Trends in U.S. Wage Inequality: Revising the Revisionists. A Replication Study of Autor, Katz, and Kearney (The Review of Economics and Statistics, 2008)

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Abstract

This paper successfully replicates Autor et al. (2008) and extends their analysis through 2022. The extension to an additional 17 years of analysis underscores the original finding that rising wage inequality was not an episodic event of the 1980s. That being said, overall 90/10 inequality and the college wage premium have plateaued since 2005. Despite overall inequality plateauing, upper-tail 90/50 inequality has continued to increase since 1980 for both men and women. I also find that the composition-adjusted real wages of high school dropouts has caught up with high school graduates in the last decade. Between 2012 and 2022, high school dropouts saw larger real wage gains than any other education group. The combination of these findings is consistent with rising polarization in which employment and wages expand for high-wage and low-wage work.

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1 Introduction

This paper replicates and extends Autor et al. (2008, henceforth AKK). The contribution of the replication is two-fold. First, I develop a structured system of cleaning codes that are compatible with publicly-available data sources. The cleaning procedures used to calculate wages and earnings in AKK form the basis of analysis in subsequent papers, namely Autor et al. (2006), Acemoglu and Autor (2011), Autor (2019), and Autor et al. (2020). Therefore, this replication aims to facilitate future work using publicly-available earnings measures. All cleaning codes that replicate that analysis as well as the final cleaned datasets are publicly available online.[1][2][3][4]

Second, I extend the analysis in AKK to include an additional 17 years of data, updating the results from 2005 to 2022. I successfully replicate the original findings of AKK with minor differences in point estimates but no changes to the overarching conclusions. The extension underscores the original finding of the paper that overall inequality – reflected in the 90/10 ratio of weekly or hourly wages – saw a secular rise between the 1980s and 2005. However between 2005 and 2022, overall inequality as well as the college wage premium relative to high school graduates have plateaued.

The flattening of overall inequality measures in more recent years masks dynamics at the upper- and lower-tail of the distribution. Upper-tail inequality – reflected in the 90/50 wage ratio – has continued its secular increase begun in the 1980s. Meanwhile lower-tail inequality – reflected in the 50/10 wage ratio – has plateaued since the late 1980s for both men and women.

The composition-adjusted real wages of high school dropouts began to catch up to high school graduates in the years since 2005. Between 2012 and 2022, high school dropouts saw larger real wage gains than any other education group. Meanwhile the wages of those with a post-college education continued to rise for men and women. The combination of these two trends – the rise of upper-tail inequality together with wage growth at the lower end of the distribution – is consistent with further polarization of the earnings distribution.

The paper is structured as follows. Section 2 discusses the data sources and cleaning procedures. Section 3 replicates and extends AKK. Section 4 concludes. The Appendix 5 includes additional data details as well as the original figures and tables in Autor et al. (2008) as a point of reference.[5]

[1] Codes to reproduce the analysis can be found here:
https://github.com/econocorinne/AutorKatzKearney2008_replication.

[2] The cleaned CPS-ASEC from 1963-2022 *without* adjusting for top-coded income variables can be found here:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/BM34XY

[3] The cleaned CPS-ASEC from 1963-2022 *with* adjusting for top-coded income variables can be found here:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/UYFPDM

[4] The cleaned CPS-MORG from 1973-2020 can be found here:
https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/U5H1J3

[5] The focus of this replication is on the construction of earnings measures from the CPS. Hence, I do not include in the replication Figures 10 and 11 from Autor et al. (2008), which relate to occupational skill level and task inputs.

2 Data

This replication uses publicly available data sources. Weekly wages are constructed using the March CPS-ASEC for earnings years 1963 to 2022. These data are from IPUMS-CPS (Flood et al., 2020). Hourly wages are constructed using the May CPS for earnings years 1973 to 1978 (NBER, 2020) and the CPS-MORG for earnings years 1979 to 2020 (NBER, 2021). The variable nomenclature in AKK differs from the data available through IPUMS-CPS. As such, this replication streamlines the original cleaning codes to be compatible with the nomenclature used in IPUMS-CPS and the NBER sources. I do not describe the construction of the analysis samples, as that is done in detail in AKK. Moreover, the "Read Me" file accompanying the cleaning codes to this replication describe in detail the purpose of each do file.

Appendix Table 5.1 shows a comparison of the number of observations in the CPS-ASEC datasets in AKK versus the replication. Only two earnings years stand out with a significant difference between the two: 1966 and 2000. The smaller sampled in earnings year 1966 reflects a revision by IPUMS-CPS. Despite the smaller sample, it remain representative of the population and hence the values were reweighted by a constant. Meanwhile in 2001, the underlying IPUMS-CPS data file contains around 1.6 times the number of observations as in AKK on account of including an expanded dataset with additional questions relating to health insurance (known as the SCHIP expansion). Appendix Table 5.2 shows the analogous comparison for the CPS-MORG cleaned dataset. There are negligible differences between the number of observations in the cleaned datasets, and they are identical beginning in 1994.

3 Replication and Extension

The figures and tables below replicate and extend AKK through 2022. The analysis underscores the original finding that earnings the inequality observed since the 1980s was neither episodic nor explained by non-market forces or mechanical changes in labor force composition. In the 17 years since 2005, the extended results reveal overall earnings inequality to have plateaued while upper-tail inequality has continued its secular upward trend.

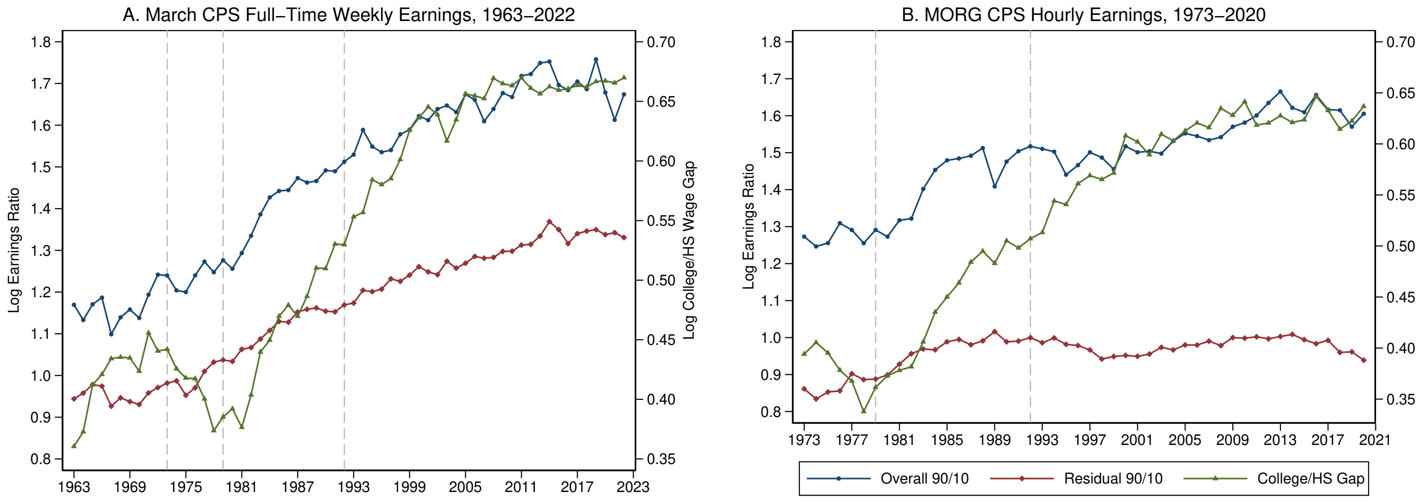
Figure 1 shows the change in log weekly wages by percentile for men and women, matching the analogous AKK Figure in Appendix 5.3. Men saw the largest earnings gains beginning around the 30th percentile. In contrast, women gained significantly throughout the distribution. Moreover, women gained more relative to men at every percentile. Men and women above the 90th percentile saw the largest increases in their earnings, consistent with greater polarization.

Figure 1. Change in log real weekly wage by percentile, 1963–2022

This figure plots the change in log real weekly wages between 1963 and 2005. The sample is restricted to ages $16-64$, full-time, full-year workers with potential experience of up to 39 years. Full-time workers are those who usually work 35 hours or more per week. Full-year workers are those who worked 40 weeks or more in the prior year. The sample reflects wage-workers, or those whose longest job was in government or the private sector. This is equivalent to excluding those who are self-employed. Allocated observations are dropped, as well as those whose earnings are below $112/week in 2000 dollars ($150 in 2017 dollars). Weekly earnings are put in real terms using a personal consumption expenditures deflator. Percentiles are trimmed below 3 percent and above 97 percent.

