The Working Poor: How Time Scarcity Halts the Pursuit of the American Dream

Methodological Appendix

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July 28, 2025

Change in Average Hourly Earnings by Income Quartile for Prime-Age Workers

This section details the average earnings and average hourly earnings by income quartile calculations presented in the time poverty analysis piece. Between 2001 and 2023, annual average earnings and average hourly earnings for middle-income workers between the ages of 25 and 54 declined after adjusting for cost-of-living, despite working more hours on average. Adjusting nominal earnings for cost-of-living, using LISEP's Minimal Quality of Life (MQL) index, underscores the decline in purchasing power of this group's earnings, whereas adjusting nominal earnings for overall inflation, using the Consumer Price Index for All Urban Consumers (CPI-U), describes stagnating real earnings.

Data

Microdata from the American Community Survey (ACS) 1-year samples from 2001 to 2023, accessed through the IPUMS USA database, is used for the average earnings and average hourly earnings calculations by year.[1] That data is complemented with LISEP's MQL index and the CPI-U, accessed through the FRED database, to deflate nominal earnings.[2]

Calculation

To begin, the 1-year ACS sample is subset to include only prime-age workers, meaning those

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[1] Steven Ruggles, Sarah Flood, Matthew Sobek, Daniel Backman, Grace Cooper, Julia A. Rivera Drew, Stephanie Richards, Renae Rodgers, Jonathan Schroeder, and Kari C.W. Williams. IPUMS USA: Version 16.0 ACS 2001 Sample – ACS 2023 Sample. Minneapolis, MN: IPUMS, 2025. https://doi.org/10.18128/D010.V16.0.

[2] See https://www.lisep.org/mql and U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: All Items in U.S. City Average [CPIAUCSL], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/CPIAUCSL, June 11, 2025.

between the ages of 25 and 54. The focus is placed on prime-age workers since the MQL basket is designed to reflect the cost-of-living for households with full-time working-age adults[3] and to mitigate the effect of demographic changes in earnings over time.[4] Restricting the sample to prime-age workers helps prevent potential distortions from an ageing workforce as older workers tend to earn more than younger workers, but also as retired-age workers tend to work fewer hours.[5] Similarly, excluding workers younger than 25 serves to drop a large part of a low-earning student population that is unlikely to be working full-time year-round. While some older students remain in the prime-age worker cohort, they represent a very small share of the cohort and do not alter the conclusions of the analysis (see Robustness Checks section below). Finally, workers are defined as any adult reporting any wage and salary income, so unpaid workers and the unincorporated self-employed are excluded.[6]

Once the annual samples of prime-age workers are determined, workers are stratified into earnings quartiles based on their total annual earnings distribution.[7] For each year, the 25th, 50th, and 75th percentiles of annual earnings for prime-age workers are computed, and workers are assigned to one of four earnings quartiles. Specifically, workers in the second earnings quartile are those with annual earnings at or above the 25th percentile and below the 50th percentile, while workers in the third quartile are those with annual earnings at or above the 50th percentile and below the 75th percentile. It's important to note that total annual earnings as measured by the INCWAGE variable report earnings for the twelve months prior to the ACS survey, so amounts do not reflect calendar year dollars. As a result, the annual earnings of respondents interviewed earlier in the year are generally underestimated compared to what they would have been if they had been interviewed in December of that year (essentially a calendar year estimate).[8] Similarly, the use of the years 2001 and 2023 as references for the price-level and cost-of-living may not be entirely representative of the costs facing workers during the period covered by INCWAGE. Robustness checks are conducted for both biases in the calculation to validate the finding that the purchasing power of middle-income workers' earnings has declined, albeit by a smaller percentage given the higher inflation rate in 2023 than in 2001 (see Robustness Checks section below).

To compute the average hourly earnings by income quartile, each worker's annual hours are determined based on the respondents' usual hours worked per week and number of weeks worked.[9] A worker's average hourly earnings are simply their annual earnings divided by their

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[3] Specifically, for a 40-year-old adult.
[4] Even though changes within the prime-age workforce demographic composition between 2001 and 2023 are not accounted for in the earnings and hours worked estimates, the impact is much more muted than if analyzing the entire working population. While one might expect for the prime-age workforce to have also become older, the average age of the prime-age workers sample changed very little, even falling from 39.2 in 2001 to 38.9. Indeed, younger prime-age workers (25-34 age group) make up a larger share of the prime-age workforce 2023 (35.7%) compared to 2001 (32.7%) in the sample. This is consistent with labor force participation trends among prime-age workers over the last two decades, in particular the increase in labor force participation of young women aged 25 to 34 (see https://www.bls.gov/emp/tables/civilian-labor-force-participation-rate.htm). As younger workers generally earn less than older workers, average earnings in 2023 across the income strata are likely less than if the age composition within the prime-age workforce had been the same as in 2001.
[5] https://www.gao.gov/products/gao-24-106772
[6] The specific variable tracked is INCWAGE, reporting "each respondent's total pre-tax wage and salary income […] Sources of income in INCWAGE include wages, salaries, commissions, cash bonuses, tips, and other money income received from an employer. Payments-in-kind or reimbursements for business expenses are not included." See https://usa.ipums.org/usa-action/variables/INCWAGE#description_section.
[7] The variables used are INCWAGE for earnings and the person-weight PERWT.
[8] See https://usa.ipums.org/usa/acsincadj.shtml for more details.
[9] The relevant variables are UHRSWORK and WKSWORK. See https://usa.ipums.org/usa-action/variables/UHRSWORK#description_section and https://usa.ipums.org/usa-action/variables/WKSWORK1#description_section.

annual hours. Workers whose usual weekly hours are top-coded at 99 hours per week are kept, but excluding them does not alter the findings (see Robustness Checks section). All earnings are expressed in 2023 dollars. Consequently, annual earnings and hourly earnings for 2001 can differ based on the deflator used (MQL or CPI-U), but they are the same in nominal terms. The adjustment factors used for 2001 are 1.995 for the MQL and 1.721 for the CPI-U. The CPI-U adjustment factor is based on the ratio between the calendar year averages of the 2023 CPI-U index and the 2001 CPI-U index. Since the MQL is reported annually, there was no need to compute a calendar year average.

Finally, average earnings, average hourly earnings, and average hours worked were reported for each income group every year. Average hourly earnings is the average of the hourly earnings of each worker in the income group rather than the ratio of the group's average annual earnings and average annual hours. All averages are weighted using the person-weight PERWT.

Results

Between 2001 and 2023, average earnings for prime-age workers in the second and third earnings quartiles increased 71.9% and 76.9% respectively in nominal terms, while average hourly earnings rose 71.4% and 79% for the respective quartiles nominally. During the same period, the MQL index increased 99.5%, outpacing improvements in nominal earnings for these groups, which resulted in a 14% and 10.3% decline in the spending power of average hourly earnings for workers in the second and third earnings quartile. Despite an increase in hours worked, workers' overall spending power as measured by annual earnings declined 13.8% for the second earnings quartile and 11.3% for the third quartile. Using the CPI-U, which increased 72.1% between 2001 and 2023, to adjust for inflation shows that inflation-adjusted hourly earnings changed -0.4% and 4% for the second and third earnings quartile respectively, resulting in overall inflation-adjusted annual earnings change of -0.1% and 2.8% respectively. Indeed, deflating earnings based on the cost-of-living of low- and middle-income Americans rather than overall consumer inflation highlights that the pre-tax spending power of wage and salary workers has declined rather than stagnated between 2001 and 2023, on average, despite reporting more time worked. Regardless of the selected deflator, these negative or lackluster trends for the middle 50% of prime-age workers are especially concerning given that the present-day workforce has a higher educational attainment, which is associated with higher earnings, than the 2001 workforce.

Table 1: Average Earnings for Prime-Age Workers in 2023 MQL Dollars

Year	Income Quartile	Average Hours	Average Earnings (2023 MQL Dollars)	Average Hourly Earnings (2023 MQL Dollars)	Average Earnings (Nominal Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Earnings (2023 MQL Dollars)	% Change Average Hourly Earnings (2023 MQL Dollars)	% Change Average Earnings (Nominal Dollars)	% Change Average Hourly Earnings (Nominal Dollars)
2001	2	2049.1	48249	27.62	24190	13.85				
2023	2	2075.0	41575	23.74	41575	23.74	-13.8%	-14.0%	71.9%	71.4%
2001	3	2190.0	75679	38.66	37942	19.38				
2023	3	2201.6	67134	34.70	67134	34.70	-11.3%	-10.3%	76.9%	79.0%

Table 2: Average Earnings for Prime-Age Workers in 2023 CPI-U Dollars
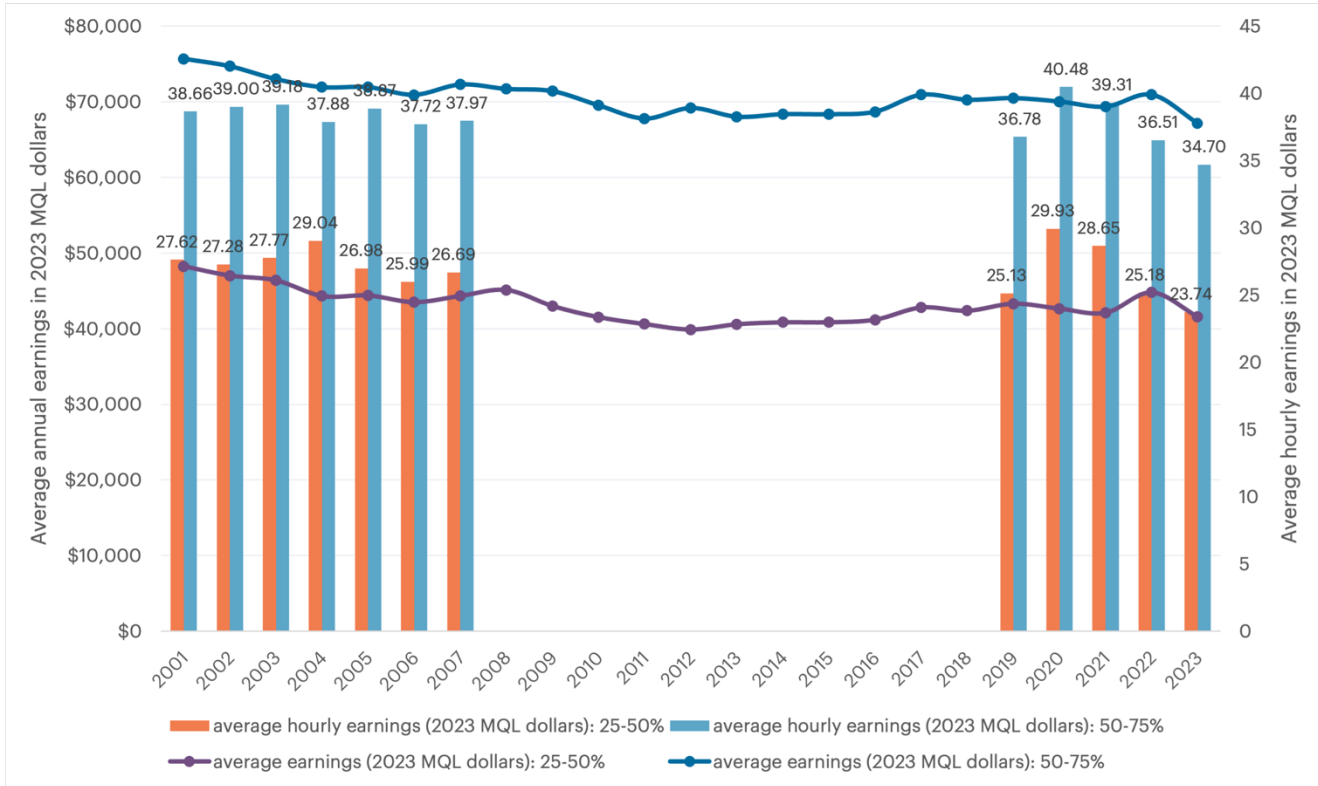
Year	Income Quartile	Average Hours	Average Earnings (2023 CPI Dollars)	Average Hourly Earnings (2023 CPI Dollars)	Average Earnings (Nominal Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Earnings (2023 CPI Dollars)	% Change Average Hourly Earnings (2023 CPI Dollars)	% Change Average Earnings (Nominal Dollars)	% Change Average Hourly Earnings (Nominal Dollars)
2001	2	2049.1	41633	23.84	24190	13.85				
2023	2	2075.0	41575	23.74	41575	23.74	-0.1%	-0.4%	71.9%	71.4%
2001	3	2190.0	65302	33.36	37942	19.38				
2023	3	2201.6	67134	34.70	67134	34.70	2.8%	4.0%	76.9%	79.0%

Figure 1: Change 2001-2023 in Average Hourly Earnings Among Prime-Age Workers[10]
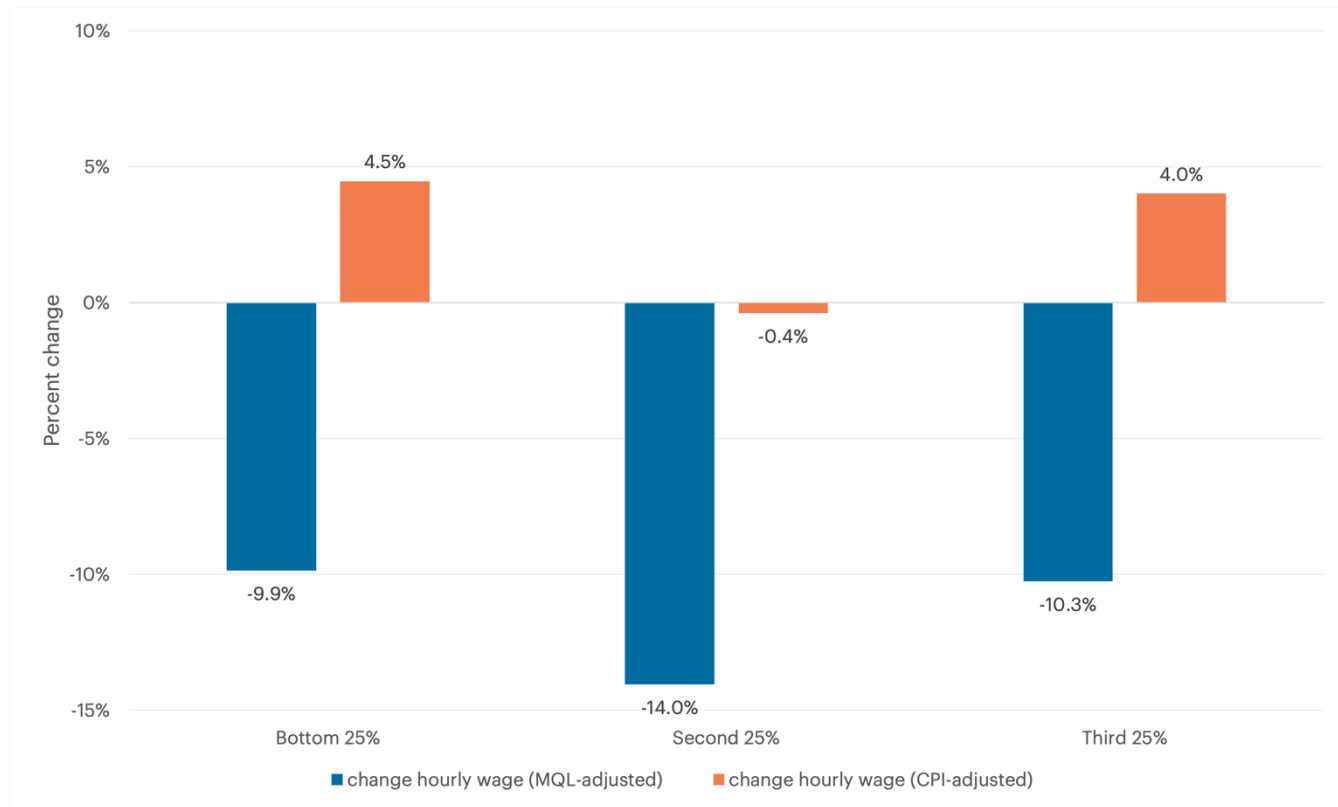
Figure 2: Average Earnings Over Time for Prime-Age Workers 2001-2023[11]

Robustness Checks

Between 2001 and 2023, average earnings for prime-age workers in the second and third earnings quartiles increased 71.9% and 76.9% respectively in nominal terms, while average hourly earnings rose 71.4% and 79% for the respective quartiles nominally. During the same period, the MQL index increased 99.

1. No Students

A reason for focusing on the earnings of the prime-age workforce is that these workers are presumed to have reached their highest educational attainment. Focusing on workers that are 25 and older serves to exclude much of the population of young student workers who may be working part-time or even full-time for low wages that may not reflect their earnings potential. However, for various reasons many people pursue their education beyond the 25-year-old cutoff and balance studying and work. While this is a small segment of the prime-age workforce, it's prudent to ensure that the inclusion of older student-workers is not impacting the analysis. After dropping all students

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[11] Average hourly earnings are not reported from 2008 through 2018, as the specific number of weeks worked was not available during those years. This limitation prevented the calculation of the total number of hours worked annually for workers without imputations. While an estimation of hourly earnings during this period was not undertaken given this limitation, it may be possible to reach a reasonable estimate or range using the WKSWORK2 variable. This variable, an intervalled version of the WKSWORK1 variable, was reported during the 2008-2018 period and provides a range of weeks worked for each respondent.

from the sample, using the SCHOOL variable identifying people who attended school in the last three months,[12] the same analysis as described above was conducted, and differences with the headline results are found to be small (Table 4). The average number of hours worked and total annual earnings increase for both the second- and third-income quartiles, but by 1% or less for the years 2001 and 2023. Importantly, students are dropped before stratifying workers by earnings rather than after, so these increases reflect the lower earnings of student-workers. The effect on average hourly earnings is mixed, being 0.9% and 0.3% lower in 2001 for the second and third quartiles and being 0% and 0.6% higher in 2023 respectively. Overall, when dropping students MQL-adjusted annual earnings for the second and third quartiles fell 13.3% and 10.5% respectively between 2001 and 2023, compared to falls of 13.8% and 11.3% under the headline method. MQL-adjusted average hourly earnings declined 13.3% and 9.5% respectively when dropping students, similar to the 14% and 10.3% under the headline method.

Table 3: Robustness Check Results - No Students 2023 MQL Dollars

Year	Income Quartile	Average Hours	Average Earnings (2023 MQL Dollars)	Average Hourly Earnings (2023 MQL Dollars)	Average Earnings (Nominal Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Earnings (2023 MQL Dollars)	% Change Average Hourly Earnings (2023 MQL Dollars)	% Change Average Earnings (Nominal Dollars)	% Change Average Hourly Earnings (Nominal Dollars)
2001	2	2058.4	48454	27.38	24293	13.73				
2023	2	2082.0	42006	23.75	42006	23.75	-13.3%	-13.3%	72.9%	73.0%
2001	3	2193.7	75736	38.56	37971	19.33				
2023	3	2204.9	67801	34.90	67801	34.90	-10.5%	-9.5%	78.6%	80.5%

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[12] https://usa.ipums.org/usa-action/variables/SCHOOL#codes_section.

Table 4: Robustness Check - No Students Differences with Headline Estimates

Year	Income Quartile	Average Hours	Average Earnings (2023 MQL Dollars)	Average Hourly Earnings (2023 MQL Dollars)	Average Earnings (Nominal Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Earnings (2023 MQL Dollars) (in pp.)	% Change Average Hourly Earnings (2023 MQL Dollars) (in pp.)	% Change Average Earnings (Nominal Dollars) (in pp.)	% Change Average Hourly Earnings (Nominal Dollars) (in pp.)
2001	2	0.0	0	-0.01	0	-0.01				
2023	2	0.0	0	0.00	0	0.00	0.53	0.77	1.05	1.54
2001	3	0.0	0	0.00	0	0.00				
2023	3	0.0	0	0.01	0	0.01	0.81	0.75	1.62	1.49

2. Calendar-Year Adjustment

The ACS asks respondents about the income they earned over the past twelve months rather than during the calendar year. Since the calendar year averages are used to deflate income, this may underestimate real earned income in a given year, as for many it reflects income that was earned mostly or partly during the previous calendar year. The Census Bureau provides an adjustment factor for each annual ACS sample to adjust reported incomes to reflect calendar year estimates. However, since the adjustment factor represents the average of the twelve month-specific adjustments during the calendar year, which are not provided, all incomes are adjusted by the same factor in a given calendar year regardless of the month when they were reported. Consequently, the incomes of earners in the earlier part of the year are still underestimated, while those of the respondents in the latter part of the year are overestimated. To check the findings from the headline estimates, a check was conducted by adjusting 2001 and 2023 incomes by their respective factors of 1.013503 and 1.019518.[13] While the distribution is not changed, as evidenced by the fact that average hours worked by income strata is unchanged, both real and hourly incomes are higher, reflecting their respective adjustment factors. Given the higher adjustment factor in 2023 than in 2001, the decline in MQL-adjusted earnings is slightly smaller: 13.3% and 10.8% for annual average earnings versus 13.8% and 11.3% for the second and third quartiles, and 13.5% and 9.7% for average hourly earnings versus 13.8% and 11.3% respectively (Tables 5 and 6).

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[13] https://usa.ipums.org/usa/acsincadj.shtml.

Table 5: Robustness Check Calendar-Year Adjustment 2023 MQL Dollars

Year	Income Quartile	Average Hours	Average Earnings (2023 MQL Dollars)	Average Hourly Earnings (2023 MQL Dollars)	% Change Average Earnings (2023 MQL Dollars)	% Change Average Hourly Earnings (2023 MQL Dollars)
2001	2	2049.1	48901	28.00		
2023	2	2075.0	42386	24.21	-13.3%	-13.5%
2001	3	2190.0	76701	39.18		
2023	3	2201.6	68444	35.37	-10.8%	-9.7%

Table 6: Robustness Check Calendar-Year Adjustments Differences with Headline Estimates

Year	Income Quartile	Average Hours	Average Earnings (2023 MQL Dollars)	Average Hourly Earnings (2023 MQL Dollars)	% Change Average Earnings (2023 MQL Dollars) (in pp.)	% Change Average Hourly Earnings (2023 MQL Dollars) (in pp.)
2001	2	0.0%	1.4%	1.4%		
2023	2	0.0%	2.0%	2.0%	0.51	0.51
2001	3	0.0%	1.4%	1.4%		
2023	3	0.0%	2.0%	2.0%	0.53	0.53

3. Alternative Reference Years for Deflators

Following from the calendar-year check, the fact that INCWAGE considers income that was earned during the previous calendar suggests that the calendar-year average deflators for 2001 and 2023 overestimate the price level or cost-of-living experienced by the 2001 and 2023 ACS samples. To check for how this may affect average earnings and the change in earnings' spending power over time, the same analysis is conducted using the preceding years' price level or cost-of-living index average (2000 and 2022), overestimating real incomes given the lower price-level. Overall, the spending power of earnings still declines, albeit by a lower amount given in part by the higher inflation during the 2022-2023 period than in the 2000-2001 period.

One limitation is that the MQL only goes back to 2001, so to conservatively impute the 2000 MQL cost-of-living index, the same CPI-U index increase of 2.8% based on the 2000 and 2001 calendar-year averages is applied. While this may be an underestimate of the relative cost-of-living in 2000 as the MQL index increase has outpaced the CPI-U from 2001 to 2023, some years (e.g. 2022) have recorded a higher percentage increase of the CPI-U index than of the MQL index. For the purposes of this check, this is considered a better assumption than imputing the 2000 MQL cost-of-living level based on the CPI-U trend and the average gap between the MQL and CPI, as a larger MQL increase would result in a larger factor to adjust the income for the 2001 ACS sample, which would result in a higher spending power decline over the period. The estimates from these checks are summarized under Tables 8-11. They mirror the differences in the MQL and CPI-U indices between 2022 and 2023 as well as between 2000 and 2001 (Table 7). Overall, the MQL spending power of average annual earnings falls 9% and 6.3% for the second and third earnings quartiles under the 2000/2022 price-level-comparison instead of 13.8% and 11.3% respectively under the headline estimates using the 2001/2023 price-level comparison. Similarly, average hourly earnings decline 9.2% and 5.2% instead of 14% and 10.3% respectively, reflecting the larger disparity in the 2022-2023 cost-of-living increase (8.6%) and the imputed 2000-2001 increase (based on CPI-U inflation of 2.8%). This suggests that the choice of deflating incomes based on the ACS samples' calendar-year price level (2001 and 2023) has a meaningful impact on the earnings growth estimates, but the choice does not alter the conclusions of the analysis that the spending power of middle-income prime-age workers has fallen since 2001.

Table 7: CPI-U and MQL Adjustment Factors for Selected Years

Year	CPI-U Index	CPI-U Adjustment Factor (2023 Dollars)	MQL Index	MQL Adjustment Factor (2023 Dollars)
2000	172.192	1.770		2.051*
2001	177.042	1.721	1.000	1.995
2022	292.625	1.041	1.837	1.086
2023	304.704	1.000	1.995	1.000

*Imputed value for the purpose of Robustness Check only.

Table 8: Robustness Check - Alternative Reference Years for Deflators 2023 MQL Dollars

Year Sample	Year Deflator	Income Quartile	Average Hours	Average Earnings (2023 MQL Dollars)	Average Hourly Earnings (2023 MQL Dollars)	Average Earnings (Nominal Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Earnings (2023 MQL Dollars)	% Change Average Hourly Earnings (2023 MQL Dollars)	% Change Average Earnings (Nominal Dollars)	% Change Average Hourly Earnings (Nominal Dollars)
2001	2000*	2	2049.1	49608*	28.40*	24190	13.85				
2023	2022	2	2075.0	45142	25.78	41575	23.74	-9.0%*	-9.2%*	71.9%	71.4%
2001	2000*	3	2190.0	77810*	39.75*	37942	19.38				
2023	2022	3	2201.6	72895	37.67	67134	34.70	-6.3%*	-5.2%*	76.9%	79.0%

*Estimates based on imputed MQL value for the purpose of Robustness Check only.

Table 9: Robustness Check - Alternative Reference Years for Deflators Differences with Headline Estimates

Year	Income Quartile	Average Hours	Average Earnings (2023 MQL Dollars)	Average Hourly Earnings (2023 MQL Dollars)	% Change Average Earnings (2023 MQL Dollars) (in pp.)	% Change Average Hourly Earnings (2023 MQL Dollars) (in pp.)
2001	2	0.0%	2.8%*	2.8%*		
2023	2	0.0%	8.6%	8.6%	4.83*	4.82*
2001	3	0.0%	2.8%*	2.8%*		
2023	3	0.0%	8.6%	8.6%	4.97*	5.03*

*Estimates based on imputed MQL value for the purpose of Robustness Check only.

Table 10: Robustness Check - Alternative Reference Years for Deflators 2023 CPI Dollars

Year	Year Deflator	Income Quartile	Average Hours	Average Earnings (2023 CPI Dollars)	Average Hourly Earnings (2023 CPI Dollars)	Average Earnings (Nominal Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Earnings (2023 CPI Dollars)	% Change Average Hourly Earnings (2023 CPI Dollars)	% Change Average Earnings (Nominal Dollars)	% Change Average Hourly Earnings (Nominal Dollars)
2001	2000	2	2049.1	42806	24.51	24190	13.85				
2023	2022	2	2075.0	43291	24.72	41575	23.74	1.1%	0.9%	71.9%	71.4%
2001	2000	3	2190.0	67141	34.30	37942	19.38				
2023	2022	3	2201.6	69905	36.13	67134	34.70	4.1%	5.3%	76.9%	79.0%

Table 11: Robustness Check - Alternative Reference Years for Deflators Differences with Headlines Estimates

Year	Income Quartile	Average Hours	Average Earnings (2022 CPI Dollars)	Average Hourly Earnings (2022 CPI Dollars)	% Change Average Earnings (2022 CPI Dollars) (in pp.)	% Change Average Hourly Earnings (2022 CPI Dollars) (in pp.)
2001	2	0.0%	2.8%	2.8%		
2023	2	0.0%	4.1%	4.1%	1.27	1.27
2001	3	0.0%	2.8%	2.8%		
2023	3	0.0%	4.1%	4.1%	1.31	1.33

4. Top-Coded Hours

The last check regards the top-coding of the usual hours worked per week variable. Respondents report the usual number of hours worked per week during the previous year. The variable is top-coded at 99 hours, so workers who usually worked 99 hours or more weekly had their weekly hours value capped at 99. In the headline analysis, these workers are considered for the average hourly earnings estimate (dividing their annual earnings by 99 hours per week), especially given that they represent a small part of the prime-age workers' subset. While this choice does not affect the stratification of workers, based on total annual income, it affects the average hourly earnings estimates of each income group. This choice overestimates the hourly earnings of top-coded

workers, but the effect on an income group's average hourly earnings is ambiguous in theory. If top-coded workers earn at a higher hourly rate than other workers in the same income group, excluding them could result in a lower average. More importantly, if there were considerably more top-coded workers in a given year than in others (notably 2001 and 2023), it may distort the time-period analysis. To check for this, the hourly earnings for the second and third earnings quartiles are calculated without considering top-coded workers' hours. Importantly, top-coded workers' total earnings are still considered, so the earnings distribution is unaffected. Overall, the average annual hours worked by income group is 0.2% lower (or 4 to 5 hours less per year) once the top-coded workers' hours are ignored, while average hourly earnings are 0.1% higher, consistent with the fact that earnings per hour are overestimated for top-coded workers. Average hourly earnings are also 14% and 10.3% lower in 2023 than in 2001 for the second and third quartiles when excluding top-coded hours, just as under the headline estimates when including them (Tables 12 and 13).

Table 12: Robustness Check - Top-coded Hours Dropped 2023 MQL Dollars

Year	Income Quartile	Average Hours	Average Hourly Earnings (2023 MQL Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Hourly Earnings (2023 MQL Dollars)	% Change Average Hourly Earnings (Nominal Dollars)
2001	2	2045.9	27.64	13.86		
2023	2	2071.6	23.76	23.76	-14.0%	71.5%
2001	3	2185.5	38.69	19.40		
2023	3	2197.8	34.72	34.72	-10.3%	79.0%

Table 13: Robustness Check - Top-coded Hours Dropped Differences with Headline Estimates

Year	Income Quartile	Average Hours	Average Hourly Earnings (2023 MQL Dollars)	Average Hourly Earnings (Nominal Dollars)	% Change Average Hourly Earnings (2023 MQL Dollars) (in pp.)	% Change Average Hourly Earnings (Nominal Dollars) (in pp.)
2001	2	-0.2%	0.1%	0.1%		
2023	2	-0.2%	0.1%	0.1%	0.00	0.01
2001	3	-0.2%	0.1%	0.1%		
2023	3	-0.2%	0.1%	0.1%	-0.01	-0.01

Time Use by Adults in Households with Children

This section describes the methodology underlying the estimates on time use by adults with children in their household presented in the analysis piece. In the article, the time-use of prime-age adults in households where there are no children is compared to the time-use of prime-age adults in households where the youngest child is less than 6-years-old and in households where the youngest child is between 6 and 17 years old.

Data

For this calculation, the American Time Use Survey (ATUS) microdata is used. Specifically, the 2003-2023 multi-year files are used, combining microdata from the annual files from 2003 to 2023.[14] The ATUS Respondent file, containing information about the survey's respondents (such as labor force status), is combined with the Roster file (containing information about household members, including age) and the Activity file (containing detailed activity codes and duration).

Calculation

The aim of this specific analysis is comparing how parent-households spend their time and evaluating whether the presence of household children in the household is associated with less discretionary time. First, the ATUS multi-year sample is subset to prime-age adults between the ages of 25 and 54. Householders under the age of 25 as well as those over the age of 54 are considerably less likely to live in households with children under 18.[15] Since younger and older people spend more hours on leisure activities and less hours on non-household work, on average, including them would disproportionately skew the average time expenditures of households without children.[16] The ATUS provides summary statistics on time use based on the presence of children in the household, but it does not further stratify based on the age of the respondent.[17] Further, students are also excluded, based on the TESCHENR school-enrollment variable, since their schedules are heavily influenced by academic demands rather than principally labor market or family dynamics.

The ATUS microdata details whether there's a household child under 18 in the household as well as the age of the youngest child in the household. Consequently, adults are grouped into three categories: those in households without children, those in households with children under 6, and those in households where the youngest child is between the ages of 6 and 17. Young children demand more active care by their caregivers than older children, while mothers of young children are more likely to be out of the labor force than mothers of older children,[18] so distinguishing households with and without children is important for the purposes of analyzing time use.

Time use is also categorized into six categories using the TRTIER1P and TRTIER2P activity codes:

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[14] https://www.bls.gov/tus/data/datafiles-0323.htm.

[15] https://www.census.gov/library/stories/2024/11/family-households.html.

[16] https://www.bls.gov/charts/american-time-use/activity-by-age.htm.

[17] https://www.bls.gov/news.release/atus.t08A.htm.

[18] https://www.bls.gov/news.release/pdf/famee.pdf.

work- and work-related activities (TRTIER1P code 5), caring for household and non-household members (TRTIER1P codes 3 and 4), household activities (TRTIER1P code 2), sports and leisure activities (TRTIER1P codes 12 and 13), sleeping (TRTIER2P code 101), and all other activities. Traveling related to each activity is also counted towards the time-use of work-related activities (TRTIER2P code 1805), care-related activities (TRTIER2P codes 1803 and 1804), household activities (TRTIER2P code 1802), and sports and leisure activities (TRTIER2P codes 1812 and 1813).[19] In the article, the time spent on household activities and care-activities is grouped under the single category of "Unpaid Care and Household Work."

To estimate the average time use for adults in each group, the guidelines under the ATUS User's Guide[20] are followed. For each adult, the total time spent during each activity type is summed using the TUACTDUR24 variable, detailing the total time spent doing an activity in minutes. Then, for each respondent, the time spent on each activity is multiplied by the ATUS final weight TUFNWGTP, except for the year 2020 when the TU20FWGT final weight is used.[21] The weighted time spent on each activity is summed to determine the total time spent by each population group during the 2003-2023 period. To compute the average time spent on each activity by each group, the population of each group is determined over the 2003 and 2023 period as the sum of the respondents' final weights. Finally, the average time spent on each activity by each group is given by dividing the group's total time spent on each activity over the group's population over the 2003-2023 period. The following formula is provided by the User Guide:

Equation 1: American Time Use Survey Average Hours per Day Formula

Average hours per day. $\overline{T}_j$, the average number of hours per day spent by a given population engaging in activity j, is given by

$$\overline{T}_j = \frac{\sum_i fwgt_i T_{ij}}{\sum_i fwgt_i}$$

where T_{ij} is the amount of time spent in activity j by respondent i, and $fwgt_i$ is the final weight for respondent i.

Examples of this type of estimate are the average number of hours per day that people spent watching TV, the average number of hours per day that men spent working, or the average number of hours per day that children under 18 spent doing homework.

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[19] See the 2003-2023 Activity Lexicon for the first (TRTIER1P) and second-tier (TRTIER2P) activity codes and the more detailed description of activities they encompass. https://www.bls.gov/tus/lexicons/lexiconnoex0323.pdf.
[20] See section 7.4 "Producing Estimates with ATUS Files" (p.40) https://www.bls.gov/tus/atususersguide.pdf.
[21] This weight was constructed to account for the exclusion of days during the 2020 data collection period due to complications related to the onset of the Covid-19 pandemic.

Results

Tables 14 and 15 below summarize the results. Prime-age adults in households without children spend more time on traditional work- and work-related activities than adults in households with children, on an average day. However, when also considering unpaid care and household work, adults in households with children spend over an hour more per day working, on average. Adults in households with young children spend the most time working in total (8.7 hours) despite spending the least time, on average, on traditional work activities (4.4 hours). This is explained by the greater time-burden of caring for young children, as adults in these households spend over an hour more, on average, on care activities than adults in households with older children (2.3 vs. 1.1 hours). Finally, the time squeeze faced by parent households is underscored by the fact that they spend over 18% less time on sports and leisure activities, on average. Time expenditure on sports and leisure activities is 3.7 and 4.1 hours for adults in households with children under 6 and with children aged 6 to 17 respectively compared to 5.0 hours for adults in households without children.

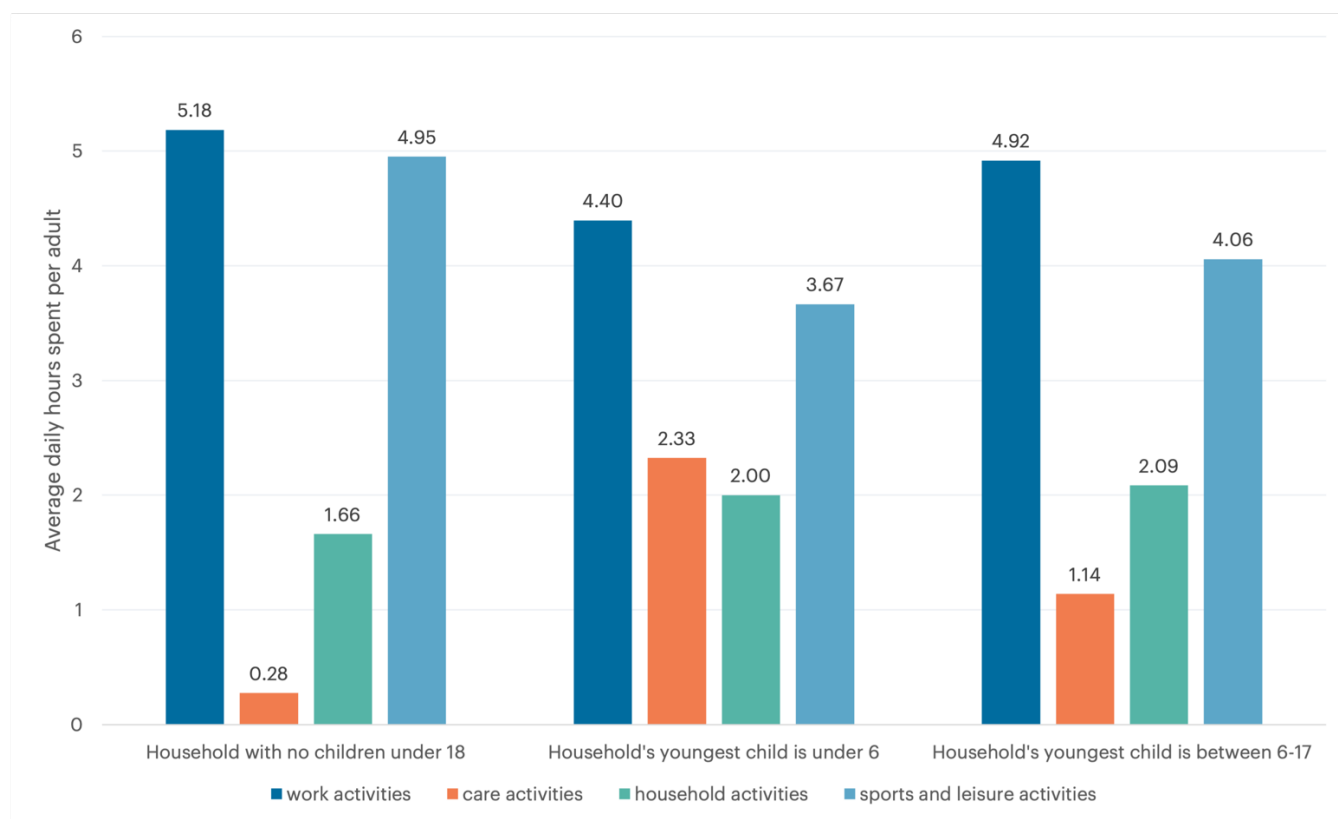*Figure 3: Average Daily Time Use for Selected Activities by Household Structure (2003-2023)*

Figure 4: Average Time Spent on Work vs. Leisure by Household Structure (2003-2023)
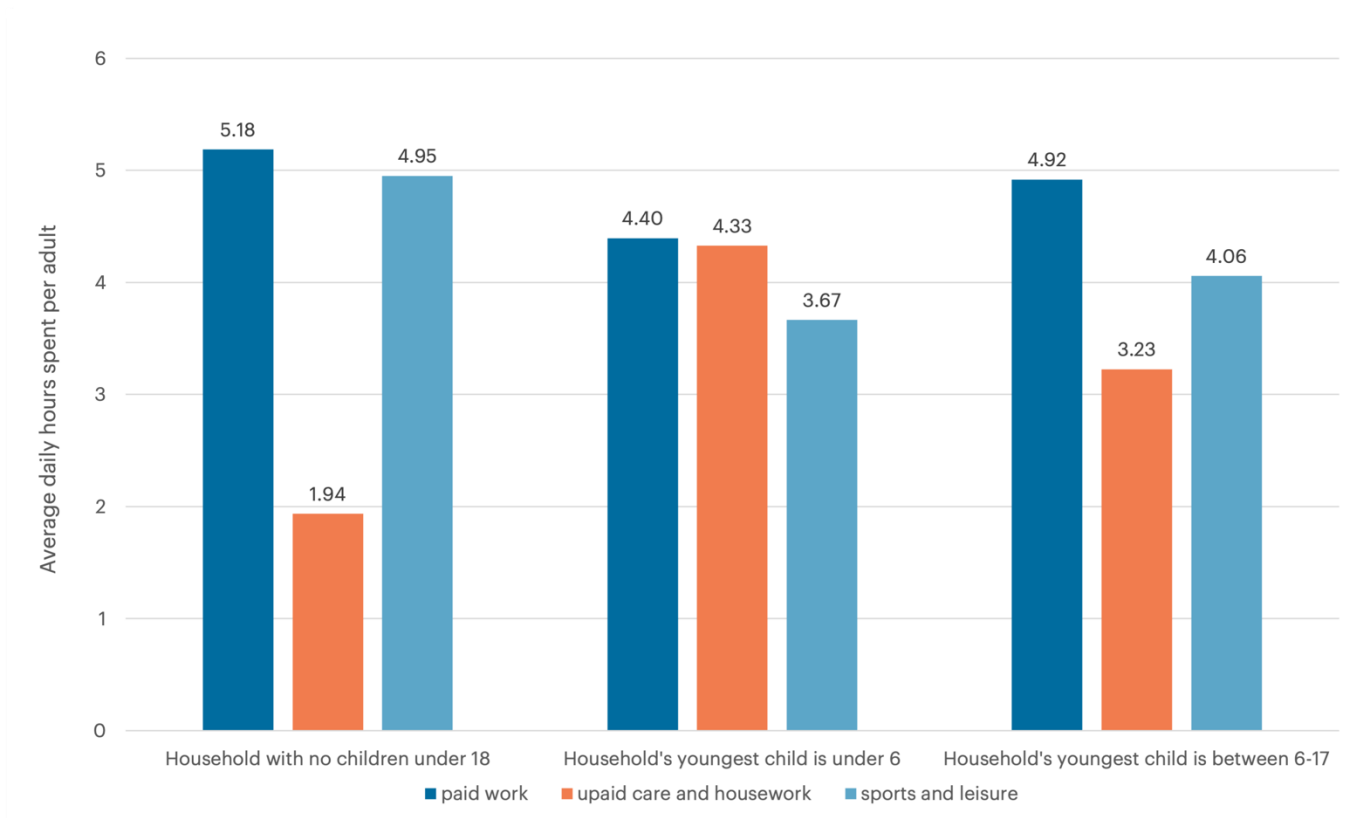
Table 14: Average Daily Hours Spent by Type of Activity and Household Structure

Household Structure	Work Activities	Care Activities	Household Activities	Sports and Leisure Activities	Other Activities	Sleep Activities
No household children under 18	5.18	0.28	1.66	4.95	3.26	8.67
Youngest household child under 6	4.40	2.33	2.00	3.67	3.10	8.51
Youngest household child 6 to 17	4.92	1.14	2.09	4.06	3.36	8.44

Table 15: Average Daily Hours Spent for Selected Activities by Household Structure

Household Structure	Paid Work	Unpaid Care and Household Work	Leisure & Sports	All Work (Paid + Unpaid)
No household children under 18	5.18	1.94	4.95	7.12
Youngest household child under 6	4.40	4.33	3.67	8.72
Youngest household child 6 to 17	4.92	3.23	4.06	8.14