Lifetime Incomes in the United States over Six Decades*

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Abstract

Using panel data on individual labor income histories from 1957 to 2013, we document two sets of empirical facts about the distribution of lifetime income in the United States. First, from the cohort that entered the labor market in 1967 to the cohort that entered in 1983, median lifetime income of men declined by 10%–19%. Moreover, there was little-to-no rise in the lower three-quarters of the male lifetime income distribution during this period. Accounting for rising employer-provided health and pension benefits partly mitigates these findings but does not alter the substantive conclusions. For women, median lifetime income increased by 22%–33% from the 1957 to the 1983 cohort, but these gains were relative to the very low median lifetime income for the early cohorts. Much of the difference between newer and older cohorts comes from differences in median income at the time of labor market entry. Second, inequality in lifetime incomes has increased significantly within each gender group, but the closing lifetime gender gap has kept overall lifetime inequality virtually flat over the entire period. The increase among men is largely attributable to subsequent cohorts entering the labor market with progressively higher levels of inequality, and not so much to faster inequality growth over the life cycle for newer cohorts. Partial life-cycle income data for younger cohorts indicate that both the stagnation of median lifetime income and the rise in lifetime inequality are likely to continue.

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Keywords: Lifetime income, lifetime inequality, wage stagnation, gender income gap.

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1 Introduction

Since the 1970s, two main trends have characterized the U.S. labor market: (i) stagnating average incomes and (ii) rising income inequality. These twin trends, which have shown remarkable resilience, have spurred both active academic research into their primary causes and heated public debate over the appropriate policy responses. Yet, despite this intense attention, the vast body of available empirical evidence pertains almost entirely to point-in-time measures of income, with little evidence on trends in lifetime incomes.[1] This dearth of evidence is not because of an oversight on the part of researchers. Going back at least to the 19th century (Farr (1853)), researchers have been well aware that for many questions in the social sciences, lifetime income is the most relevant concept because it provides a more complete picture of an individual's lifetime resources. Lifetime income accounts for the transitory nature of point-in-time (often annual) income and long-run economic mobility, as well as the extensive margin of participation in the labor market. For many questions, the difference between lifetime and point-in-time measures can matter greatly.[2]

Rather, the lack of a systematic analysis of the distribution of lifetime incomes in the United States is due to the scarcity of micro data sets with sufficiently long individual income histories. Thus, to shed light on this topic, this paper begins by constructing measures of lifetime income for millions of individuals, using a 57-year-long panel (covering the period 1957–2013) of individual income histories from U.S. Social Security Administration (SSA) records. Our baseline lifetime income measure is based on 31 potential working years between ages 25 and 55, which allows us to construct lifetime income statistics for 27 year-of-birth cohorts. The first (oldest) cohort turned age 25 in 1957, and the last one turned age 55 in 2013, the last year of our sample. Throughout this paper, we refer to cohorts by the year in which they turned 25.[3] To our knowledge, this paper provides the first analysis of lifetime income distributions for a large number of cohorts in the United States.

[1] We discuss exceptions in the literature review below. Because of the nature of our data set (discussed in Section 2), in this paper we exclusively focus on labor (wage/salary) income. We use "earnings" and "income" interchangeably throughout the paper. See Lemieux (2008) and Acemoglu and Autor (2011) for thorough surveys of trends in inequality in annual earnings.

[2] For example, a 30-year-old medical intern who earns $40,000 is close to the median worker in that year but will likely end up in the top 5% of the lifetime income distribution. Similarly, a 22-year-old rookie NFL player who makes $400,000 will be in the top 1% of the income distribution that year but may easily be out of the top 10% of the lifetime income distribution.

[3] As we explain in Section 2, we exclude individuals who participated in the labor market for less than 16 (out of 31) years so as to focus on individuals with a relatively strong lifetime labor market attachment. An individual is considered a nonparticipant if he or she has negligible labor income in that year, as defined in Section 2.

Our main contribution is to document counterparts to the twin trends, but using lifetime income rather than annual income. Specifically, we ask four related sets of questions. First, in Section 3, we ask how the lifetime income of the median worker has changed from the first cohort (hereafter, the 1957 cohort) to the last one (hereafter, the 1983 cohort) and, given the remarkable changes in women's roles in the labor market over this period, whether these trends differ by gender. We find that the lifetime income of the median *male* worker declined by 10% to 19% (depending on the price deflator we use), from the 1967 cohort to the 1983 cohort. Perhaps more strikingly, more than three-quarters of the distribution of men experienced no rise in their lifetime income across these cohorts—the only rise took place from the 1957 cohort to the 1966 cohort.

In contrast, subsequent cohorts of female workers have seen robust and steady gains—on the order of 22% to 33% for the median *female* worker. However, because these gains started from a very low level of median lifetime income for the 1957 cohort, they were not large enough at the aggregate level to offset the losses by men. An important related trend during this period was the rise of non-wage benefits, dominated by employer-provided health insurance and retirement benefits. Our data set does not contain individual-level information on non-wage benefits, but we use the national income and product accounts (NIPAs) to obtain an upper bound on the growth of such benefits. Incorporating the growth in these benefits mitigates but does not overturn these findings.

To appreciate the magnitude of these trends, some dollar figures can be useful. When nominal earnings are deflated by the personal consumption expenditure (PCE) deflator, the annualized value of median lifetime wage/salary income for male workers declined by $4,400 per year from the 1967 cohort to the 1983 cohort, or $136,400 over the 31-year working period. Adding in an upper bound estimate of growth in non-wage benefits reduces this loss to $3,100 per year, or to $96,100 over the working life. Using the consumer price index (CPI) to deflate nominal incomes reveals an even bleaker picture: a loss of $9,150 per year, or $7,850 when estimated non-wage benefits are included. The corresponding total lifetime loss is $283,650 for wage/salary income and $243,350 when estimated benefits are included.

A second question we study (in Section 4) is how the *shape* of life-cycle income profiles changed across cohorts, which would help us identify the phase of the life cycle most responsible for the decline in lifetime incomes. For men, the largest difference was found in the early working years: each subsequent cohort after 1967 faced a lower median initial income (i.e., at age 25) relative to previous cohorts *but* did not experience faster income growth over their life cycle to make up for the lower entry wages. For example, median

initial income fell from $33,300 for the 1967 cohort to $29,000 for the 1983 cohort (PCE adjusted). The analogous figures at age 55 were $55,900 for the former cohort and $54,100 for the latter, a *decline* of $1,800, showing no sign of catch-up over the life cycle.[4]

Looking ahead to more recent cohorts—those who are currently in the labor market—does not reveal a more optimistic picture: median initial income for men was only $24,400 in 2011, virtually the same level as in 1957. An analysis of recent cohorts with at least 10 years of data indicates that the median lifetime income of male workers could continue to stagnate. In these recent cohorts, the median initial income of women tracks that of men more closely, but women have experienced somewhat faster income growth in the early years of the life cycle, partly compensating for those losses in initial income.

Third, in Section 5, we turn to *inequality* in lifetime incomes and ask whether it has also increased alongside the well-documented increase in cross-sectional inequality. For the pooled sample of men and women, we find only a small rise in lifetime inequality, and measures of inequality that are not dominated by the top percentiles reveal little-to-no rise in lifetime inequality across these cohorts. For example, both the interquartile range and the 50-10 ratio (i.e. the ratio between the 50th and 10th percentiles of the lifetime income distribution) of lifetime income shrunk over this period. At first blush, this finding seems surprising in light of substantial increases both in cross-sectional income inequality (that is well known) *and* in lifetime income inequality *within* each gender group that we document in this paper. The missing piece is the *lifetime* gender gap, which has shrunk throughout this period and did so more strongly than its (well-documented) annual counterpart. This has kept overall inequality virtually flat despite the relatively large rise in lifetime inequality within each gender group.

Fourth, in Section 6 we ask how the *aggregate* lifetime income of each cohort (the "pie") is distributed across men and women in different parts of the lifetime income distribution, and how this distribution has changed across cohorts. We find that over the course of a generation (27 cohorts), the share of aggregate cohort income accruing to women nearly doubled. A large part of this increase is a result of women becoming more strongly attached to the labor force (i.e., working more years over the life cycle). Breaking down the aggregate

[4]Although a full analysis of the root causes of these trends is beyond the scope of this paper, we conducted a state-level panel regression analysis to provide a broad sense of potential drivers. Our results indicate that the decline in median lifetime income is closely linked to size of the entry cohort, which is consistent with imperfect substitution in production between workers of different ages as proposed by Card and Lemieux (2001) to explain the behavior of the college premium since the 1970s. Here, we find that the resulting downward pressure on earnings are persistent enough to depress the *lifetime* earnings for the median worker in larger cohorts. Further details are discussed in Section 7 and Appendix A.

cohort lifetime income into different percentiles of the lifetime income distribution reveals that the share of cohort lifetime income for the bottom 90% of men has decreased over this period, with significant increases only for men in the top 1% of the male lifetime income distribution. On the other hand, women in all parts of the lifetime income distribution have seen an increase in their share of aggregate cohort lifetime income.

Related Literature

One of the earliest attempts to construct a measure of lifetime income was made by statistician and epidemiologist William Farr (1853).[5] The impetus for Farr's work—a report commissioned by the British Parliament—was the belief that an equitable tax system can only be built with the knowledge of the lifetime resources of individuals. This perspective is just as relevant today. Similarly, many major lifecycle decisions—such as investment in education/human capital, occupational choice, and fertility—require knowledge (or expectations) of lifetime resources. Lifetime income plays a central role in human capital theory (e.g., Mincer (1958) and Becker (1962)), which spawned a sizable empirical literature that attempted to obtain empirical measures of it. Estimates of lifetime income are also key inputs in other fields, for calculating compensation in personal injury lawsuits, for estimating indirect costs of wars and disasters, and for assessing the progressivity or regressivity of cigarette and alcohol taxes, among others.

The vast majority of empirical studies before the 1970s had access only to cross-sectional data by socio-economic groups. Survey-based panel data sets started to become available in the 1970s, which has allowed researchers to incorporate income dynamics when estimating lifetime income. However, the short time spans and the small sample sizes of most survey data sets made it infeasible to compute the distribution of lifetime incomes using only actual earnings histories.

To overcome these challenges, one literature estimates parametric econometric models for income dynamics from panel data, which can then be simulated to obtain the distribution of lifetime incomes. For example, Bowlus and Robin (2004) fit a search model to the moments of 1-year changes in wages and employment status using the matched Current Population Survey (CPS), which they then simulate to obtain the distribution of lifetime incomes. Dearden et al. (2008) use similar approach to study higher education reform in England.

[5] Since Farr (1853), a long list of studies attempted to obtain better estimates of lifetime income. Among these, Walsh (1935), Houthakker (1959) and Miller (1960), focused on computing the lifetime benefits of education, whereas Clark (1937), Friedman and Kuznets (1954), Wilkinson (1966), and others, computed the average lifetime income of various socioeconomic or occupational groups.

A number of papers use this approach to obtain estimates of lifetime incomes for studying questions related to the US Social Security pension system. Among these, Brown et al. (2009) and Coronado et al. (2011) use the Panel Study of Income Dynamics (PSID) data in combination with simulation models, whereas Gustman and Steinmeier (2001) and Liebman (2002) use the Health and Retirement Survey (HRS) and the Survey of Income and Program Participation (SIPP)) that are matched with (capped) Social Security earnings records.

Our paper differs from this literature in three main ways. First, the long time span of SSA data allows us to use 31-year-long actual earnings histories for each individual to compute lifetime incomes and document empirical patterns with minimal assumptions. Parametric econometric models (necessitated by short survey panels) often miss important nonlinearities present in individual income dynamics.[6] Furthermore, these models are typically estimated by targeting moments of short-run dynamics, whereas the long-run dynamics (or mobility) of income matter greatly for the distribution of lifetime incomes. In this paper, we are able to avoid these challenges. Second, with a few exceptions, earlier papers mostly focused on lifetime inequality at point in time, a focus dictated partly by the short time span of available data and partly by the questions those papers were interested in. In contrast, documenting the *trends* over time *is* the main focus in this paper. A notable exception is Bowlus and Robin (2004) who study the rise in U.S. lifetime inequality from 1977 to 1997 by simulating econometric models fitted to moments of 1-year changes from the matched CPS.[7] Third, earlier papers focused on inequality in lifetime incomes and did not analyze trends in median lifetime incomes, which is a major focus of this paper.

A vast parallel literature studies short- and long-run income mobility over the life cycle, two concepts that are intimately related to lifetime inequality and the extent to which it deviates from annual income inequality. Among the recent and most closely related papers, Kopczuk et al. (2010) use the same data extract from the SSA that we use in this paper but over a somewhat different and longer period—from 1937 to 2004. They document how the patterns in long-run (intragenerational) income mobility changed over this period. Because of their different focus, they restrict attention to income measures that are computed for 11-year-long periods over the life cycle. Furthermore, although mobility patterns certainly contain information about annual vs lifetime incomes, the link is not straightforward so that one could infer the statistics on one from the other (except in very special cases).

[6] See Guvenen et al. (2015) and Arellano et al. (2017) for empirical evidence on these nonlinearities.

[7] Another interesting paper is by Bonhomme and Robin (2009) who study changes in lifetime inequality in France from 1990 to 2012 by modeling income dynamics with copulas fitted to earnings from 3-year panels.

In that sense, the contributions of the two papers on the distribution of lifetime incomes complement each other. Another important difference is the analysis of trends in median lifetime income, which is not studied in that paper.[8]

Finally, a few recent papers use administrative panel data to study lifetime inequality in Europe. Aaberge and Mogstad (2015) compare lifetime inequality and cross-sectional inequality in Norway using population data on earnings histories over individuals' working life. They do not examine trends over time. Bönke et al. (2015) study changes in lifetime inequality in Germany over 15 cohorts using career-long earnings histories.

2 Data

2.1 Data Sources

Our data come from the Continuous Work History Subsample (CWHS), which is a research extract from the U.S. Social Security Administration's (SSA) Master Earnings File (MEF). The CWHS is a 1% representative sample of U.S. workers whose jobs were covered by the Social Security system. The primary advantage of the CWHS is the long span of time covered, starting in 1957. For the 1957–2004 period, we use the sample constructed and cleaned by Kopczuk et al. (2010); further details can be found in that paper. We extend their sample to the years 2004–2013 by using the underlying data from the MEF for those years. Our final data set covers 57 years from 1957 to 2013, which allows us to compare lifetime incomes (31 years) for 27 birth cohorts.

During this period, the SSA has increased the set of industries that it covers, which poses a challenge for defining a sample whose representativeness is stable over time. We thus follow Kopczuk et al. (2010) by restricting our attention to workers employed in "commerce and industry," a group of sectors that was continuously covered by the SSA during this period.[9] Workers in commerce and industry accounted for approximately 70% of private sector employment in 2004. We have compared annual incomes in the Current Population Survey (CPS) for workers in all sectors with workers in commerce and industry. Figure C.5

[8] Some other papers used short averages of earnings (over 5 to 10 years) as a proxy for lifetime income, see, e.g., Aaronson (2002) and Leonesio and Del Bene (2011). These papers also focus on inequality and do not analyze the trends in median lifetime income.

[9] Following Kopczuk et al. (2010), we define "commerce and industry" workers to include all SIC codes, except for agriculture, forestry and fishing (01–09), hospitals (8060–8069), educational services (82), social service (83), religious organizations and non-classified membership organizations (8660–8699), private households (88), and public administration (91–97).

in Appendix C shows that the level and time trends of median annual income at different ages are virtually identical for the two groups of workers. (In Section C.1, we provide a detailed comparison of our data set with the CPS). Further details on the CWHS can be found in Panis et al. (2000), and further details on its coverage can be found in Kopczuk et al. (2010).

The measure of labor income recorded in the CWHS is wage and salary income.[10] From 1957 to 1977, labor income data are from quarterly reports of wage and salary income supplied by employers to the SSA. From 1978 onward, labor income data come directly from individual W-2 forms (Box 1) and include wages and salaries, bonuses, and exercised stock options.[11] To avoid possible privacy issues, we do not report any statistics for demographic cells (for example, a gender-year-income group) that contain fewer than 30 individuals. Because of the large size of the CWHS, such cells are rarely encountered. In addition to income, the CWHS contains information on date of birth and gender.

2.2 Adjusting for Inflation

In order to convert nominal incomes in the CWHS into real values, we need to choose an appropriate price index. Since our data span nearly six decades, this choice of price index matters. The two most commonly used price indexes are (i) the personal consumption expenditure (PCE) deflator from the Bureau of Economic Analysis (BEA) and (ii) the consumer price index (CPI) from the Bureau of Labor Statistics's (BLS). The (older) CPI and the (newer) PCE differ in several ways that are by now well understood.[12]

The PCE is generally accepted to be the superior index for measuring the *overall* price level and its evolution over the business cycle. It is thus the standard choice in aggregate (macro) economic analyses. However, for more micro work, such as the analyses in this paper, the CPI has some advantages. In particular, the CPI aims to capture the price level faced by the typical household for its *out-of-pocket* expenses and is thus based on a detailed survey of U.S. household expenditures, whereas the PCE is based on business surveys and also includes purchases made by others on behalf of households. Consequently,

[10]From 1978, the CWHS also includes data on self-employment income from Schedule SE. We do not include it in our measure of income, since it is not available in earlier years and is top-coded until 1994.

[11]Quarterly compensation reports were subject to top-coding at the taxable ceiling for Social Security contributions. Annual income above the taxable ceiling is imputed based on the pattern of quarterly earnings reports. For a detailed description of this imputation procedure, see Kopczuk et al. (2010). W-2 forms, which are the source of earnings data from 1978 onward, are not top-coded.

[12]For a comparison between the two indexes, see, for example, US Bureau of Labor Statistics (2011) or McCully et al. (2012).

relative to the PCE, the CPI places a lower weight on health care prices (since a large fraction of total expenditures is paid by Medicare/Medicaid and insurance companies) and a much higher weight on housing and transportation. Because of this close connection to household living expenses, many government transfer programs (including the SSA pension and disability benefits systems) use the CPI to adjust for inflation. Existing academic studies of heterogeneity and inequality have used both series.[13]

In our empirical analysis, we choose the PCE as our baseline measure for deflating nominal incomes because it implies a lower cumulative inflation over this period than the CPI. We report all values in 2013 dollars. As we shall see in the next section, one of our main findings is a large slowdown in the growth rate of lifetime incomes, and this point is made more forcefully with the conservative choice of the PCE. That said, we also report some key statistics using the CPI-adjusted figures, which, together with the PCE-adjusted figures, provides useful bounds on the effects of inflation adjustments for our findings.

2.3 Baseline Sample

From the CWHS, we select a baseline sample of individuals based on their age and a measure of lifetime attachment to the workforce. An individual is included in the baseline sample if he or she: (i) was alive from ages 25 to 55 during the panel period (1957–2013); (ii) had income that is larger than a year-specific threshold-level income, denoted by $\underline{Y}_t$, in at least 15 years between the ages of 25 and 55; and (iii) had total lifetime income of at least $31 \times \underline{Y}$ where $\underline{Y}$ is the average level of $\underline{Y}_t$ for their cohort. The threshold, $\underline{Y}_t$, is the income level that corresponds to working at least 520 hours at one-half of the legal minimum wage for that year. For 2013, this threshold was $1,885. Imposing an annual minimum income threshold of this type is common practice in the literature on measuring annual income inequality and dynamics (see, e.g., Abowd and Card (1989), Meghir and Pistaferri (2004), and Storesletten et al. (2004)). Requiring that the minimum income threshold is met on average over the ages 25 to 55 (condition (iii)) is a natural extension of this criterion to a lifetime context. Requiring that an individual satisfies the annual minimum income threshold in at least half of their possible working years (condition (ii)) ensures that we restrict attention only to individuals who have had a relatively strong attachment to the labor market during their lives.[14]

[13] For example, Card and Lemieux (2001); Lemieux (2006); Kopczuk et al. (2010); Aguiar and Hurst (2013); Aguiar and Bils (2015); Saez (2016) use the CPI, whereas Katz and Murphy (1992a); Autor et al. (2008) use the PCE.

[14] Because we are unable to distinguish between emigrants and individuals with zero earnings, and because our measure of income includes only income from commerce and industry, it is necessary to impose

2.4 Measure of Lifetime Income

We define annualized lifetime income as the sum of real annual labor income from ages 25 to 55, divided by 31:

$$\overline{Y}^i \equiv \frac{1}{31} \times \sum_{t=25}^{55} Y_t^i.$$

Since we have 57 years of income data, we can thus construct full lifetime incomes for 27 year-of-birth cohorts. We label these cohorts by the year they turned 25. The oldest cohort for which we have 31 years of data is the one that turned 25 in 1957; the youngest cohort is the one that turned 25 in 1983.

We do not discount future incomes when computing lifetime income for two reasons. First, there is no single figure that is a natural choice as the appropriate discount rate for human capital. The rates of return used in the literature to discount future financial flows (dividends, profits, etc.) range from 1%–2% (often used for short-term risk-free assets) to 6%–8% (corresponding to long-term risky assets). Moreover, human capital is different from these financial assets because it is not tradable (so there are no market prices to discipline the discount rate used) and has a risk structure that depends on many features of the institutional and redistributive environment that can alleviate or amplify such risks (welfare and benefits systems, borrowing constraints, etc). Proper discounting thus requires the use of an appropriate stochastic discount factor that accounts for these complex features of income dynamics and risk-sharing possibilities. These features of the environment can obscure the properties of the underlying lifetime income data we observe.[15]

Second, seemingly innocuous differences in the choice of interest rate can make a large difference in the level of lifetime inequality, how it evolves over time, and especially how it compares with cross-sectional inequality. This is because of the steep observed rise in both the level and dispersion of income in the first decade after a cohort enters the labor market. Higher interest rates effectively put more weight on income earned at younger ages. We prefer to treat income earned at all ages equally and focus on the most transparent possible measure of lifetime income.

some minimum income criteria. We have experimented with varying these minimum income thresholds and minimum years of labor market participation. Doubling or halving the required minimum has little impact on our results. We have also analyzed alternative ages ranges (30–60, 20–55, and 25–60) and obtained similar results.

[15]For example, Huggett and Kaplan (2011) and Huggett and Kaplan (2016) show that in the presence of tight borrowing constraints, the average return on human capital implied by correctly computed discount factors can be very high early in the working life, often above 30% or 40%, but in the absence of borrowing constraints, discount factors are very close to the risk-free rate.

3 Trends in Average Lifetime Income

In this section, we present our baseline findings with respect to trends in the average lifetime incomes of 27 consecutive cohorts. We begin by analyzing how average lifetime income has evolved across cohorts for males and females separately, and the extent to which these differential patterns were driven by changes in lifetime labor market participation versus income growth conditional on working. We then examine the impact that these differential trends have on the population as a whole.

3.1 Lifetime Income by Gender Group

Starting with men, from the 1957 to the 1983 cohort, annualized mean lifetime income ($\overline{Y}^i$) rose by around $10,000, from $42,200 to $52,200. This rise corresponds to a cumulative increase of 23.7%, or an average increase of 0.82% between two consecutive cohorts—see the first data column in Table 1. However, the bulk of these gains—21.9% of the total 23.7%—accrued to only the first 10 or so cohorts. From the 1967 to the 1983 cohort, mean lifetime income increased by only 1.5% cumulatively.[16]

Median lifetime income for males has barely changed from the 1957 cohort to the 1983 cohort, only increasing by about $250—or less than 1%. As with the mean, there are two distinct sub-periods: one from the 1957 to the 1967 cohort, where median lifetime income cumulatively rose by about 12.3%, and one from the 1967 to the 1983 cohort, where median lifetime income *fell* by over 10 percent. We will see that for almost all of the trends in lifetime income that we analyze, these two sub-periods—cohorts entering between 1957 and 1967 versus those entering between 1967 and 1983—represent two distinct phases. These findings for cumulative growth and average annualized growth in mean and median lifetime income are reported in the first panel of Table 1, along with the corresponding growth rates at selected percentiles of the lifetime distribution. We report lifetime income growth over the full period, as well as for the 1957 to 1967 cohorts and 1967 to 1983 cohorts separately.[17]

Table 1 shows that the stagnation of lifetime incomes for the cohorts since 1967 extends well beyond the median. Across almost the entire distribution of males, there have been either trivial, or even negative, gains in lifetime income. As far up the distribution as the

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[16]In Section 3.5 we compare growth in mean lifetime income with various measures of growth in mean cross-sectional income from the SSA data, the CPS and NIPA.

[17]In Table B.6 and Table B.7 in Appendix A, we report mean and median lifetime income, together with selected percentiles of the lifetime income distribution for each cohort separately, for males and females respectively.

Table 1: Growth rates of cohort lifetime income, by gender

Cohorts		Averages		Selected Percentiles							
		Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
Males – PCE											
57–67	Cumulative	21.93	12.27	14.12	11.46	10.94	15.84	17.25	22.75	28.73	57.56
	Annualized	2.00	1.16	1.33	1.09	1.04	1.48	1.60	2.07	2.56	4.65
67–83	Cumulative	1.46	−10.34	−20.32	−19.77	−15.77	−1.33	2.29	9.98	13.22	17.48
	Annualized	0.09	−0.68	−1.41	−1.37	−1.07	−0.08	0.14	0.60	0.78	1.01
57–83	Cumulative	23.71	0.66	−9.07	−10.57	−6.55	14.29	19.93	35.00	45.76	85.11
	Annualized	0.82	0.03	−0.36	−0.43	−0.26	0.52	0.70	1.16	1.46	2.40
Males – CPI											
57–67	Cumulative	15.89	7.19	9.68	6.30	5.98	10.26	11.80	16.91	21.57	48.98
	Annualized	1.49	0.70	0.93	0.61	0.58	0.98	1.12	1.57	1.97	4.07
67–83	Cumulative	−7.54	−18.52	−27.46	−26.91	−23.58	−9.84	−6.61	0.06	3.56	6.99
	Annualized	−0.49	−1.27	−1.99	−1.94	−1.67	−0.65	−0.43	0.00	0.22	0.42
57–83	Cumulative	7.15	−12.65	−20.44	−22.31	−19.01	−0.58	4.40	16.98	25.90	59.40
	Annualized	0.27	−0.52	−0.88	−0.97	−0.81	−0.02	0.17	0.61	0.89	1.81
Females – PCE											
57–67	Cumulative	23.44	19.58	19.42	16.62	17.36	20.88	23.06	22.87	26.32	37.15
	Annualized	2.13	1.80	1.79	1.55	1.61	1.91	2.10	2.08	2.36	3.21
67–83	Cumulative	44.76	32.67	12.05	16.31	25.06	39.19	40.35	49.04	63.32	107.57
	Annualized	2.34	1.78	0.71	0.95	1.41	2.09	2.14	2.53	3.11	4.67
57–83	Cumulative	78.69	58.64	33.81	35.64	46.76	68.25	72.71	83.12	106.31	184.68
	Annualized	2.26	1.79	1.13	1.18	1.49	2.02	2.12	2.35	2.82	4.11
Females – CPI											
57–67	Cumulative	17.34	14.23	13.04	10.98	11.86	15.03	16.93	16.95	20.16	31.89
	Annualized	1.61	1.34	1.23	1.05	1.13	1.41	1.58	1.58	1.85	2.81
67–83	Cumulative	32.82	22.01	2.32	7.05	15.59	27.79	28.79	36.63	48.80	88.13
	Annualized	1.79	1.25	0.14	0.43	0.91	1.54	1.59	1.97	2.52	4.03
57–83	Cumulative	55.85	39.37	15.66	18.81	29.29	47.00	50.60	59.79	78.79	148.11
	Annualized	1.72	1.29	0.56	0.67	0.99	1.49	1.59	1.82	2.26	3.56

Notes: This table reports the cumulative growth and annualized growth rates in moments of the lifetime income distribution across cohorts for the baseline sample (see section 2.3). We report growth rates for the mean, median, and selected quantiles of the lifetime income distributions for men and women separately using both the PCE and CPI price deflators. For example, the top left cell indicates that the mean lifetime income of the the cohort of men that entered the workforce in 1967 was 21.93% greater than the cohort of men that entered the workforce in 1957.

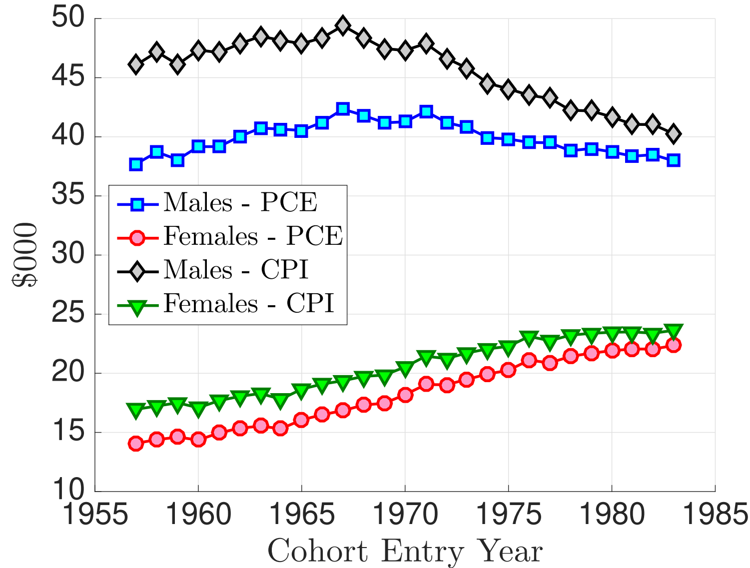
75th percentile, real lifetime income for males fell between the 1967 and 1983 cohorts. The only part of the distribution to see significant lifetime income gains was the top 10% of the distribution, and even for that part, growth was much faster over the first 10 cohorts as compared with the latter 16 cohorts. This paints a bleak picture of male lifetime income stagnation for the vast majority of the distribution.

Women, on the other hand, have seen increases in lifetime income throughout the entire distribution. Median lifetime income increased nearly monotonically from $14,100 for the 1957 cohort to $22,300 for the 1983 cohort. This steady increase in lifetime income for women has been broad-based, with all parts of the distribution experiencing consistent lifetime income growth across cohorts. Median lifetime income for women grew at an average rate of 1.8% per cohort for the 27 cohorts from 1957 to 1983, with almost the exact same annualized growth rates for the 10 cohorts from 1957 to 1967 and the 16 cohorts from 1967 to 1983. The 10th percentile of the lifetime income distribution grew only slightly slower over this period, at an average of 1.2% per cohort, while the 90th percentile grew slightly faster, at an average of 2.4% per cohort. At the very top of the distribution, lifetime income for women grew extremely fast – from the 1957 to 1983 cohorts, the 99th percentile nearly tripled (from $50,400 to $143,600), with an average increase of 4.1% per cohort.

Using the CPI rather than the PCE to convert nominal incomes to 2013 dollars lowers lifetime income growth for both men and women. The blue and black lines in Figure 1 show median lifetime income for males by cohort using the PCE and the CPI respectively, while the red and green lines show analogous figures for women. Using the PCE shows that lifetime incomes for males increased up until about the 1967 cohort and then declined. However, with the CPI, median lifetime income is largely flat until the 1957 cohort and then begins a steep decline. The second panel of Table 1 presents the changes between males' lifetime incomes across cohorts after deflating with the CPI for the other percentiles of the distribution. As with the median, deflating with the CPI reduces the lifetime gains experienced by the first 10 cohorts, and exacerbates the lifetime income losses felt by the second set of cohorts across the distribution: even the 99th percentile of males experienced about half a percent of lifetime income growth by cohort. For women, deflating with the CPI reduces the growth rates but does not erase the broad gains in lifetime income.[18]

[18] Tables B.8 and B.9 in Appendix B show the selected moments of the lifetime income distribution by individual cohort for males and females, respectively, using the CPI.