Figure 2 shows changes in the evolution of three measures of inequality for weekly and hourly earnings: overall inequality (90/10 ratio), within-group overall residual inequality, and between-group differences reflected in the college/high school gap. There are striking trends in the years since 2005. First, overall inequality and the college wage premium have plateaued. Second, residual inequality in terms of weekly earnings increased modestly while it continued to be flat for hourly earnings.

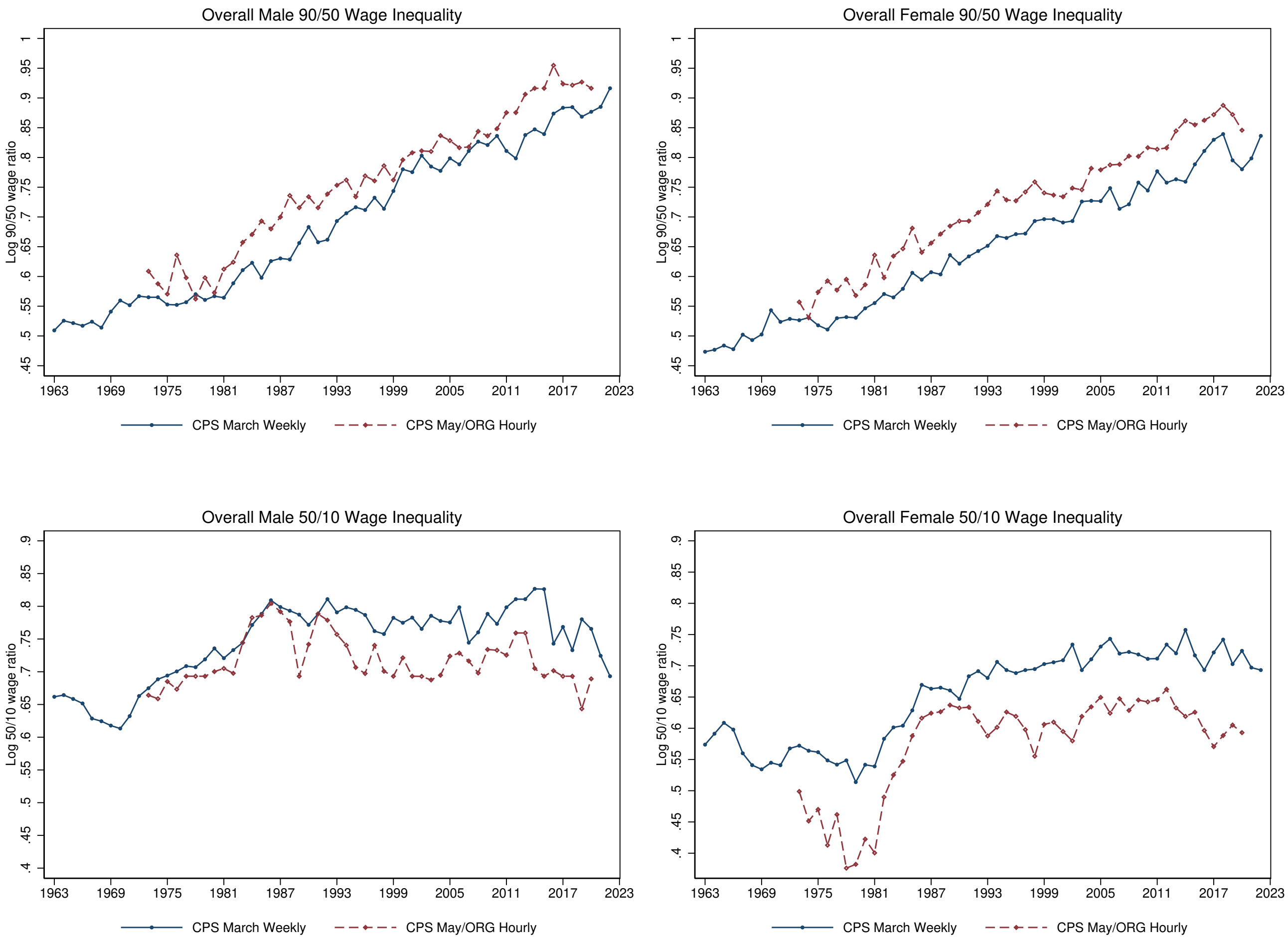
Figure 2. Three measures of wage inequality: college/high school premium, male 90/10 overall inequality, and male 90/10 residual inequality



Three different measures of inequality are plotted using weekly earnings from the March CPS (Panel A) and hourly earnings from the CPS May/ORG (Panel B). The sample for Panel A is the same as that described for Figure 1. The sample for Panel B is the May CPS for years 1973-1978 and CPS MORG for years 1979-2020. The sample is restricted to wage/salary workers, ages $16-64$ with potential experience of 0 to 39 years. Hourly wages are calculated as weekly earnings divided by usual hours. Hourly workers use the given hourly rate of pay. Hourly wages below the 1982 minimum wage are dropped ($7.48 in 2017 dollars). Hourly wages above the 1/35th top-coded value of weekly earnings are dropped. Allocated earnings are dropped. Weekly earnings are put in real terms using a personal consumption expenditures deflator. Calculations are weighted using individual CPS earnings weights multiplied by hours worked last week.

Figure 3 breaks down the trends in Figure 2 by upper- and lower-tail inequality. Upper-tail inequality has been increasing for men and women since the second-half of the 1970s. In contrast, lower-tail inequality that began to flatten in the late 1980s has continued to do so through 2022. The trends in overall inequality in Figure 1 mask differing dynamics at the upper- and lower-tail of the income distribution. These inequality measures in the last 17 years are consistent with upper-tail inequality seeing a secular rise and the increase in lower-tail inequality in the 1980s being episodic, as found in AKK.

Figure 3. 90/50 and 50/10 weekly wage inequality in March (full-time workers) and hourly wage inequality in May/ORG (all workers) CPS series, 1963–2022



The top row shows the evolution of upper-tail inequality (90/50) by gender for weekly and hourly earnings. The bottom row shows the evolution of lower-tail inequality (50/10) similarly by gender for the two different earnings measures.

Table 1 shows changes in real, composition-adjusted wages. Between 1979 and 2005, the real wages of high school dropouts fell by 14.6 log points. AKK finds this change to be 19.7 log points. The difference between these two findings is likely due to two factors. The first factor is differences in the deflator series that is used to put earnings variables into real terms. I use an updated series, with 2017 as the base year while the reference year in AKK is 2000. The second factor is that there have been some changes to the CPS data, both in terms of sample size and observations with earnings that are allocated. This could have also impacted the fixed weights that are used, which are the average share of total hours worked by each sex-education-experience group (40 total) between 1963 and 2022.

The table shows that composition-adjusted mean real wages increased by 38.7 log points between 1963 and 2022. Most of the wage growth occurred in the 1960s and 2010s. Men gained around 4 log points more than women between the two cross-sections. Real wages across all education levels decreased between 2005 and 2012. Interestingly, the education group that saw the largest gains between

2012 and 2022 were those with less than a high school degree. This is in contrast to the period from 1979 to 2012 during which their real composition-adjusted wages of this group declined. The rise in more recent years of wages for these workers is consistent with polarization, namely rising employment and wages at the lower end of the distribution.

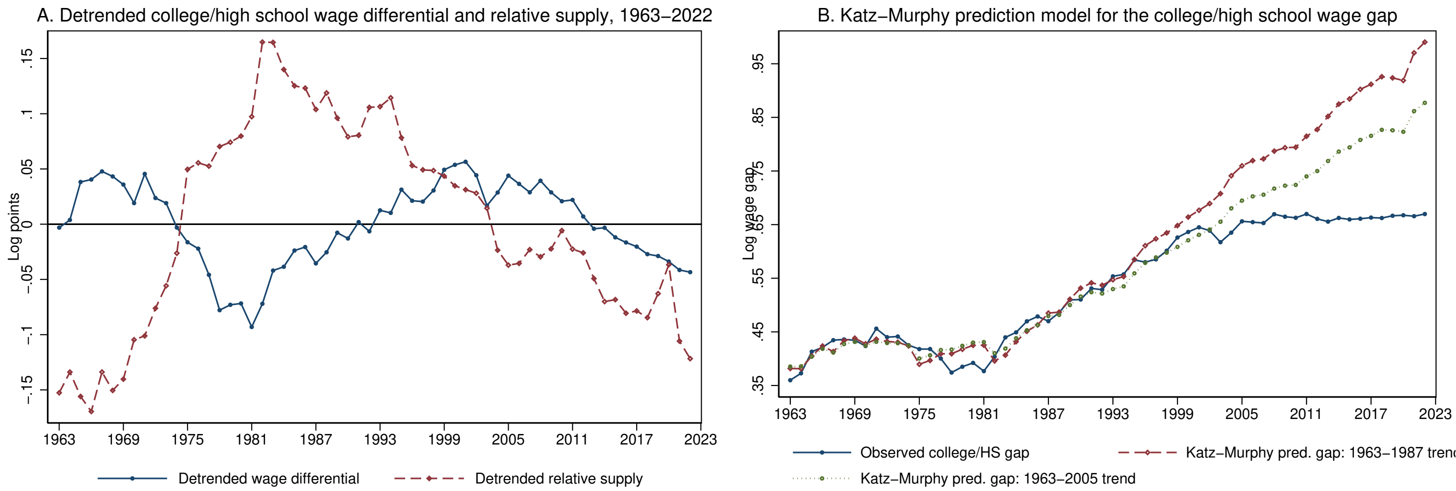
Table 1. Changes in real, composition-adjusted log weekly wages for full-time, full-year workers, 1963–2022 (100× change in mean log real weekly wages)

