corresponds to a period in which wages and consumption expenditures increased faster for highly educated adults.

References

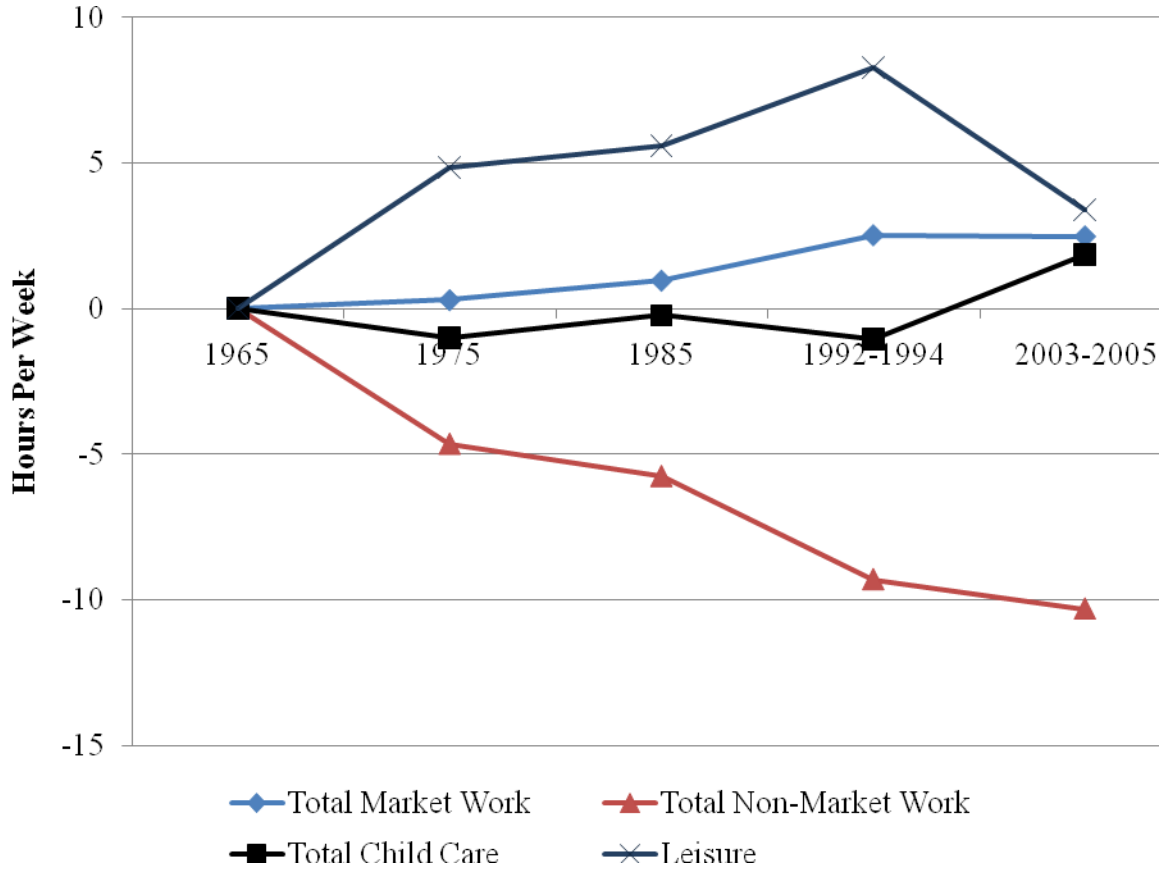
- Aguiar, Mark, and Erik Hurst. (2007). “Measuring Trends in Leisure: The Allocation of Time Over Five Decades.” *Quarterly Journal of Economics*, 122(3), 969-1006.
- Aguiar, Mark, and Erik Hurst. (2008). “The Increase in Leisure Inequality”, American Enterprise Institute Series on Inequality, forthcoming.
- Attanasio, Orazio, and Steve Davis. (1996). “Relative Wage Movements and the Distribution of Consumption.” *Journal of Political Economy* 104(6): 1227–1262.
- Becker, Gary. (1965). “A Theory of the Allocation of Time.” *Economic Journal* 75:493–517.
- Katz, Lawrence, and David Autor. (1999). “Changes in the Wage Structure and Earnings Inequality.” In *Handbook of Labor Economics Volume 3A*, eds. Orley Ashenfelter and David Card. Oxford: Elsevier Science.