Figure 1: Median Lifetime Income by Cohort and Gender

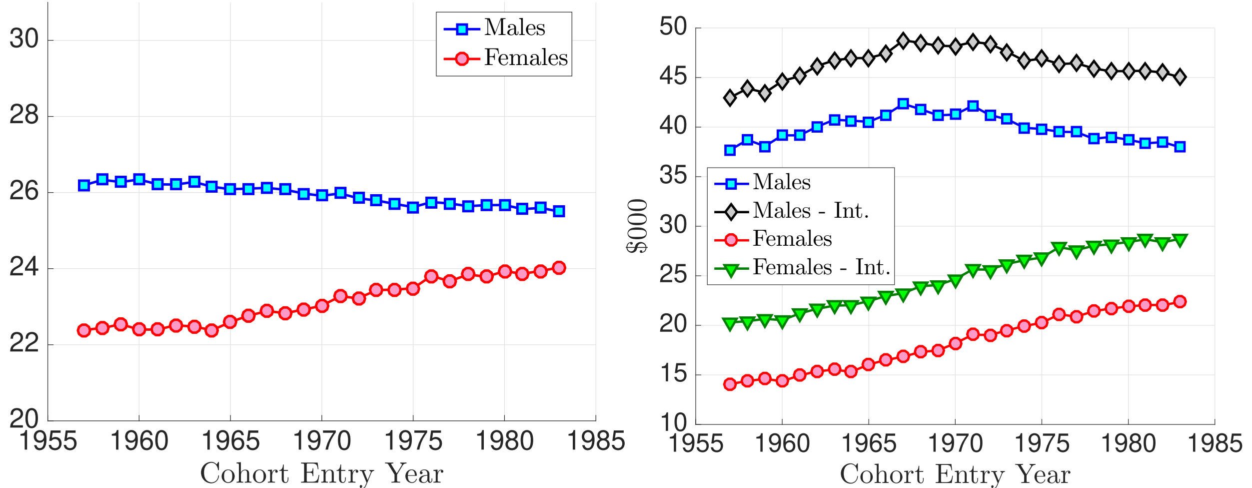


Notes: Each marker/observation represents the median lifetime income of a cohort that turned age 25 (entered the labor market) in the year indicated on the x-axis. Only individuals in the baseline sample (as defined in Section 2.3) are included. We separate each gender and show both the PCE and CPI price deflators. Values are displayed in thousands of 2013 US dollars.

3.2 Extensive and Intensive Margins

Lifetime income growth from one cohort to another can come from either an increase in lifetime labor market participation (the extensive margin) or an increase in income earned while working (the intensive margin) or both. For women, the growth in lifetime income from the 1957 cohort to the 1983 cohort was driven by both margins. The changes in lifetime participation across these cohorts can be seen in Figure 2a, which displays the mean number of years worked for individuals in each cohort. Recall that an individual is included in the sample only if his/her annual earnings exceed $\underline{Y}_t$ in at least 15 of the 31 possible years; so, we are already conditioning on people with at least some attachment to the labor force. Even among these women who work at least 15 years, the average number of years worked between the 1957 and 1983 cohorts increased by about 1.6 years. Most of this increase comes from an increase in the number of years worked at young ages. From the 1957 to the 1983 cohorts, women in our sample worked an average of 1.8 additional years between the ages of 25 and 34, 0.2 additional years between the ages of 35 and 44, and 0.4 fewer years between the ages of 45 and 54.

Figure 2: Lifetime Income by Cohort, Extensive and Intensive Margins



(a) Number of years worked by cohort and gender

(b) Median lifetime income by cohort and gender, extensive and intensive margins

Notes: Panel (a) displays the average number of years worked over the lifetime for a cohort of each gender that entered the labor market in a given year. Panel (b) displays the median lifetime income each gender-cohort as in Figure 1 (blue and red lines), as well as the median of the intensive margin of lifetime income for a gender-cohort that entered the labor market in a given year (blue and green lines). All statistics calculated using the baseline sample (see section 2.3). Values are displayed in thousands of 2013 US dollars and deflated using the PCE.

Conditional on working, lifetime income for women also increased dramatically.[19] We measure the importance of this intensive margin by constructing an alternative measure of lifetime income in which we divide an individual's total income by the number of years in which he or she has income above the minimum threshold, rather than by 31. The median of the intensive margin of lifetime income for each cohort is shown by the black (diamond marker) and green (triangle) lines in Figure 2b. For comparison, the blue (square) and red (circle) lines in Figure 2b show overall median lifetime income by cohort. Median lifetime income conditional on working is mechanically higher than overall median lifetime income, by around $5,000 per year, and increases roughly in parallel to overall lifetime income. Expressed as growth rates, this finding implies that between the 1957 to 1983 cohorts of women, median lifetime income conditional on working grew by less (42%) than median total lifetime income (59%). The comparison between growth in the intensive margin versus

[19]Since our data measure only annual income, we cannot measure workforce participation *within* a year. Changes in weeks or hours worked within a year are necessarily captured by the intensive margin in our data. We also cannot distinguish changes in average hours worked from changes in average wages per hour.

the overall measures of lifetime income is similar in other parts of the distribution. These growth rates are reported in Table B.10 in Appendix B, which is analogous to Table 1 but is based only on income conditional on working. We also report mean and median lifetime income conditional on working, together with selected percentiles of the intensive margin of the lifetime income distribution, for each cohort individually in Table B.11 in Appendix B.

For men, the decline in lifetime income conditional on working is much more important than the decline in the number of years worked for explaining the stagnation of lifetime incomes since 1967. Figure 2a shows that the average number of years worked declined by less than half a year from the 1957 cohort to the 1983 cohort, while Figure 2b shows that for the cohorts since 1967, the decline in median lifetime income at the intensive margin is roughly similar to the overall decline in median lifetime income. From the 1967 to 1983 cohorts, median lifetime income declined by 10.3% (Table 1), while median lifetime income conditional on working declined by 7.2% (Table B.10 in Appendix B).

3.3 Lifetime Income in the Whole Population

Looking at the population as a whole, we find that the trends for men and women combine in sometimes offsetting ways. As with men separately, we still see larger increases in the mean of lifetime income in the first sub-period, with nearly three-quarters of the lifetime income growth from the 1957 to 1983 cohorts occurring among the first 10 cohorts. These findings for cumulative growth and average annual growth in mean, median, and selected percentiles of lifetime income for the full period, as well as for the 1957 to 1967 cohorts and the 1967 to 1983 cohorts separately, are reported in Table 2. As seen here, the stagnation of lifetime incomes for the post-1967 cohorts extends up to the 75th percentile. Even at the 90th percentile, average growth was only around 0.59% per cohort, compared with growth of 1.49% per cohort for the preceding cohorts. For over three-quarters of the distribution, lifetime income growth was essentially flat or declining across these 17 cohorts.[20]

The general stagnation of lifetime incomes for the majority of the distribution results from a combination of the opposing trends for men and women, together with their general positions in the overall population's lifetime income distribution. Given that men largely experienced losses in lifetime income over this time period while women experienced large gains, there has been a narrowing of the lifetime earnings gap.

[20] In Table B.12 in Appendix B, we also report mean and median lifetime income, together with selected percentiles of the lifetime income distribution, for each cohort individually.

Table 2: Growth rates of cohort lifetime income

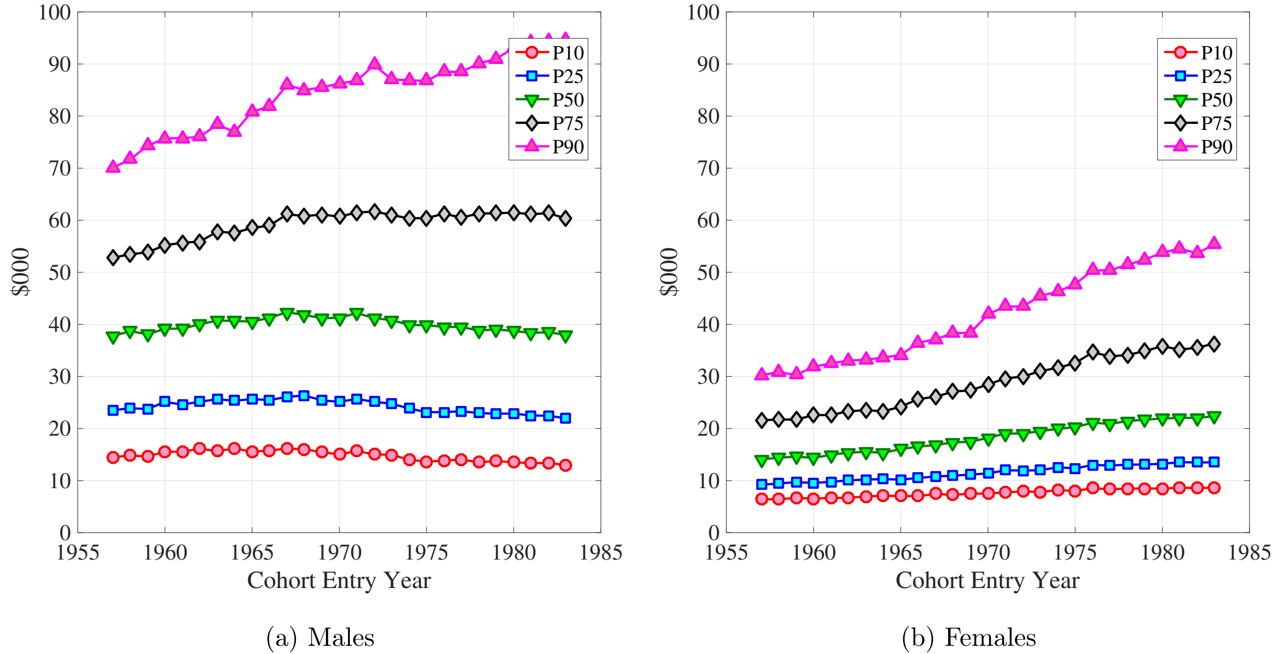
Cohorts		Averages		Selected Percentiles							
		Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
PCE											
57–67	Cumulative	17.90	9.02	13.62	11.81	10.20	11.56	12.25	15.98	21.33	51.91
	Annualized	1.66	0.87	1.29	1.12	0.98	1.10	1.16	1.49	1.95	4.27
67–83	Cumulative	6.53	0.12	2.01	3.73	2.10	–0.72	1.30	9.92	14.05	10.67
	Annualized	0.40	0.01	0.12	0.23	0.13	–0.04	0.08	0.59	0.83	0.64
57–83	Cumulative	25.60	9.15	15.90	15.98	12.51	10.76	13.71	27.49	38.37	68.12
	Annualized	0.88	0.34	0.57	0.57	0.45	0.39	0.50	0.94	1.26	2.02
CPI											
57–67	Cumulative	12.04	3.73	8.48	6.19	4.66	6.33	6.77	10.40	15.53	44.49
	Annualized	1.14	0.37	0.82	0.60	0.46	0.62	0.66	0.99	1.45	3.75
67–83	Cumulative	–2.78	–8.95	–6.49	–4.17	–6.34	–9.80	–7.77	0.08	3.95	0.57
	Annualized	–0.18	–0.58	–0.42	–0.27	–0.41	–0.64	–0.50	0.01	0.24	0.04
57–83	Cumulative	8.92	–5.56	1.44	1.77	–1.98	–4.10	–1.52	10.49	20.10	45.32
	Annualized	0.33	–0.22	0.05	0.07	–0.08	–0.16	–0.06	0.38	0.71	1.45

Notes: This table reports the cumulative growth and annualized growth rates in moments of the lifetime income distribution across cohorts for the baseline sample (see section 2.3). We report growth rates for the mean, median, and selected quantiles of the lifetime income distributions for total cohort population (men and women together) using both the PCE and CPI price deflators.

Comparing the median income of males and females from Figure 1, we see that the difference between the median male and female lifetime earnings has narrowed over time, from the 1957 cohort in which the median female's earnings were 37% of the earnings of the median male, to the 1983 cohort in which the median female's earnings were almost 60% of the earnings of the median male. We see similar trends comparing other points of the gender-specific distributions over these cohorts. These comparisons can be seen in Figure 3. However, given that women started from such low levels of lifetime income (for example, almost 95% of females in the 1957 cohort earned less in lifetime income than the median male), gains in female lifetime income across cohorts largely serve to shore up the bottom of the distribution.

Using the CPI rather than the PCE to convert nominal incomes to 2013 dollars paints an even bleaker picture of lifetime income growth for the population as a whole. Figure 4 displays median lifetime income for each cohort using the two deflators. Whereas deflating with the PCE results in median lifetime income rising until around the 1967 cohort and

Figure 3: Selected Percentiles of Lifetime Income, by Cohort and Gender



(a) Males

(b) Females

Notes: An observation represents a selected quantile of the lifetime income distribution of a cohort that entered the labor market in a given year for the baseline sample (see section 2.3). Panel (a) displays the distribution for men and panel (b) for women. Values are displayed in thousands of 2013 US dollars and deflated using the PCE.

remaining flat thereafter, deflating with the CPI results in median lifetime income being essentially flat even before 1967 and then declining by around 9% between the 1967 and 1983 cohorts. In the bottom panel of Table 2, we report cumulative lifetime income growth for the two sub-periods using the CPI at other percentiles of the lifetime income distribution. Real lifetime incomes deflated with the CPI declined between the 1967 and 1983 cohorts for nearly 90% of the distribution, with even the top decile of the distribution experiencing single-digit cumulative income gains over these 16 cohorts.

3.4 Non-wage benefits from employment

During the period studied in this paper, employer-provided health care and pension benefits have risen substantially. Thus, it is reasonable to ask whether this increase has partly offset the decline in wage and salary income documented above, in which case the trends in *total* employee compensation (i.e., wage plus non-wage) might look different from

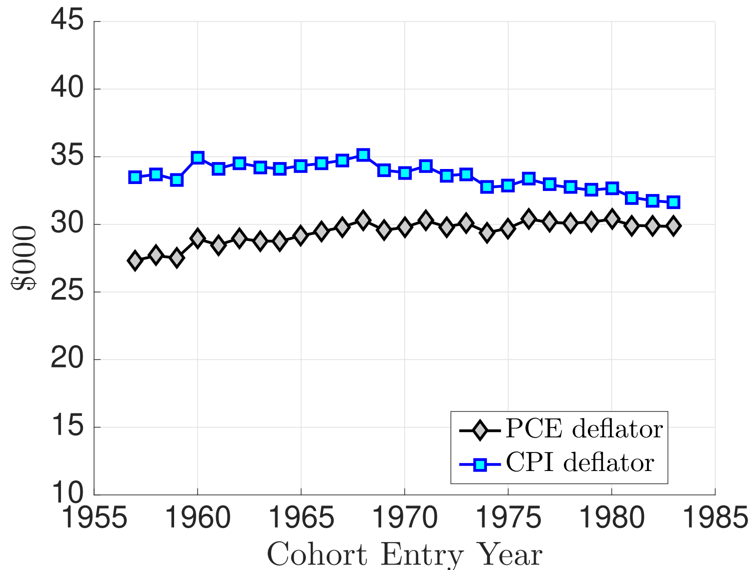


Figure 4: Median Lifetime Income by Cohort

Notes: Each observation represents the median lifetime income of a cohort (men and women together) that entered the labor market in a given year for the baseline sample (see section 2.3). Values are displayed in thousands of 2013 US dollars and deflated using both the PCE and CPI.

the trends in wage compensation.[21] Since the SSA data do not include non-wage benefits for employees, we cannot undertake a full analysis of this question. Instead, we use aggregate data from the national income and product accounts (NIPAs) to estimate an upper bound on the effect of non-wage benefits for the trends we have documented for the median worker. Our approach is to measure the mean (average) lifetime non-wage benefit per worker for each cohort over this period. A number of empirical studies has documented that *inequality* in non-wage benefits across employees has *increased* since at least the early 1980s, implying that the increase in mean benefits per worker is an upper bound for the increase in benefits for the median worker.[22]

[21]Two related trends during this period could be offsetting these increasing benefits (or could perhaps be driving the increase). First, because life expectancy was rising during this period, an increase in pension benefits is necessary simply to prevent the consumption of retirees from declining. Second, some evidence suggests that, because of rising health care costs, the inflation rate is higher for the elderly than is implied by the CPI. Therefore, not all the rise in non-wage benefits constitute additional lifetime resources for newer cohorts as assumed in the calculations that follow.

[22]Furthermore, the rise in benefit inequality was partly systematic: benefits rose more for high-wage workers and less for low-wage workers, reinforcing the rise in inequality measured by only wages. See, for example, Pierce (2001) and Gruber and McKnight (2003). An important driver of this increase in inequality of non-wage benefits is the decline in the take-up rate of employer-provided insurance for low-income employees starting in the 1980s. One caveat is that these calculations exclude public insurance

For comparability with our SSA baseline sample, which excludes public sector employees, we use data on health care and pension benefits provided by employers in private industries as reported in the NIPAs.[23] Since 1957 the relative benefit mix has shifted strongly toward health care, with its share rising from 15% of total employer-provided non-wage benefits in 1957 to 52% in 2013, and away from pension contributions whose share fell from about 70% to 40% during the same period.[24] The sum of these two components has consistently made up about 90% of total non-wage benefits, which suggests that our analysis based on these two components should provide a good benchmark for the effects of all non-wage benefits.

Figure 5a plots "real employer contributions to employee pension funds and group health insurance for private industries" divided by the annual average number of private industry workers from the BLS Employment Situation. Non-wage compensation per worker has grown from $1,500 per worker in 1957 to about $6,300 per worker in 2013. The growth in non-wage benefits was faster from 1957 to the early 1990s, followed by a U-shape in the 1990s and a significant slowdown since the early 2000s. We compare lifetime average benefits across cohorts by computing average benefit amounts over the 31-year life cycle of each cohort. These are displayed in Figure 5b. For example, the data point corresponding to the year 1957 is the average annual employer contributions per worker from 1957 to 1987. Lifetime benefits have risen from about $3,300 per year for the 1957 cohort to about $5,800 per year for the 1983 cohort. The increase from the 1967 to 1983 cohorts was slower, from an annualized value of about $4,500 to $5,800 per worker, for a gain of approximately $1,200. Given the increase in benefits inequality noted above, this average increase is a reasonable upper bound for the increase in benefits for the median worker.

A back-of-the-envelope calculation demonstrates that including the increase in non-wage benefits mitigates the decline in lifetime income but does not overturn the conclusions from the previous sections. Specifically, using the PCE-deflated earnings measures, the

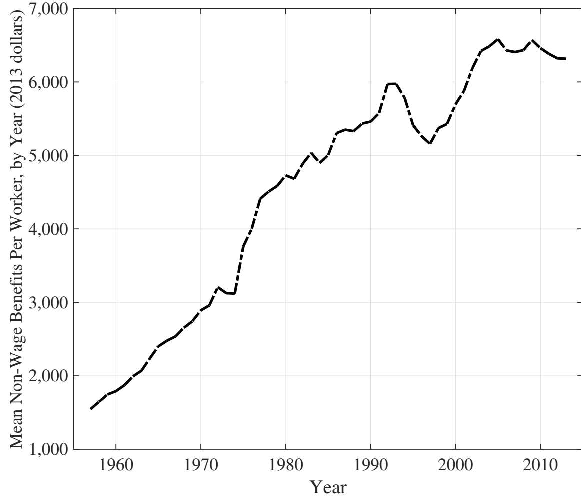
(medicare and medicaid). Burkhauser and Simon (2010) find that the latter actually mitigated the rise in inequality, though the effect they report is modest (see their Table 2B) and their analysis covers 1995 to 2008, so it is not clear how the effect would be for the longer period we study.

[23]Since health care services have experienced faster inflation than the overall economy during this period, we would ideally deflate the health-care component of this series using a price deflator that is specific to health services. However, for private industries, NIPA reports only the combined value of both health care and pension benefits. We thus deflate the total value of benefits with a composite price deflator that is constructed as a weighted average of the PCE deflator and the health care price deflator, with weights that correspond to the relative shares of each component in total benefits (public sector plus private industries), with 2013 as the base year.

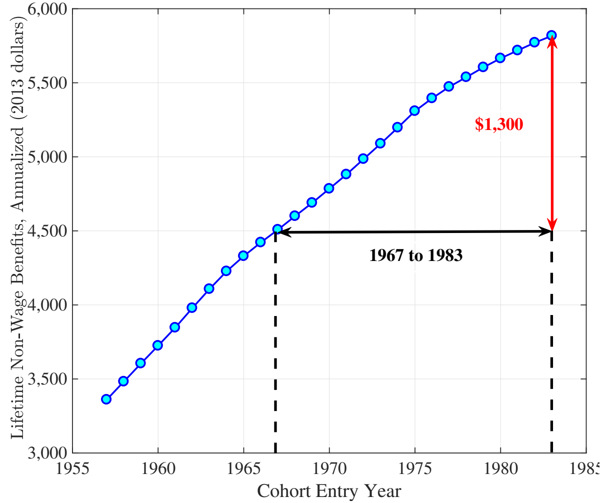
[24]Pension plans include both private and government employee pension plans. However, since we include only contributions from private industry employers, government employee pension plans are a very small component.

Figure 5: Employer-provided Benefits per Worker

(a) Real employer contributions to pension and group health insurance per worker



(b) Real lifetime value non-wage benefits, annualized, by cohort



Notes: Panel (a) displays the real employer benefits (pensions and group health insurance) per worker, calculated using data from NIPA and BLS. Panel (b) displays the lifetime average of real employer benefits per worker for each cohort entering the labor market. For example, the data point corresponding to the 1957 cohort displays the average employer benefits per worker from 1957 through 1987. All values are displayed in 2013 US dollars and deflated using a weighted average of the PCE and the health care price deflator.

annualized value of median lifetime wage and salary income for male workers declined by $4,400 per year from the 1967 cohort to the 1983 one, equivalent to $136,400 over the 31-year working period (Table B.6). With our estimates of mean non-wage benefits included, this decline falls to $3,100 per year, equivalent to $96,100 over the 31-year working period.. Using the CPI-deflated measures reveals an even bleaker picture: a loss of $9,150 per year in wage and salary income (Table B.8), equivalent to $283,650 over the 31-year working period, or $7,850 when mean non-wage benefits are included, equivalent to $243,350. Recalling that the added benefit amount is likely to be an upper bound suggests that the true loss falls between these two values.

3.5 Comparison with Aggregate Income Growth

In this section, we compare average income growth in our sample with publicly available data from NIPA and the CPS. From 1957 to 2013, real GDP (shown by the dashed green line in Figure 6a) grew by a factor of nearly five-and-a-half, while real wage and salary income recorded in NIPA (shown by the solid green line in Figure 6a) grew by a factor of

four – with most of the difference in growth between the two series taking place since 2000.

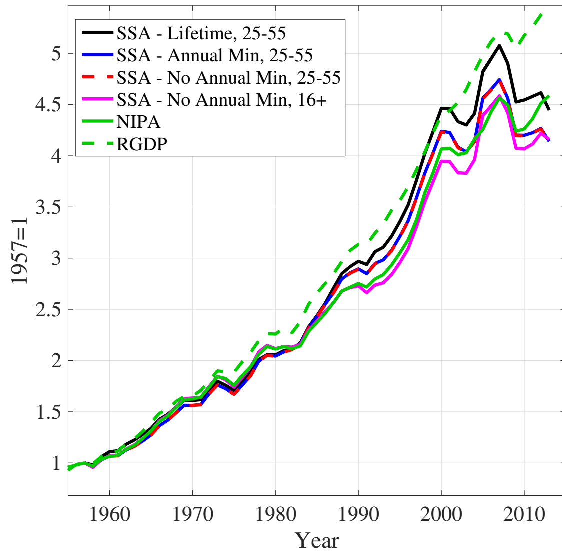
Given this large growth in aggregate income, one might be concerned that the stagnation in lifetime income that we have documented for the cohorts in the labor market during this period is a peculiarity of the measure of income that our lifetime statistics are based on—W2 income for 25 to 55 year old workers in commerce and industry sectors who satisfy minimum lifetime income criteria. But the black line in Figure 6a shows that the growth in the total income accrued by individuals in our baseline sample is essentially the same as the growth in wage and salary income from NIPA. Hence the stagnation in lifetime incomes we document is not because we chose a measure of income, or sample of individuals, that showed little total growth over the period. To further underscore this point, the blue, red and pink lines show that when we broaden the sample to include individuals that (i) do not meet the lifetime minimum income requirement, (ii) do not meet the annual minimum income requirement, and (iii) are outside the 25-55 age range, the total income growth in our sample lines up even more closely with the NIPA wage and salary measure.

Figure 6b shows how mean annual income in our baseline SSA sample (black solid line) compares with mean annual income for individuals aged 25 to 55 from other data sources and samples, over the period 1957 to 2013. First, the black dashed line shows mean annual income when individuals are selected based on an annual income criterion, rather than a lifetime criterion. Average incomes are higher with the lifetime selection criterion but the overall income growth over the period is essentially the same. Second, the blue solid line plots mean annual income for Commerce and Industry workers in the CPS (applying the same selection criteria as in the SSA data); comparing this line with the black dashed line shows the effect of measuring annual income in the SSA data versus the CPS. Third, the blue dashed line shows mean annual income in the CPS for all workers, not just those in Commerce and Industry sectors; comparing this line with the blue solid line shows the effect of focusing only on Commerce and Industry workers. Fourth, the red dashed line is mean wage and salary income per person aged 25 to 55 from NIPA. Overall, we see that aggregate growth in mean incomes has been, if anything, larger in our baseline SSA sample than implied by NIPA over this period.

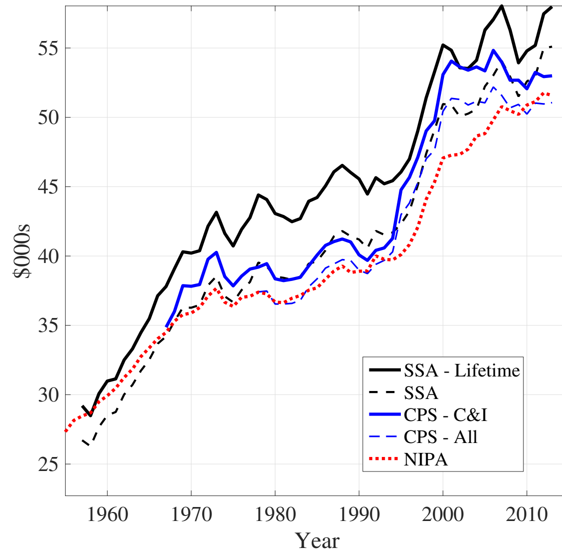
How then can we reconcile with the growth in aggregate income from 1957 to 2013 with the stagnant lifetime incomes for the cohorts of individuals who were in the labor market over this same period? The key takeaway from Figure 6 is that there is nothing particularly unusual about the time-series for our income measure or sample. Rather, it is the lifetime perspective that drives the different conclusion about income growth over this period. The

Figure 6: Comparison with Alternative Data Sources

(a) Aggregate Income Growth, Various Sources



(b) Mean Income per Worker, Various Sources



Notes: Panel (a) displays the trend in annual aggregate income in the baseline SSA sample, three progressively broader samples of SSA data, the NIPA wage and salary measure, and real GDP. The aggregate income trend is indexed to the level in 1957 in each data sample. Panel (b) displays the trend in average income per worker in 5 data series: the baseline sample (SSA - lifetime), an SSA sample selected on annual income rather than lifetime income (SSA), Commerce and Industry workers in the CPS (CPS - C&I), all workers in the CPS (CPS - All), and the mean income per person aged 25 to 55 from NIPA (NIPA). All values are deflated using the PCE and value in Panel (b) are displayed in thousands of 2013 US dollars.

growth in mean cross-sectional income masks large shifts in how income gains are split between people of different ages (and hence cohorts) and between people in different parts of the income distribution. Much of the increase in income in Figure 6 has accrued to older workers in older cohorts. In the remaining three sections of the paper we delve into these distributional shifts in more detail.

4 Trends in Life-Cycle Income Profiles

The decline in lifetime incomes for recent cohorts of men documented in Section 3 could in principle be attributed to lower income at young ages, lower income at older ages, or both. Similarly, the rise in lifetime income for females may be attributed to higher income at young ages, higher income at older ages, or both. In order to dissect these changes, in this section we explore how life-cycle profiles of average incomes have changed over time.

4.1 Changes in the Life-Cycle Profile of Income for Men

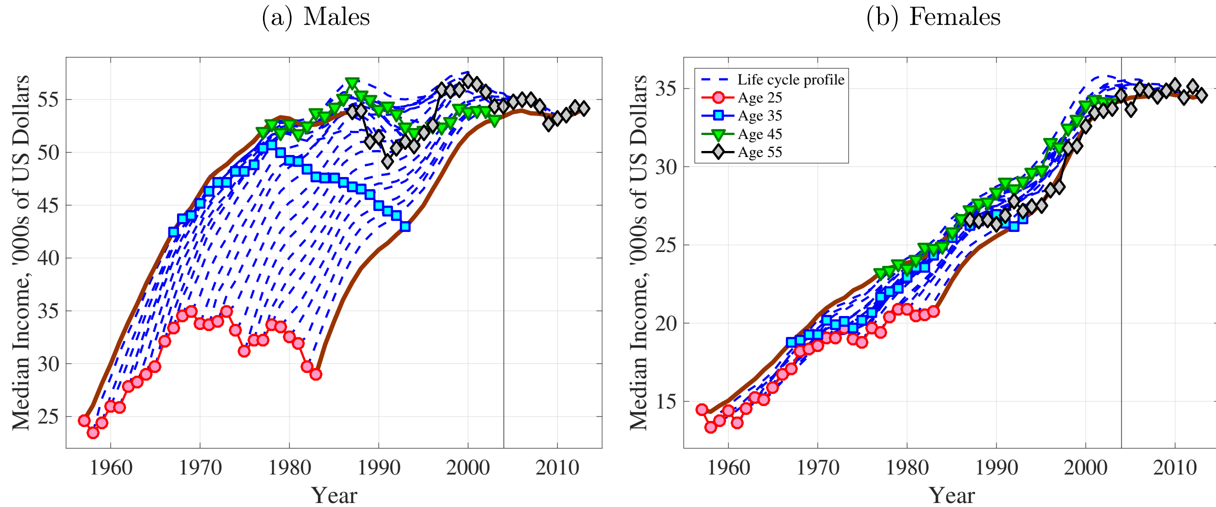
In Figure 7, we plot median income in each year for each of the 27 cohorts of workers, separately for males and females.[25] The colored dots connect income at common ages across cohorts, thus showing how the median income of particular age groups has changed over time. In Figure C.1 in Appendix C, we report analogous plots of the profiles of mean log income for each cohort.

For men, the general shape of the life-cycle profile is similar for all cohorts (Figure 7a). Median incomes start low and rise sharply from ages 25 to 45, and then remain roughly constant from ages 45 to 55. Remarkably, however, the magnitude of this increase in incomes between ages 25 and 45 has declined sharply for the post-1967 cohorts. There has been a steady decline in median income at ages 25 and 35 (see the path of red circles and blue squares), without any offsetting increase in median income at ages 45 and 55 (see the path of green triangles and gray diamonds). Thus, the decline in lifetime income for these recent cohorts is almost entirely attributed to income falling at young ages rather than at older ages. Moreover, the decline in median income at young ages was substantial. Using the PCE deflator, median income at age 25 has declined from $33,300 for the 1967 cohort to $29,000 for the 1983 cohort. At age 35, median income has dropped from $50,600 for the 1967 cohort to $42,400 for the 1983 cohort. Using the CPI as a measure of inflation, these declines are even larger.

Table C.1 in Appendix C reports the cumulative growth in median income between ages 25 and 35, 35 and 45, and 45 and 55 for each cohort. As Figure 7a suggests, the biggest changes in these growth rates were for the first 10 years in the labor market, from ages 25 to 35. For the 1957 cohort, cumulative growth in median income between ages 25 and 35 was 71%; for the 1967 cohort, cumulative growth was 52%; and for the 1983 cohort, it was 46%. The drop in income growth over this age range between the 1957 and 1967 cohorts (71% to 52%) was more than compensated for by the sharp rise in median income at age 25, so that lifetime incomes grew substantially between these two cohorts, as we have already seen. However, between the 1967 and 1983 cohorts, when median initial income was sharply declining, income growth during early years was also slowing down (from 52% to 46%). This combination of declining initial income and weak subsequent growth jointly account for the stagnation of median lifetime income for men since the 1967 cohort.

[25]The life-cycle profiles of median income in Figure 7 and Figure 9 are not the same as the life-cycle profile of income for the individual at the median of the lifetime income distribution. In practice, however, the two are very similar.

Figure 7: Age Profiles of Median Income by Cohort



Notes: Each observation represents the median income of men or women of a particular age in a particular year in the baseline sample (see section 2.3). For example, the 1957 cohort is represented by an Age 25 observation in 1957, an Age 35 observation in 1967, an Age 45 observation in 1977, and an Age 55 observation in 1987. The dotted lines (solid for the first and last cohort) connect all 30 age-year observations for each cohort. Panel (a) displays the age profiles of male cohorts, and Panel (b) displays the age profiles of female cohorts. All values are displayed in thousands of 2013 dollars and deflated using the PCE.

One might have thought that the overall stagnation of lifetime incomes for men is simply a reflection of weak labor market conditions in the 2000s, since the post-1967 cohorts that experienced little or negative growth in lifetime income all have in common that they spent part of their working lives during the 2000s. It is well documented that aggregate income growth was anemic in the early 2000s and declined substantially in the wake of the Great Recession and subsequent slow recovery. But these changes in the life-cycle profile of median income suggest that the declining lifetime incomes for recent cohorts of males do not simply reflect the poor economic conditions in the 2000s.