	1963–1971	1971–1979	1979–1987	1987–1995	1995–2005	2005–2012	2012–2022	1963–2022
All	22.3	5.3	4.1	-4.6	5.8	-7.8	13.7	38.7
Sex								
Men	27.6	6.7	1.3	-8.4	1.8	-5.2	16.9	40.6
Women	15.4	3.6	7.6	0.4	10.9	-11.1	9.6	36.3
Education (yrs. school)								
0–11	19.4	7.5	-3.8	-10.8	-0.5	-8.9	21.6	24.5
12	20.2	7.9	0.9	-7.4	3.4	-7.9	12.7	29.9
13-15	20.6	5.4	5.9	-6.0	7.4	-9.2	11.6	35.7
16+	27.9	0.9	10.4	3.3	10.4	-5.6	12.6	60.0
16-17	25.0	0.4	9.3	1.1	9.8	-6.5	14.7	53.8
18+	34.1	1.8	12.6	8.0	11.9	-3.8	8.4	73.0
Experience (males)								
5 years	25.7	2.9	-2.0	-9.1	4.1	-4.8	22.3	39.1
25-35 years	28.5	9.6	4.6	-8.1	-1.0	-4.8	13.7	42.6
Educ + exp. (males)								
Education 12								
Experience 5	26.1	5.2	-7.6	-9.5	-1.8	2.4	24.6	39.5
Exp. 25–35 yrs	23.3	9.6	-3.0	-15.1	-5.6	-10.8	19.0	17.4
Education 16+								
Experience 5	23.9	-3.5	13.5	0.3	7.7	-7.6	17.2	51.4
Exp. 25–35 yrs	31.8	4.3	8.2	2.9	11.7	-2.0	9.6	66.5

The table shows the changes in composition-adjusted log real wages. The data sample selection is the same as that described in Figure 1. Composition-adjusted wages reflect the predicted values from separate yearly regressions of log real weekly wages regressed on the following and done so separately by gender: four schooling categories, a quartic in experience, interactions of three school groupings with experience, race, and region. Regressions are weighted using CPS weights. Mean log wages for sex-education-experience cells are the weighted average used a fixed set of weights, equal to share of total hours worked by each cell over the entire time period 1963-2022.

Having established some facts as to recent trends in inequality, the next part of the paper probes potential explanations for the rise in overall inequality. Figure 4 plots the detrended college wage premium and relative supply from 1963 to 2022. From around 2005 to 2010, both series plateau before falling. There has been a consistent deceleration in the relative supply of college workers since around 1982. Meanwhile the college wage premium has also declined in the past 20 years, albeit not to the same extent as in the 1970s. While the college wage premium and relative supply have moved inversely for much of the time, the years since 2005 are somewhat distinct in that both series are trending downward. Panel B shows used the Katz-Murphy model fitted to 1963-1987 data to predict the college wage premium in subsequent years. Even when the model is fitted to more recent data through 2005, it still over-predicts the wage gap.

Figure 4. College/high school relative supply and wage differential, 1963–2022 (March CPS)



Panel A plots the detrended wage differential and detrended relative supply of those with at least a college degree versus high school grads. The detrended wage differential reflects the residuals from a regression of the college premium regressed on linear time trend and constant. The detrended relative supply similarly reflects the residuals from a regression of the labor supply of college to non-college grads in efficiency units regressed on linear time trend and constant. Composition-adjusted relative wages reflect the same process described in Table 1. Panel B plots the observed college/high school wage gap and the Katz-Murphy predicted wage gap using two different trend periods (1963-1987 and 1963-2005). The Katz-Murphy predicted wage gap reflects a regression of the college premium regressed on a linear time trend, the labor supply of college to non-college grads in efficiency units, and a constant. In the case of the 1963-1987 trend line, the values for 1988-2022 are out-of-sample predictions.

Table 2 shows regression models for the college wage premium. The negative statistically significant estimates for the college/high school relative supply shows a slowdown in demand for college workers. This is true whether a trend break is allowed for the period after 1992, or various time specifications. The inclusion of the real minimum wage and male unemployment rate does not make a significant difference, suggesting accounting for this institutional factor and cyclical fluctuations are not enough to explain the decline in the wages of college workers. It is worth noting that the time-series regressions in AKK and replicated here are much less relevant now due to the explosion of higher mimimum wage laws passed at the state level. Therefore it is not too surprising that the relationship between the federal minimum wage and college wage premium is insigificant. Cengiz et al. (2019) and Vogel (2023) both show that the mimum wage – when taking into account state-level laws – plays an important role in shaping the college wage premium.

Table 2. Regression models for the college/high school log wage gap, 1963–2005

	1963-1987	1963-2005						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CLG/HS relative supply	-0.546***	-0.426***	-0.596***	-0.493***	-0.558***	-0.603***	-0.418***	
	(0.122)	(0.041)	(0.063)	(0.103)	(0.094)	(0.145)	(0.063)	
Log real minimum wage						-0.018	-0.059	-0.042
						(0.038)	(0.039)	(0.057)
Male prime-age unemp. rate.						0.002	-0.002	-0.019***
						(0.004)	(0.004)	(0.003)
Time	0.024***	0.019***	0.026***	0.023***	0.019***	0.021**	0.019***	0.007***
	(0.005)	(0.001)	(0.002)	(0.006)	(0.005)	(0.007)	(0.002)	(0.000)
$\text{Time}^2/100$				-0.004	0.037**	0.035*		
				(0.006)	(0.013)	(0.014)		
$\text{Time}^3/1000$					-0.007**	-0.007**		
					(0.002)	(0.002)		
Time $\times$ post-1992			-0.000**					
			(0.000)					
Constant	-0.145	-0.028	-0.198**	-0.102	-0.139	-0.152	0.105	0.500***
	(0.124)	(0.037)	(0.061)	(0.110)	(0.098)	(0.186)	(0.103)	(0.121)
Observations	25	43	43	43	43	43	43	43
R-squared	0.52	0.94	0.96	0.95	0.96	0.96	0.95	0.89

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Panel A plots the detrended wage differential and detrended relative supply of those with at least a college degree versus high school grads. The detrended wage differential reflects the residuals from a regression of the college premium regressed on linear time trend and constant. The detrended relative supply similarly reflects the residuals from a regression of the labor supply of college to non-college grads in efficiency units regressed on linear time trend and constant. Composition-adjusted relative wages reflect the same process described in Table 1. Panel B plots the observed college/high school wage gap and the Katz-Murphy predicted wage gap using two different trend periods (1963-1987 and 1963-2005). The Katz-Murphy predicted wage gap reflects a regression of the college premium regressed on a linear time trend, the labor supply of college to non-college grads in efficiency units, and a constant. In the case of the 1963-1987 trend line, the values for 1988-2019 are out-of-sample predictions.