Figure 1: Trends in the Allocation of Time for Men By Time Use Category, Relative to 1965



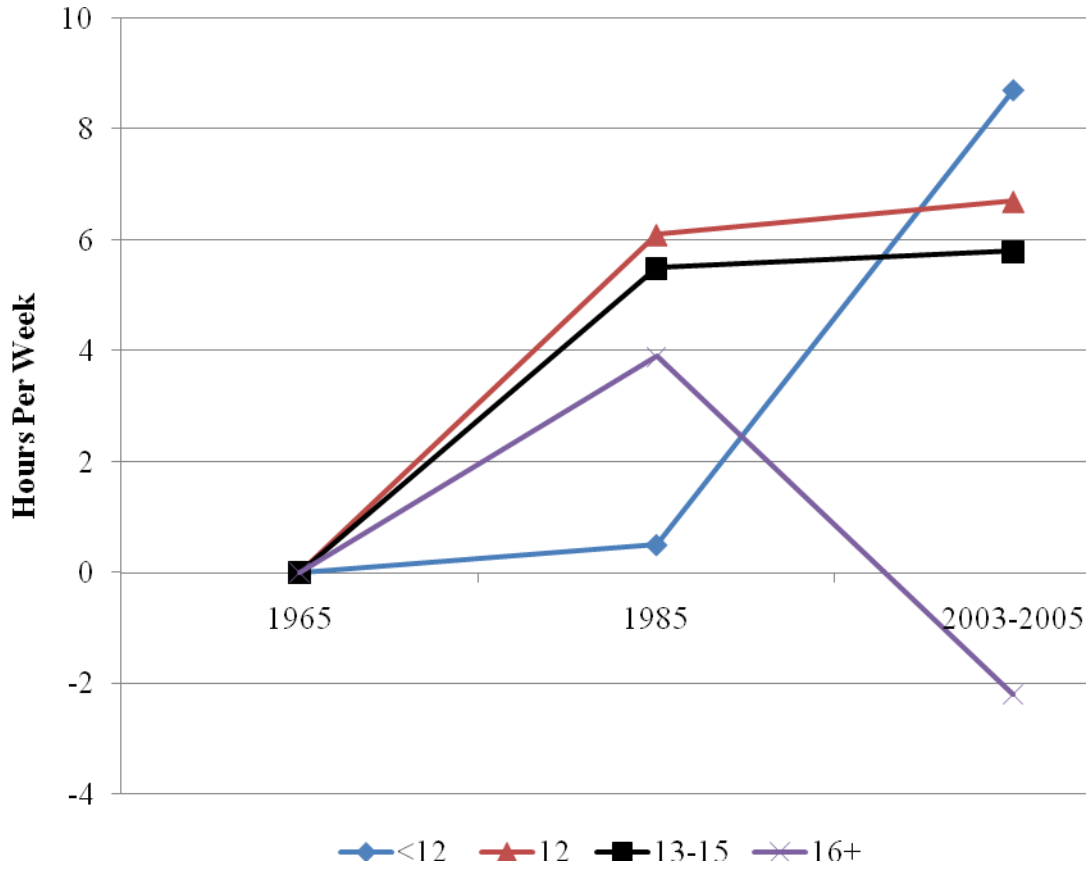
Notes: Figure shows demographically adjusted trends in the allocation of time for women between the ages of 21 and 65 using data from the 1965, 1975, 1985, 1992-1994, and 2003-2005 U.S. time use surveys. All differences are expressed as hour per week differences relative to 1965. See the text for details of the sample and for a description of the time use categories.