4.2 Changes in the Life-Cycle Profile of Income for Women

For women, life-cycle profiles are more linear than for men, particularly for earlier cohorts who were in the labor market at a time when women's income was growing rapidly. For the 1957 cohort, for example, median income grew by 28% between ages 25 and 35 (from $14,500 to $18,500), by 25% between ages 35 and 45 (from $18,500 to $23,100), and by 15% between ages 45 and 55 (from $23,100 to $26,600). For later cohorts of women, the shape of the life-cycle profile looks more similar to the typical male profile, with a significant

leveling off at older ages. For the 1983 cohort, median income also grew by 29% between ages 25 and 35 (from $20,700 to $26,700), by 29% between ages 35 and 45 (from $26,700 to $34,300), but by less than 1% between ages 45 and 55 (from $34,300 to $34,500). These growth rates are reported for all cohorts in Table C.1 in Appendix C. They show that while income growth at young ages has remained roughly constant for women, there has been a steady decline in income growth at older ages, concentrated mostly among the cohorts entering from 1978 onward. This changing shape of the median life-cycle income profile for women can also be seen in Figure 7b by comparing the sustained income growth at ages 25 and 35 (see the path of red circles and blue squares) with the decelerating growth at ages 45 and 55 (see the path of green triangles and gray diamonds). For the youngest cohort of women for whom we have full data, the shape of the life-cycle profile closely resembles the profile for men, at a substantially lower level.

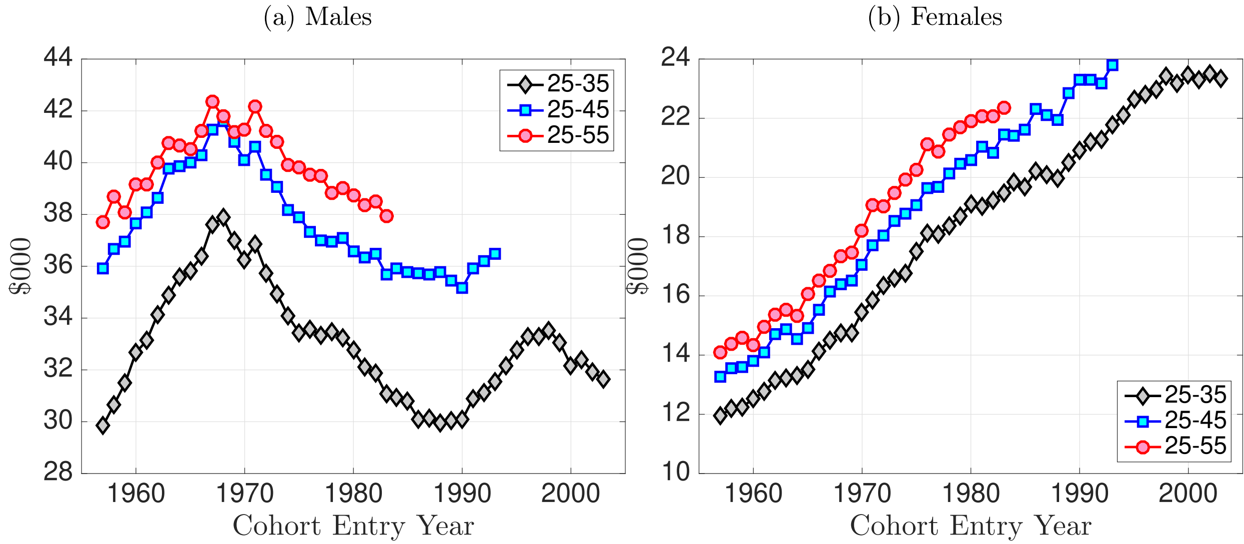
4.3 Looking Ahead to Recent Cohorts

So far we have examined only those cohorts that are old enough for us to observe the full 31 years of income from ages 25 to 55. The recent picture we have painted for these cohorts is bleak: lifetime incomes have been stagnant for men, and lifetime income growth for women has slowed. Are these trends likely to reverse or to continue for younger cohorts of workers? The previous section argued that understanding income at young ages, between 25 and 35, is particularly important for understanding lifetime incomes. We can use this connection to gain insight into the likely path of lifetime incomes for future cohorts, by looking at the early labor market experience of younger cohorts for whom we cannot observe the full 31 years of income but can observe income at younger ages.

Figure 8 shows median total income over the 11 years from ages 25 to 35, the 21 years from ages 25 to 45, and the 31 years from ages 25 to 55 for each cohort from 1957 to 2003.[26] For the more recent cohorts, only the younger age ranges are available. For each age range, we annualize the income by dividing by the number of years in the age range; hence the 25- to 55-year measure is the same as in our baseline measure of lifetime income. For the cohorts where all three measures are available, the trends in median total income are very similar for all three age ranges.

[26]When analyzing full cohorts, we restricted the sample to individuals that met the minimum income criteria in at least 15 of the 31 possible years. This is not possible when analyzing younger cohorts. In order to maintain comparability, we include an individual from one of the partial cohorts if he or she meets the minimum income criterion in at least half of the specified age range. For example, for the 25-35 age range, the sample is restricted to those that met the minimum income criterion in at least 6 of the 11 possible years.

Figure 8: Median Income by Cohort, Including Younger Cohorts

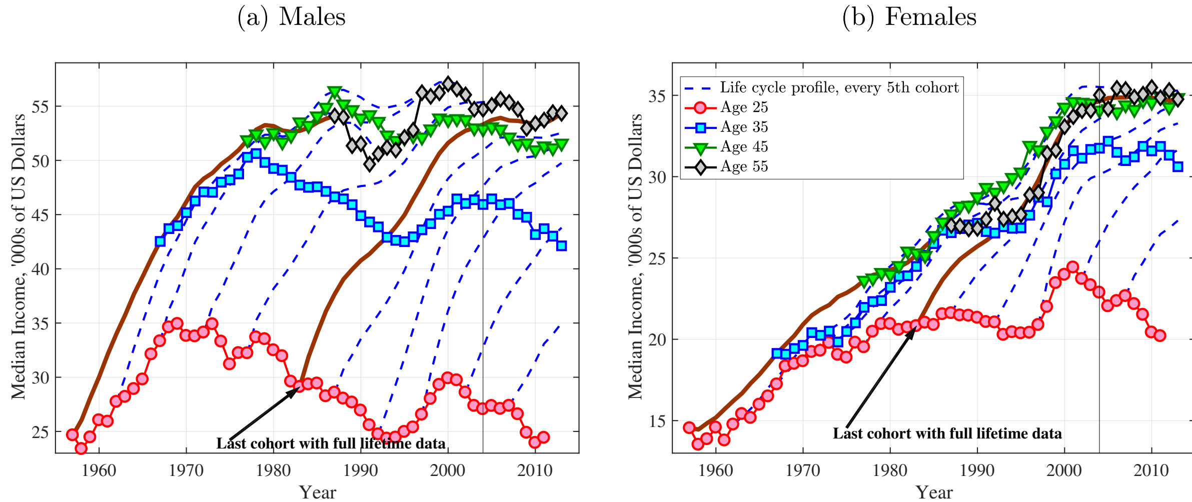


Notes: Each observation represents the median income of a cohort, measured over the first 10 years, first 20 years, or full 30 years of a cohort's working lifetime, for the year the cohort entered the labor market. Panel (a) displays the trends for male cohorts, and Panel (b) displays trends for female cohorts in the baseline sample (see section 2.3). Values are displayed in thousands of 2013 US dollars and deflated using the PCE.

For men, median total income earned in the 11 years from ages 25 to 35 follows a trend across cohorts that is similar to the trend in lifetime income, but is substantially more pronounced (Figure 8a). Between the 1957 and 1967 cohorts, median total income in these early labor market years increased by 26% (from $29,900 to $37,600), and then declined by 17% from the 1967 to 1983 cohorts (from $37,600 to $31,100). These swings are consistent with the inference of the previous section that trends in income at young ages are particularly informative about trends in lifetime income. For more recent cohorts entering the labor market after 1983, the stagnation in income during the early labor market years has continued. Median total incomes from ages 25 to 35 hit a low of $29,900 for the 1988 cohort, after which time the trend started to reverse. However, the resurgence was cut short with the onset of the 2007-8 recession, and for the cohorts from 1998 onward, median total income over this age range has again been declining. For the 2003 cohort, which is the most recent cohort for which we have data, median total income over ages 25-35 is still 16% below the level of the 1967 cohort.

For women, Figure 8b shows that the approximately linear increase in lifetime incomes between the 1967 and 1983 cohorts is echoed in the average incomes earned between ages

Figure 9: Age Profiles of Median Income by Cohort



Notes: Each observation represents the median income of men or women of a particular age in a particular year in the baseline sample (see section 2.3). For example, the 1957 cohort is represented by an Age 25 observation in 1957, an Age 35 observation in 1967, an Age 45 observation in 1977, and an Age 55 observation in 1987. The dotted lines (solid for the first and last cohort with full life cycle profiles) connect all available age-year observations for every fifth cohort. Panel (a) displays the age profiles of male cohorts, and Panel (b) displays the age profiles of female cohorts. All values are displayed in thousands of 2013 dollars and deflated using the PCE.

25 and 35. This growth continued for more recent cohorts, up until the cohort entering in 1998, after which time the median early career incomes have flattened. It is difficult to know whether this flattening is part of a trend or is a temporary consequence of the 2008-9 recession and slow recovery.

In Figure C.2 in Appendix C, we report the mean, median, and selected percentiles of the distribution of total income over ages 25 to 35 for each cohort individually, for men and women, respectively. The stagnation of male incomes during the first decade in the labor market extends across the entire distribution. Lower down the distribution, the declines are even larger than at the median: the 25th percentile of the distribution of ages 25 to 35 income is 28% lower for the 2003 cohort than it was for the 1967 cohort. Further up the distribution, early career income has increased, although the gains have been modest: the 90th percentile of the distribution increased by 28% across these 36 cohorts, equivalent to an increase of just 0.70% per cohort.

We can obtain a more complete picture of median income growth at young ages by extending the median income profiles from Figure 7 to include all cohorts for whom we

have any data. These profiles are shown in Figure 9a for men and in Figure 9b for women. In both figures, the most important features are the pattern of median incomes for young workers. For men, the decline in median income at age 25 continued until 1993, after which time there was a brief resurgence followed by another period of decline. In 2009, median incomes for 25 year old males was at its lowest point since 1958. For women, the median income at age 25 was essentially flat from 1979 until 1997, after which time it briefly increased but by 2011 had returned to its 1979 level.

4.4 Comparison with the CPS

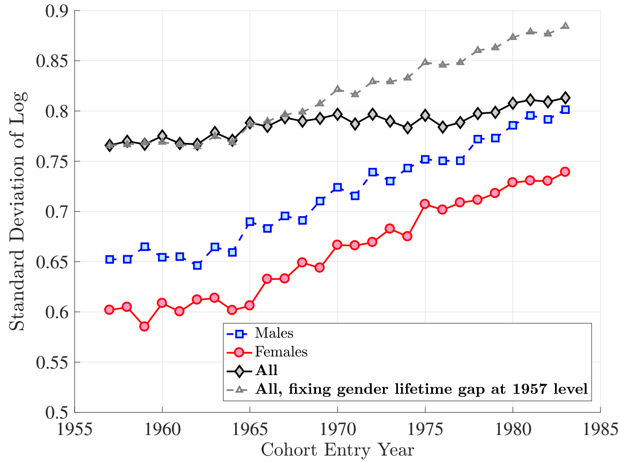
The lifecycle profiles discussed in this section make only limited use of the panel dimension of the SSA data. Were it not for the the fact that our minimum income sample selection criterion is based on lifetime income rather than on annual income, it would be possible to produce analogues of these figures with only cross-sectional data, allowing a comparison of our SSA data with other sources of micro data on earnings. To this end, Appendix C.1 contains a detailed comparison of the results in this section with data from the Current Population Survey (CPS). The main findings are that (i) the restriction to Commerce and Industry Workers has a negligible effect; (ii) at older ages, the CPS and SSA data give near identical median incomes, provided the SSA data is treated cross-sectionally like the CPS; (ii) at younger ages, the CPS overstates median incomes relative to the SSA data, even when treated cross-sectionally; (iv) selecting individuals based on lifetime earnings leads to higher median incomes than selecting based on annual earnings. Despite these differences in levels, the trends are the same in the different data sets.

5 Trends in Lifetime Income Inequality

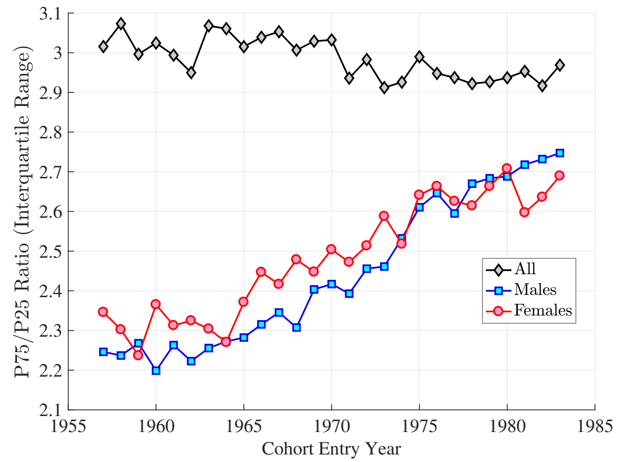
The second of the twin trends is an increase in cross-sectional income inequality. We now examine whether this trend extends to changes in lifetime income inequality across cohorts, and how lifetime inequality has changed within and across gender groups.

5.1 Lifetime Inequality across and within Genders

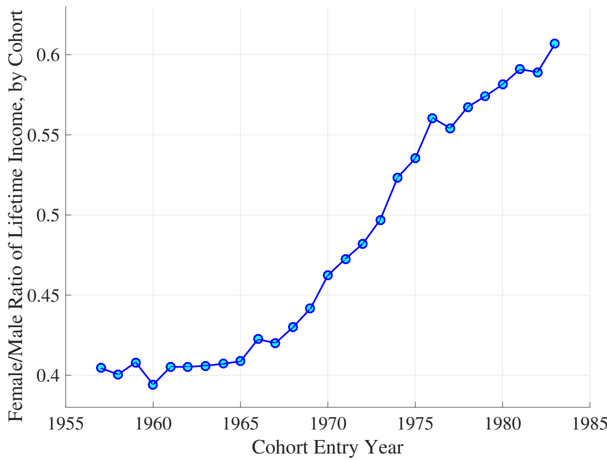
The top two panels of Figure 10 plot two common measures of lifetime inequality: the standard deviation of log lifetime income (10a) and the interquartile ratio (i.e., P75/P25, hereafter IQR) of lifetime income (10b) for each of the 27 cohorts. The blue lines marked with squares correspond to lifetime inequality among men, the red lines (circles) correspond to lifetime inequality among women, and the black lines (diamonds) correspond to the combined population of men and women.



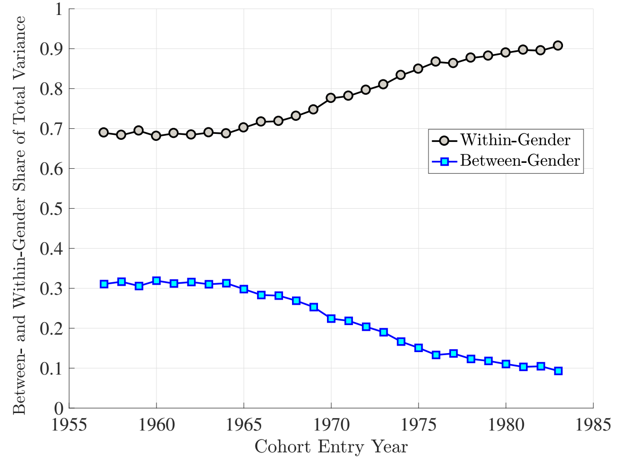
(a) Standard Deviation of Logs



(b) Inter-quartile Ratio



(c) Mean Gender Lifetime Income Gap (Ratio)



(d) Between- vs. Within- Gender Variance Share

Figure 10: Cohort Lifetime Inequality, Overall and by Gender

Note: This figure displays four measures of within-cohort inequality. Each observation represents the inequality in lifetime income among a cohort of workers that entered the labor market in a particular year in the baseline sample (see section 2.3). Panel (a) displays the standard deviation of the log lifetime income within each cohort, separated by male cohorts, female cohorts, and men and women combined. We additionally plot the trend in inequality in the total population holding the gender gap in lifetime income fixed at the level in 1957. Panel (b) displays the ratio of the 75th percentile to the 25th percentile of lifetime income within each cohort, separated by male cohorts, female cohorts, and men and women combined. Panel (c) displays the ratio of mean lifetime income of female cohorts to the mean lifetime income of the male cohort that entered the labor market in the same year. Panel (d) displays the result of decomposing the variance of within-cohort lifetime income into within-gender and between-gender components. Income is deflated using the PCE.

The first observation is that lifetime income inequality – as measured by these two statistics – showed little to no rise in the whole population despite rising significantly *within* each gender group. Specifically, for the whole population, the standard deviation of lifetime income increased modestly, from about 0.77 to about 0.81 from the 1957 cohort to the 1983 cohort, whereas the IQR was mostly flat at a value of around 3. In contrast, inequality rose strongly within each gender group (and by very similar magnitudes): the standard deviation rose by about 15 log points within each gender group, and the IQR rose from about 2.3 to 2.7.

How do we reconcile these contrasting results? The answer lies in the closing of the gender gap *in lifetime income*. This can be seen in Figure 10c, which plots the ratio of the mean lifetime income of females to that of males for every cohort during this period. For entry cohorts before 1965, the gender gap was stable, with women in these cohorts earning on average 40% of the lifetime income of men. After 1965, the gap started to close quickly (showing an almost linear trend), and by the 1983 cohort, the lifetime income of women reached more than 60% of their male counterparts.[27]

To quantify the contribution of this trend to mitigating the rise in overall lifetime inequality, a simple variance decomposition is helpful. Let $\overline{y}_t^{i,g} = \ln \overline{Y}_t^{i,g}$ denote the log lifetime income of individual i of gender $g = m$ or f, and π_t^g denote each gender's population share in cohort t. We have

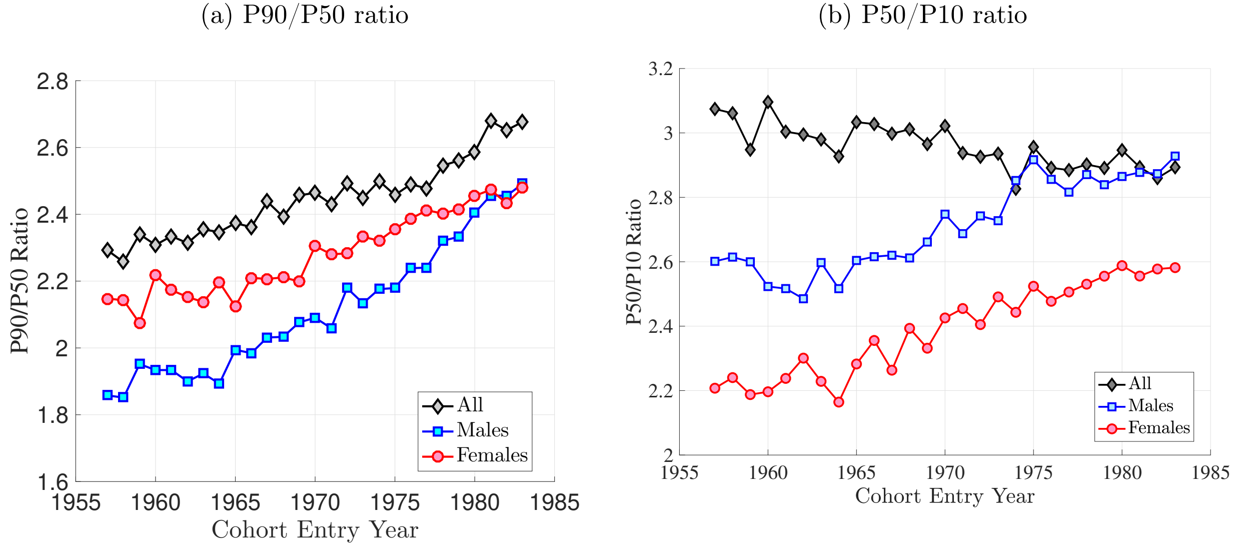
$$\text{var}(\overline{y}_t^i) = [\sum_{g=m,f} \pi_t^g \times \text{var}(\overline{y}_t^{i,g})] + [\sum_{g=m,f} \pi_t^g \times ((E(\overline{y}_t^{i,g}) - \overline{\overline{y}}_t)^2],$$

where $\overline{\overline{y}}_t$ is the average of $\overline{y}_t^{i,g}$ taken over the two gender groups. The first term is the average variance of log lifetime income within each gender group. This component has grown strongly, as seen in Figure 10. The second term captures the dispersion in the mean log lifetime income across gender groups, which has shrunk over time, as seen in Figure 10c, thereby offsetting the increase in the (within-gender group variance) terms in the first set of brackets.

The share of each of the two terms in the overall variance is plotted in the bottom right panel (Figure 10d): the lifetime gender gap was responsible for 31% of the total variance in the population for cohorts before 1965, but this fraction dropped to 9% by the 1983 cohort. In the top left panel (Figure 10a), we plot the counterfactual standard deviation for the

[27]Recall that our baseline sample only includes men and women who work at least 15 years during their lifetime, so the extensive margin of female employment has a more limited impact.

Figure 11: Lifetime Inequality by Cohort



Note: This figure displays two measures of within-cohort inequality. Each observation represents the inequality in lifetime income among a cohort of workers that entered the labor market in a particular year in the baseline sample (see section 2.3). Panel (a) displays the ratio of the 90th percentile to the 50th percentile of lifetime income within each cohort, separated by male cohorts, female cohorts, and men and women combined. Panel (b) displays the ratio of the 50th percentile to the 10th percentile of lifetime income within each cohort, separated by male cohorts, female cohorts, and men and women combined. Income is deflated using the PCE.

whole population (gray dashed line marked with triangles) if the gender gap had remained at its 1957 level throughout the sample period. As seen here, the standard deviation would have risen by 12 log points rather than 4.7 points observed in the data.[28]

5.2 Lifetime Inequality: A Tale of Two Tails

The two broad statistics that we have focused on so far (the standard deviation of log and the IQR) measure inequality over the entire distribution, which can mask interesting patterns within different parts of the population. To delve a bit deeper, Figure 11a plots the 90th to 50th percentile ratio, or P90-P50 ratio, which measures inequality above the median. Figure 11b plots the P50-P10 ratio, which measures inequality below the median. Starting with the trends for the whole population (gray line with diamonds), the P90-P50

[28]Loosely speaking, changes in the gender gap in lifetime income stem from two sources: from changes in the gender gap in annual incomes and from changes in the number of years worked. Recall from Figure 3a that the average number of years worked was flat at 26 years (and slightly declining) for men and increasing from 22 to 24 years (or by 9%) for women. Consequently, the gap in lifetime income declined by more than its cross-sectional counterpart, which in turn mitigated the rise in lifetime inequality more so than what we see in the cross section. We return to this point in the Section 5.3.

ratio of the lifetime income distribution increased throughout the period, rising from 2.3 for the 1957 cohort to 2.7 for the 1983 cohort. In contrast, the P50-P10 ratio fell throughout the period, from 3.1 to 2.9. Hence, the relatively stable overall inequality in the whole population we saw in Figure 10 resulted from falling inequality in the bottom half of the distribution offsetting rising inequality in the top half.

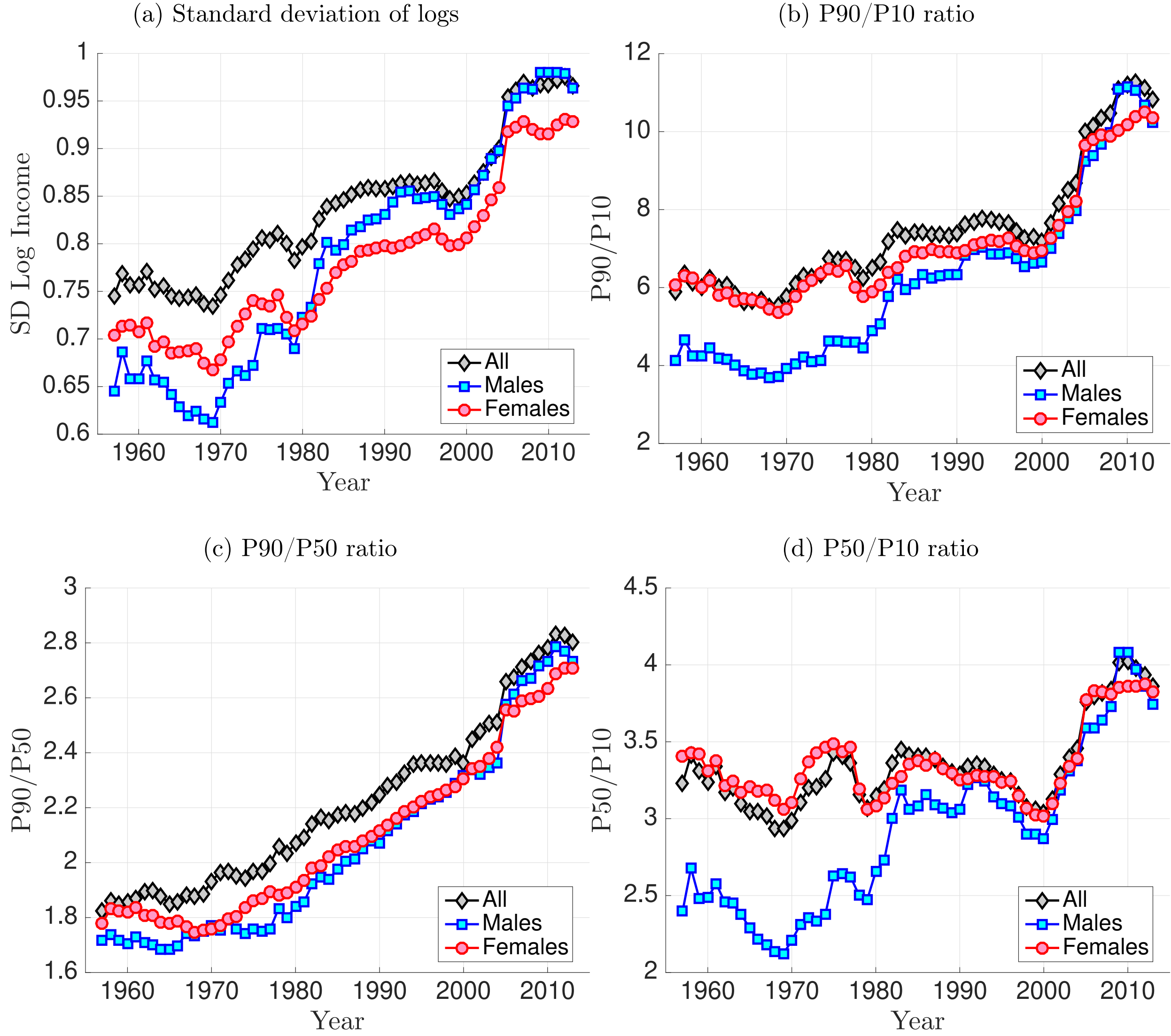
Turning to each gender group, the P90-P50 ratio was higher for women than for men in the early cohorts, but lifetime inequality rose more among men, so that by the 1983 cohort, the P90-P50 ratio was the same (around 2.5) for both genders. At the bottom end, the P50-P10 ratio *rose* for both genders (despite the *fall* in the same statistic for the combined population—the gray line) and did so by similar magnitudes, but arguably slightly more for women than for men (from 2.2 to 2.6 for women and from 2.6 to 2.9 for men). These last two results are yet another manifestation of the empirical finding from Figure 3: the gender gap in lifetime income closed most strongly below the median (of the combined population), which in turn kept the P50-P10 ratio from rising in the whole population despite the strong rise within each gender group. The gender gap closed to a smaller extent above the median, so its effect on the P90-P50 ratio of the whole population was smaller.

5.3 Trends in Lifetime Inequality versus Cross-Sectional Inequality

Before concluding this discussion, we compare the statistics on lifetime inequality with cross-sectional inequality to better understand some of the results we documented in previous sections. The comparison requires some care given that the two measures are conceptually different—one evolves from cohort to cohort whereas the other evolves from cross section (or year) to the next. With that caution, Figure 12 plots four measures of *cross-sectional* inequality analogous to those in Figures 10 and 11.

Two remarks are in order. First, notice that cross-sectional inequality in the whole population rises strongly throughout this period, unlike the flat trend in lifetime inequality, which suggests that the closing of the gender gap in cross-sectional incomes has a smaller impact than its lifetime counterpart. Second, notice the remarkable convergence after 1990 of two of the inequality measures—P90-P10 ratio and P50-P10 ratio—between the male and female populations. Further, the P90-P50 ratio for men (which measures in inequality in the top half of the distribution) almost perfectly overlaps with the P90-P50 ratio for women, thought the entire sample period. The standard deviation of annual income is also similar for men and women, but has increased by about 10 log points more for men than

Figure 12: Cross-sectional Inequality over Time



Note: This figure displays four measures of cross-sectional inequality, across all individuals working in a given year. Each observation represents income inequality in a given year in the baseline sample (see section 2.3). Panel (a) displays the standard deviation of the log income in each year, separated by men, women, and both genders combined. Panel (b) displays the ratio of the 90th percentile to the 10th percentile of incomes in each year, separated by men, women, and both genders combined. Panel (c) and Panel (d) display the analogous trends in Panel (b) for the ratio of the 90th to the 50th percentile and the ratio of the 50th to the 10th percentile, respectively. Income is deflated using the PCE.

for women. This larger increase for men could be due to the faster increase in the thickness of the right tail of the income distribution for men than for women.[29]

[29] Bowlus and Robin (2004) studied the rise in lifetime income inequality by fitting a search model to

To sum up our findings so far, the stability of lifetime inequality over this period is a powerful manifestation of the closing *lifetime* gender income gap, which is more clearly evident than is revealed by cross-sectional analysis. At the same time, all measures of lifetime inequality have been increasing within both gender groups. Some of these trends look quite different from their cross-sectional counterparts, which show rising overall inequality in the population.

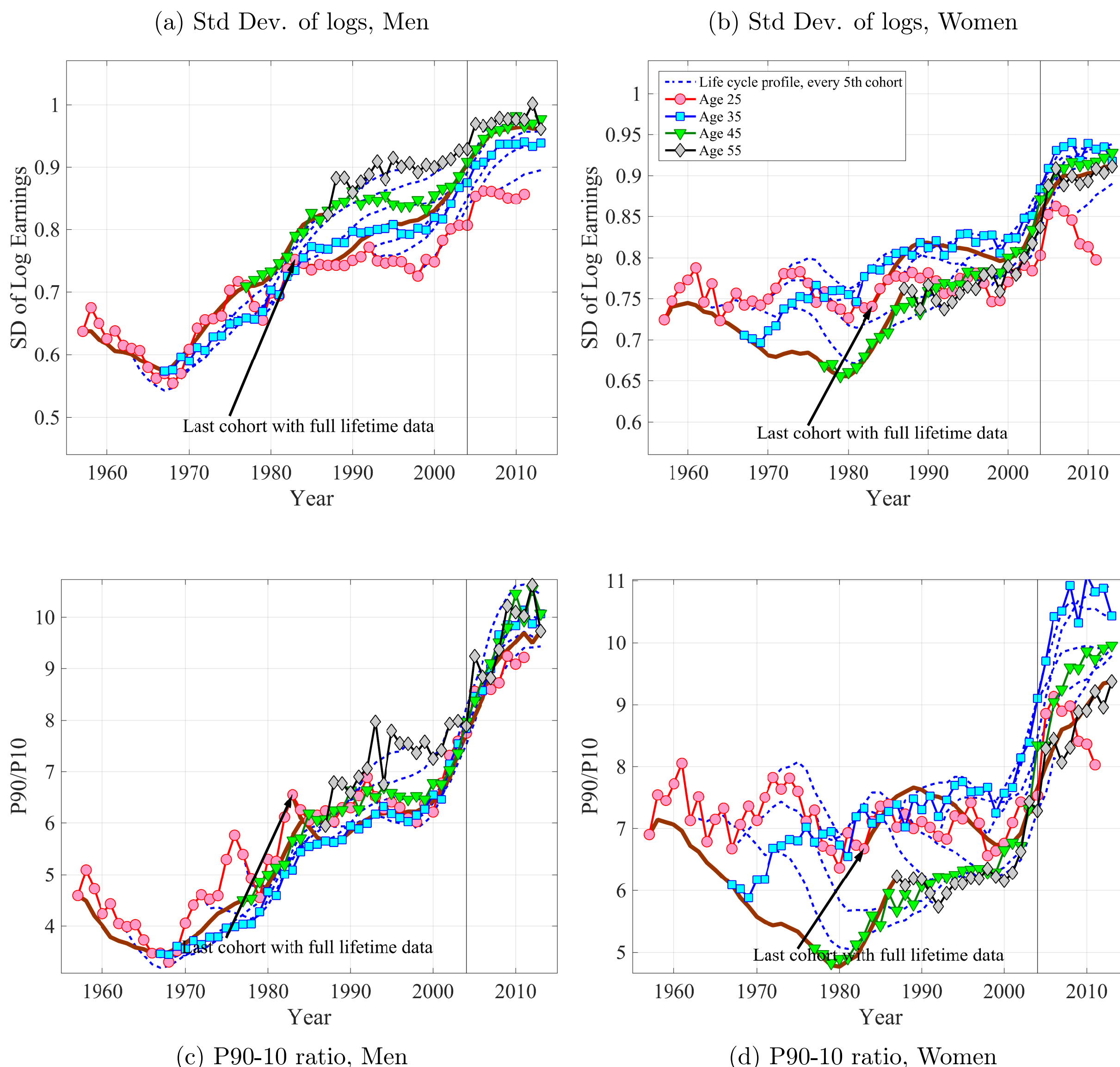
5.4 Dissecting the Rise in Lifetime Inequality

Why did lifetime inequality among men and among women increase across subsequent cohorts during this period? To shed light on this question, it is helpful to examine the timing of the rise in within-cohort cross-sectional inequality over the life-cycle of a cohort. To understand why this is useful, consider the following two hypothetical scenarios. In one case, each subsequent cohort enters the labor market (at age 25) with a progressively higher level of initial inequality, after which within-cohort inequality rises with age at the same rate as for previous cohorts. In the second case, the opposite happens: each subsequent cohort enters with the same level of inequality as previous ones, after which within-cohort inequality rises at progressively faster rates. Both scenarios would result in a rise in lifetime inequality across cohorts, but each points toward different underlying structural factors that might account for the changes. In Appendix D.1, we outline a simple statistical model to clarify this distinction. Of course, these two scenarios do not exhaust all the possible ways in which lifetime inequality might increase, but they provide useful benchmarks that turn out to be the most relevant cases, which we now document.

The top panels of Figure 13 plot the cross-sectional standard deviation of log income by

the moments of 1-year changes (of wages and employment) from the matched CPS covering 1977 to 1997. Using data simulated from the estimated model, they concluded that while the *level* of lifetime inequality (as measured by the log 90-10 differential) is about 40% lower than its cross-sectional counterpart, both measures rose by similar amounts over the 20-year period they studied. The numbers we report here are not directly comparable to theirs because, as we noted at the beginning of this subsection, comparing lifetime and cross-sectional measures requires additional assumptions about the timing between cohorts lifetime income measured over 31 years and yearly cross sections. One option is to compare the average over 31 years of cross-sectional inequality to the lifetime inequality of the cohort who lived through the same period. Under that assumption, one can compare the average from 1957 to 2013 of cross-sectional P90/P10 reported in Figure 12b to the average of lifetime P90/P10 in Appendix Figure D.2 over the same period. Both measures are around 7, showing little difference between the two measures. This result depends a bit on selection criteria and time period. Table E.3 in Appendix E reports calculations with a slightly different sample for post-1978 cohorts and finds the P90/P10 of lifetime income to be 27% lower than its cross-sectional counterpart. Interestingly, all the difference is below the median: the log 90-50 differential is virtually identical for the lifetime and cross-sectional measures. Appendix E reports more detailed statistics for this post-1978 sample.

Figure 13: Age Profiles of Cross-Sectional Inequality, by Cohort



Notes: Each observation represents the income inequality within men or women of a particular age in a particular year in the baseline sample (see section 2.3). For example, the 1957 cohort is represented by an Age 25 observation in 1957, an Age 35 observation in 1967, an Age 45 observation in 1977, and an Age 55 observation in 1987. The dotted lines (solid for the first and last cohort with full life cycle profiles) connect all available age-year observations for every fifth cohort. Panel (a) displays the standard deviation of log-income for men within each age-year group. Panel (b) displays the same for women. Panel (c) displays the ratio of the 90th percentile to the 10th percentile of incomes for men within each age-year group. Panel (d) displays the same for women. Income is deflated using the PCE.

age from the 1957 cohort to the 2012 cohort (for whom we only have data at age 25). The bottom panels plot the P90-P10 differential in log incomes.[30] For readability, the figure only shows values at ages 25 (red circles), 35 (blue squares), 45 (green triangles), and 55 (gray diamond) for each cohort. Cohorts that entered after 1983 have only partial life-cycle data, so not all data points are available for them. For every fifth cohort, the figure also plots the entire age profile.

Initial inequality for men (at age 25) has increased substantially—by about 30 log points—from a value of 0.55 for the 1968 cohort to 0.85 for the 2011 cohort. For comparison, recall from Figure 12a that the standard deviation of log income for men (of all ages) rose from 0.64 to 0.96 from the 1957 cross section to the 2011 cross section, for a total of 32 log points. Inequality at age 35 (blue squares), coincides almost perfectly with initial inequality line (red circles) up to the 1983 cohort and then increases a bit faster, ending about 10 log points higher than age 25 inequality in 2011. Similarly, the age 45 and 55 inequality points are also aligned, a bit less precisely, with the previous values.

To understand what these patterns imply, observe that if the four lines that connected inequality points across cohorts (circles, squares, triangles, and diamonds) were parallel to each other throughout the period we analyze, this would imply that the rise in inequality *over the life* cycle did not change from cohort to cohort (the first scenario described above). Except for a brief period in the early 1980's, this is indeed what we find. So the patterns suggest that the increases in both lifetime inequality across cohorts and cross-sectional inequality over time stem from the rise in initial dispersion for newer cohorts . In other words, newer cohorts enter with much higher inequality than older cohorts, which is the main force behind rising income inequality.

Turning again to the top panels of Figure 13, we do not see a "full overlap" as we just described; there is certainly some steepening of the life-cycle profile, but it is somewhat modest. In the bottom panels, the P90–P10 ratio profiles reveal a similar pattern but do so even more strongly: now, all four lines align very closely, showing that the life-cycle profile of inequality has changed very little from cohort to cohort. In stark contrast, initial dispersion rose dramatically, from under about 3.3 for the 1968 cohort to over 9 for the 2011 cohort. This is a 2.7-fold rise in the P90-P10 ratio, which is similar to the total rise in the cross-sectional P90-P10 ratio for men, which rose from 4 to 10, a 2.5-fold rise.[31]

[30] Although the simple additive decomposition applies only to the variance, percentile ratios have other advantages, such as allowing us to focus on different parts of the distribution and having interpretations that are easy to understand.

[31] Clearly, the two numbers are not directly comparable as the cross-sectional dispersion is a mixture of

To summarize, the lifecycle profiles of inequality in Figure 13 suggest that the rise in initial inequality has been an important part of the rise in both lifetime and cross-sectional income inequality among men. To our knowledge, the fact that a substantial fraction of the rise in cross-sectional and lifetime inequality for men can be attributed to a rise in inequality at age 25 has not been emphasized in the previous work. We believe that this finding deserves more future work and a more central place in discussions of rising inequality.

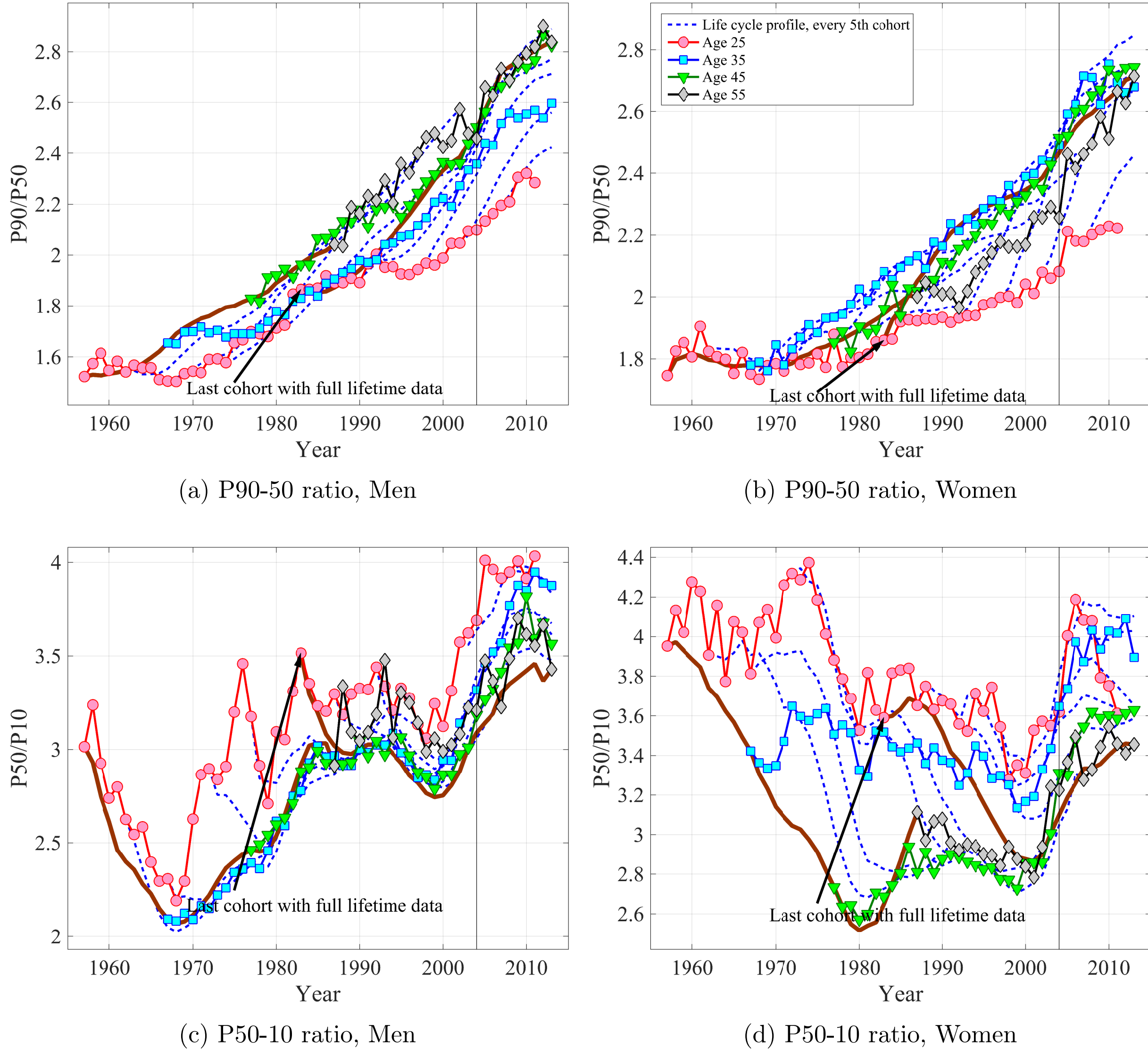
Turning to women (the right panels of Figure 13), we see a very different pattern. Inequality at age 25 is completely flat from the 1957 cohort to the 2000 cohort, and then rises briefly and falls in the 2000s. Furthermore, for the early cohorts, inequality falls strongly with age for the first 20 years or so of the life-cycle, is U-shaped for middle cohorts (falling for the first 10–15 years and then rising in the second half of the life-cycle), and only starts to rise after 2000—and does so strongly for age groups 35 and older. Therefore, for women the main driver of rising lifetime inequality is not the rise in age 25 dispersion but a much more complex pattern of life-cycle inequality profiles, which twist and change shape for subsequent cohorts. These different drivers of rising inequality are surprising in light of Figure 10, which revealed very similar patterns (including magnitudes) of rising lifetime inequality for both genders.

To dig a bit further, in Figure 14, we plot measures of top- and bottom-end inequality (P90-P50 and P50-P10, respectively), which add up to the P90-P10 profile just analyzed. In the top panel, we see that the rise in inequality above the median, P90-P50, is actually quite similar for men and women. What is different are the changes in inequality below the median (P50-P10 ratio): the changes rise for men of all ages 35 and above, but they display a more complicated pattern— a shrinking P50-P10 ratio over the life cycle — for almost all cohorts. These differences between men and women in their life-cycle profiles of inequality, as well as how the differences vary from cohort to cohort, deserve a fuller analysis that is beyond the scope of this paper. We leave these topics for future research.

6 Trends in the Share of the Pie

In this section, we offer an alternative perspective on trends in lifetime income inequality by examining how the aggregate lifetime income of each cohort—the pie, so to speak—is divided between males and females, and between individuals in different parts of the lifetime income distribution. So far, our analysis has documented very different trends in lifetime

31 cohorts, so the P90-P10 ratio for all men in 2011 mixes up all cohorts from those who entered in 1981 to 2011.



(a) P90-50 ratio, Men

(b) P90-50 ratio, Women

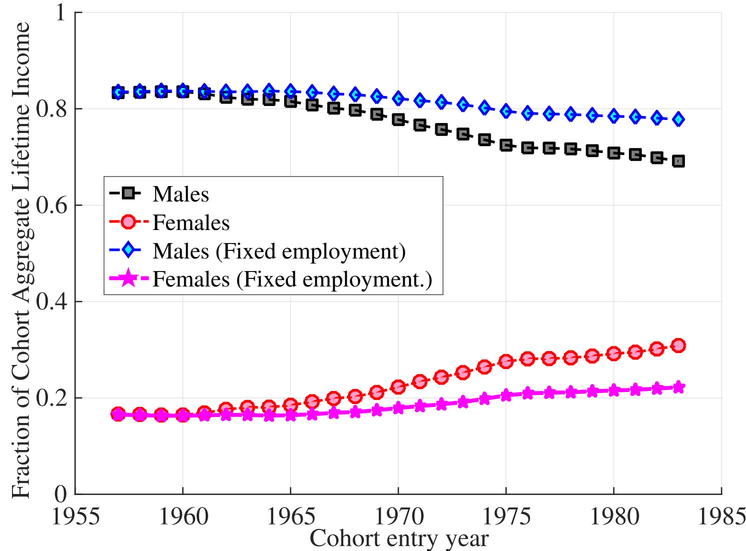
(c) P50-10 ratio, Men

(d) P50-10 ratio, Women

Figure 14: Age Profiles of Inequality, by Cohort, Continued

Notes: Each observation represents the income inequality within men or women of a particular age in a particular year in the baseline sample (see section 2.3). For example, the 1957 cohort is represented by an Age 25 observation in 1957, an Age 35 observation in 1967, an Age 45 observation in 1977, and an Age 55 observation in 1987. The dotted lines (solid for the first and last cohort with full life cycle profiles) connect all available age-year observations for every fifth cohort. Panel (a) displays the ratio of the 90th percentile to the 50th percentile of incomes for men within each age-year group. Panel (b) displays the same for women. Panel (c) displays the ratio of the 50th percentile to the 10th percentile of incomes for men within each age-year group. Panel (d) displays the same for women. Income is deflated using the PCE.

Figure 15: Share of Cohort Aggregate Income Going to Each Gender Group



Notes: Each observation represents the share of aggregate lifetime income of each cohort that was earned by a particular gender in the baseline sample (see section 2.3). The figures shows the trends for men and women, plotted by the year each cohort entered the labor market, as well as counterfactual trends for men and women assuming that the gender gap in lifetime years worked remained fixed at the 1957 level. Male and female shares for the actual and counterfactual trends add to one in each year. Income is deflated using the PCE.

incomes for different groups in the population—men versus women, early versus late cohorts, low versus high earners. This section offers a way to quantify the differences in these trends by analyzing changes in how the lifetime income pie is shared across these groups.

6.1 Share of the Pie by Gender

We begin with a comparison between men and women and ask how much of the pie was earned by each gender group in each cohort. In Figure 15, each black square marker shows the share of the pie that accrued to the men in that cohort, and each red circle shows the same for women; so, the two lines always add up to 1 for each cohort. For the 1957 cohort, men collectively earned about 83.5% of the cohort's aggregate income, but this share has declined monotonically, at first slowly and then more rapidly, so that by the 1983 cohort, men's share had fallen to 69.1%, for a total decline of 14.4% percentage points. Of course, the mirror image has been experienced by women, whose share has almost doubled across these same cohorts, from 16.5% to 30.9% of the 1983 cohort's aggregate income.

An important point to note is that this rising share for women (and decline for men) is

due to the closing gender gap in: (i) annual income, (ii) the number of years worked (conditional on having worked at least 15 years), and (iii) the fraction of the population (women vs. men) that satisfies the baseline sample criteria, which depends on the rising attachment of women to the labor force relative to that of men (as well as changing population ratios, which is a smaller concern). To see how much each channel contributes to these shifting shares, we construct an alternative statistic that isolates the first trend by controlling for (ii) and (iii). We do this by fixing the lifetime employment share of each gender (aggregate lifetime years worked for all women as a fraction of cohort total) at its value for the first cohort (1957) and tracking the shares that would have resulted if women's years of work (above 15 years) relative to men remained the same over time. These adjusted shares are shown with blue diamond markers for men and magenta star markers for women. As expected, for men, the employment-adjusted share declines more slowly than the unadjusted share (from 83.5% to 78%, compared with 83.5% to 69%). For women, the employment-adjusted share increases from 16.5% to 22.2% (compared with 16.5% to 30.5%).[32]

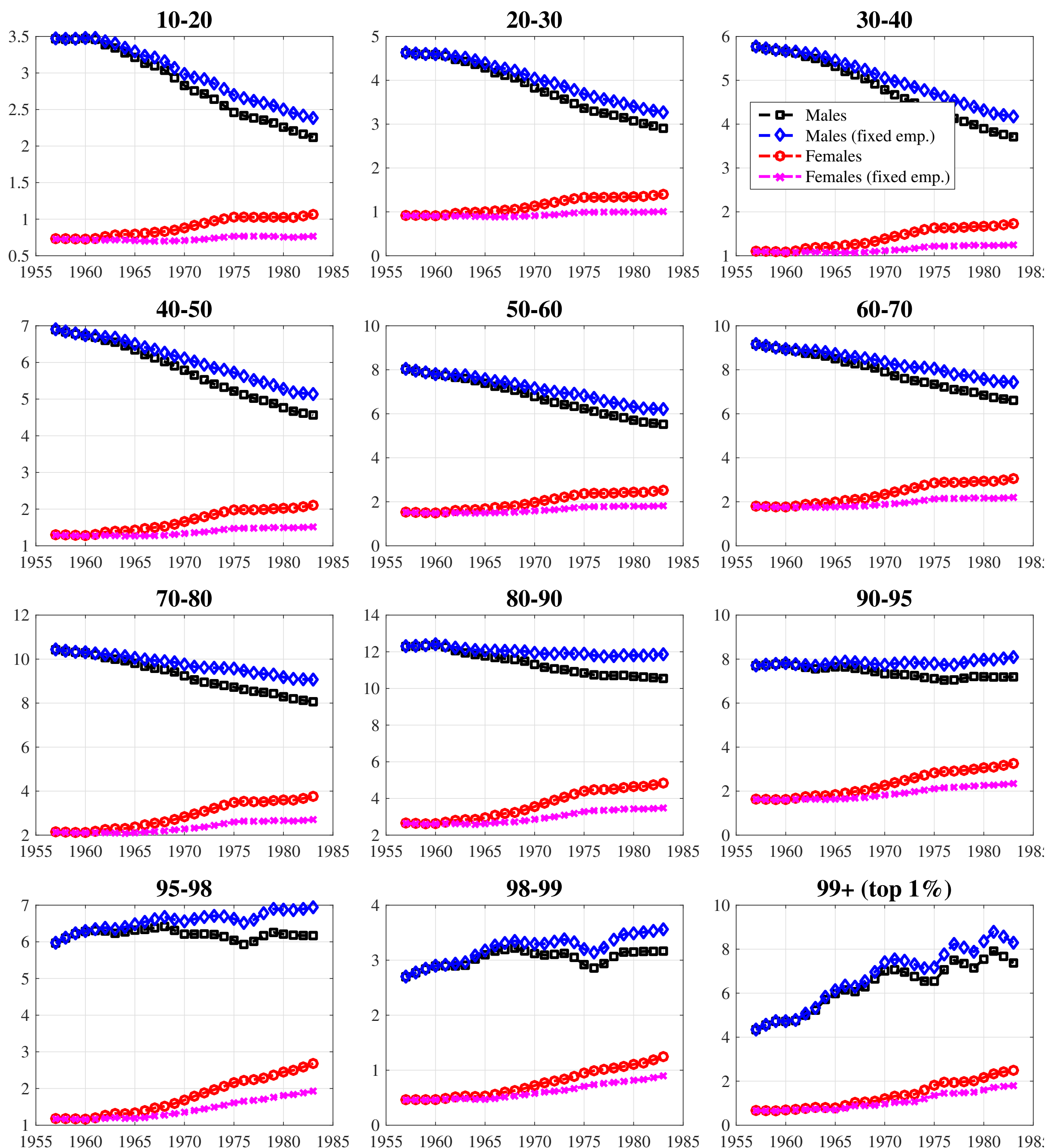
Thus, over the course of a generation (27 cohorts), the share of aggregate lifetime income accruing to women nearly doubled, and a large part of the increase is attributed to women becoming more strongly attached to the labor force.

6.2 Share of the Pie by Gender and Lifetime Income Percentiles

We now delve one level deeper and ask within each gender group, which lifetime income percentile group has seen its share of the pie rise or fall, and by how much? To answer this question, Figure 16 plots the share of each cohort's aggregate lifetime income accruing to men (black line with square markers) and women (red line with circles) in different parts of their gender-specific lifetime income distributions. For example, the 1957 point for men in the top left panel represents the fraction of the pie produced by the 1957 cohort that accrues to men in the 11th to 20th percentiles of the male lifetime income distribution in that cohort. The figures show both the raw shares and the employment-adjusted shares. We focus our discussion on the employment-adjusted shares, with the understanding that the raw income shares show even steeper declines for men and steeper increases for women.

[32]Because our selection criteria omits those who work less than 15 years, our measure of income shares misses income accruing to those that work few years. For example, if there was an increase in the average number of years worked by females who only worked for between 1 and 10 years, this should result in an increase in the income share accruing to women. Given our sample selection, this would be missed. Figure D.4 in Appendix D shows a version of Figure 15 in which income shares are calculated without imposing any minimum income or years worked selection criterion. The results are similar to those in Figure 15.

Figure 16: Share of Cohort Lifetime Income Going to Each Gender / Percentile Groups (indicated by the lower and upper end of percentile thresholds)



Notes: Each observation represents the share of aggregate lifetime income of a cohort that was earned by a particular gender and income percentile group in the baseline sample (see section 2.3). Each panel displays the analogous trends to Figure 15 for a particular income group defined by the income percentiles above each panel. For example, the top left panel displays the share of aggregate lifetime income of each cohort earned by men and women between the 10th and 20th percentile of the lifetime income distribution for each cohort (as well as the counterfactual fixed employment trends). Income is deflated using the PCE.

One of the immediate findings revealed in this figure is the steadily declining fortunes (share of the pie) of the bottom 90% of men in each cohort. Even for men between the 91st and 95th percentiles, the share of the pie has been more or less flat. In fact, only men in the top 5% (of their lifetime income distribution) have seen a noticeable increase in their share of the pie, and this increase is really only significant for the top 1% of men: their share has almost doubled, from 4% to nearly 8% from the 1957 to 1983 cohorts. Women, on the other hand, have experienced an increase in their share of aggregate cohort income in all parts of the distribution. Noticeably, the shares accruing to women in the bottom percentiles of the lifetime income distribution have grown more slowly than the shares accruing to women in the top percentiles.[33]

7 Discussion and Conclusions

The analysis in this paper has revealed two main findings. First, the majority of US men who entered the US labor market since the late 1960s have seen little-to-no gains in lifetime income relative to earlier cohorts, despite the fact that the US economy has grown significantly during the same period. Accounting for rising employer-provided health and retirement benefits partly mitigates these findings but does not overturn them. Much of this stagnation for men can be traced to the conditions during the labor market entry of a cohort: newer cohorts of men faced declining or stagnant (median) initial earnings relative to previous cohorts and did not experience faster earnings growth over their lifecycle to make up for the lower entry wages. Women experienced a sustained in increase in median lifetime income from one cohort to the next, but starting from very low levels in the early cohorts.

The second finding is that, since 1970, inequality in lifetime incomes increased significantly within each gender group but remained virtually flat in the combined population—thanks largely to the closing lifetime gender gap. The bulk of the rise in lifetime inequality among men was—again—due to a substantial rise in initial (age 25) inequality from one cohort to the next. For example, the P90/P10 ratio for 25 year old men rose from 3.3 in the 1969 cohort to 9 in the 2011 cohort. The *slope* of the lifecycle profile of inequality remained relatively unchanged across cohorts. We also analyzed the partial lifecycle data of more recent cohorts and found the same patterns on median and inequality just described

[33]Figure D.5 in Appendix D is a version of Figure 16 in which income shares are calculated without imposing any minimum income or years worked selection criterion. The results are similar to those in Figure 16.

during the period they are observed, suggesting that both the stagnation of median lifetime income and the rise in inequality is likely to continue

An important substantive conclusion we draw from these findings, especially for men, is that newer cohorts were already different from older ones by the time they entered the labor market (or turned age 25). Once in the labor market, the income distribution for these newer cohorts has evolved similarly to those of older cohorts. This finding is especially true for men, which is interesting, given that income inequality among males has been extensively studied, yet this finding does not seem to have been previously emphasized. Our findings thus suggest that the sources of the dramatic changes we have witnessed in the U.S. income distribution over the last 50 years may be found in the experiences of newer cohorts during their youth (and possibly earlier), and how those experiences differed from those of older cohorts.[34]

What's Next? Some Thoughts

This paper was deliberately (and unapologetically) descriptive in its nature for the simple reason that we could not do justice to documenting the rich trends in the distribution of lifetime incomes in sufficient detail while simultaneously investigating their potential drivers. Understanding the forces behind these trends is the natural next step. So, we were curious to see if the data offered any useful clues about potential drivers that can guide future investigations. To this end, and without going into a full analysis, we ran various panel regressions exploiting cross-state variation in the evolution of the state/cohort-specific lifetime income distributions. The details of this analysis are in Appendix A, and we briefly summarize our findings here.

We first constructed the median lifetime income distribution for each state, by cohort and gender. We then regressed the median measure for men (since they were the ones experiencing the turning point around late 1970s and the decline thereafter) on a number of potential correlates measured at the state level: union coverage rate, measures of trade exposure, industry composition, educational attainment, age and gender composition of the workforce, among several others. The timing of the right-hand side variables was chosen to coincide with the entry year of the cohort used on the left-hand side.

[34] We provide additional statistics on lifetime incomes and how they are related to the number of unique jobs held by workers, by the state they live in, among other variables of interest. These statistics use a 10% extract from the MEF from 1978 to 2013, which covers all individuals in the economy and provides non-top coded income. These statistics are computed both for the baseline sample and for a broader sample that does not impose any minimum threshold for lifetime income. See Appendix E.

Somewhat surprisingly (to us), many usual suspects—among them, unionization, trade, and industry composition—did not turn out to be robustly significant. However, two variables were consistently statistically significant and quantitatively large, and implied that: (i) cohorts that entered when the labor market had a large fraction of young workers (ages 25 to 35) experienced lower median lifetime incomes, and (ii) in entering cohorts that had a larger fraction of men relative to women in the workforce, men earned lower (median) lifetime incomes. Both effects are consistent with a simple demand side story with a production function where age and gender groups are imperfect substitutes. If the inputs are gross substitutes, a rise in the supply of younger workers or men depresses the wages of those groups. This is the same mechanism extensively studied to understand the trends in the college premium (e.g., Katz and Murphy (1992b)) as well as its different evolutions for different cohorts (Card and Lemieux (2001)).

We then repeated the same analysis for lifetime inequality, using the P90/P10 measure as the left-hand side variable. In contrast to the findings for the median, gender and age composition did not turn out to be significant. Instead, industry composition seems to matter: states where manufacturing share declined experienced a larger rise in lifetime inequality across cohorts compared with states where services share grew saw a smaller rise. These effects were more pronounced for inequality above the median (P90/P50) than below (P50/P10).

Overall, while no smoking gun emerged from this preliminary investigation, we found this exercise to be useful by showing that some of the most obvious explanations did not clearly emerge from the analysis. To the extent that they might have played a role, their effects might be more subtle than what this preliminary analysis was able to uncover. Clearly, these preliminary results are only suggestive at this point and invite more work on this topic.

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ONLINE APPENDIX

Not For Publication

A State-Level Panel Regressions

Many of the usual suspects–increasing automation, outsourcing, declining union strength and coverage, among others–could be plausible explanations for the trends in lifetime incomes we document. We investigate the relationship between state-level lifetime income trends and trade exposure, union coverage, industry composition of the workforce, and demographic composition during the year that a cohort enters the labor force. We find the growth in the share of young working age individuals in a state and the growth in the share of those young workers that are men to have a negative association with the growth in median lifetime income for men. While other variables, most notably race and college attainment, turn significant in some specifications, this does not seem robust.[35] We also find that the growth in employment in the manufacturing and services sectors have negative associations with growth in lifetime inequality. While we don't find associations with our measures of union coverage or trade exposure, they may explain some of the association with employment in the manufacturing sector.

A.1 Details of the Regression Analysis

We conduct a series of panel regressions on state-level variables to see if there are robust relationships between union coverage, trade exposure, industry composition, or demographic composition, and the trends in lifetime income that we document. Our dependent variables are state-level log change in median lifetime income and the log of the 90-10, 90-50, and 50-10 lifetime income ratios (by gender group).

Our independent variables come from several data sources. We use the union coverage series from Hirsch et al. (2001) which starts in 1964. We calculate trade exposure as the portion of state-level GDP that comes from manufacturing, agriculture, or mining using the Regional Economic Accounts maintained by the Bureau of Economic Analysis. For the industry and demographic composition of the workforce, we use two sources of data. We use the Annual Social and Economic Supplement of Current Population Survey (CPS) for annual state-level data beginning in 1967. However, the CPS groups many small states together in clusters that change between 1967 and 1983, which limits usable cross-state variation. As an alternative, we also use the 1960, 1970, and 1980 Censuses to use in decade-difference regressions.

We regress our dependent variable on state-level variables from the year that the cohort entered the labor market. In our baseline specification, our independent variables include the change in union coverage; the change in trade exposure; the change in the employment share in manufacturing, agriculture, and service industries; the change in the percent of the state population that is married, white, or aged 25 to 35; and the change in the percent of young people (aged 25-35) that are male or college educated.

In the annual regressions using the CPS, all changes are computed annually. We have 304 region-year observations between 1967 and 1983, where a region is either a large state or a regional group of small states. In our baseline specifications, we use region and year fixed effects. In the

[35] While we find significant relationships between the share of individuals aged 25 to 35 that are men and median lifetime income, we do not find any similar association with the share of *working* young people that are men.

decade regressions using the Census, we compute ten-year changes in all variables. We have two observations per state, from 1960 to 1970 and 1970 to 1980. However, because of sample size censoring, we do not have lifetime income measures for all states in each year. As a result, we have 55 state-decade observations. We use neither state nor decade fixed effects in the decade regressions.

In addition to our baseline specifications, we also explore using levels instead of differenced dependent and independent variables. We experimented with toggling time and regional fixed effects. We added variables focusing on the labor market composition of the older generation of workers rather than the younger generation. Our baseline specification is not weighted, but we did run several specifications using weighted OLS as well. We also ran similar panel regressions using cross-sectional measures of income and inequality from the CPS rather than lifetime income measures.

In the decade regressions, we find a relatively robust relationship between the declining manufacturing share of the labor force and increases in income inequality, with the strongest association with 90-10 inequality. We also find evidence that growth in the share of the labor force working in the services industry has a negative association with growth in inequality.

Some of the demographic variables have relatively robust relationships. In the annual regressions, an increase in the share of 25 to 35 year olds that have a college education is positively associated with growth in the median lifetime income. We also find that an increase in the share of state that is white is negatively associated with median lifetime income and positive associated with 90-50 income inequality. In the decade regressions, we find the same relationship in the college share of young people. We also find the opposite relationship between the white share of a state and both median lifetime income and income inequality. We find that an increase in the share of the state aged 25-35 and the share of those young people that are men are negatively associated with male median lifetime income. These findings are consistent with a substitutable labor within cohorts, in which states with a greater labor supply drive lower wages in a manner that is persistent throughout the lifecycle of a cohort. When conditioning on the working population of young people, we do not find a significant association between the share of men and male median lifetime incomes.

A.2 State-Level Percentiles of the Lifetime Income Distribution

Table A.1: Decade Differences of Median Lifetime Income

VARIABLES	(1) Δ Med Lifetime Inc	(2) Δ Med	(3) Δ Med	(4) Δ Med
Δ Union Cov	-0.00218		-0.00454	
	(0.00560)		(0.00603)	
Δ %GDP Trade	0.00205		-0.000645	
	(0.00493)		(0.00541)	
Δ % Male of 25-35	-2.760	-3.072*	-2.824	-3.418**
	(1.756)	(1.604)	(1.874)	(1.717)
Δ % Married	-1.348		-1.982	
	(1.982)		(2.111)	
Δ % Coll. of 25-35	1.429	1.526	2.064	2.092*
	(1.043)	(0.958)	(1.277)	(1.130)
Δ % White	2.499**	1.935***	2.486*	1.655
	(1.244)	(0.727)	(1.510)	(1.060)
Δ % Aged 25-35	-2.413**	-2.691***	-2.531	-2.952***
	(1.078)	(0.708)	(1.551)	(0.977)
Δ % Manuf			1.101	0.798
			(1.027)	(0.946)
Δ % Services			-0.492	-0.437
			(1.522)	(1.305)
Δ % Agricult			0.557	0.425
			(1.298)	(1.339)
Constant	-0.0200	-0.0189	-0.0212	-0.00905
	(0.0538)	(0.0487)	(0.0790)	(0.0703)
Observations	55	55	55	55
R-squared	0.489	0.480	0.518	0.501
State Fixed Effects	N	N	N	N
Year Fixed Effects	N	N	N	N

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: These are the baseline specifications. The dependent variable is the change in median lifetime income (from SSA) from the 1960 to 1970 cohorts and 1970 to 1980 cohorts, in every state for which the 1% sample exceeds 100. Independent variables are the same ten-year changes in demographic and economic variables (from Census) in the year the cohorts enter the labor market. Variables include union coverage; percent of GDP in trade-exposed industries; percent of 25-35 year olds that are male or college educated; percent of total population that is aged 25-35, white, or married; and the percent of the working population employed the manufacturing, services, or agriculture.

Table A.2: Decade Differences in 90-10 Lifetime Income Inequality

VARIABLES	(1) Δ p90/p10	(2)	(3)	(4)
Δ Union Cov	-0.00449		-0.00401	
	(0.0118)		(0.0125)	
Δ %GDP Trade	0.000356		0.00691	
	(0.00820)		(0.00775)	
Δ % Male of 25-35	-0.373	-1.604	-4.500	-4.151
	(4.861)	(4.606)	(4.826)	(4.398)
Δ % Married	-3.935		-0.0207	
	(4.257)		(4.948)	
Δ % Coll. of 25-35	-0.144	0.309	1.060	0.947
	(2.614)	(2.439)	(2.369)	(2.167)
Δ % White	-0.605	-2.213*	-1.275	-1.456
	(1.947)	(1.303)	(2.376)	(1.778)
Δ % Aged 25-35	1.289	0.191	-3.662	-3.185*
	(2.733)	(1.754)	(3.042)	(1.895)
Δ % Manuf			-4.759**	-4.334**
			(2.024)	(1.760)
Δ % Services			-6.216**	-6.093**
			(2.913)	(2.703)
Δ % Agricult			-0.988	-0.723
			(2.481)	(2.321)
Constant	0.122	0.133	0.345***	0.338***
	(0.116)	(0.117)	(0.130)	(0.119)
Observations	55	55	55	55
R-squared	0.123	0.107	0.325	0.312
State Fixed Effects	N	N	N	N
Year Fixed Effects	N	N	N	N

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: These are the baseline specifications. The dependent variable is the change in the p90/p10 ratio (from SSA) from the 1960 to 1970 cohorts and 1970 to 1980 cohorts, in every state for which the 1% sample exceeds 100. Independent variables are the same ten-year changes in demographic and economic variables (from Census) in the year the cohorts enter the labor market. Variables include union coverage; percent of GDP in trade-exposed industries; percent of 25-35 year olds that are male or college educated; percent of total population that is aged 25-35, white, or married; and the percent of the working population employed the manufacturing, services, or agriculture.

Table A.3: 90th Percentile of the Lifetime Income Distribution for Men, by State and Cohort

	Cohort					
	1957	1962	1967	1972	1977	1983
AL	63.55	58.50	77.14	82.06	85.03	81.39
AR	60.97	68.88	75.73	73.85	76.14	77.18
AZ						100.29
CA	87.66	86.21	102.40	101.57	93.73	101.99
CO					89.41	103.18
CT				98.69	103.97	124.51
FL			87.66	86.45	85.73	100.30
GA	62.35	61.84	71.14	76.44	81.91	83.26
IA	84.12	73.55	84.39	86.81	91.91	73.83
IL	82.58	91.14	107.07	105.07	95.41	103.22
IN	77.41	75.99	86.40	81.53	88.35	84.25
KS				80.30	100.07	88.59
KY	62.08	66.02	78.94	77.74	69.68	77.19
LA		74.58	75.66	76.01	84.80	86.44
MA	75.11	89.86	106.87	108.54	104.70	117.93
MD			70.69	106.47	91.66	103.71
MI	78.84	86.47	93.96	95.06	91.53	100.99
MN	74.89	79.79	88.18	88.42	89.46	100.33
MO	65.76	72.20	88.65	103.80	91.55	93.26
MS	55.22	66.64	63.51	71.23	76.52	76.02
NC	56.30	61.46	69.02	71.46	73.35	81.32
NE					101.67	
NJ	75.59	94.25	106.13	123.12	112.20	120.91
NY	93.38	113.84	114.32	123.11	125.39	122.53
OH	71.22	76.58	90.14	104.25	90.60	93.03
OK	69.60	87.61	85.76	81.17	85.77	91.55
OR					91.14	82.35
PA	73.34	79.48	88.10	93.05	95.78	106.34
SC		54.59	69.78	72.24	84.24	71.40
TN	61.95	73.46	77.94	75.05	76.12	83.15
TX	67.28	77.74	92.29	89.01	89.78	90.22
VA	53.25	67.09	69.22	76.76	84.63	94.97
WA				92.84	82.59	93.28
WI	78.12	77.97	90.24	108.23	88.03	91.66
WV	66.40	67.67	69.69	76.28	70.44	76.10

Notes: This table displays the 90th percentile of lifetime income for men by state and cohort. Values are displayed in thousands of 2013 dollars and deflated using the PCE. An empty cell indicates that the sample size for that state/cohort combination is too small to report.

Table A.4: Median of the Lifetime Income Distribution for Men, by State and Cohort

	Cohort					
	1957	1962	1967	1972	1977	1983
AL	31.28	34.47	38.69	37.38	37.59	34.24
AR	31.49	36.17	37.22	37.77	37.22	33.92
AZ						34.75
CA	47.63	45.98	49.16	44.19	43.63	41.21
CO					37.84	44.95
CT				48.20	51.56	51.94
FL			39.85	31.26	35.96	33.83
GA	34.02	32.88	37.34	36.33	37.78	31.89
IA	44.09	36.37	49.02	48.06	41.37	33.89
IL	46.61	49.79	52.72	51.26	45.18	44.76
IN	40.55	43.07	51.60	46.65	44.85	38.56
KS				44.67	42.46	44.41
KY	39.02	36.56	41.36	41.36	33.97	34.47
LA		36.56	42.19	42.50	41.16	35.18
MA	41.78	48.13	46.47	45.95	50.40	44.39
MD			41.28	50.68	42.71	39.66
MI	46.37	47.03	52.64	52.18	45.05	43.25
MN	45.13	44.04	53.54	44.69	42.31	43.36
MO	37.56	43.83	44.67	45.15	42.28	35.43
MS	31.74	33.43	35.43	32.18	31.98	28.58
NC	30.38	33.52	35.32	34.18	35.65	31.23
NE					41.77	
NJ	44.29	54.25	52.60	52.27	51.57	52.42
NY	47.91	50.34	51.72	52.11	47.27	45.40
OH	44.17	46.43	46.55	48.22	41.21	39.88
OK	37.35	39.32	37.95	38.30	34.75	38.44
OR					42.39	37.48
PA	40.75	45.05	47.33	46.84	43.38	43.01
SC		30.76	37.61	38.51	35.23	29.41
TN	32.63	36.05	34.67	35.63	38.94	34.65
TX	36.70	42.54	40.83	39.87	39.53	36.00
VA	32.45	33.65	35.08	37.77	35.39	37.03
WA				49.10	44.01	46.13
WI	42.08	47.04	49.33	47.32	46.12	42.25
WV	40.64	38.02	35.87	41.22	39.20	36.66

Notes: This table displays the median of lifetime income for men by state and cohort. Values are displayed in thousands of 2013 dollars and deflated using the PCE. An empty cell indicates that the sample size for that state/cohort combination is too small to report.

Table A.5: 10th Percentile of the Lifetime Income Distribution for Men, by State and Cohort

	Cohort					
	1957	1962	1967	1972	1977	1983
AL	11.96	13.39	15.96	14.25	10.80	11.04
AR	13.05	12.94	14.31	15.74	13.98	12.65
AZ						14.45
CA	20.81	18.44	18.90	14.80	16.67	12.90
CO					16.56	15.07
CT				15.48	18.16	15.80
FL			13.82	10.71	13.64	13.12
GA	12.11	13.78	13.02	11.98	11.41	10.42
IA	19.87	15.28	22.21	16.97	17.28	17.22
IL	17.63	19.90	23.04	19.87	17.13	13.90
IN	16.71	15.30	26.69	18.23	18.20	15.05
KS				20.31	15.27	14.62
KY	17.33	16.63	16.59	14.20	12.87	10.92
LA		14.43	17.50	15.68	12.41	10.72
MA	15.55	19.45	17.50	17.31	18.28	15.86
MD			15.42	18.14	15.81	14.19
MI	21.14	20.17	20.83	18.37	16.33	15.83
MN	22.12	20.34	21.33	18.27	17.18	14.84
MO	13.82	22.36	17.81	13.60	14.69	12.54
MS	11.26	15.10	11.20	11.85	12.04	9.30
NC	12.54	14.05	13.44	12.62	14.01	11.81
NE					18.42	
NJ	19.48	20.88	21.92	19.71	15.16	17.22
NY	20.21	21.33	22.03	19.77	16.10	14.90
OH	20.21	19.43	19.98	18.74	15.24	14.22
OK	16.88	17.85	13.85	14.66	14.02	11.24
OR					15.23	12.92
PA	18.28	19.60	19.70	18.23	17.38	14.55
SC		13.14	15.74	15.38	12.50	9.87
TN	9.82	15.77	13.28	15.46	13.23	12.72
TX	14.01	16.19	14.82	16.39	13.99	11.91
VA	14.82	11.62	15.01	12.63	13.12	13.56
WA				17.13	17.65	16.60
WI	21.86	21.15	23.95	20.57	18.34	18.46
WV	16.56	18.11	13.97	17.30	13.89	14.44

Notes: This table displays the 10th percentile of lifetime income for men by state and cohort. Values are displayed in thousands of 2013 dollars and deflated using the PCE. An empty cell indicates that the sample size for that state/cohort combination is too small to report.

Table B.6: Distribution of Lifetime Incomes by Cohort, Males (in Thousands of 2013 US $)

	Averages		Selected Percentiles							
Cohort	Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
1957	42.21	37.71	10.58	14.50	23.50	52.79	56.90	70.06	88.28	156.75
1958	43.40	38.71	10.84	14.81	23.90	53.46	57.39	71.67	89.20	164.79
1959	43.86	38.07	10.65	14.64	23.74	53.83	58.16	74.29	94.19	179.16
1960	44.96	39.17	11.04	15.52	25.11	55.21	60.44	75.74	93.89	179.76
1961	45.33	39.17	11.64	15.56	24.59	55.66	60.13	75.74	96.94	184.10
1962	46.03	40.02	12.10	16.10	25.15	55.91	60.33	76.04	98.91	182.93
1963	47.41	40.74	11.66	15.68	25.62	57.79	62.49	78.35	100.36	196.22
1964	47.18	40.65	11.74	16.15	25.34	57.57	61.75	76.96	101.00	197.83
1965	49.22	40.53	11.32	15.57	25.65	58.54	63.46	80.85	108.00	230.73
1966	48.98	41.25	11.46	15.77	25.46	58.96	63.85	81.85	107.79	220.73
1967	51.47	42.34	12.08	16.16	26.07	61.15	66.71	86.00	113.65	246.98
1968	50.94	41.80	11.91	16.01	26.35	60.80	65.81	84.99	113.99	236.71
1969	51.08	41.19	11.53	15.48	25.41	61.08	66.45	85.52	112.13	249.65
1970	51.44	41.26	11.00	15.02	25.12	60.71	66.50	86.26	112.33	263.86
1971	52.27	42.15	11.48	15.69	25.68	61.46	67.13	86.81	116.77	260.52
1972	52.40	41.21	10.71	15.03	25.12	61.68	67.74	89.80	119.42	261.78
1973	51.50	40.79	11.00	14.95	24.78	60.99	67.08	87.03	116.46	270.30
1974	50.59	39.92	10.61	14.00	23.84	60.36	66.67	86.88	116.32	257.37
1975	50.22	39.81	10.17	13.65	23.14	60.42	66.30	86.76	115.90	238.90
1976	50.85	39.53	10.34	13.84	23.14	61.24	68.03	88.48	115.76	234.39
1977	51.85	39.49	10.42	14.02	23.32	60.52	66.86	88.49	118.50	249.74
1978	51.90	38.82	10.00	13.52	22.95	61.29	68.25	90.09	122.82	264.46
1979	51.56	39.01	9.89	13.74	22.85	61.33	67.88	91.01	124.27	271.17
1980	52.82	38.73	9.93	13.52	22.86	61.46	68.44	93.09	126.77	281.16
1981	53.17	38.36	9.70	13.33	22.50	61.16	68.77	94.24	127.75	294.04
1982	52.78	38.49	9.92	13.39	22.46	61.35	69.04	94.50	127.84	293.90
1983	52.22	37.96	9.62	12.96	21.96	60.33	68.24	94.58	128.68	290.16

B Additional Tables and Figures for Section 3

Table B.7: Distribution of Lifetime Incomes by Cohort, Females (in Thousands of 2013 US $)

	Averages			Selected Percentiles							
Cohort	Mean	Median		p5	p10	p25	p75	p80	p90	p95	p99
1957	16.71	14.09	0.37	5.00	6.38	9.20	21.58	23.66	30.25	35.88	50.44
1958	16.93	14.39	0.37	5.28	6.42	9.44	21.73	24.12	30.82	37.18	51.00
1959	17.09	14.60	0.38	5.43	6.68	9.71	21.71	24.27	30.28	36.32	50.33
1960	17.33	14.36	0.37	5.25	6.54	9.54	22.57	24.82	31.86	38.02	51.65
1961	17.81	14.95	0.38	5.63	6.68	9.76	22.58	25.39	32.50	38.11	56.21
1962	18.22	15.36	0.38	5.36	6.68	10.03	23.32	25.75	33.06	40.55	57.57
1963	18.60	15.53	0.38	5.52	6.97	10.20	23.51	25.97	33.19	40.76	59.09
1964	18.56	15.31	0.38	5.75	7.08	10.27	23.32	25.87	33.64	41.67	59.41
1965	18.74	16.06	0.40	5.64	7.04	10.20	24.18	26.59	34.12	41.02	55.31
1966	19.88	16.50	0.40	5.57	7.00	10.49	25.67	28.45	36.46	43.96	62.80
1967	20.62	16.84	0.40	5.97	7.44	10.80	26.09	29.12	37.17	45.32	69.18
1968	21.09	17.32	0.41	5.82	7.24	10.93	27.10	29.97	38.29	47.43	73.96
1969	21.23	17.46	0.42	5.93	7.49	11.17	27.33	30.32	38.41	47.90	73.46
1970	22.52	18.20	0.44	5.96	7.50	11.36	28.45	31.94	41.94	51.52	83.66
1971	23.46	19.05	0.45	6.20	7.76	11.99	29.63	32.83	43.43	53.24	86.45
1972	23.70	19.03	0.46	6.31	7.91	11.92	29.97	33.74	43.44	54.29	90.08
1973	24.33	19.49	0.48	6.19	7.82	11.99	31.03	34.77	45.46	56.68	88.54
1974	24.87	19.94	0.50	6.38	8.16	12.57	31.64	35.27	46.29	57.93	96.75
1975	25.95	20.25	0.51	6.16	8.02	12.33	32.56	36.35	47.72	59.96	101.07
1976	27.15	21.11	0.53	6.59	8.52	13.00	34.63	38.25	50.39	63.63	112.28
1977	27.11	20.88	0.53	6.54	8.33	12.89	33.86	38.06	50.36	64.16	118.53
1978	27.59	21.43	0.55	6.47	8.47	13.05	34.11	38.59	51.49	64.94	121.29
1979	28.14	21.70	0.56	6.49	8.49	13.10	34.89	39.37	52.43	67.62	119.76
1980	28.76	21.91	0.57	6.55	8.47	13.22	35.81	40.24	53.80	69.32	124.78
1981	29.35	22.05	0.57	6.69	8.63	13.53	35.14	39.65	54.54	71.39	134.93
1982	29.27	22.05	0.57	6.57	8.56	13.48	35.54	39.92	53.64	71.55	128.08
1983	29.85	22.35	0.59	6.69	8.66	13.50	36.31	40.87	55.40	74.02	143.61

Table B.8: Distribution of Lifetime Incomes by Cohort, Males; Deflated with CPI (in Thousands of 2013 US $)

	Averages		Selected Percentiles							
Cohort	Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
1957	51.38	46.08	12.99	17.91	28.83	64.24	69.06	85.16	106.94	188.93
1958	52.59	47.17	13.45	18.16	29.26	64.91	69.55	86.85	108.00	193.95
1959	52.92	46.12	13.05	17.93	28.97	65.02	70.25	89.40	112.81	210.88
1960	54.00	47.34	13.46	18.89	30.55	66.32	72.61	90.66	112.28	209.89
1961	54.20	47.13	14.13	18.88	29.76	66.61	71.93	90.47	115.07	218.15
1962	54.77	47.87	14.63	19.51	30.46	66.56	72.06	90.23	117.24	214.62
1963	56.10	48.50	14.09	18.84	30.79	68.43	73.85	92.58	117.65	226.43
1964	55.59	48.17	14.09	19.39	30.31	67.89	72.63	90.32	117.45	228.05
1965	57.60	47.87	13.65	18.44	30.44	68.52	74.28	94.40	124.70	266.21
1966	57.04	48.38	13.66	18.71	30.20	68.66	74.41	95.34	124.42	254.00
1967	59.54	49.40	14.25	19.04	30.56	70.83	77.21	99.56	130.00	281.47
1968	58.61	48.39	13.96	18.74	30.71	70.09	75.85	97.51	129.43	267.51
1969	58.36	47.46	13.34	17.96	29.59	69.91	75.94	97.37	127.17	278.48
1970	58.36	47.31	12.64	17.30	28.89	69.12	75.56	97.79	126.26	292.87
1971	58.94	47.89	13.14	17.98	29.33	69.52	75.72	97.67	130.59	290.96
1972	58.70	46.64	12.32	17.10	28.51	69.29	76.07	100.56	132.58	287.89
1973	57.35	45.81	12.44	16.95	27.82	68.17	74.83	96.66	128.30	300.02
1974	56.02	44.53	11.86	15.73	26.72	66.93	73.95	95.98	128.11	279.78
1975	55.26	44.06	11.33	15.18	25.79	66.65	73.14	95.31	126.76	256.09
1976	55.60	43.52	11.42	15.41	25.67	67.19	74.32	96.37	126.10	251.53
1977	56.30	43.25	11.55	15.38	25.56	65.91	72.73	95.88	128.51	265.19
1978	56.06	42.24	10.90	14.74	25.12	66.43	73.75	96.81	131.78	279.78
1979	55.40	42.19	10.76	14.89	24.76	66.22	73.07	97.89	132.50	285.64
1980	56.44	41.68	10.67	14.65	24.71	65.85	73.31	99.33	134.63	294.02
1981	56.52	41.05	10.52	14.32	24.10	65.16	73.29	100.20	135.31	307.08
1982	55.85	41.03	10.65	14.40	23.92	65.26	73.26	99.79	134.61	305.62
1983	55.05	40.25	10.34	13.92	23.35	63.86	72.10	99.62	134.64	301.15

Table B.9: Distribution of Lifetime Incomes by Cohort, Females; Deflated with CPI (in Thousands of 2013 US $)

	Averages		Selected Percentiles							
Cohort	Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
1957	20.20	16.96	6.12	7.71	11.08	26.12	28.63	36.59	43.40	60.53
1958	20.38	17.23	6.36	7.71	11.29	26.22	29.08	37.09	44.61	61.84
1959	20.48	17.51	6.55	7.99	11.62	25.92	29.01	36.22	43.61	61.22
1960	20.66	17.08	6.25	7.85	11.37	26.96	29.60	38.01	45.65	61.67
1961	21.12	17.68	6.68	7.98	11.60	26.84	30.17	38.74	45.39	66.09
1962	21.49	18.04	6.36	7.90	11.80	27.50	30.36	39.09	47.69	67.06
1963	21.82	18.29	6.51	8.20	11.91	27.59	30.27	39.03	47.88	69.36
1964	21.66	17.81	6.77	8.27	12.01	27.15	30.27	39.26	48.40	69.15
1965	21.78	18.66	6.54	8.17	11.90	28.03	30.95	39.68	47.72	64.31
1966	22.97	19.09	6.45	8.13	12.17	29.67	32.88	42.22	51.12	72.94
1967	23.71	19.37	6.91	8.56	12.39	30.04	33.48	42.80	52.15	79.82
1968	24.09	19.74	6.68	8.32	12.54	30.85	34.15	43.90	53.90	84.25
1969	24.13	19.85	6.73	8.56	12.67	31.09	34.35	43.77	54.43	82.68
1970	25.43	20.53	6.81	8.53	12.87	32.14	36.03	47.28	57.91	93.47
1971	26.34	21.45	7.03	8.75	13.44	33.33	36.87	48.94	59.93	96.72
1972	26.47	21.24	7.09	8.85	13.41	33.47	37.60	48.46	60.73	98.53
1973	27.01	21.72	6.92	8.72	13.31	34.51	38.70	50.57	62.68	97.25
1974	27.47	22.06	7.04	9.03	13.91	35.03	39.08	50.99	63.67	105.71
1975	28.48	22.28	6.82	8.83	13.58	35.82	39.96	52.33	65.79	109.32
1976	29.63	23.12	7.23	9.29	14.24	37.74	41.80	55.26	69.30	121.97
1977	29.43	22.76	7.12	9.10	14.03	36.81	41.43	54.54	69.56	128.16
1978	29.77	23.22	7.05	9.17	14.13	36.81	41.72	55.63	69.75	128.39
1979	30.21	23.38	7.06	9.22	14.12	37.63	42.27	56.35	72.24	127.22
1980	30.73	23.47	7.09	9.09	14.23	38.30	43.17	57.54	74.02	131.99
1981	31.19	23.50	7.22	9.23	14.43	37.42	42.08	57.95	75.58	144.23
1982	30.97	23.39	7.01	9.13	14.35	37.55	42.34	56.89	75.70	133.99
1983	31.49	23.63	7.07	9.16	14.32	38.39	43.12	58.47	77.60	150.17

Table B.10: Growth Rates of Cohort Lifetime Income, Intensive Margin

Cohorts		Averages		Selected Percentiles							
		Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
Males – PCE											
57–68	Cumulative	21.46	12.80	11.59	9.70	9.31	16.89	17.97	24.35	32.86	55.20
	Annualized	1.78	1.10	1.00	0.85	0.81	1.43	1.51	2.00	2.62	4.08
68–83	Cumulative	3.61	–7.16	–17.37	–16.84	–14.07	3.42	7.20	11.54	12.91	17.41
	Annualized	0.24	–0.49	–1.26	–1.22	–1.01	0.22	0.46	0.73	0.81	1.08
57–83	Cumulative	25.84	4.73	–7.79	–8.77	–6.07	20.89	26.47	38.71	50.00	82.23
	Annualized	0.89	0.18	–0.31	–0.35	–0.24	0.73	0.91	1.27	1.57	2.33
Males – CPI											
57–68	Cumulative	14.83	7.12	6.12	3.76	3.66	10.88	11.62	17.25	25.27	43.18
	Annualized	1.26	0.63	0.54	0.34	0.33	0.94	1.00	1.46	2.07	3.32
68–83	Cumulative	–5.11	–15.13	–24.60	–24.32	–21.35	–5.55	–1.95	2.22	3.58	8.12
	Annualized	–0.35	–1.09	–1.86	–1.84	–1.59	–0.38	–0.13	0.15	0.23	0.52
57–83	Cumulative	8.96	–9.08	–19.98	–21.48	–18.48	4.73	9.45	19.85	29.75	54.80
	Annualized	0.33	–0.37	–0.85	–0.93	–0.78	0.18	0.35	0.70	1.01	1.69
Females – PCE											
57–68	Cumulative	24.02	18.02	11.43	11.26	14.80	23.11	24.28	27.76	37.48	35.51
	Annualized	1.98	1.52	0.99	0.97	1.26	1.91	2.00	2.25	2.94	2.80
68–83	Cumulative	33.56	19.97	12.29	12.54	16.70	28.34	32.21	44.40	51.60	92.81
	Annualized	1.95	1.22	0.78	0.79	1.03	1.68	1.88	2.48	2.81	4.47
57–83	Cumulative	65.63	41.58	25.12	25.22	33.97	57.99	64.31	84.49	108.42	161.27
	Annualized	1.96	1.35	0.87	0.87	1.13	1.77	1.93	2.38	2.86	3.76
Females – CPI											
57–68	Cumulative	17.16	11.78	5.13	4.83	8.40	16.71	17.63	20.97	29.35	30.03
	Annualized	1.45	1.02	0.46	0.43	0.74	1.41	1.49	1.75	2.37	2.42
68–83	Cumulative	23.45	10.92	3.61	4.28	8.05	18.61	21.95	32.96	40.26	73.75
	Annualized	1.41	0.69	0.24	0.28	0.52	1.14	1.33	1.92	2.28	3.75
57–83	Cumulative	44.64	23.98	8.92	9.32	17.13	38.43	43.45	60.85	81.42	125.91
	Annualized	1.43	0.83	0.33	0.34	0.61	1.26	1.40	1.84	2.32	3.18

Table B.11: Distribution of Lifetime Incomes by Cohort, Adjusted for Years Worked (in Thousands of 2013 US $)

	Averages		Selected Percentiles							
Cohort	Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
1957	39.87	34.19	11.37	14.24	21.50	49.76	53.66	66.78	83.64	157.19
1958	40.59	34.38	11.41	14.50	21.50	50.60	54.67	66.68	84.05	164.34
1959	41.04	34.33	11.77	14.56	21.56	50.22	54.66	68.85	88.17	175.91
1960	42.22	35.74	11.83	14.68	22.25	51.89	56.47	71.27	89.72	176.38
1961	42.59	35.41	12.04	14.92	22.31	52.18	56.94	71.72	92.51	176.71
1962	43.01	35.80	12.23	15.25	22.82	52.78	56.99	71.89	90.64	180.17
1963	43.88	35.95	12.23	15.34	22.41	53.54	58.36	73.58	94.25	186.19
1964	44.06	36.09	12.27	15.25	22.88	53.94	58.50	73.26	93.42	196.08
1965	45.42	36.15	12.17	15.10	22.86	54.23	59.27	75.38	100.19	216.48
1966	45.27	36.50	12.08	15.22	22.86	54.65	59.54	75.85	98.70	210.42
1967	47.28	37.32	12.60	15.63	23.27	56.36	61.63	79.16	104.84	243.38
1968	47.18	37.62	12.42	15.67	23.67	56.40	62.03	79.81	104.46	228.76
1969	47.04	36.92	12.45	15.72	23.39	55.98	61.62	79.68	102.62	231.33
1970	47.77	37.09	12.42	15.66	23.29	56.59	62.02	80.64	106.14	236.64
1971	48.41	37.69	12.76	16.11	24.03	56.96	62.39	81.01	107.08	227.62
1972	48.43	37.26	12.62	15.85	23.69	56.82	62.61	81.60	110.17	244.52
1973	48.24	37.32	12.69	15.97	23.75	56.43	62.54	81.57	107.86	245.61
1974	47.63	37.01	12.90	16.03	23.74	55.73	61.62	81.31	107.09	231.55
1975	47.89	36.75	12.53	15.79	23.47	56.64	62.43	81.12	107.63	227.84
1976	48.42	37.30	12.85	16.21	23.91	57.06	63.09	83.32	109.81	225.08
1977	48.93	37.06	12.84	16.14	23.91	57.11	63.47	83.39	110.39	238.23
1978	49.51	37.25	12.86	16.01	23.97	57.16	63.57	84.51	113.67	255.77
1979	49.55	37.25	12.97	16.15	24.01	57.59	64.18	85.86	114.91	258.92
1980	50.56	37.38	12.65	15.94	23.96	57.79	64.74	87.64	117.13	256.90
1981	51.06	37.10	12.78	16.06	23.88	57.79	64.63	88.57	119.07	266.42
1982	50.68	37.18	12.86	16.10	23.80	57.84	64.89	88.14	118.52	274.71
1983	50.48	36.70	12.66	15.97	23.49	57.72	64.64	89.33	120.49	264.22

Table B.12: Distribution of Lifetime Incomes by Cohort (in Thousands of 2013 US $)

Cohort	Averages		Selected Percentiles							
	Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
1957	33.70	27.34	6.77	8.89	14.97	45.14	49.82	62.65	78.26	135.71
1958	34.40	27.68	6.86	9.04	15.12	46.46	50.59	62.48	78.39	137.50
1959	34.80	27.52	6.99	9.33	15.22	45.61	50.35	64.40	82.14	149.87
1960	35.83	28.93	6.99	9.35	15.57	47.10	51.93	66.78	83.40	152.91
1961	35.89	28.47	7.25	9.48	15.67	46.91	52.02	66.48	84.00	160.22
1962	36.28	28.96	7.16	9.67	16.08	47.43	52.29	67.01	83.68	158.54
1963	36.95	28.76	7.40	9.65	15.81	48.50	53.25	67.73	86.13	162.67
1964	36.88	28.76	7.41	9.82	15.88	48.59	53.45	67.49	85.10	164.11
1965	38.10	29.16	7.38	9.61	16.01	48.27	53.59	69.22	90.73	188.18
1966	37.97	29.47	7.34	9.73	16.11	48.95	54.06	69.60	90.03	179.25
1967	39.73	29.80	7.69	9.94	16.50	50.36	55.93	72.66	94.95	206.15
1968	39.62	30.32	7.46	10.07	16.72	50.26	55.66	72.52	93.94	196.80
1969	39.42	29.57	7.58	9.97	16.48	49.91	55.55	72.66	92.36	194.33
1970	39.97	29.77	7.48	9.85	16.53	50.14	55.80	73.36	94.40	193.71
1971	40.58	30.29	7.74	10.31	17.13	50.30	56.02	73.63	95.18	198.50
1972	40.46	29.83	7.70	10.19	16.75	49.97	55.90	74.30	99.00	207.48
1973	40.25	30.09	7.72	10.25	17.06	49.68	55.60	73.68	95.10	199.67
1974	39.71	29.39	7.83	10.40	16.83	49.24	54.85	73.48	95.22	193.76
1975	39.90	29.72	7.57	10.05	16.60	49.62	55.72	73.03	95.58	192.54
1976	40.68	30.39	7.89	10.51	17.03	50.19	56.18	75.68	98.24	192.24
1977	40.96	30.15	7.86	10.45	16.98	49.88	56.09	74.67	97.45	204.65
1978	41.50	30.09	7.81	10.37	17.22	50.33	56.72	76.59	101.32	216.74
1979	41.54	30.18	7.91	10.44	17.24	50.45	56.71	77.29	102.85	222.90
1980	42.50	30.37	7.71	10.31	17.28	50.76	57.04	78.56	105.67	226.71
1981	42.80	29.93	7.85	10.34	17.11	50.53	56.87	80.17	106.64	226.90
1982	42.58	29.88	7.82	10.45	17.28	50.40	56.74	79.24	106.48	234.37
1983	42.33	29.84	7.85	10.31	16.84	50.00	56.66	79.87	108.29	228.15

Table B.13: Distribution of Lifetime Incomes by Cohort, Deflated with CPI (in Thousands of 2013 US $)

	Averages		Selected Percentiles							
Cohort	Mean	Median	p5	p10	p25	p75	p80	p90	p95	p99
1957	40.98	33.49	8.25	10.81	18.29	55.08	60.74	76.20	94.67	163.50
1958	41.64	33.70	8.34	10.99	18.35	56.24	61.50	75.66	94.80	164.15
1959	41.95	33.29	8.51	11.25	18.42	55.20	60.88	77.49	98.39	178.19
1960	42.99	34.94	8.43	11.13	18.76	56.56	62.37	80.06	99.77	182.27
1961	42.84	34.13	8.67	11.34	18.77	56.27	62.26	79.13	100.20	187.86
1962	43.11	34.53	8.47	11.46	19.18	56.59	62.32	79.39	98.83	184.54
1963	43.65	34.26	8.77	11.38	18.74	57.47	63.02	80.08	101.10	190.47
1964	43.38	34.09	8.70	11.60	18.75	57.32	63.09	79.33	99.90	191.10
1965	44.53	34.35	8.64	11.30	18.84	56.74	62.94	81.10	105.50	214.90
1966	44.15	34.50	8.60	11.35	18.90	57.19	63.18	80.80	104.06	203.75
1967	45.91	34.74	8.95	11.48	19.15	58.57	64.85	84.12	109.37	236.24
1968	45.52	35.11	8.64	11.61	19.31	58.05	64.37	83.22	107.05	221.26
1969	44.99	34.00	8.68	11.45	18.92	57.28	63.76	82.90	104.72	217.94
1970	45.30	33.84	8.53	11.27	18.84	57.15	63.47	83.21	106.74	215.71
1971	45.71	34.30	8.75	11.65	19.43	56.93	63.45	83.07	106.67	222.02
1972	45.29	33.59	8.61	11.47	18.86	56.14	62.81	83.17	110.08	229.35
1973	44.79	33.73	8.59	11.50	19.04	55.68	62.09	82.05	105.52	216.37
1974	43.94	32.75	8.68	11.53	18.70	54.66	60.94	81.17	105.02	211.29
1975	43.87	32.85	8.36	11.10	18.37	54.77	61.33	80.28	104.78	209.50
1976	44.46	33.34	8.70	11.56	18.73	55.07	61.65	82.64	106.85	207.69
1977	44.49	32.93	8.60	11.47	18.54	54.42	61.11	81.20	105.32	219.64
1978	44.81	32.72	8.50	11.28	18.69	54.62	61.40	82.73	109.20	231.77
1979	44.63	32.53	8.54	11.30	18.63	54.46	61.17	82.99	110.37	237.47
1980	45.41	32.67	8.34	11.10	18.60	54.44	61.07	83.89	112.74	239.34
1981	45.50	31.99	8.40	11.10	18.31	53.91	60.68	85.26	112.85	239.38
1982	45.06	31.74	8.34	11.18	18.42	53.50	60.32	83.91	112.72	245.03
1983	44.63	31.63	8.37	11.00	17.93	52.82	59.81	84.19	113.69	237.59

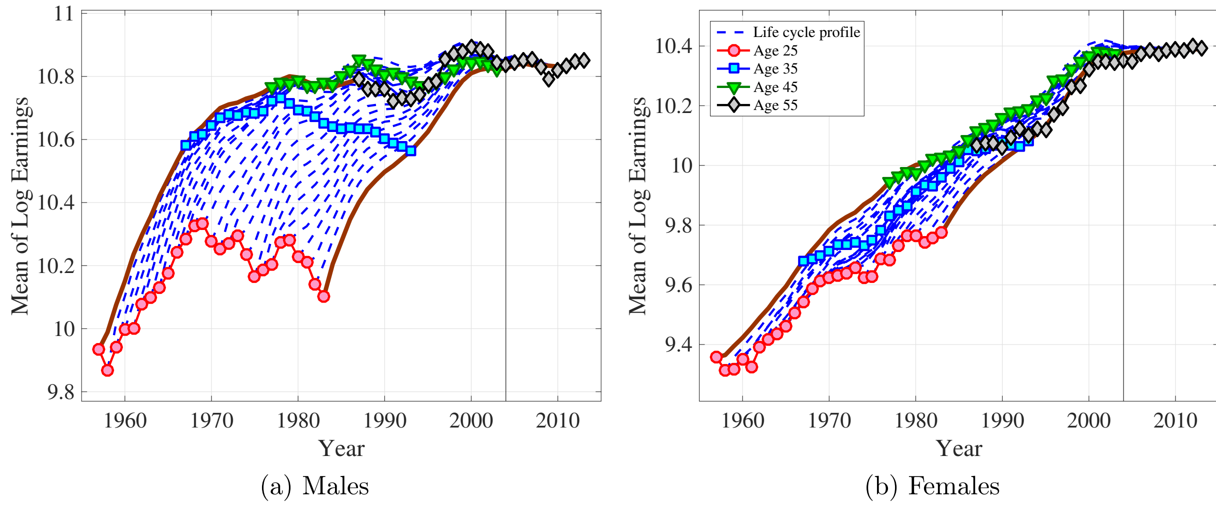
Table C.1: Cumulative percent change in age specific median income, by cohort

	Male			Female			All		
	25-35	35-45	45-55	25-35	35-45	45-55	25-35	35-45	45-55
1957	71.37	23.65	3.13	28.27	24.82	15.06	63.10	14.15	3.51
1958	86.26	22.65	0.61	45.20	21.65	12.48	77.03	13.34	0.80
1959	84.35	17.13	-3.37	42.68	24.42	8.80	71.41	9.10	-0.79
1960	71.58	17.70	-2.17	32.29	22.31	13.05	61.72	9.68	-0.59
1961	75.91	13.23	-4.70	46.65	19.99	12.45	65.02	7.05	-0.99
1962	71.40	7.71	-1.99	38.30	21.95	13.66	62.99	0.23	2.34
1963	72.89	8.44	-3.66	36.14	19.02	9.82	63.27	-0.35	-1.90
1964	65.39	12.84	-6.53	28.17	28.92	10.17	52.50	6.44	-2.32
1965	56.84	16.36	-4.51	23.00	31.66	7.00	42.95	11.60	-1.44
1966	51.42	13.77	-5.03	22.84	31.61	5.46	39.50	10.06	-1.60
1967	51.82	13.22	-2.41	25.63	28.11	4.47	39.38	8.42	-1.42
1968	49.55	8.45	-0.29	23.35	24.00	12.01	37.44	5.61	3.73
1969	46.16	8.21	1.35	25.05	22.03	11.79	35.11	4.60	5.40
1970	44.90	9.31	6.03	22.94	24.50	14.95	33.87	8.61	9.64
1971	45.06	9.99	4.94	22.57	22.81	16.50	35.16	7.61	9.22
1972	39.38	13.20	3.74	22.83	22.68	16.95	31.37	10.71	10.13
1973	34.36	11.56	3.82	23.45	19.38	16.26	28.20	10.65	8.78
1974	45.19	7.70	4.70	32.27	18.09	16.37	39.85	8.15	8.62
1975	53.31	8.60	5.44	35.74	16.21	13.45	44.80	9.57	8.73
1976	47.09	9.90	5.75	35.05	17.08	12.36	42.93	10.80	8.57
1977	46.86	10.15	5.49	36.49	17.60	11.88	44.05	11.04	7.08
1978	39.75	13.31	1.79	32.22	21.01	5.76	37.37	15.63	1.69
1979	38.53	17.83	-3.69	27.66	25.84	3.95	35.10	17.86	-0.78
1980	38.32	21.42	-2.50	28.87	27.17	3.00	37.04	22.12	-1.29
1981	38.31	23.04	-1.40	28.14	31.64	-0.38	35.15	26.31	-1.17
1982	49.52	21.69	0.40	29.11	30.07	1.97	41.93	23.58	1.64
1983	46.07	25.10	1.98	28.67	28.53	0.74	39.79	26.49	0.54

C Additional Tables and Figures for Section 4

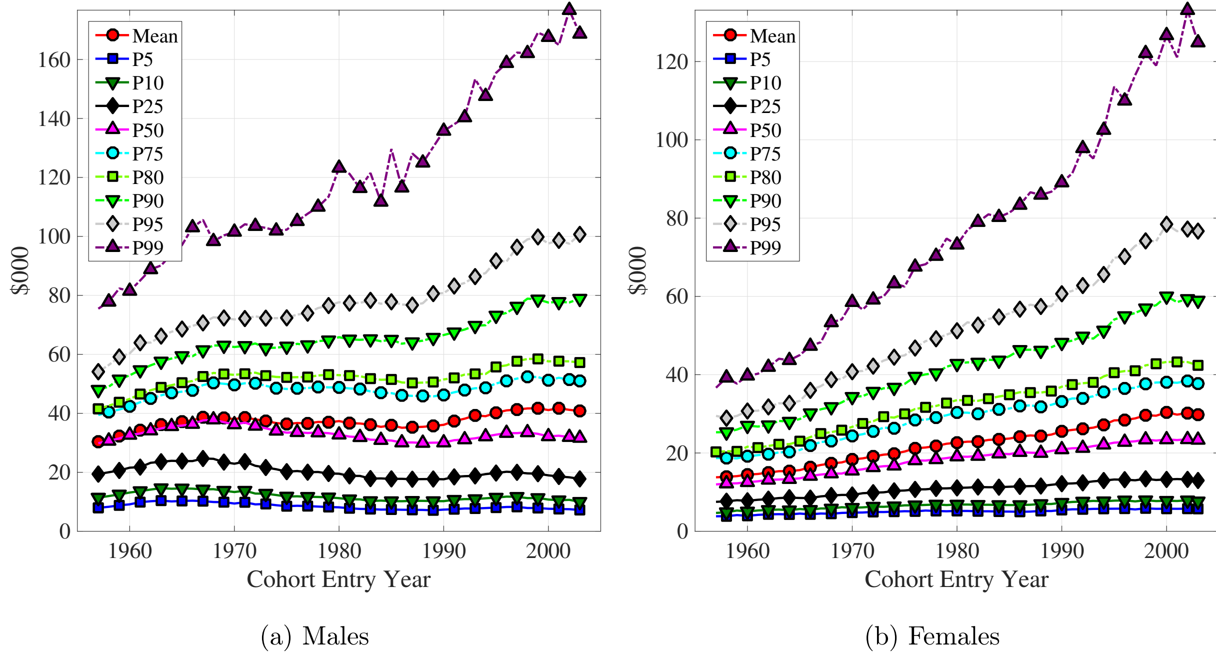
C.1 Comparison with the CPS

The life-cycle profiles for median income in Figures 7 and 9 make only limited use of the panel dimension of the SSA data. Were it not for the fact that our minimum income sample selection



(a) Males (b) Females

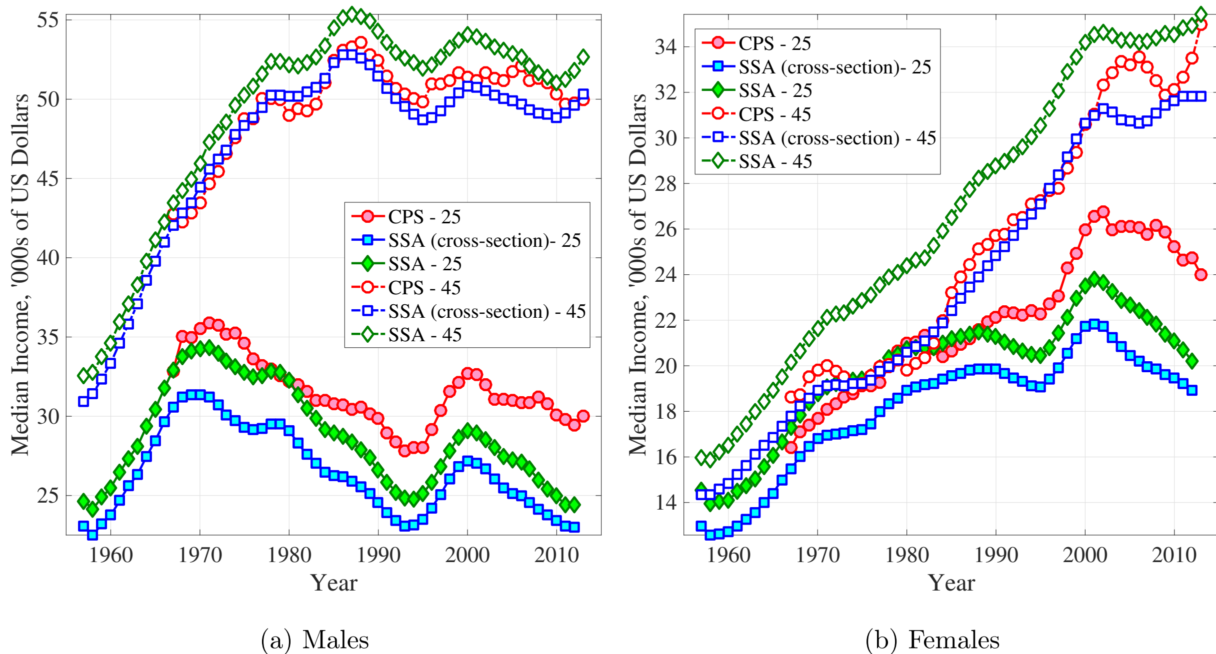
Figure C.1: Age profiles of mean log income by cohort



(a) Males (b) Females

Figure C.2: Distribution of Age 25–35 Total Incomes by cohort (in Thousands of 2013 US $)

criterion is based on lifetime income rather than on annual income, it would be possible to produce analogues of these figures with only cross-sectional data. In Figure C.3, we compare the trends in median incomes at age 25 and age 45 from the CPS (red lines), with two versions of these trends from the SSA data (Figure C.4 in Appendix C shows the analogous plots for ages 35 and 55). The green lines show median income in the SSA data as reported in Figure 7 and Figure 9, that is,



(a) Males

(b) Females

Figure C.3: Median Income by Age and Cohort, SSA vs CPS

using the lifetime income selection criterion. The blue lines show median income in the SSA data but imposing the same annual minimum income criterion as for the CPS, that is, treating the SSA data as a cross-sectional survey.

For income at age 45 (dashed lines), the CPS and SSA produce very similar paths for median income when the SSA is treated as a cross-sectional survey like the CPS, with the caveat that in recent years, median incomes in the SSA are a little below those in the CPS, particularly for women. Both data sets yield substantially lower levels of median income than when individuals are selected based on lifetime income (green lines). The is because a nontrivial fraction of individuals have no income in a single year, even though they are sufficiently attached to the labor market over their lifetime to meet our lifetime selection criteria (at least 15 years with income above an annual income threshold and total lifetime income above a lifetime income threshold). Since the cross-sectional perspective ignores these individuals, median income is understated relative to the lifetime perspective. As expected, this distinction is more important for women than for men.

For income at age 25 (solid lines), the distinction between the cross-sectional perspective and the lifetime perspective is also important, since this is also an age during which some individuals have very low earnings, even though they will go on to be substantially attached to the labor market over the remainder of the lifetime. Hence, the green lines are above the blue lines for both men and women. However, unlike at age 45, at age 25 there is a large difference between median incomes as measured in the CPS (red lines) compared with median incomes in the SSA when treated as a cross section (blue line), possibly because of income overstatement among low-income households in the CPS. Despite these differences in levels, the general trends are the same in the three data sets.

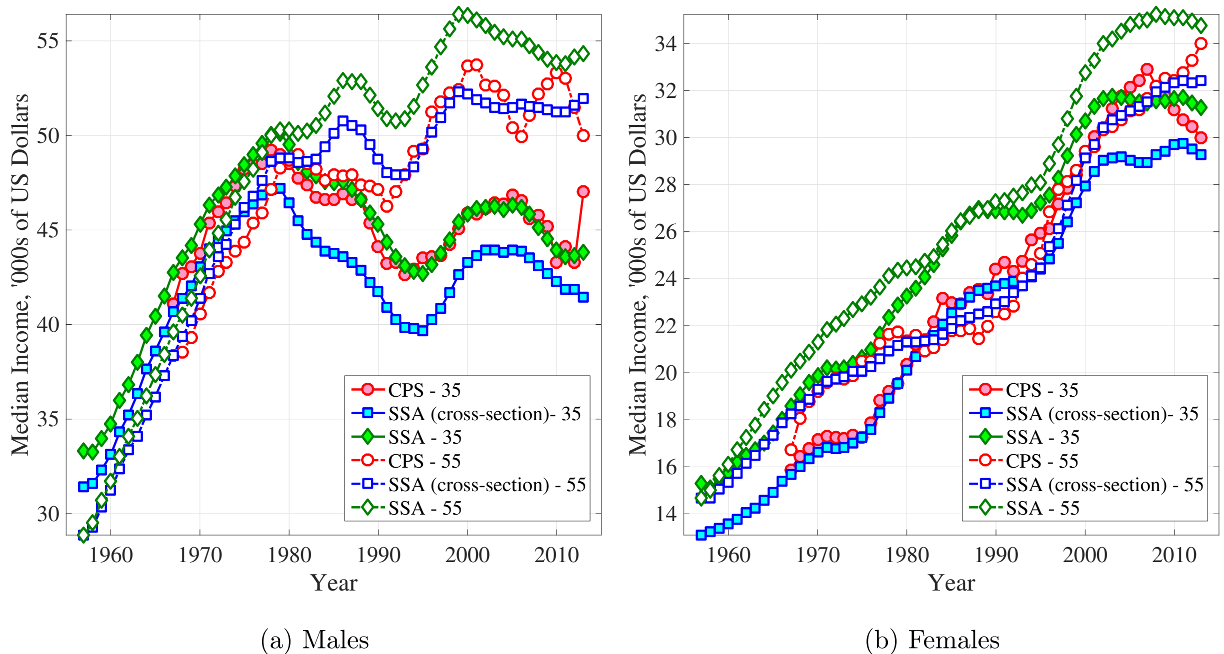
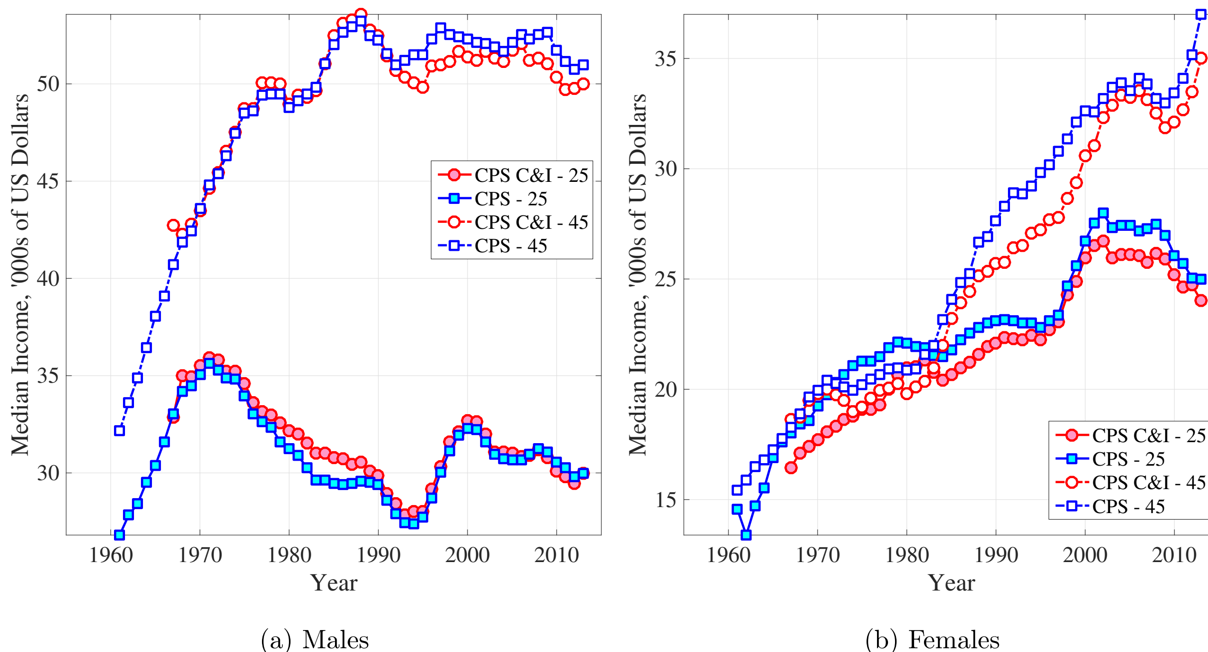


Figure C.4: Median income by age and cohort, SSA vs CPS, (in Thousands of 2013 US $)

The sample for the CPS data is selected to be as similar as possible to the SSA sample, but with a minimum income selection criterion based on annual income. Our measure of income from the CPS is wages and salaries. We include only "commerce and industry workers" by omitting workers with industry codes corresponding to agriculture, forestry, fisheries, hospitals, education services, welfare services, nonprofits, private households, and public administration. Unlike in the SSA data, in the CPS it is possible to compute analogous statistics for workers in industries other than commerce and industry. Figure C.5 plots the analogous trends in median incomes at different ages with and without this restriction. The trends look virtually identical.



(a) Males

(b) Females

Figure C.5: Median income by age and cohort, CPS – Commerce and Industry vs all workers (in Thousands of 2013 US $)

D Additional Tables and Figures for Section 5

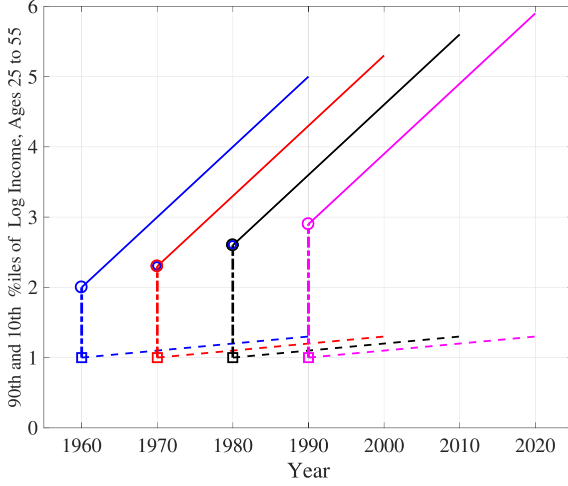
D.1 Two Views of Increasing Lifetime Inequality

Why did lifetime inequality among men and among women increase across subsequent cohorts during this period? To shed light on this question, it is helpful to first examine the timing of the rise in within-cohort cross-sectional inequality over the life-cycle of a cohort. To illustrate some of the main ideas, consider the two possible scenarios shown in Figure D.1. In Figure D.1a, starting with the 1960 cohort, we plot the 90th percentile (the solid, upwardly sloping blue line) and the 10th percentile (the dashed blue line, which the smaller slope) of the age-specific income distribution at every age as the cohort gets older. The P90-P10 ratio at age 25 is marked with a dashed line to highlight how much income inequality that cohort had when those workers entered the labor market.

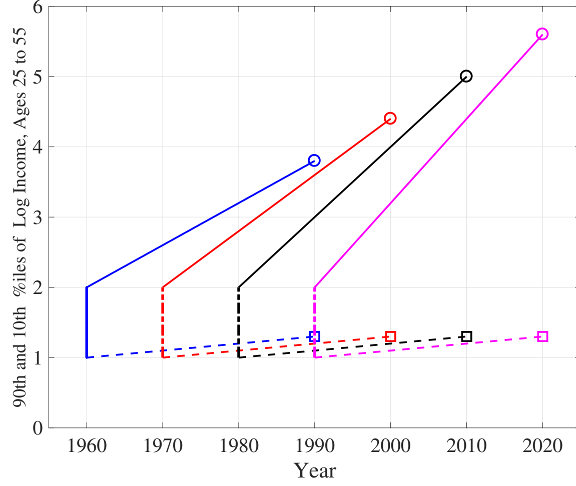
The first scenario (illustrated in D.1a) considers one possibility: each subsequent cohort enter the labor market with a higher initial inequality—shown with the larger P90-P10 ratio at age 25—but newer cohorts display the same rise in inequality over the life cycle as older cohorts, indicated by the fact that the P90 and P10 lines are parallel for every cohort. In this scenario, newer cohorts have higher lifetime inequality because they had higher inequality at all ages, starting at age 25. The second scenario (illustrated in D.1b) is that newer cohorts enter with the same initial inequality as older cohorts but display a faster rise in inequality with age, which in turn leads to higher level lifetime inequality.

Figure D.1: Two Basic Ways Inequality Can Change from Cohort to Cohort

(a) New cohorts may be be entering with higher initial (age 25) income dispersion



(b) Newer cohorts may be experiencing faster rise in income dispersion with age



These two scenarios can be examined through the lens of a simple stochastic process that underlies a lot of empirical work on income dynamics. Let the log income of individual i at age h, in year-of-birth cohort c be given by [36]

$$
\begin{aligned}
y_h^{i,c} &= \alpha^{i,c} + z_h^{i,c} \\
z_h^{i,c} &= z_{h-1}^{i,c} + \eta_h^{i,c},
\end{aligned}
$$

where $\alpha^{i,c} \sim F(0, \sigma^2_{\alpha,c})$ is the individual-specific fixed effect, z_h is a random walk process with mean zero innovations $\eta^{i,c} \sim F(0, \sigma^2_{\eta,c})$, and $z_0^i \equiv 0$. Notice that the two variances are allowed to vary across cohorts but not with time (or age). Now define the lifetime average of log annual income[37] as

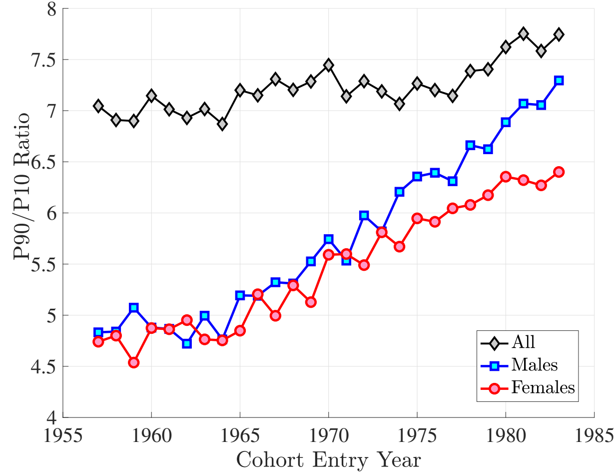
$$\overline{y}^{i,c} \equiv \frac{1}{31} \times \sum_{h=1}^{31} y_h^{i,c} = \alpha^{i,c} + \frac{1}{31} \times \sum_{h=1}^{31} \sum_{s=1}^{h} \eta_s^{i,c}.$$

With this income process, the variance of the lifetime average of log income is given by

$$\text{var}(\overline{y}^{i,c}) = \text{var}(\alpha^{i,c}) + \frac{1}{31^2} \times \sum_{h=1}^{31} \sum_{s=1}^{h} \text{var}\left(\eta_s^{i,c}\right) = \sigma^2_{\alpha,c} + \frac{16 \times 21}{31} \times \sigma^2_{\eta,c}. \tag{1}$$

[36]Year-of-birth cohort $c \equiv (t - 1957) - (h - 24)$. So the cohort that turned age 25 in year 1957 has $c = 1$ and each subsequent cohort is indexed sequentially. This process can be generalized by adding a purely transitory component or allowing for shocks that are less than permanent.

[37]This measure of lifetime income is related to the lifetime income measure we analyze in this paper but differs from it by a Jensen's inequality term. This measure is analytically more convenient for the purposes of this discussion.



(a) P90/P10

Figure D.2: Cohort Lifetime Inequality (P90/P10), Overall and by Gender

Note: This figure displays P90/P10 of lifetime income distribution to complement Figure 10 in Section 5.

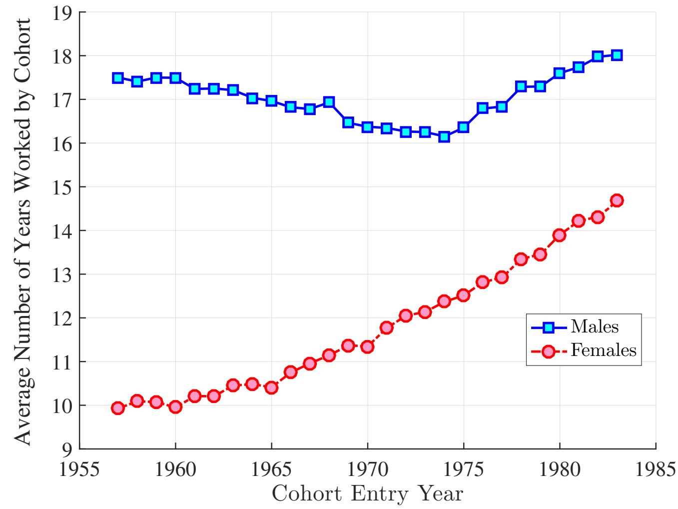
This expression shows that in this simple framework, lifetime income inequality of a cohort is determined by the two components discussed in the scenarios of Figure D.1: (i) initial inequality (at age 25) of the cohort, $\sigma^2_{\alpha,c}$, and (ii) the variance of income shocks, $\sigma^2_{\eta,c}$, which determines the rate at which inequality rises over the life-cycle of the cohort.

But how do we determine which one of these two components changed more from one cohort to the next and therefore contributed more to the rise in lifetime inequality in subsequent cohorts? To answer this question, notice that the same two variances in equation (1) also determine the *cross-sectional* variance of log income at different ages for a given cohort:

$$\text{var}(y_h^{i,c}) = \text{var}(\alpha^{i,c}) + \sum_{s=1}^{h} \text{var}(\eta_s^{i,c}) = \sigma^2_{\alpha,c} + h \times \sigma^2_{\eta,c}. \tag{2}$$

This relationship suggests that we can learn about the contribution of each component to rising lifetime inequality by analyzing the evolution of cross-sectional inequality *over the life cycle* of each of the 27 cohorts.

Figure D.3: Average Lifetime Years Worked by Cohort, *Sample 0*



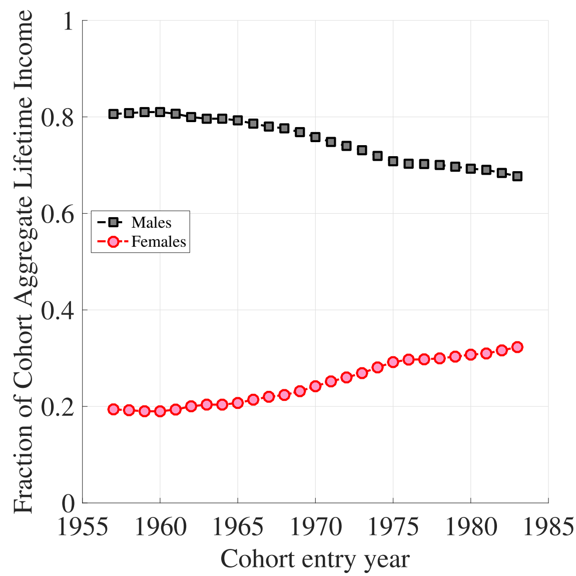


Figure D.4: Share of Cohort Aggregate Income Going to Each Gender Group, no income or years worked selection

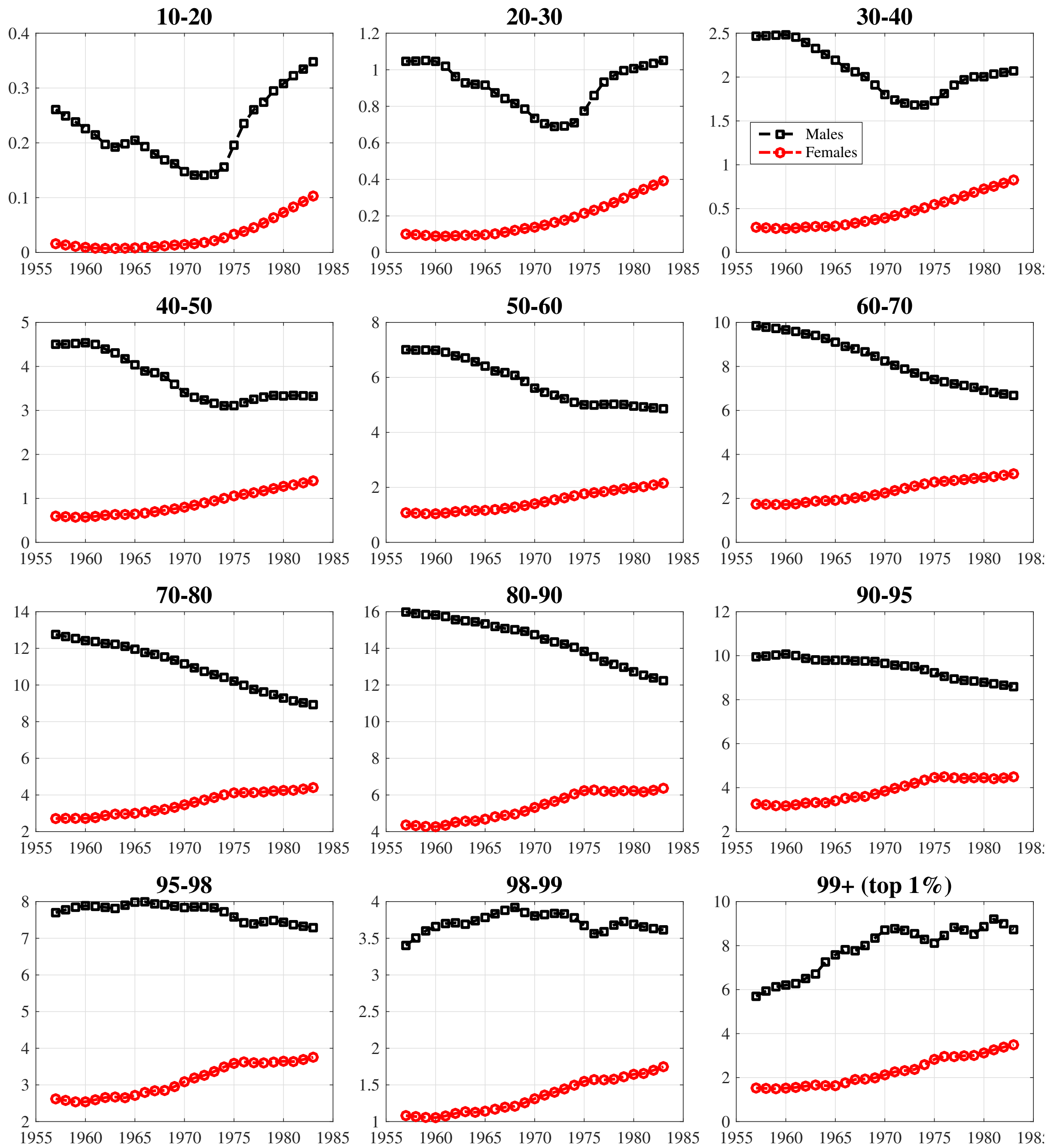


Figure D.5: Share of Cohort Lifetime Income Going to Each Gender / Percentile Groups (indicated by the lower and upper end of percentile thresholds), no income or years worked selection

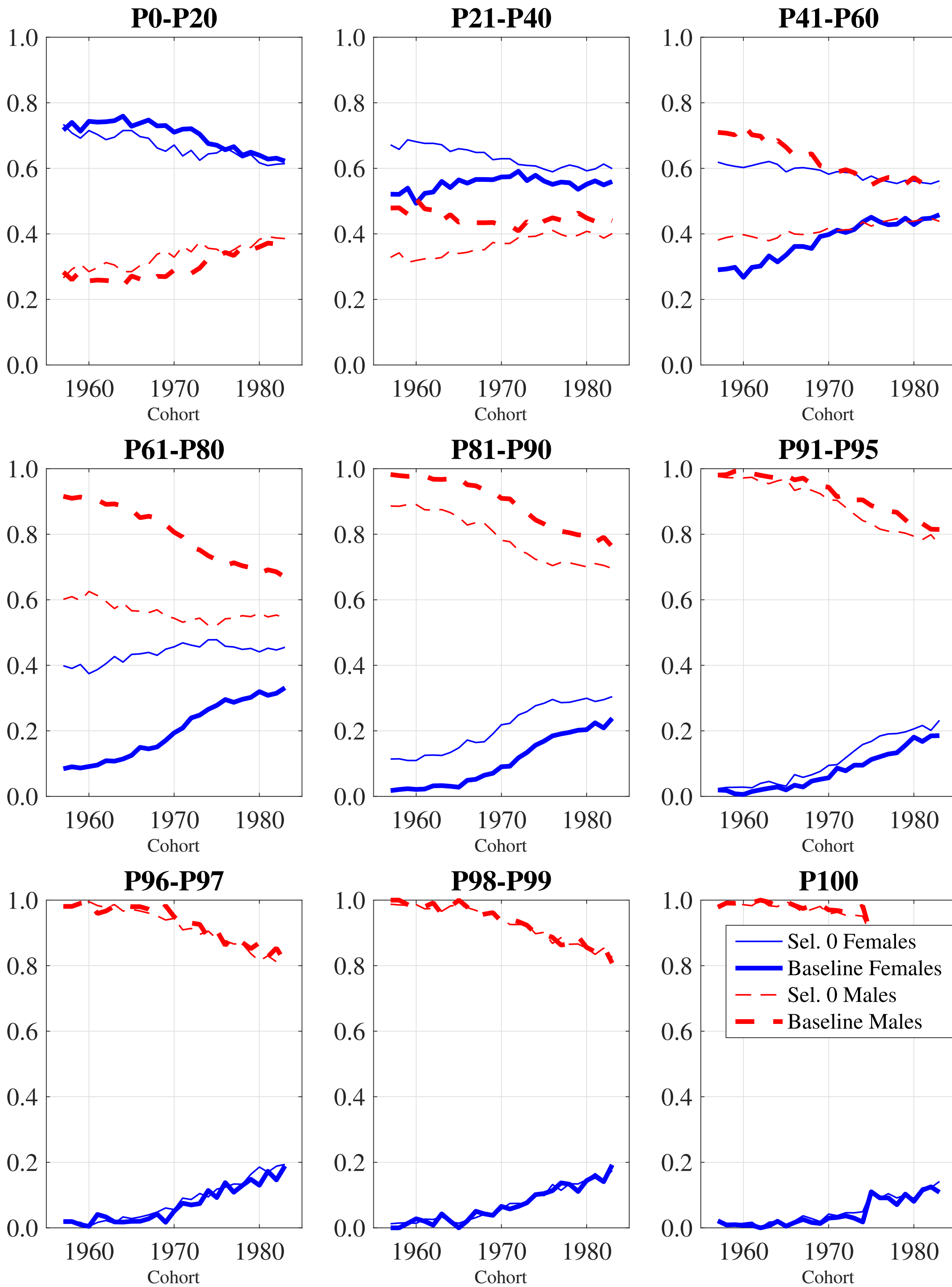


Figure D.6: Fraction of percentile's total lifetime income accruing to each gender in that percentile group, 1pc sample

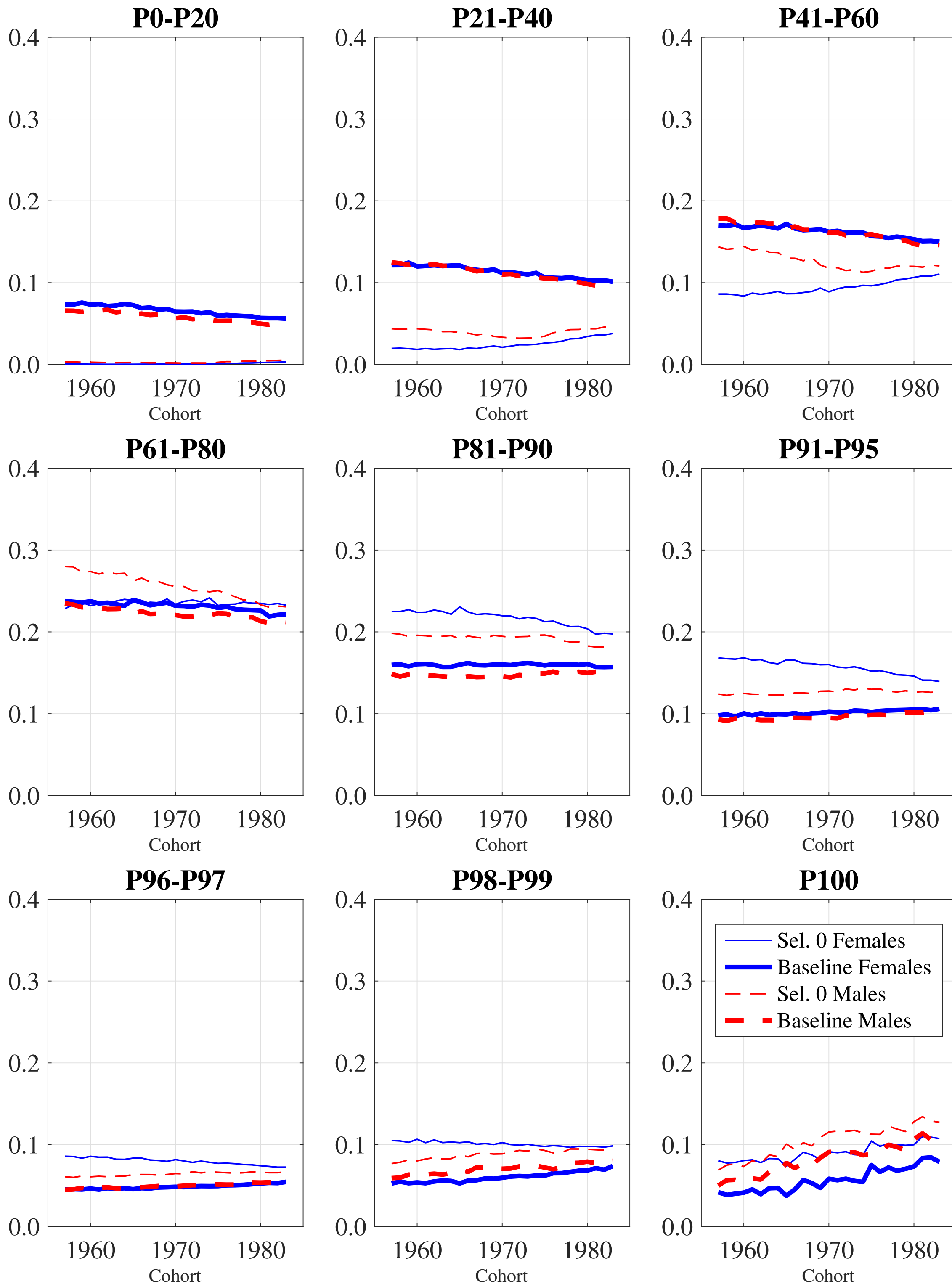


Figure D.7: Fraction of gender's total lifetime income accruing to each gender-specific percentile group, 1pc sample

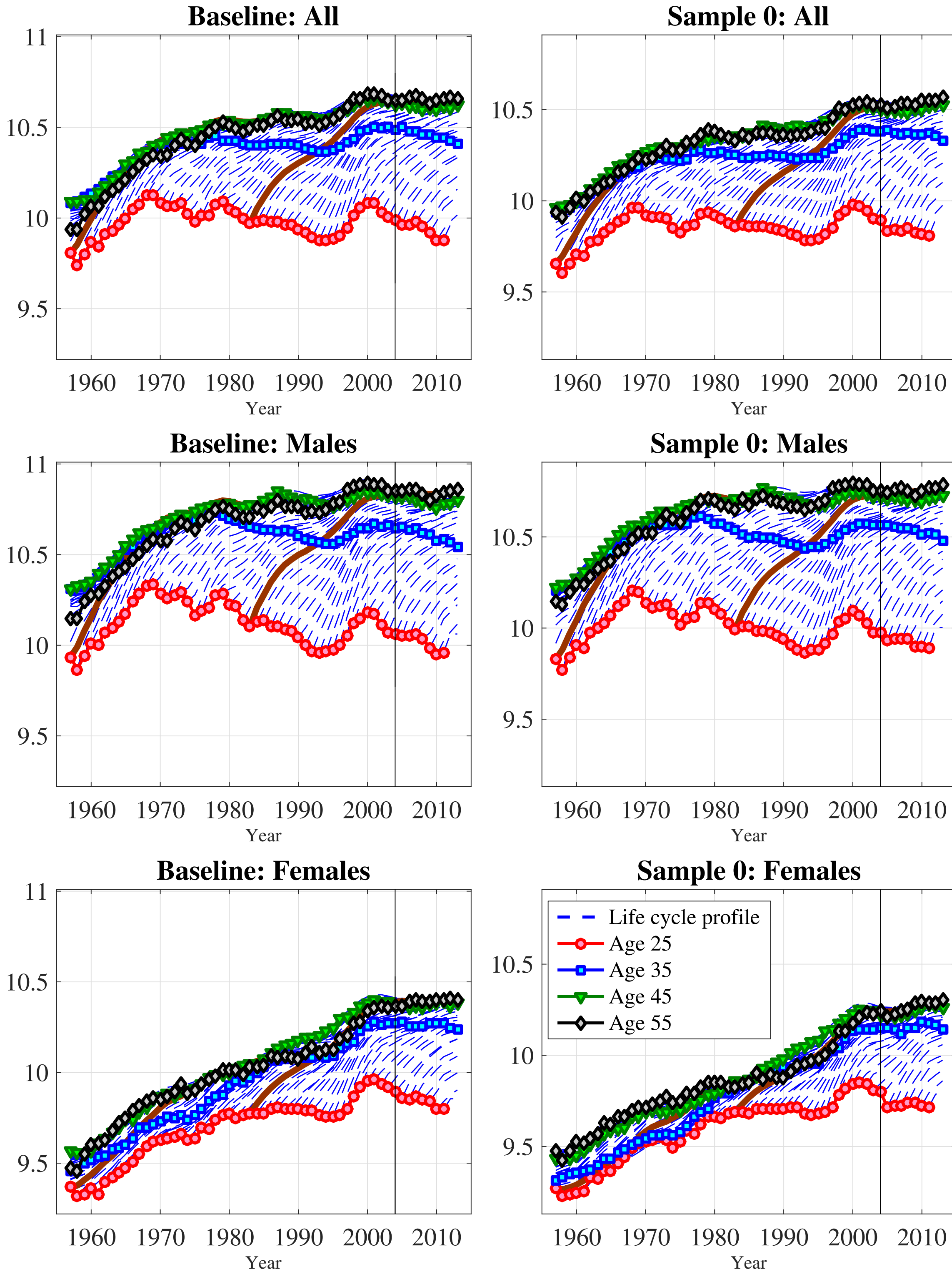


Figure D.8: Mean log earnings, 1pc sample

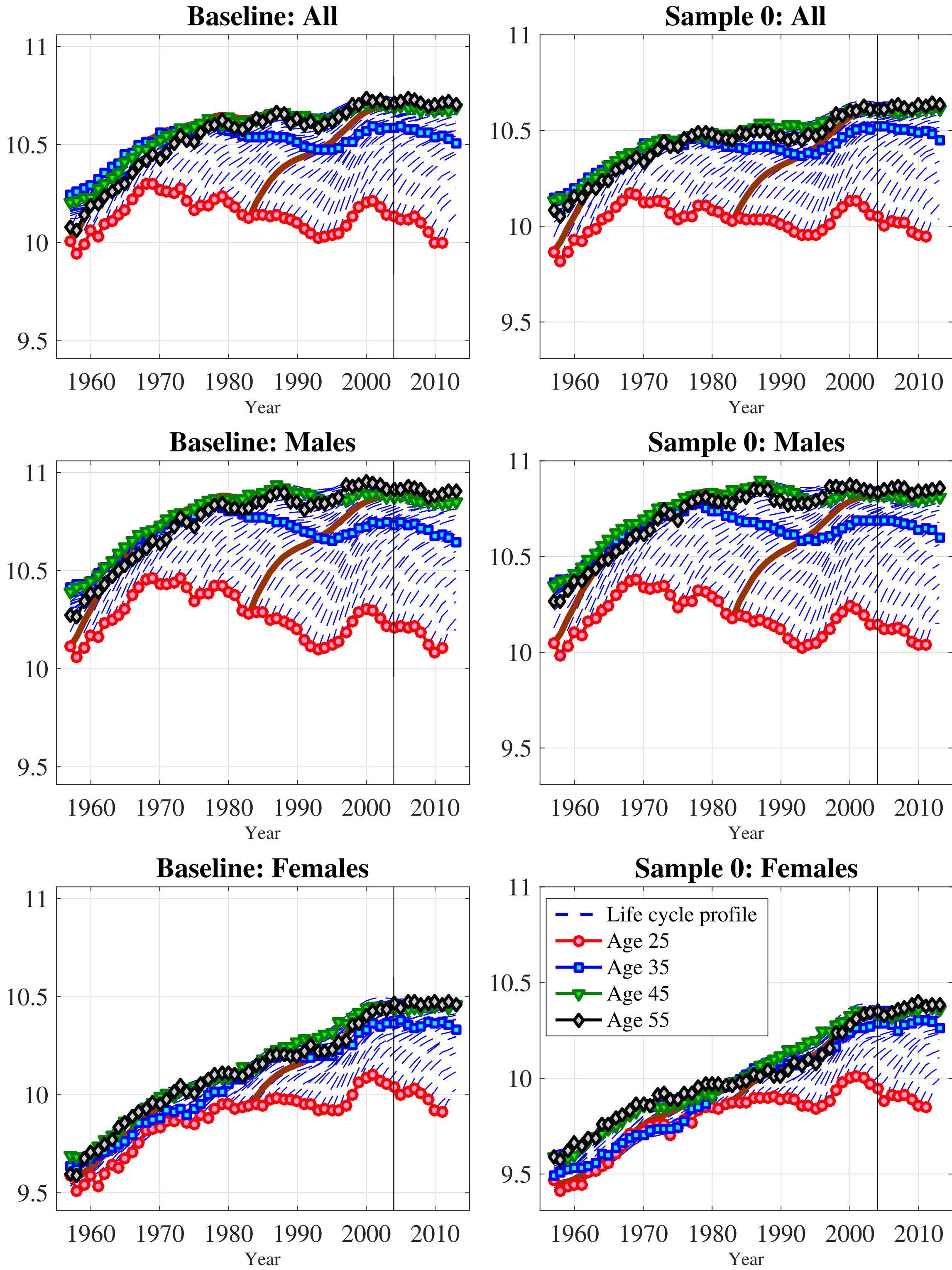


Figure D.9: P50 log earnings, 1pc sample

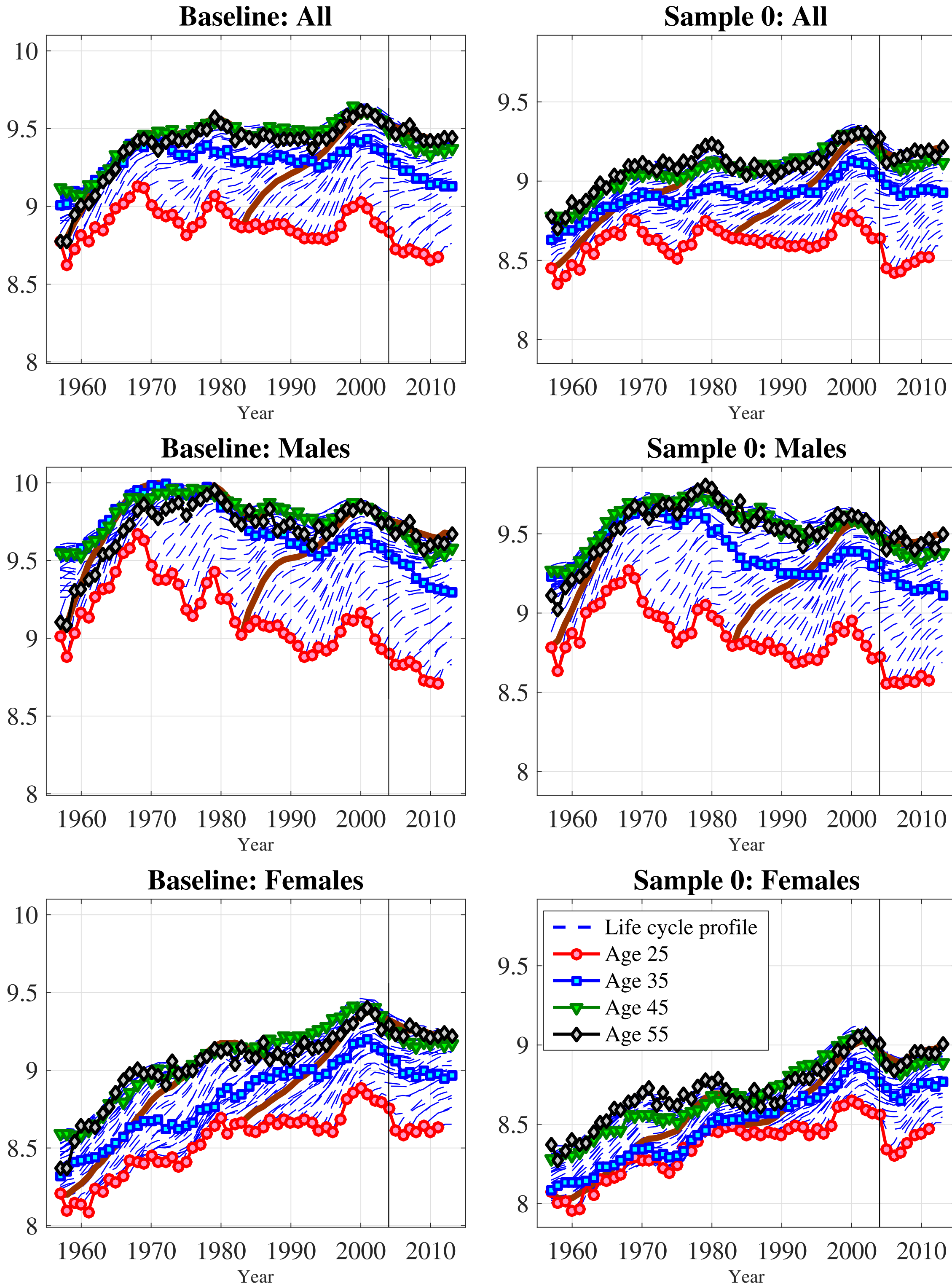


Figure D.10: P10 log earnings, 1pc sample

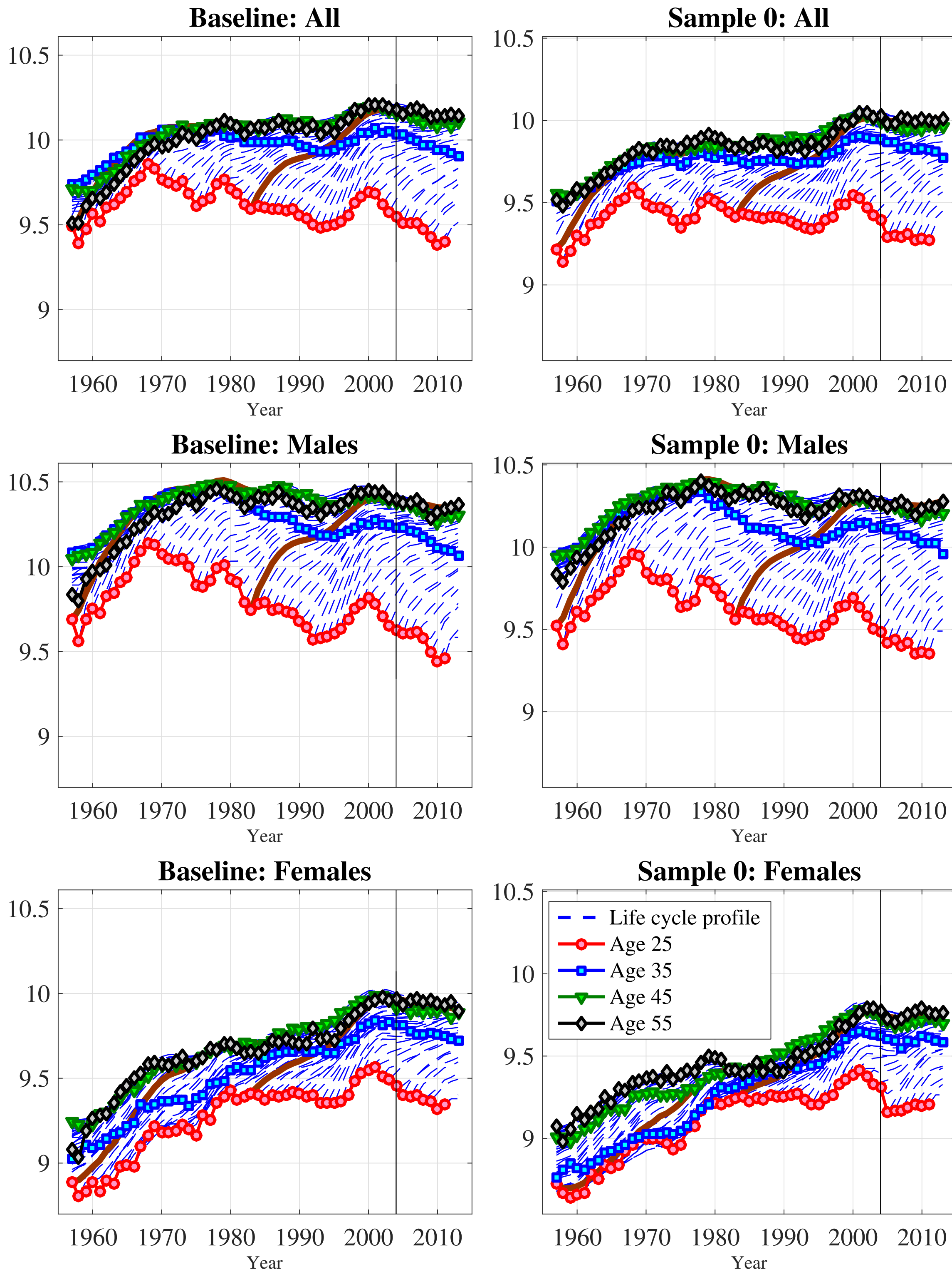


Figure D.11: P25 log earnings, 1pc sample

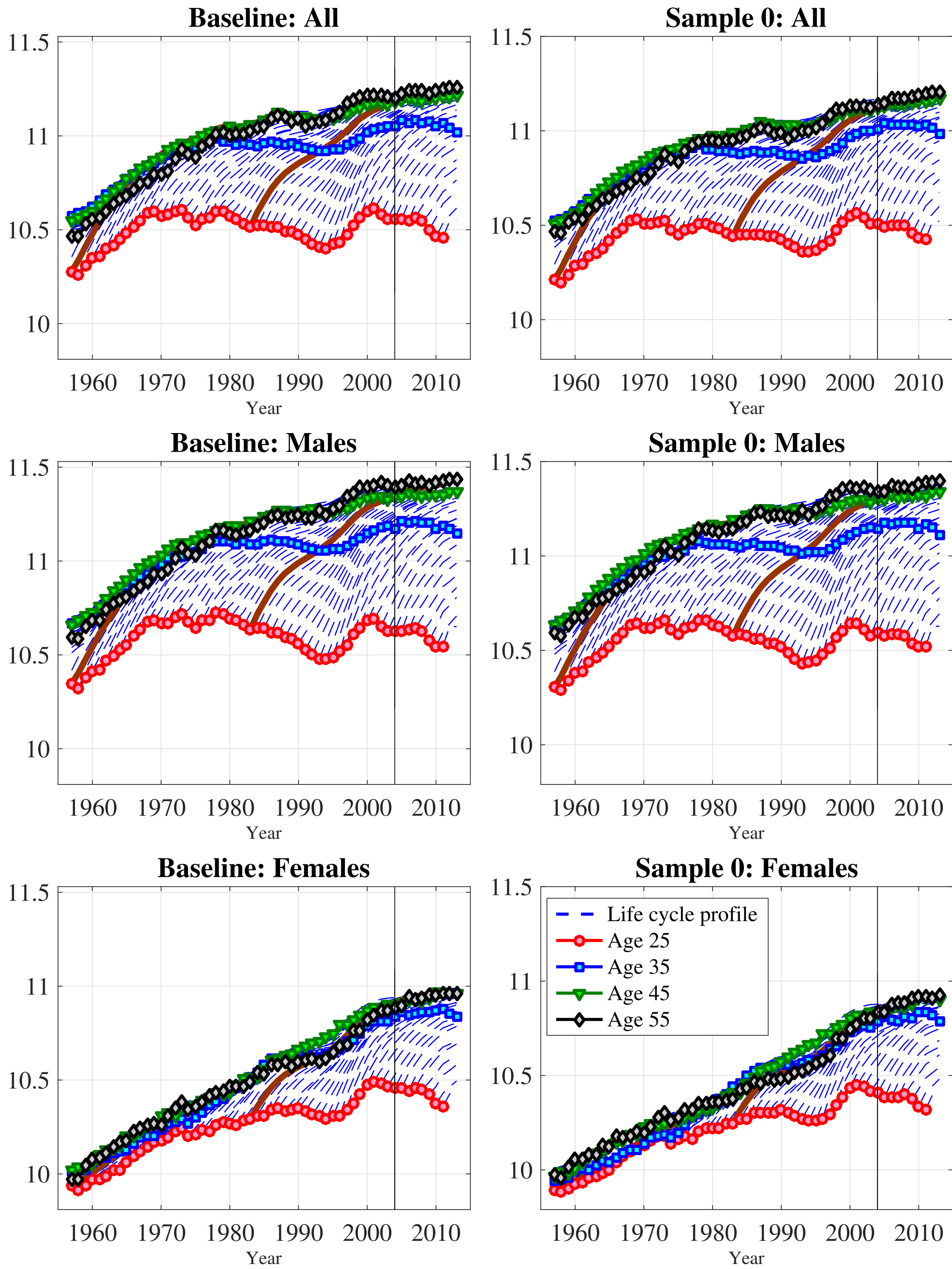


Figure D.12: P75 log earnings, 1pc sample

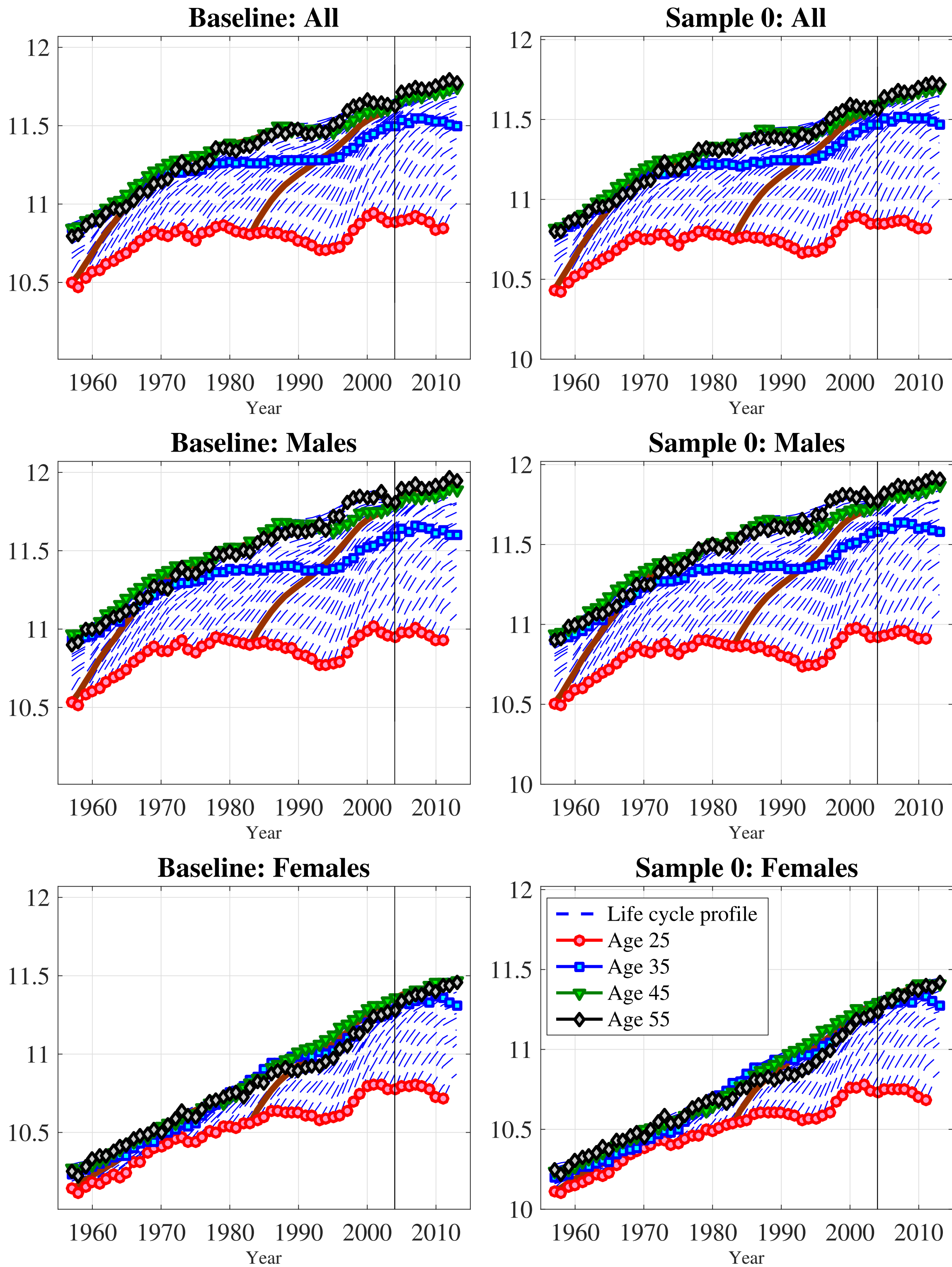


Figure D.13: P90 log earnings, 1pc sample

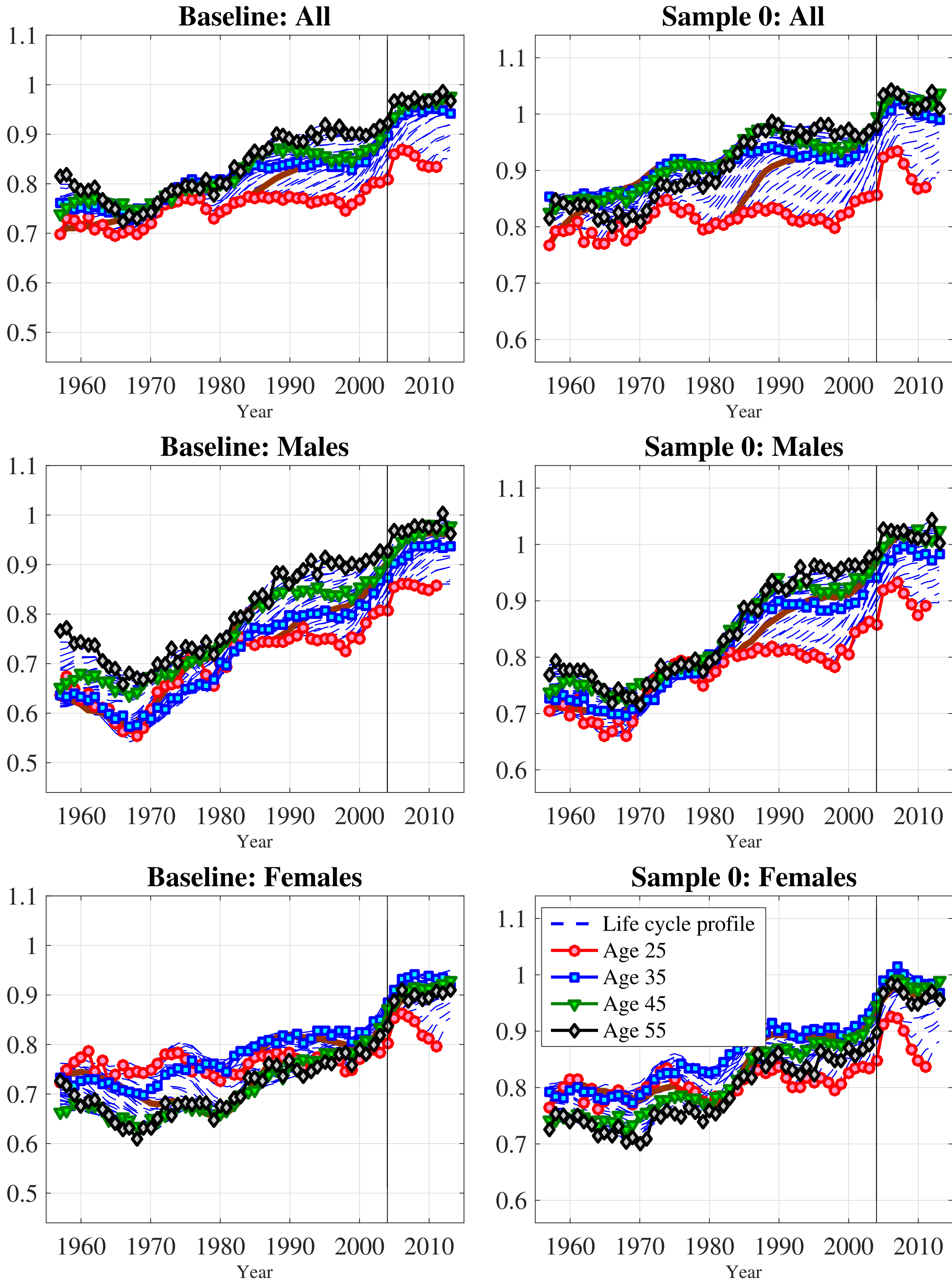


Figure D.14: SD log earnings, 1pc sample

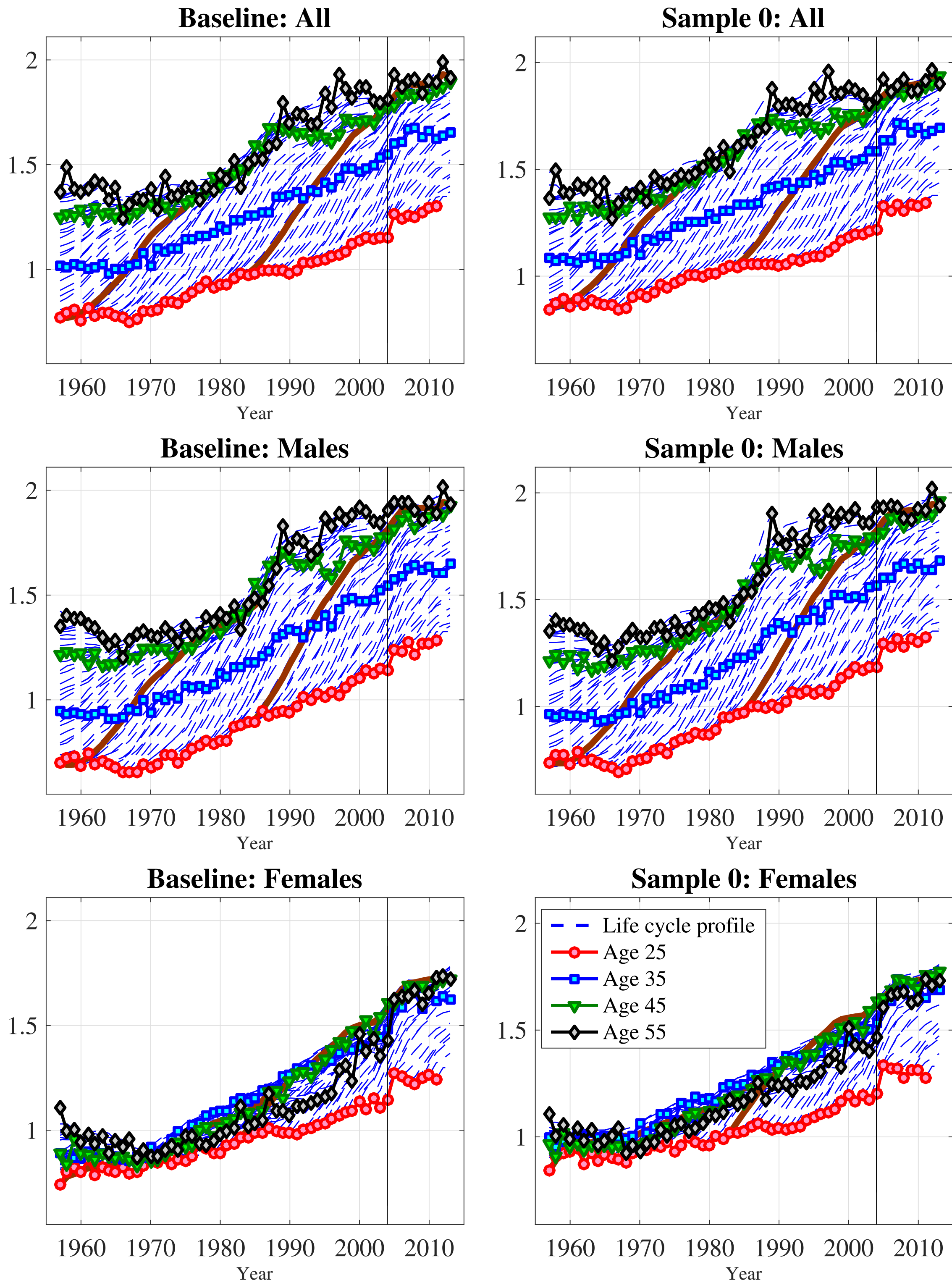


Figure D.15: P98–P50 log earnings, 1pc sample

Figure D.16: Skew of log earnings, 1pc sample

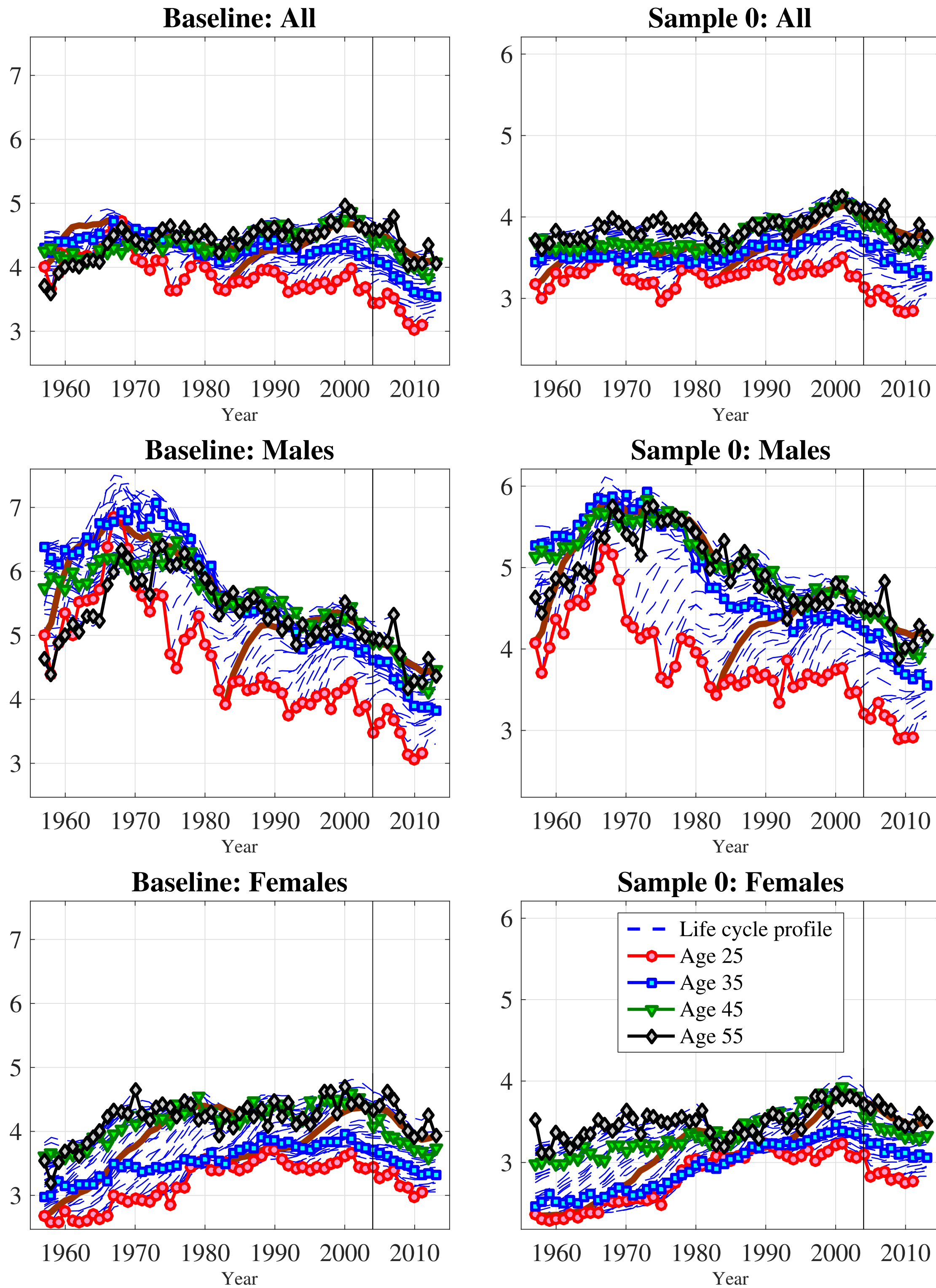


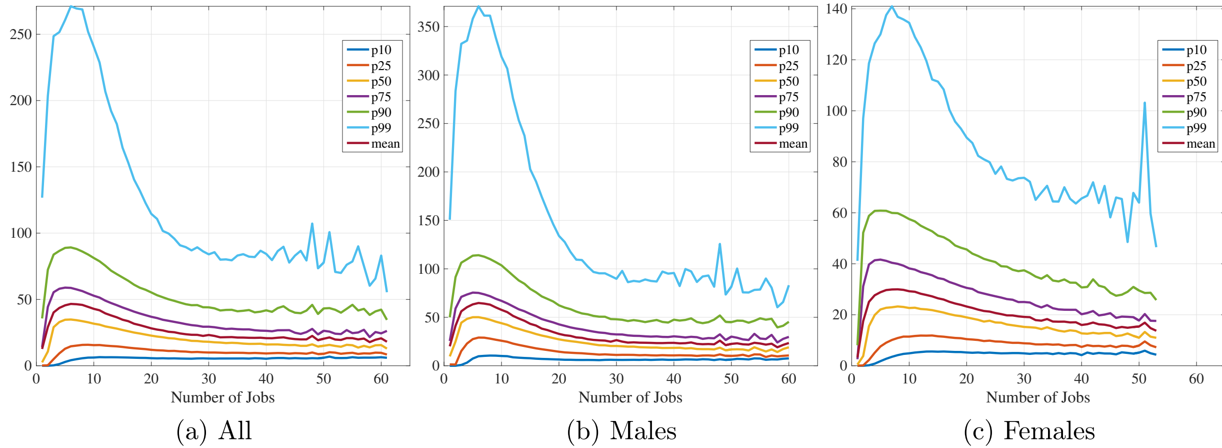
Figure D.17: Kurtosis of log earnings, 1pc sample

Table D.1: Fraction of cohort's total lifetime income accruing to each percentile, 1pc sample, selection 0

Selection	Cohort	p0p20	p21p40	p41p60	p61p80	p81p90	p91p95	p96p97	p98p99	rest
0	1957	0.1	2.0	8.2	23.6	23.3	16.0	7.8	9.9	9.0
0	1958	0.1	2.1	8.4	23.5	23.2	15.8	7.6	9.8	9.5
0	1959	0.1	2.0	8.4	23.4	22.7	15.7	7.8	10.1	9.8
0	1960	0.1	2.0	8.3	23.7	22.8	15.8	7.8	10.0	9.5
0	1961	0.1	2.0	8.5	23.4	22.5	15.7	7.7	10.1	10.1
0	1962	0.1	2.0	8.4	23.6	22.7	15.6	7.7	10.0	9.9
0	1963	0.1	2.0	8.4	23.1	22.5	15.6	7.7	10.0	10.6
0	1964	0.1	2.1	8.6	23.2	22.5	15.6	7.6	9.9	10.5
0	1965	0.1	2.0	8.2	22.6	21.9	15.3	7.6	10.3	11.9
0	1966	0.1	2.1	8.4	22.9	22.1	15.4	7.7	10.2	11.1
0	1967	0.1	2.0	8.4	22.6	21.7	15.3	7.7	10.3	12.1
0	1968	0.1	2.1	8.6	23.1	21.6	15.1	7.6	10.1	11.6
0	1969	0.1	2.2	8.7	22.7	21.4	15.2	7.6	10.0	12.1
0	1970	0.1	2.1	8.5	22.4	21.4	15.1	7.6	10.2	12.6
0	1971	0.1	2.2	8.7	22.7	21.2	14.9	7.5	10.1	12.7
0	1972	0.1	2.3	8.9	22.5	20.8	14.8	7.6	10.3	12.6
0	1973	0.1	2.4	8.9	22.8	20.9	14.8	7.5	10.1	12.5
0	1974	0.1	2.5	9.2	22.8	20.8	14.8	7.6	10.2	12.1
0	1975	0.2	2.7	9.2	22.7	20.8	14.7	7.4	10.1	12.3
0	1976	0.2	2.9	9.7	23.0	20.5	14.6	7.4	9.9	11.9
0	1977	0.2	3.0	9.8	22.7	20.2	14.3	7.3	9.9	12.7
0	1978	0.2	3.2	10.1	22.7	19.8	14.1	7.2	10.0	12.6
0	1979	0.3	3.3	10.2	22.7	19.8	14.1	7.3	10.1	12.2
0	1980	0.3	3.5	10.3	22.5	19.3	13.8	7.2	9.9	13.1
0	1981	0.3	3.6	10.4	22.2	19.0	13.7	7.2	9.9	13.6
0	1982	0.3	3.6	10.6	22.3	19.0	13.7	7.2	9.9	13.3
0	1983	0.4	3.8	10.7	22.4	18.9	13.6	7.2	10.1	12.9

Table D.2: Fraction of cohort's total lifetime income accruing to each percentile, 1pc sample, selection 3

Selection	Cohort	p0p20	p21p40	p41p60	p61p80	p81p90	p91p95	p96p97	p98p99	rest
3	1957	5.2	10.2	16.3	24.6	16.4	10.2	5.0	6.4	5.7
3	1958	5.1	10.1	16.2	24.6	16.2	10.1	4.9	6.5	6.2
3	1959	5.2	10.0	15.9	24.0	16.2	10.3	5.1	6.8	6.3
3	1960	5.1	10.1	16.3	24.1	16.3	10.3	5.0	6.7	6.0
3	1961	5.2	10.0	15.9	23.9	16.2	10.3	5.1	6.9	6.5
3	1962	5.2	10.1	16.0	24.0	16.1	10.2	5.0	6.9	6.4
3	1963	5.1	9.8	15.7	23.9	16.2	10.2	5.1	6.9	7.2
3	1964	5.2	9.9	15.7	24.0	16.2	10.1	5.1	6.9	7.1
3	1965	4.9	9.6	15.3	23.1	15.9	10.2	5.2	7.2	8.4
3	1966	5.0	9.8	15.5	23.5	16.0	10.3	5.2	7.0	7.7
3	1967	4.9	9.5	15.1	23.1	15.9	10.3	5.2	7.5	8.4
3	1968	4.9	9.7	15.3	23.1	15.9	10.2	5.2	7.5	8.1
3	1969	4.9	9.6	15.1	22.9	16.0	10.3	5.1	7.3	8.8
3	1970	4.9	9.5	15.0	22.8	15.8	10.3	5.2	7.2	9.4
3	1971	5.0	9.6	15.0	22.7	15.7	10.2	5.2	7.3	9.4
3	1972	4.9	9.5	14.8	22.4	15.8	10.5	5.4	7.5	9.3
3	1973	4.9	9.6	15.0	22.5	15.8	10.2	5.2	7.3	9.3
3	1974	5.1	9.6	14.9	22.5	15.9	10.4	5.3	7.5	8.8
3	1975	4.9	9.5	15.0	22.6	15.8	10.3	5.3	7.4	9.1
3	1976	5.0	9.6	15.0	22.4	15.9	10.4	5.3	7.2	9.0
3	1977	5.0	9.5	14.8	22.2	15.7	10.3	5.3	7.4	9.8
3	1978	4.9	9.4	14.6	22.0	15.8	10.4	5.4	7.8	9.6
3	1979	4.9	9.4	14.6	22.0	15.8	10.6	5.5	7.8	9.4
3	1980	4.7	9.3	14.4	21.6	15.6	10.6	5.5	7.8	10.5
3	1981	4.7	9.1	14.1	21.3	15.6	10.7	5.5	7.8	11.1
3	1982	4.8	9.2	14.1	21.5	15.7	10.7	5.5	7.9	10.7
3	1983	4.8	9.1	14.2	21.5	15.7	10.8	5.7	8.0	10.3

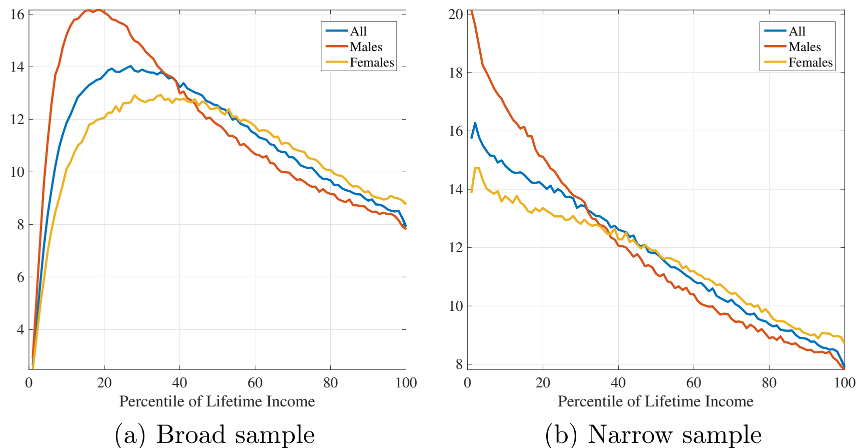


(a) All (b) Males (c) Females

Figure E.1: Distribution of lifetime income by number of unique jobs, broad sample

E Additional Figures on Lifetime Incomes Today

This appendix reports additional statistics on the distribution of lifetime incomes and its relationship with the number of jobs workers have, the state they live in, and the overall level of inequality for a sample that has a broader selection criteria (is more inclusive) than the baseline sample used in the main text. The data source is a 10% extract of the MEF from 1978 to 2013, which includes income data that is non-topcoded and covers all individuals regardless of the sector of the job they hold. Statistics are reported for this "broad sample" which includes all US-born individuals without a minimum threshold for lifetime income level, as well as for a "narrow sample," which coincides with the baseline sample in the main text.



(a) Broad sample (b) Narrow sample

Figure E.2: Average number of unique EINs by lifetime income percentile

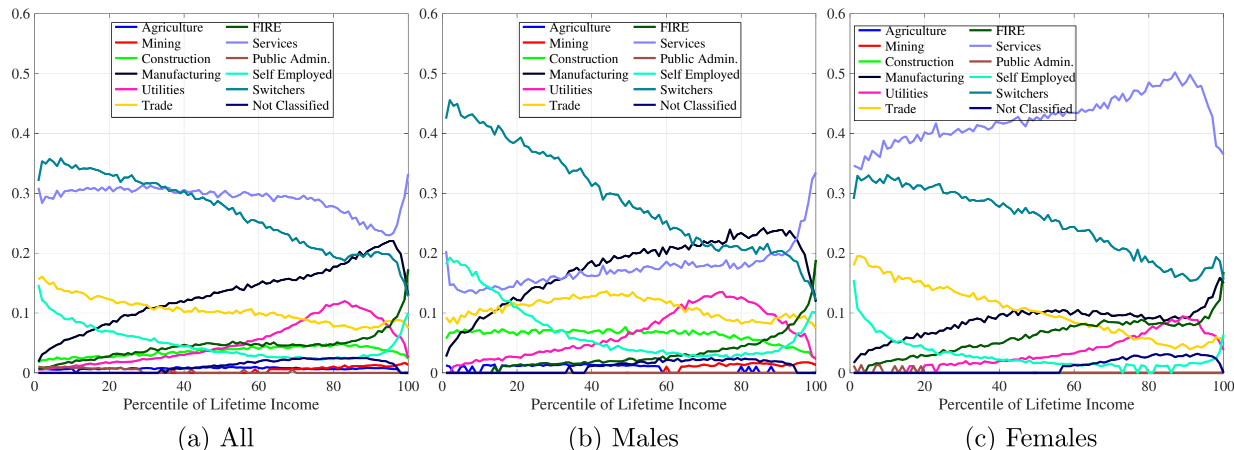
Table E.1: Lifetime Income Inequality: Broad Sample

	Mean ($'000)	Inequality					Mean yrs > $1,560
		Sd Log	IQR	90-10	90-50	50-10	
Lifetime Income							
All	39.08	1.39	3.97	19.09	2.71	7.05	24.2
Males	51.40	1.32	3.22	14.88	2.45	6.06	25.7
Females	26.99	1.38	4.01	19.28	2.70	7.15	22.8
							Fraction present
Annual Income							
All	36.99	1.25	14.49		3.03		78.0
Males	48.50	1.18	6.92		2.67		82.8
Females	25.14	1.26	28.40		3.28		72.9
Annual Income (CPS)							
All	35.99	1.14	7.25		2.71		
Males	48.23	1.00	3.13		2.37		
Females	24.12	1.19	88.39		3.13		

Table E.2: Lifetime Income Distribution: Broad Sample

	Percentiles						
	p10	p25	p50	p75	p90	p95	p99
Broad Sample							
All	4.38	13.51	30.44	53.34	81.97	108.95	229.35
Males	7.01	21.00	41.66	67.01	101.44	138.28	306.61
Females	3.14	9.85	22.07	39.32	59.40	74.90	128.14
Annual Income							
All	0.00	4.11	25.74	49.38	78.16	104.51	224.35
Males	0.00	10.74	35.54	61.33	94.20	129.63	295.84
Females	0.00	1.44	17.83	36.74	57.31	74.02	134.25
Annual Income (CPS)							
All	0.00	7.95	28.12	49.80	76.39	98.97	196.26
Males	1.83	20.28	39.36	62.40	93.04	121.71	290.09
Females	0.00	1.03	18.14	36.19	55.31	70.06	114.97

Notes: Statistics for US-born individuals only. Lifetime statistics refer to 31 years of income between ages 25 and 55 for the cohorts turning 25 in 1978 to 1983. Annual statistics are averages of annual statistics based on annual cross-sections from 1978 to 2013. For annual statistics, no additional restrictions are imposed. For lifetime statistics, data is restricted to individuals who survive until age 55.



(a) All (b) Males (c) Females

Figure E.3: Fraction of each percentile of lifetime income in each industry, narrow sample

Table E.3: Lifetime Income Inequality: Narrow Sample

	Mean	Inequality				
	($'000)	Sd Log	IQR	90-10	90-50	50-10
Lifetime Income						
All	45.26	0.80	2.84	7.42	2.43	3.05
Males	57.40	0.78	2.53	6.75	2.32	2.91
Females	32.28	0.74	2.73	6.52	2.33	2.80
Annual Income						
All	47.38	0.95	3.04	10.36	2.47	4.20
Males	58.69	0.93	2.75	9.20	2.36	3.88
Females	34.16	0.90	3.04	9.72	2.33	4.17
Annual Income (CPS)						
All	44.61	0.86	2.75	8.04	2.35	3.44
Males	54.09	0.79	2.48	6.43	2.23	2.88
Females	33.17	0.84	2.79	8.12	2.23	3.66

Notes: Statistics for US-born individuals only. Lifetime statistics refer to 31 years of income between ages 25 and 55 for the cohorts turning 25 in 1978 to 1983. Annual statistics are averages of annual statistics based on annual cross-sections from 1978 to 2013. For annual statistics, no additional restrictions are imposed. For lifetime statistics, data is restricted to individuals who survive until age 55.

Table E.4: Lifetime Income Distribution: Narrow Sample

	Percentiles						
	p10	p25	p50	p75	p90	p95	p99
Broad Sample							
All	11.07	19.19	33.80	54.50	82.14	109.73	167.92
Males	14.87	26.22	43.28	66.42	100.36	138.01	218.13
Females	9.19	15.07	25.71	41.17	59.86	75.11	101.27
Annual Income							
All	8.35	18.73	34.95	57.04	86.68	116.53	254.09
Males	11.25	24.74	43.46	67.98	102.77	142.48	328.24
Females	6.60	14.45	27.37	43.69	64.34	82.34	152.13
Annual Income (CPS)							
All	10.40	20.37	35.32	56.02	83.20	107.51	234.48
Males	15.17	26.83	43.49	66.32	97.17	127.61	295.26
Females	7.71	15.47	27.68	43.04	61.99	77.37	126.39

Table E.5: Fraction of State's Population in Each Decile of Lifetime Income: Broad Sample

	Deciles of Lifetime Income									
	1	2	3	4	5	6	7	8	9	10
AK	12.63	11.37	10.37	10.13	8.78	9.49	9.18	9.01	9.75	9.30
AL	12.61	12.33	11.56	11.33	10.67	9.95	9.27	8.56	7.42	6.30
AR	14.01	12.54	11.85	11.32	10.66	10.08	9.08	8.01	6.68	5.76
AZ	12.22	11.67	10.58	10.28	10.23	10.12	9.40	8.86	8.79	7.85
CA	11.92	10.27	9.64	9.17	9.01	8.97	9.08	9.63	10.83	11.50
CO	15.65	13.22	11.03	9.94	9.40	9.06	8.26	8.24	7.68	7.53
CT	6.11	7.71	8.43	8.96	8.97	9.59	10.26	11.83	13.49	14.65
DC	9.14	8.42	8.14	8.36	8.45	9.02	9.77	10.95	12.96	14.77
DE	7.35	9.38	8.77	9.38	10.26	10.21	10.52	11.25	11.77	11.13
FL	11.79	11.48	11.19	10.96	10.78	10.09	9.59	8.90	7.90	7.31
GA	11.94	11.85	11.43	11.12	10.67	10.41	9.86	8.83	7.72	6.16
HI	6.87	7.51	8.50	9.06	10.10	11.24	12.27	12.09	12.58	9.78
IA	6.25	8.44	9.71	10.40	10.97	12.07	12.38	10.99	9.54	9.26
ID	12.95	11.47	10.68	9.82	9.73	9.36	9.69	9.30	8.91	8.08
IL	8.97	9.25	9.30	9.51	9.34	9.71	10.02	10.75	11.27	11.89
IN	12.43	10.71	10.20	9.87	9.69	9.45	9.24	9.52	9.31	9.57
KS	15.34	13.71	11.54	9.97	9.52	8.69	8.56	8.00	7.77	6.90
KY	11.73	11.51	11.14	10.94	10.81	10.47	9.92	9.06	8.08	6.34
LA	14.31	12.25	11.34	10.66	10.02	9.53	8.93	7.99	7.71	7.24
MA	6.62	7.95	8.75	9.24	9.43	9.73	10.40	11.20	12.50	14.18
MD	9.10	9.22	9.46	9.81	9.90	10.05	10.48	10.63	11.18	10.17
ME	8.76	10.41	11.47	11.35	11.10	11.04	10.93	9.60	8.20	7.16
MI	9.72	9.69	9.73	9.36	9.34	9.25	9.62	10.37	11.60	11.32
MN	5.81	7.85	9.14	9.91	10.71	11.56	12.12	12.10	11.11	9.69
MO	9.16	9.77	10.19	10.46	10.71	10.68	10.28	9.68	9.77	9.30
MS	14.08	12.42	12.30	11.94	11.00	10.18	8.93	7.65	6.52	4.98
MT	9.39	10.94	11.30	10.73	10.52	10.62	9.81	9.28	8.91	8.49
NC	9.17	10.35	11.19	12.14	12.69	11.82	10.72	8.78	7.26	5.86
ND	6.34	8.61	10.83	10.78	11.31	11.75	10.84	10.54	10.03	8.97
NE	6.86	8.90	10.17	10.95	11.37	11.56	11.05	10.71	9.36	9.07
NH	5.84	8.18	10.17	9.76	11.14	12.09	12.42	11.98	9.61	8.79
NJ	7.38	8.31	8.40	8.51	8.87	9.00	9.69	10.67	12.95	16.22
NM	11.88	11.11	11.18	10.36	10.86	10.41	9.69	8.53	8.79	7.19
NV	10.11	8.91	9.94	9.78	9.81	10.64	10.61	10.58	10.48	9.14
NY	8.82	8.66	8.87	8.92	8.94	9.02	9.19	10.26	11.84	15.49
OH	9.04	9.69	9.80	10.03	9.99	10.22	10.76	10.87	10.27	9.34
OK	10.44	11.04	10.79	10.53	10.48	10.68	9.95	9.36	8.61	8.11
OR	9.67	10.45	10.99	10.23	10.29	10.15	10.35	10.56	9.49	7.82
PA	8.20	8.80	9.21	9.67	9.98	10.32	10.82	11.14	10.92	10.93
RI	6.75	8.03	9.11	9.76	9.89	10.82	10.96	11.39	11.45	11.84
SC	11.26	11.21	11.46	11.61	11.80	11.03	10.35	8.67	7.26	5.34
SD	6.94	8.96	10.53	11.18	11.44	11.72	11.42	10.27	9.04	8.50
TN	11.38	10.84	11.09	11.12	11.24	10.94	9.90	9.19	7.50	6.79
TX	11.28	11.02	10.49	10.50	10.28	10.06	9.97	9.32	8.68	8.39
UT	10.74	10.59	9.46	8.98	9.15	9.44	9.82	10.53	10.69	10.59
VA	9.11	10.11	10.32	10.77	10.75	10.63	10.77	10.21	9.19	8.13
VT	8.34	8.95	10.23	10.92	12.02	11.84	11.19	11.03	8.11	7.38
WA	9.02	9.76	9.60	9.46	9.81	9.91	10.44	11.10	11.08	9.82
WI	5.93	7.59	9.04	9.93	10.63	11.61	12.08	12.06	11.58	9.57
WV	13.39	11.05	10.81	10.45	10.02	10.09	9.53	9.73	8.38	6.55
WY	8.47	10.46	10.09	9.85	10.[illegible]0	10.30	10.21	9.94	10.61	10.07