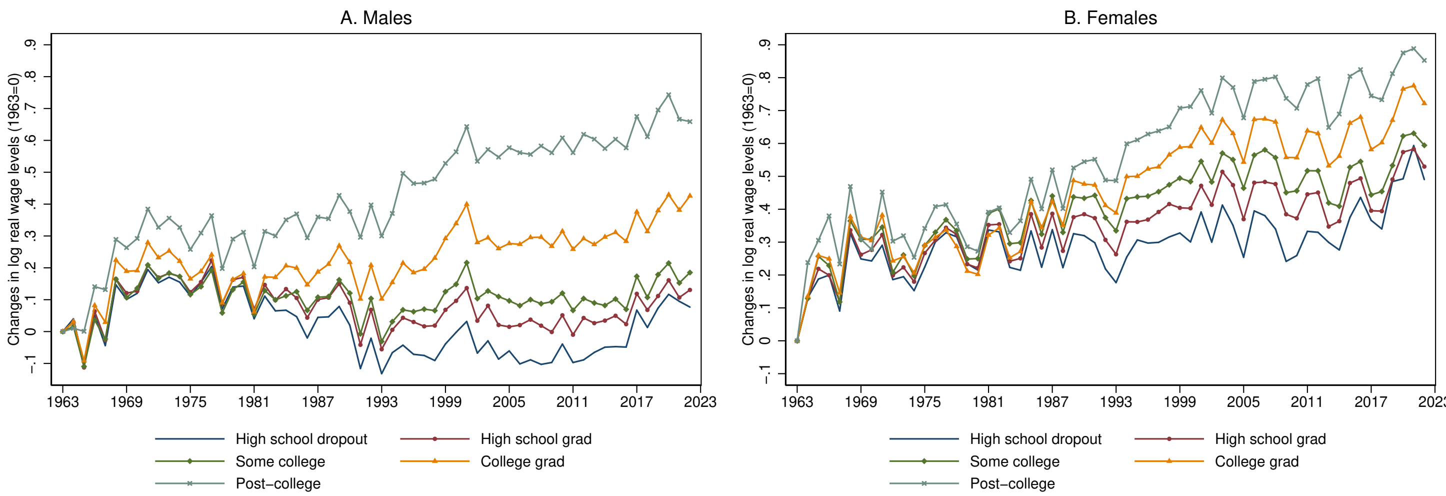
Table 2 Extension to 2022

	1963-2022					
	(1)	(2)	(3)	(4)	(5)	(6)
CLG/HS relative supply	-0.680***	-0.447***	-0.592***		-0.214**	-0.463***
	(0.063)	(0.073)	(0.042)		(0.065)	(0.092)
Log real minimum wage				-0.011	-0.096	-0.043
				(0.049)	(0.052)	(0.029)
Male prime-age unemp. rate.				-0.007*	-0.000	0.001
				(0.003)	(0.003)	(0.002)
Time	0.036***	0.017***	0.026***	0.006***	0.011***	0.017**
	(0.003)	(0.005)	(0.001)	(0.000)	(0.002)	(0.005)
$\text{Time}^2/100$	-0.020***	0.022*				0.022*
	(0.002)	(0.009)				(0.010)
$\text{Time}^3/1000$		-0.004***				-0.004***
		(0.001)				(0.001)
Time $\times$ post-1992			-0.000***			
			(0.000)			
Constant	-0.314***	-0.038	-0.196***	0.405***	0.380***	0.036
	(0.063)	(0.079)	(0.039)	(0.098)	(0.091)	(0.110)
Observations	60	60	60	60	60	60
R-squared	0.96	0.97	0.97	0.89	0.91	0.97

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The left panel of Figure 5 shows that the real weekly wage of males with a college and post-college education has risen considerably since the 1960s. By contrast, the wage gains for men with some college education is similar to high school grads and high school dropouts. Since 2010, the wage gap between men with a high school degree and high school dropouts has narrowed, suggesting this level of education might be less important than in the past. The right panel of Figure 5 shows how women across all education groups have seen real wage gains since the 1960s. Like men, those with a post-college degree have seen the largest gains and high school dropouts have caught up with high school grads in recent years. This latter trend is consistent with wage growth polarization in which very-high and very-low skilled workers see wage gains. The dynamics within the two broad groups of education – those with a college education and those without – underscore the limitations of the two-factor CES model.

Figure 5. Trends in composition-adjusted real log weekly full-time wages by gender and education, 1963–2022 (March CPS)

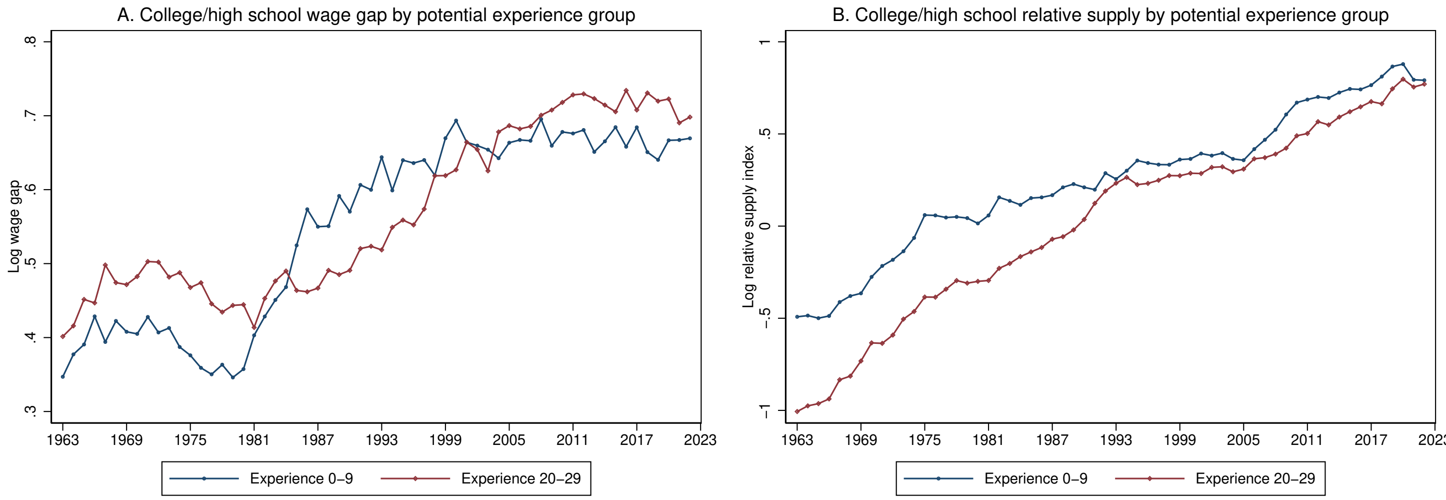


Panel A plots trends in the composition-adjusted real log weekly wage for males by education level. Panel B does likewise for females. Sample and data cleaning follows the description from Table 1.

Panel A of Figure 6 compares the college wage premium for younger workers (0-9 years of experience) to older workers (20-29 years of experience). The return to college for younger workers grew significantly since the mid-1970s and then plateaued around 2000. Meanwhile the return to college for older workers has seen a more gradual and steady increase since 1980, which has only plateaued in the last decade. Panel B show the supply of younger college workers began to decelerate around 1975 and then increase again around 2005. Meanwhile the supply of older college workers has seen a secular increase across the whole time period.

Between 1980 and 2000, the return to college for younger workers far outpaced that for older workers. However since 2000, the return to college for older workers has increased while that for younger workers has plateaued. These increasing returns to older workers is consistent with the rising relative supply of older college workers since 2005 shown in Panel B. While the return to college for younger workers has plateaued since 2005, the relative supply has not.

Figure 6. Composition-adjusted log relative college/high school wage and supply by potential experience and age groups, 1963–2022 (March CPS)



Panel A plots the college wage premium for different experience groups, or younger versus older workers. Panel B plots the relative supply of college to high school workers for workers younger and older workers. The construction of the wage and supply series is detailed in Figure 4.

Table 3 shows regressions of the college wage premium for different experience groups. When all the experience levels are pooled together (first two columns), own-group and aggregate supplies are important for explaining variation in the wage premium. In the last four columns, the regression is estimated separately by experience group. With increasing experience, own supply becomes less important in magnitude and statistical significance. Neither the minimum wage nor prime-age male unemployment appear to explain the college wage premium. These results are corroborated when the oldest workers with potential experience of 40–49 years are included in the subsequent table.

Table 3. Regression models for the college/HS log wage gap by potential experience group, 1963–2022, males and females pooled

	Potential Experience Groups					
	All Experience Groups		0-9 yrs	10-19 yrs	20-29 yrs	30-39 yrs
Own supply minus aggregate supply	-0.246***	-0.247***	-0.316**	-0.111	-0.051	-0.007
	(0.025)	(0.025)	(0.095)	(0.093)	(0.070)	(0.059)
Aggregate supply	-0.674***	-0.705***	-0.662***	-0.983***	-0.678***	-0.269**
	(0.052)	(0.058)	(0.122)	(0.092)	(0.083)	(0.093)
Log real minimum wage		-0.000	-0.047	-0.033	0.066	-0.002
		(0.028)	(0.059)	(0.044)	(0.040)	(0.040)
Prime-age male unemployment		0.002	0.004	0.003	0.002	-0.001
		(0.002)	(0.004)	(0.003)	(0.002)	(0.002)
Time	0.033***	0.034***	0.034***	0.050***	0.032***	0.011**
	(0.002)	(0.002)	(0.006)	(0.004)	(0.004)	(0.004)
$Time^2/100$	-0.016***	-0.017***	-0.021***	-0.028***	-0.014***	0.000
	(0.002)	(0.002)	(0.005)	(0.004)	(0.003)	(0.003)
Constant	-0.186***	-0.221**	-0.071	-0.502***	-0.352**	0.204
	(0.050)	(0.075)	(0.164)	(0.126)	(0.105)	(0.133)
Observations	236	236	59	59	59	59
R-squared	0.91	0.91	0.92	0.97	0.95	0.92

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Each column is an OLS regression of the college wage premium regressed on: the difference of aggregate college supply in efficiency units subtracted from the experience group's relative labor supply in efficiency units, the supply of college workers in logged efficiency units, a linear time trend, and a squared time trend. Depending on the specification, the log real minimum wage, and the male unemployment rate. The first two columns include dummies for experience categories.

Table 3 Extension to most experienced workers (40-49 years)

	Potential experience groups		
	All Experience Groups		40-49 yrs
Own supply minus aggregate supply	-0.120***	-0.118***	-0.026
	(0.034)	(0.034)	(0.270)
Aggregate supply	-0.728***	-0.770***	-0.871
	(0.101)	(0.113)	(0.863)
Log real minimum wage		-0.087	-0.423
		(0.055)	(0.249)
Prime-age male unemployment		0.002	0.001
		(0.003)	(0.017)
Time	0.036***	0.037***	0.035
	(0.005)	(0.005)	(0.038)
Time-squared/100	-0.018***	-0.017***	-0.011
	(0.003)	(0.004)	(0.023)
Constant	-0.277**	-0.144	0.221
	(0.096)	(0.145)	(1.383)
Observations	295	295	59
R-squared	0.76	0.76	0.36

Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

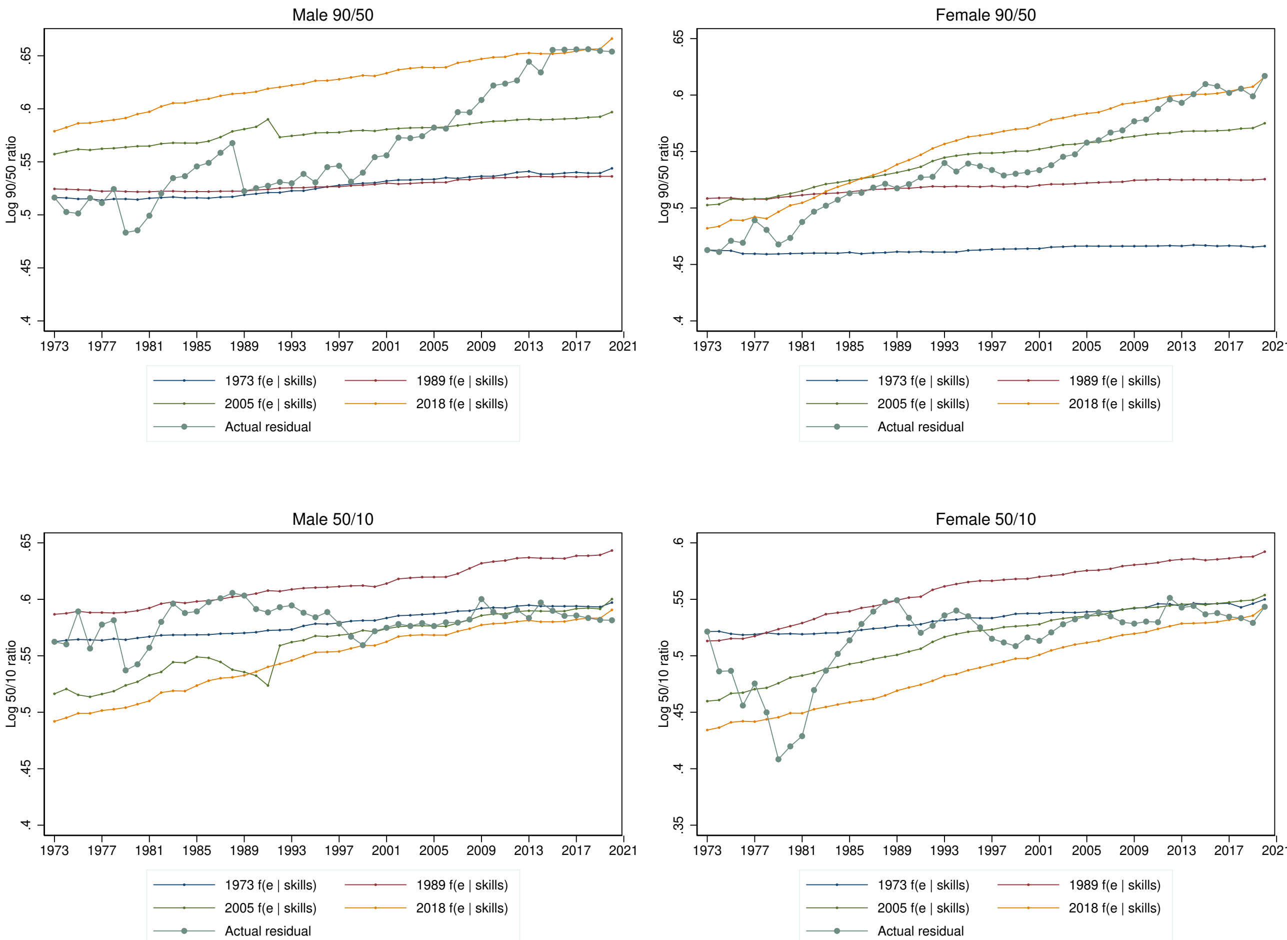
Figure 7 examines the role of the minimum wage in explaining rising wage inequality trends. In contrast to AKK, I do not find the same tight correspondence between the minimum wage and overall inequality. As aforementioned, the lack of a strong relationship is not too surprising given the explosion of state-level minimum wage laws enacted since the end of the analysis in AKK.

Figure 7. Log real federal minimum wage and log 90/10, 90/50, and 50/10 hourly wage differentials, 1973–2020 (CPS May/ORG)

The top-left panel shows the real log minimum wage normalized to zero in 1973. The other panels plot the observed inequality measure (overall, upper-tail, lower-tail) and predicted values from a regression of the inequality measure regressed on the log real minimum wage.

The next set of figures explore the importance of compositional changes in explaining rising wage inequality. Increasing education and experience could lead to rising wage inequality for reasons distinct to changes in the demand and supply of college workers. Figure 8 plots observed and counterfactual residual hourly inequality. The counterfactual is constructed following a method by DiNardo et al. (1996). The slightly upward slopes of the counterfactual series for male upper-tail inequality show that compositional effects played a small role in rising inequality, but not nearly as much as the price effects reflected in the observed series. Overall, price effects were far more important in explaining residual and overall inequality. Compositional effects mattered more for the lower-tail inequality. Table 4 provides estimates to the same observed and counterfactual trends plotted in Figures 8.

Figure 8. Actual and counterfactual 90/50 and 50/10 residual hourly wage inequality, 1973–2020 (CPS MAY/ORG)



The series labelled "Actual residual" plots predicted values from a regression of the real log hourly wage from the CPS May/MORG regressed on nine schooling groupings, indicators for age, a quartic of age, and interactions of the age quartic with education groupings. Regressions are estimated separately by gender for each year and weighted by CPS weights multiplied by hours worked in the prior week. The series labelled "Year f(e | skills)" plots the difference in wage residuals from a density of the year listed, and reweighted using the skills distribution for years 1973-2022.

Table 4. 100× observed and composition-constant changes in overall and residual hourly inequality measures (MAY/ORG CPS 1973, 1989, 2005, and 2018)

	Residual Inequality				Overall Inequality			
	1973-1989	1989-2005	1973-2005	1973-2018	1973-1989	1989-2005	1973-2005	1973-2018
				A. 90/50, Males				
Observed	3.9	6.0	9.9	17.3	8.5	13.7	22.3	28.7
1973 X's	0.2	1.5	1.7	2.3	0.5	3.1	3.6	2.5
1989 X's	-0.2	0.8	0.6	1.2	-1.5	1.7	0.2	-2.1
2005 X's	2.4	0.1	2.5	3.5	2.1	1.8	3.9	1.9
2018 X's	3.6	2.4	6.0	7.7	7.7	1.5	9.1	8.3
				Females				
Observed	6.9	4.0	11.0	15.7	11.7	6.9	18.6	29.5
1973 X's	-0.2	0.5	0.4	0.4	0.5	1.0	1.5	2.4
1989 X's	0.9	0.5	1.4	1.6	0.7	-2.5	-1.9	-2.3
2005 X's	2.9	2.6	5.5	6.8	-1.1	1.6	0.5	1.4
2018 X's	5.6	4.5	10.2	12.4	8.2	1.9	10.0	14.4
				A. 50/10, Males				
Observed	6.2	-2.7	3.5	4.2	2.5	0.0	2.5	0.2
1973 X's	0.8	1.7	2.5	3.1	-1.9	1.9	0.0	-0.9
1989 X's	1.7	1.6	3.3	5.2	-1.1	9.5	8.4	12.9
2005 X's	1.9	4.1	6.0	7.6	14.3	-6.9	7.4	13.5
2018 X's	4.1	3.6	7.6	9.2	7.4	0.1	7.5	14.0
				Females				
Observed	6.9	-1.4	5.4	5.3	11.7	2.5	14.2	7.6
1973 X's	0.5	1.2	1.7	2.1	4.7	2.3	7.0	10.1
1989 X's	3.6	2.6	6.2	7.4	7.9	5.7	13.5	16.5
2005 X's	4.1	3.4	7.5	8.9	9.4	11.5	20.9	20.9
2018 X's	3.5	4.2	7.7	9.9	8.2	4.8	13.0	19.7
				A. 90/10, Males				
Observed	10.1	3.3	13.4	21.5	11.0	13.7	24.8	28.8
1973 X's	1.0	3.2	4.2	5.4	-1.3	5.0	3.6	1.6
1989 X's	1.4	2.5	3.9	6.3	-2.6	11.2	8.6	10.8
2005 X's	4.3	4.2	8.5	11.1	16.4	-5.1	11.3	15.4
2018 X's	7.7	6.0	13.6	16.9	15.1	1.5	16.6	22.2
				Females				
Observed	13.8	2.6	16.4	21.0	23.4	9.4	32.8	37.0
1973 X's	0.4	1.7	2.1	2.5	5.1	3.3	8.5	12.5
1989 X's	4.5	3.1	7.6	9.1	8.5	3.1	11.6	14.2
2005 X's	7.0	6.1	13.0	15.7	8.3	13.1	21.4	22.3
2018 X's	9.1	8.8	17.9	22.3	16.4	6.6	23.0	34.2

The first row of each section shows changes in observed residual and overall inequality, by gender for three difference measures of inequality. The subsequent rows in each section marked with an "X" show changes in composition-constant residual and overall wage inequality. The left half of the table shows residual inequality statistics. These reflect the residuals from a regression of log real hourly wage regressed on nine education groupings, indicators for age, a quartic in age, and interactions of schooling with the age quartic. Meanwhile the composition-constant statistics use the DiNardo-Fortin-Lemieux (1996) kernel reweighing approach.

4 Conclusion

This paper successfully replicates Autor et al. (2008) and extends the analysis through 2022. It reaffirms their original finding that overall inequality has seen a secular increase since the 1980s. However interesting trends have emerged in the additional 17 years since the end of their analysis. Notably, overall inequality and the college wage premium have plateaued. Despite overall inequality plateauing, upper-tail inequality has continued its upward trajectory since 2005 for men and women. Meanwhile lower-tail inequality remains flat for both since 1987. Some of the largest real wage gains since 1963 occured between 2012 and 2022. In the last decade or so, high school dropouts saw larger wage gains than any other education group. These findings are consistent with rising polarization in which the top and bottom ends of the earnings distribution see real wage gains.

5 Appendix

5.1 Comparison of number of observations, cleaned March ASEC CPS

Year	AKK	Replication	Year	AKK	Replication	Year	AKK	Replication
1963	30,087	30,091	1983	79,294	79,294	2003	107,350	107,350
1964	30,341	30,338	1984	80,894	80,894	2004	105,886	105,886
1965	64,929	64,964	1985	79,468	79,468	2005	105,321	105,321
1966	63,025	41,336	1986	79,289	79,289	2006	104,779	104,779
1967	65,349	65,349	1987	80,184	80,184	2007	105,028	105,028
1968	66,778	66,778	1988	75,164	75,162	2008	105,299	105,299
1969	63,566	63,565	1989	82,075	82,075	2009	103,329	103,329
1970	64,545	64,390	1990	81,612	81,612	2010	99,966	99,966
1971	61,767	61,763	1991	79,888	79,888	2011	97,903	97,903
1972	60,913	60,911	1992	78,712	78,712	2012	99,056	99,056
1973	60,867	60,867	1993	76,151	76,153	2013	97,472	97,472
1974	59,852	59,852	1994	76,107	76,107	2014	96,950	96,950
1975	61,484	61,484	1995	66,528	66,528	2015	90,661	90,661
1976	74,809	74,809	1996	67,804	67,804	2016	91,427	91,427
1977	73,947	73,947	1997	68,098	68,098	2017	88,412	88,412
1978	75,105	75,105	1998	68,754	68,754	2018		89,077
1979	90,041	90,041	1999	70,284	70,284	2019		78,973
1980	89,829	89,829	2000	67,684	112,472	2020		80,211
1981	80,395	80,395	2001	110,901	110,901	2021		74,450
1982	79,616	79,616	2002	109,344	109,344	2022		72,009

5.2 Comparison of number of observations, cleaned MORG CPS

Year	AKK	Replication	Year	AKK	Replication	Year	AKK	Replication
1973	52,082	52,112	1989	195,172	194,895	2005	194,778	194,778
1974	51,250	51,325	1990	204,633	204,311	2006	194,159	194,159
1975	49,391	49,400	1991	198,876	198,578	2007		191,725
1976	50,704	50,705	1992	195,242	194,860	2008		188,754
1977	61,380	61,381	1993	192,818	192,416	2009		182,480
1978	61,243	61,176	1994	189,531	189,531	2010		179,699
1979	188,344	188,331	1995	188,480	188,480	2011		176,929
1980	219,876	219,869	1996	167,787	167,787	2012		175,976
1981	206,554	206,549	1997	170,892	170,892	2013		174,864
1982	195,118	195,106	1998	172,527	172,527	2014		175,545
1983	193,872	193,859	1999	174,404	174,404	2015		173,015
1984	197,448	197,442	2000	175,530	175,529	2016		173,131
1985	199,855	199,844	2001	186,315	186,314	2017		170,313
1986	198,188	198,179	2002	200,013	200,027	2018		165,892
1987	199,771	199,763	2003	197,394	197,394	2019		159,833
1988	191,754	191,744	2004	193,908	193,908	2020		138,420

5.3 Original AKK Figures and Tables

Figure 1 in AKK

Figure 2 in AKK

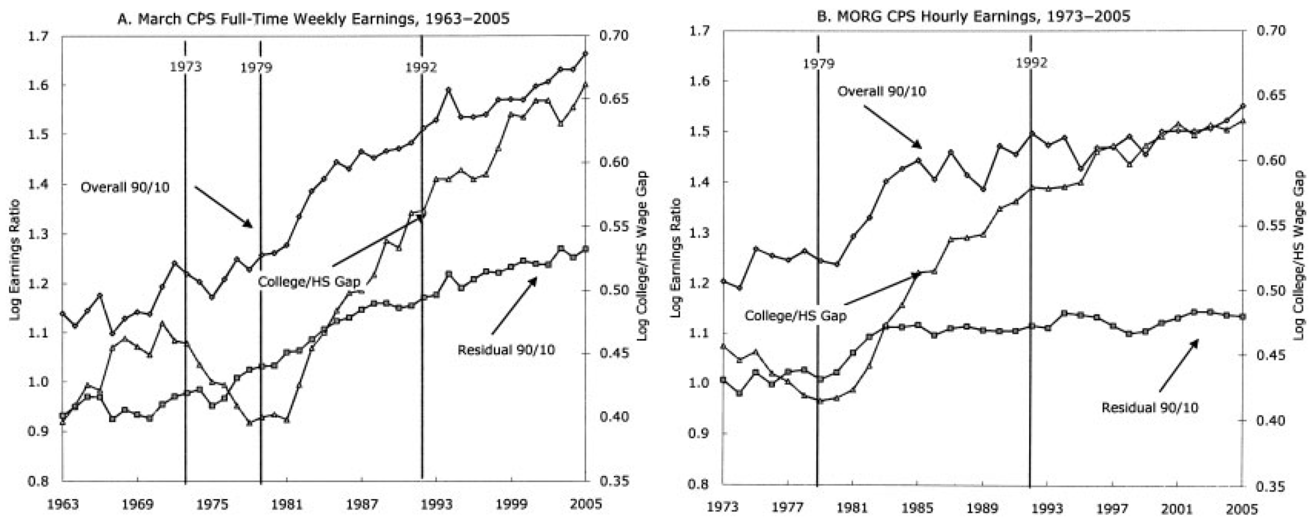


Figure 3 in AKK

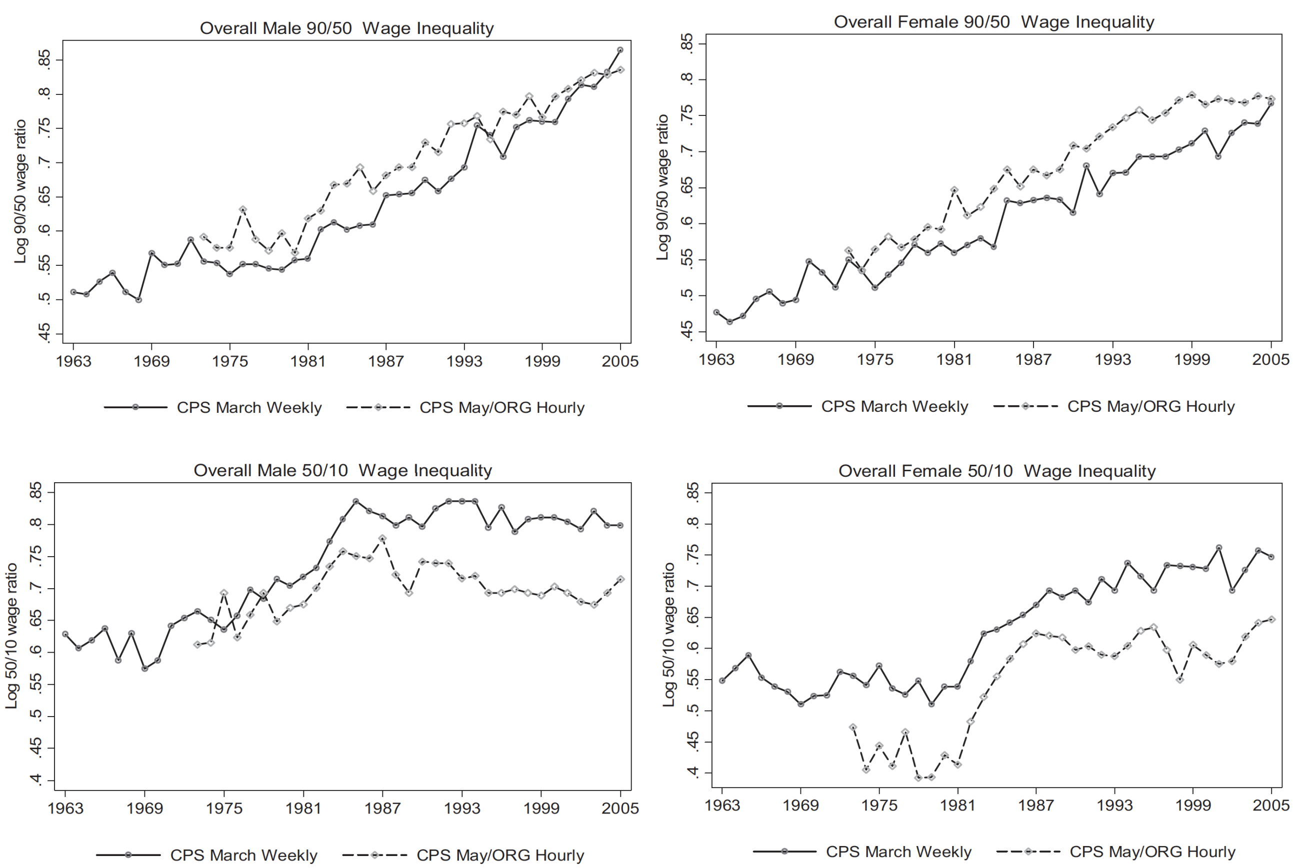


Figure 4 in AKK

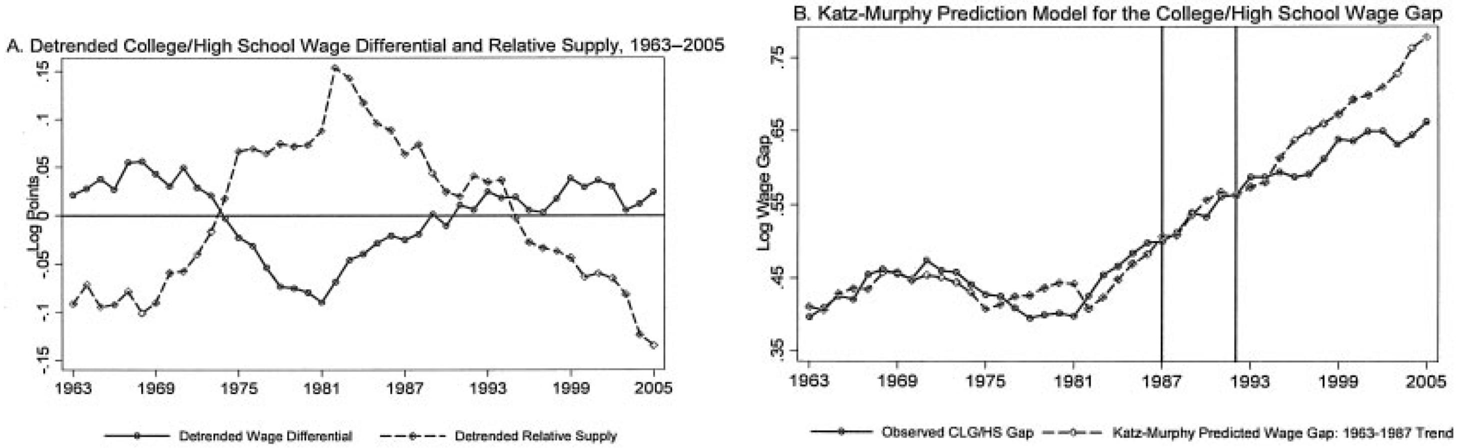


Figure 5 in AKK