Figure 2: Trends in the Allocation of Time for Women By Time Use Category, Relative to 1965



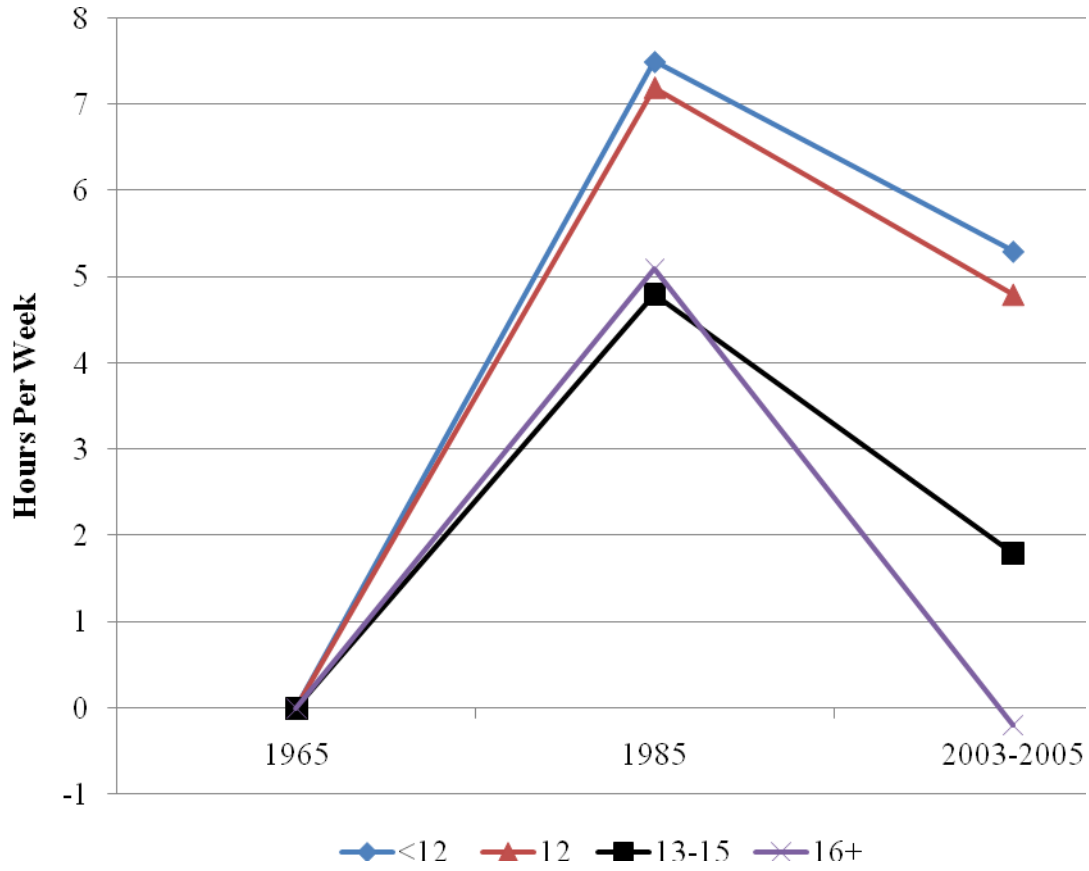
Notes: Figure shows demographically adjusted trends in the allocation of time for women between the ages of 21 and 65 using data from the 1965, 1975, 1985, 1992-1994, and 2003-2005 U.S. time use surveys. All differences are expressed as hour per week differences relative to 1965. See the text for details of the sample and for a description of the time use categories.

Figure 3: Trends in Leisure Time for Men By Educational Attainment, Relative to 1965



Notes:

Figure 4: Trends in Leisure Time for Women By Educational Attainment, Relative to 1965



Notes: