

When Money Falls Short and Time Runs Out: Time and Income Poverty Over Five Decades in the U.S.

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Measuring income and time poverty

- ▶ Two dimensions of **non-market time** in assessing poverty:
 1. **Rest, leisure, and family time**: cannot be outsourced to the market
 - ▶ **maintenance time.**
 2. **Household tasks** (e.g., cooking, cleaning, child supervision) that *can be outsourced to the market*
 - ▶ **substitutable household production.**

Measuring income and time poverty

- ▶ **Official** poverty measure: shortfalls in **income** (U.S.), conditional of family size and composition.
 - ▶ Supplemental Poverty Measure (**SPM**)
- ▶ Two *additional* types of poverty:
 - ▶ **Time poverty**: Absence of time for maintenance (i.e., rest, leisure, and family time)
 - ▶ **Extended income poverty**:
 - ▶ **Money-poor** households (i.e., below the official money poverty line) *OR*
 - ▶ Fall into money poverty if they **have to purchase market substitutes** for household tasks.

This paper

- ▶ **Develops** and **operationalizes** this analytical separation:
 - ▶ **Poverty measures** typically only focus on **income**.
 - ▶ No acknowledgment of **contribution of unpaid work** to living standards.
 - ▶ Usual focus of the **time poverty literature** on **deficits in leisure** time: e.g., Bardasi and Wodon 2006, Kalenkoski et al. 2011, 2013.
 - ▶ A few look at **adapting money poverty** lines (e.g., Vickery 1977, Zacharias et al. 2010)
 - ▶ But **no separation** between maintenance and substitutable household production time (e.g., monetizing deficits in rest and leisure).
 - ▶ Deficits in **two types of time**, and **income**, are **likely to be systematically related** (e.g., as with low wages, or parenthood).

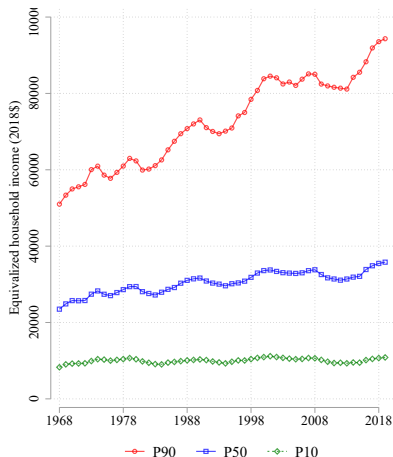
Contribution (cont.)

- ▶ Empirical **estimates of time and extended poverty** in the U.S. across socioeconomic subgroups:
 - ▶ **Snapshot**: CPS Annual and Social and Economic Supplement (**ASEC**) and American Time Use Survey (**ATUS**) 2010-2019.
 - ▶ **Long-run trends**: Estimates for 1965-2018 using the American Heritage Time Use Survey (**AHTUS**).
 - ▶ No estimates of adapted poverty lines for the U.S. after 1985 (Douthitt 2000).

Rising inequality and rising women's employment

Much attention to **rising earnings inequality** after 1970s (“polarization”)

- ▶ Stagnating wages and incomes at the bottom of the income distribution.
- ▶ Rising women's employment and paid hours.
- ▶ Accompanying **declines in household production time** matter for living standards.
- ▶ What impact on time and extended poverty?

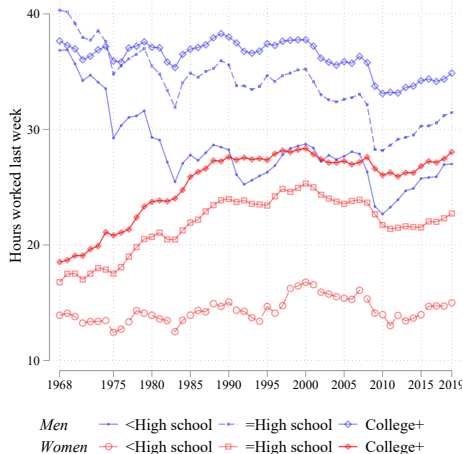


Source: CPS Annual Social and Economic Supplement (ASEC), ages 18+. Square root scales applied to equivalize total pre-tax, post-transfer incomes from all sources.

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- ▶ Accompanying **declines in household production time** matter for **living standards**.
- ▶ What impact on **time and extended poverty**?



Source: CPS ASEC, ages 20-60. Hours not conditional on employment.

Motivating example: **Married** couples

	<i>Parents</i>	<i>Childless</i>	<i>Elderly (65+)</i>
Real equivalized family income	\$59,600	\$78,800	\$58,000
Official poverty rate	7.7%	4.6%	4.3%
Hours per week on rest and leisure	102	113	130
Share in sample	16%	12%	10%

Source: CPS ASEC 2010-2019 and ATUS 2010-2019. Family income deflated to 2018\$ and equalized by square root scale.

Motivating example: Parents

	<i>Single parents</i>	<i>Married, dual-earner</i>	<i>Married, single-earner</i>
Real equivalized family income	\$24,600	\$69,900	\$47,000
Official poverty rate	37.8%	1.8%	14.9%
<i>Hours per week:</i>			
Rest and leisure	109	97	109
Housework and child supervision	40	84	100
Share in sample	3%	9%	7%

Source: CPS ASEC 2010-2019 and ATUS 2010-2019. Time allocation imputed to ASEC respondents from ATUS. About 16% of single parents are single fathers. Family income deflated to 2018\$ and equalized by square root scale.

Classifying non-market time

Maintenance time:

- ▶ Leisure
- ▶ Sleep and personal care
- ▶ **Active childcare** (e.g., playing with or reading to children)

Substitutable time:

- ▶ Housework
- ▶ Caring for household adults
- ▶ **Child supervision** (non-overlapping with housework or care)

Rationale: **elasticities** of **time** with respect to **household income** for non-employed (Hamermesh and Biddle 2020).

But: arbitrary, preclude overlaps.

Time use data

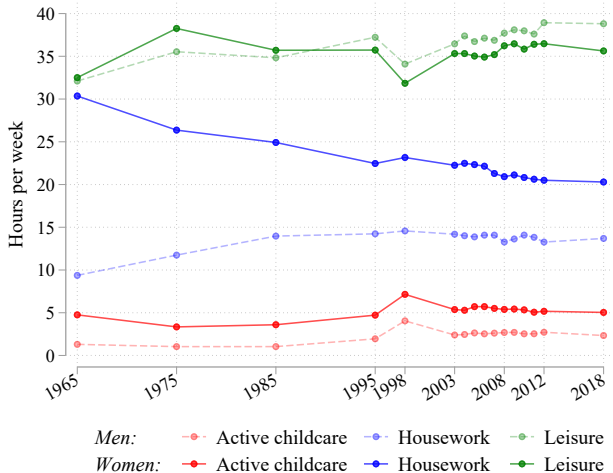
AHTUS: National **time-diary** samples (1965, 1975, 1985, 1995, 1998, **ATUS** 2003-2018).

- ▶ Collected by academic centers for 1965-1998 (University of Michigan, University of Maryland), and by U.S. Bureau of Labor Statistics thereafter.
- ▶ About 2,000-5,000 adults per year in 1965-1998 and 12,000 adults per year for 2003-2018.

Time-diaries: Respondents asked to provide **detailed log** of all their activities, including start/end times, locations, companions, and context, over a specific period (usually 24 hours).

Rich, sequential account of how people spend their time.

Trends in time allocation



Source: AHTUS 1965-2018, adults 18+.

Matched to data on incomes

- ▶ **Time use surveys** lack good information on **incomes**.
- ▶ Workhorse dataset on **incomes and poverty** in the U.S.: CPS ASEC.
- ▶ Time allocation **predicted** from ATUS/AHTUS onto CPS ASEC (see also Frazis and Stewart 2011, Han et al. 2020, Gautham and Folbre 2025).
 - ▶ **Predict** time for each adult in AHTUS (based on age, education, number and age of children, marital status, own and spousal employment status, race: separately by gender and year).
 - ▶ Use predictions to **impute** time for adults in the CPS ASEC.

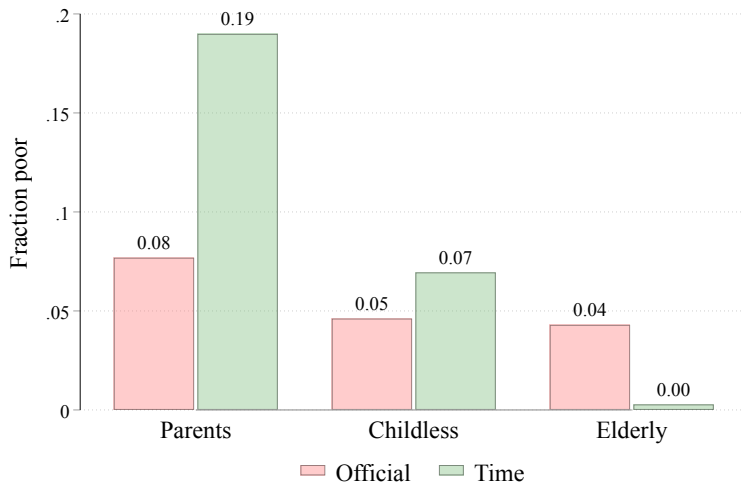
Operationalizing **time** poverty

An *individual* is time poor if time devoted to maintenance (i.e., **sleep, leisure, and family time**) falls short of (**relative**) **threshold**.

- ▶ Here, threshold = **average less 1 standard deviation** for each category (Goodin et al. 2008, 2010).
- ▶ **98 hours/week** for non-parents and **104 hours/week** for parents (varying by age and number of children).
 - ▶ Overall distributions of time categories relatively **stable** over time
 - ▶ Comparable to **absolute** thresholds adopted in Vickery (1977) and Zacharias et al. (2010).

Who is time poor?

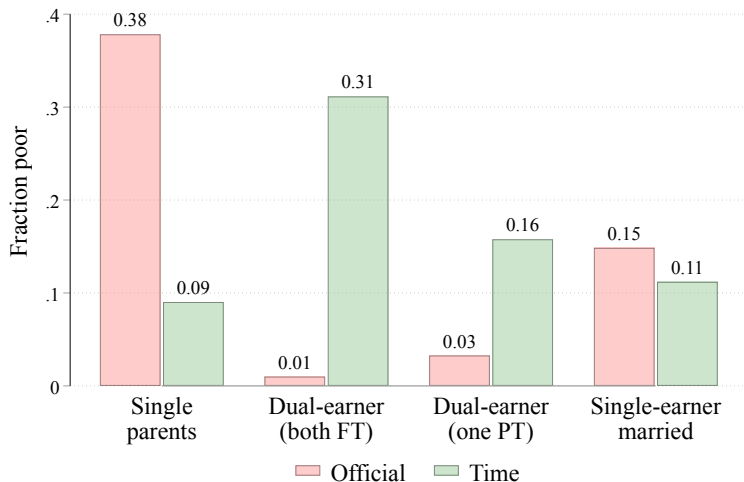
Figure: Married couples



Source: CPS ASEC 2010-2019, all married individuals 18+. Time allocations applied to ASEC using ATUS predictions.

Who is time poor? (cont.)

Figure: Parents



Source: CPS ASEC 2010-2019, all parents 18+. Time allocations applied to ASEC using ATUS predictions.

Operationalizing **extended income** poverty

- ▶ **Threshold** = **Time** needed for **substitutable tasks** (e.g., housework, child supervision, adult care) by a poor household.
 - ▶ **Average** time (varying by household size, number and age of children);
 - ▶ By **households** below official poverty line;
 - ▶ Where **no member is time poor**.
- ▶ **Shortfalls** monetized at **housekeeper wage** (i.e., **what it would cost the household to purchase market substitutes to make up the deficit**).
- ▶ **Subtracted from household income, which is then compared to official poverty line.**
- ▶ Extended poverty is 15% vs. official poverty at 12% (**3 pp or 25% increase**).
- ▶ Similar process applied to **Supplemental Poverty Measure (SPM)**.

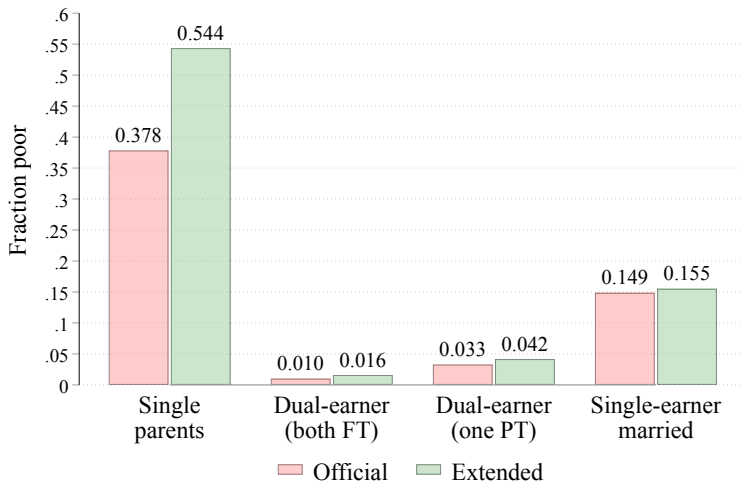
An example: Two parents, two children

- ▶ Official poverty threshold (2019, U.S. Census Bureau): \$26,000
- ▶ Required substitutable household production time: 40 hours per week.
- ▶ Housekeeper wage: \$10 per hour.

	A	B	C
Real equivalized family income	\$25,000	\$27,000	\$27,000
Actual substitutable time		30	50
Officially poor	Yes	No	No
Extended income poor	Yes	Yes	No

Extended income poverty among parents

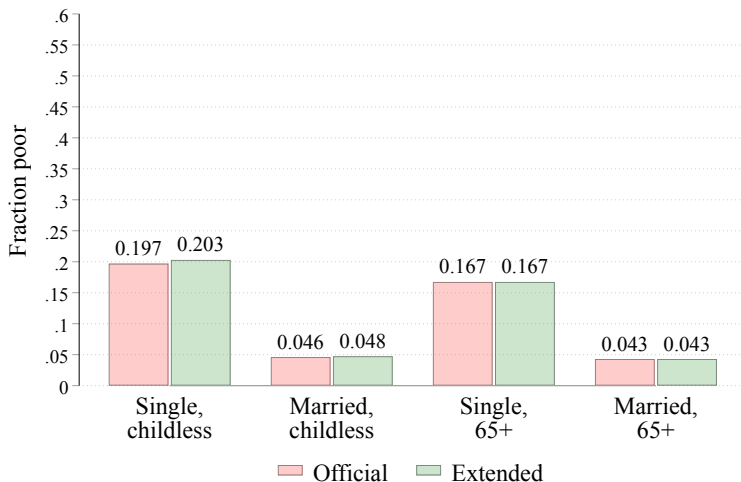
Figure: Parents



Source: CPS ASEC 2010-2019, all parents 18+. Time allocations applied to ASEC using ATUS predictions.

Extended income poverty among non-parents

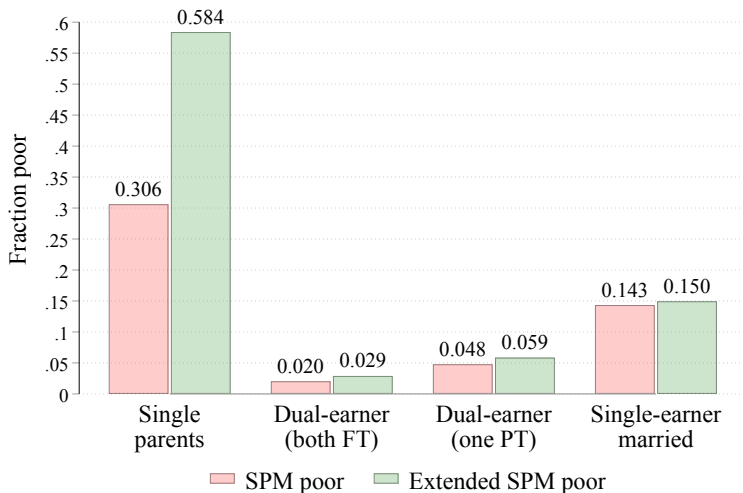
Figure: Non-parents



Source: CPS ASEC 2010-2019, all non-parents 18+. Time allocations applied to ASEC using ATUS predictions.

Extended SPM poverty among parents

Figure: Parents

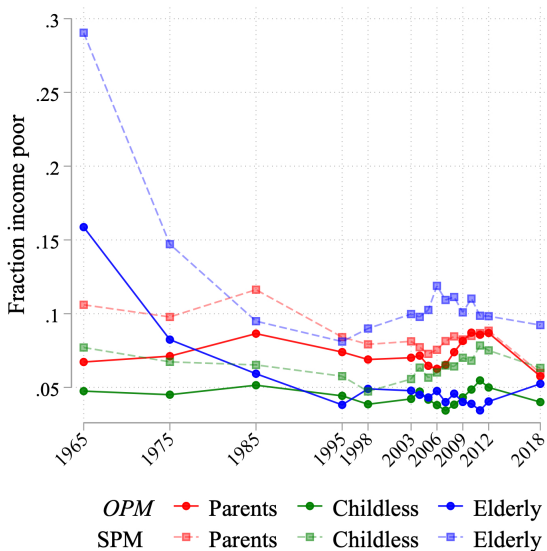


Source: CPS ASEC 2010-2019, all parents 18+. Time allocations applied to ASEC using ATUS predictions.

Long-run trends

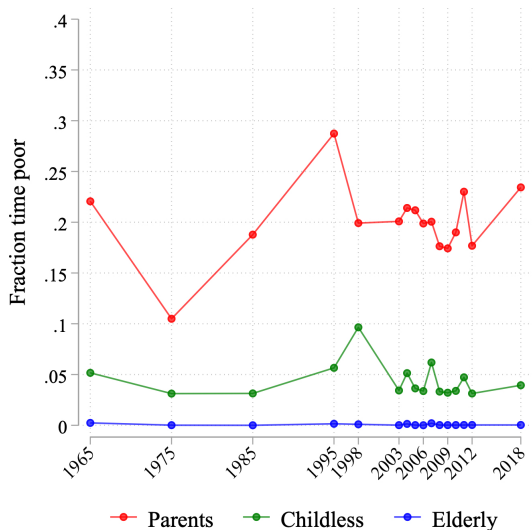
- ▶ **Time poverty:** *common* threshold across years (for sleep, leisure, and family time).
- ▶ **Extended income poverty:** compute threshold for substitutable time *separately by year*.
- ▶ **Extended SPM poverty:** historical SPM series provided by Wimer et al. (2024).

Figure: Income poverty among married couples



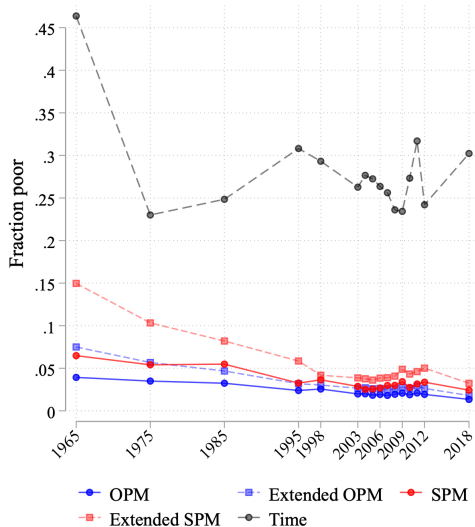
Source: CPS ASEC 1965-2018, all married individuals 18+.

Figure: Time poverty among married couples



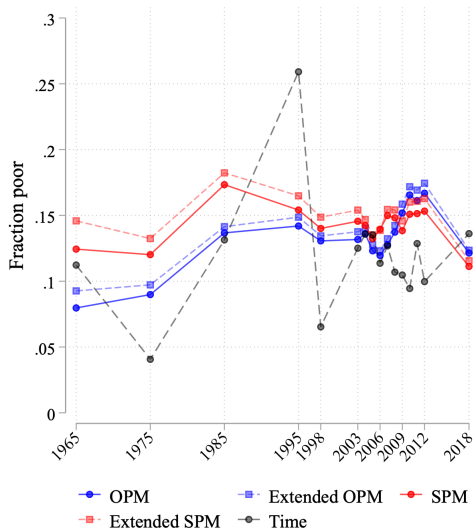
Source: CPS ASEC and AHTUS 1965-2018, all married individuals 18+.

Figure: Married, dual-earner parents



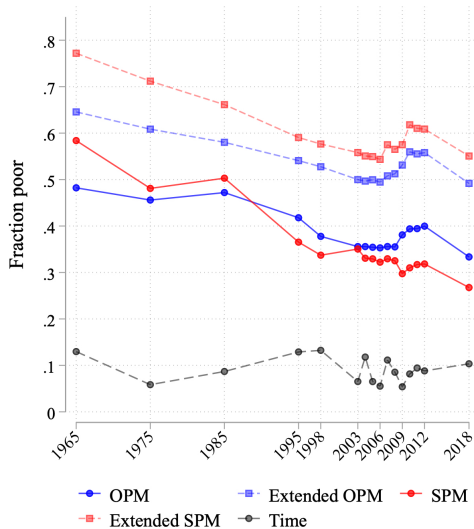
Source: CPS ASEC and AHTUS 1965-2018, all married parents where both employed, aged 18+.

Figure: Married, single-earner parents



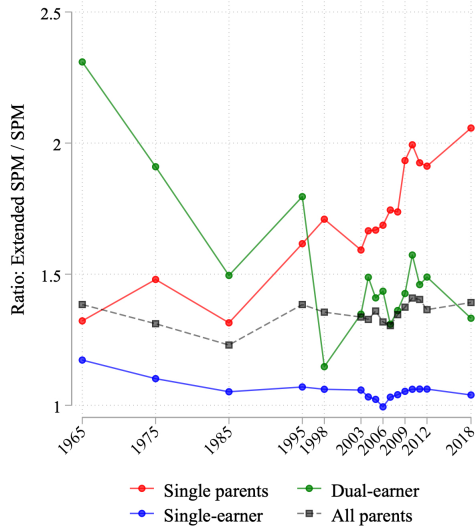
Source: CPS ASEC and AHTUS 1965-2018, all married parents where only one employed, aged 18+.

Figure: Single parents



Source: CPS ASEC and AHTUS 1965-2018..

Figure: Ratio of standard vs. extended poverty among parents



Source: CPS ASEC and AHTUS 1965-2018..

Takeaways

- ▶ Two different “**time scarcities**” matter for poverty measurement
 - ▶ **Maintenance** time (rest, leisure, family time) → time poverty
 - ▶ **Substitutable household production** (housework, child supervision, adult care) → extended income poverty
- ▶ **Time poverty** is concentrated among **parents** (esp. mothers in **dual-earner families**)
- ▶ Official income poverty misses “hidden” deprivation from household production deficits
 - ▶ Biggest reclassifications: **single parents** (38% → 55%) and **dual-earner families** (especially both FT)
- ▶ Long-run picture (1965–2018): time poverty falling among dual-earner couples; for single parents, extended vs official poverty diverges over time.

Questions/comments welcome.
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Appendix

Poverty and time

- ▶ **Time poverty:** “the **need to work long hours**, without choice, because the individual or household is **income poor or risks falling into poverty if they were to reduce their working hours** below a certain threshold,” with the consequence that “long working hours that do not allow for **sufficient rest and leisure**” (Rodgers 2024, p.80).
 - ▶ Working hours = *both* **paid** and **unpaid**;
 - ▶ Rest and leisure:” time not devoted to either paid or unpaid work.
 - ▶ Both paid and unpaid work contribute to material living standards.