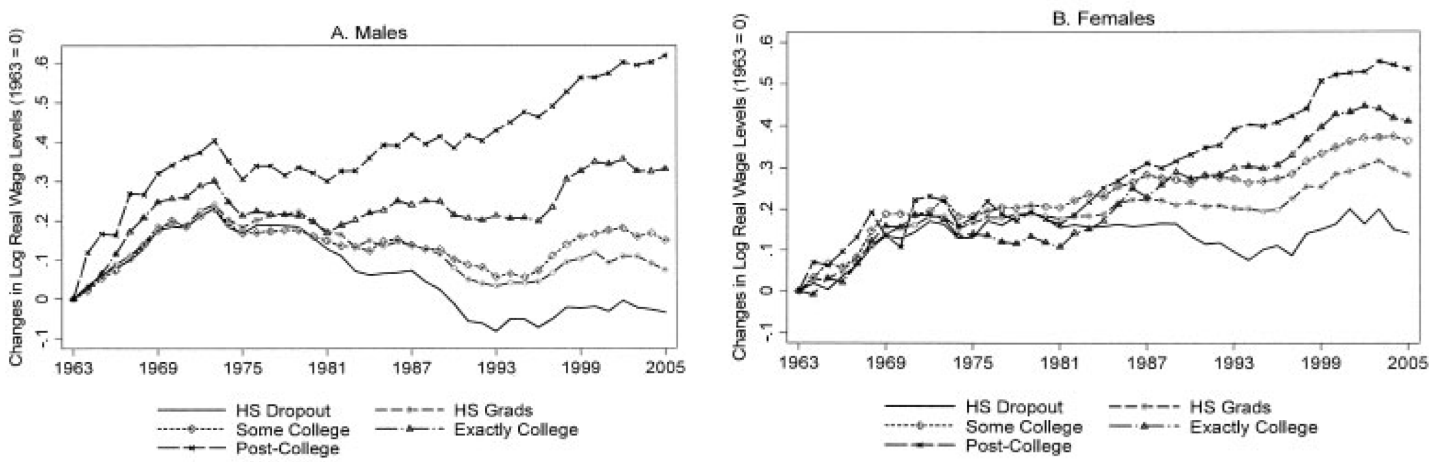


Figure 6 in AKK

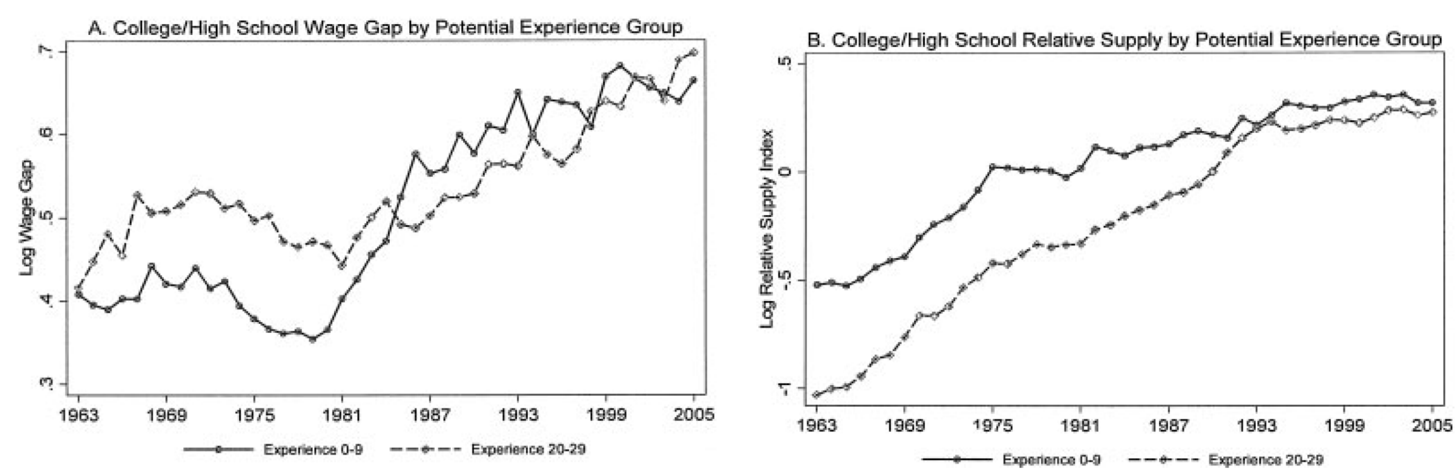


Figure 7 in AKK

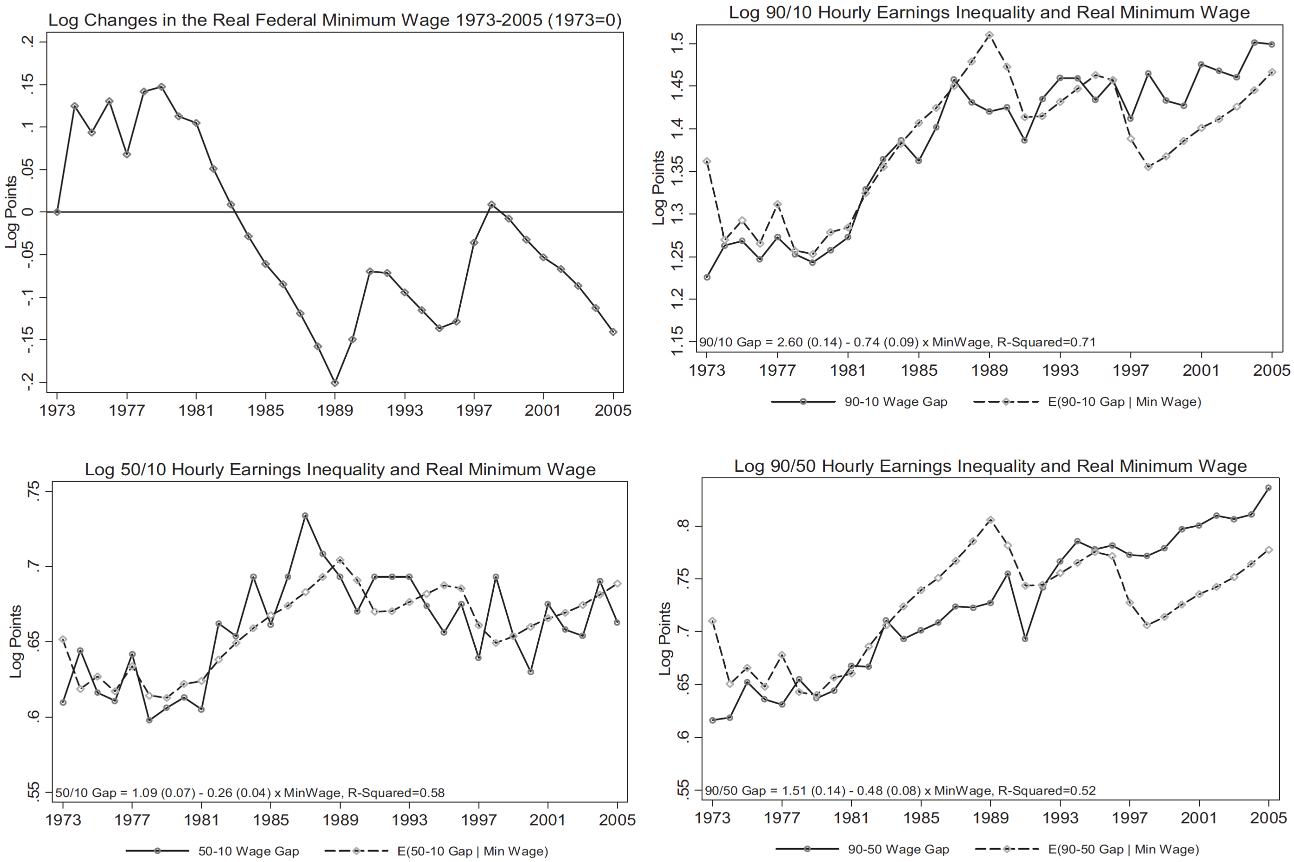


Figure 8 in AKK

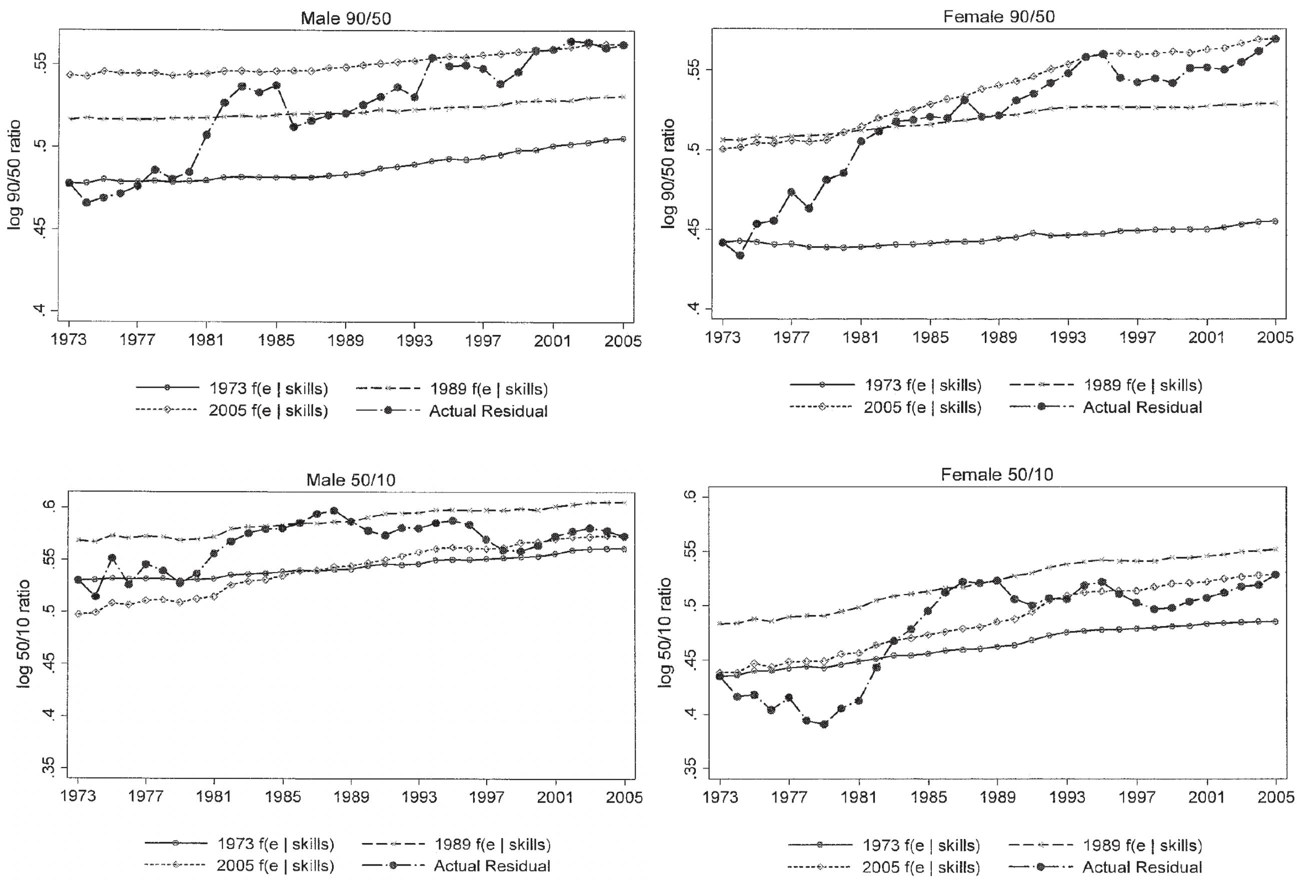


Figure 9 in AKK

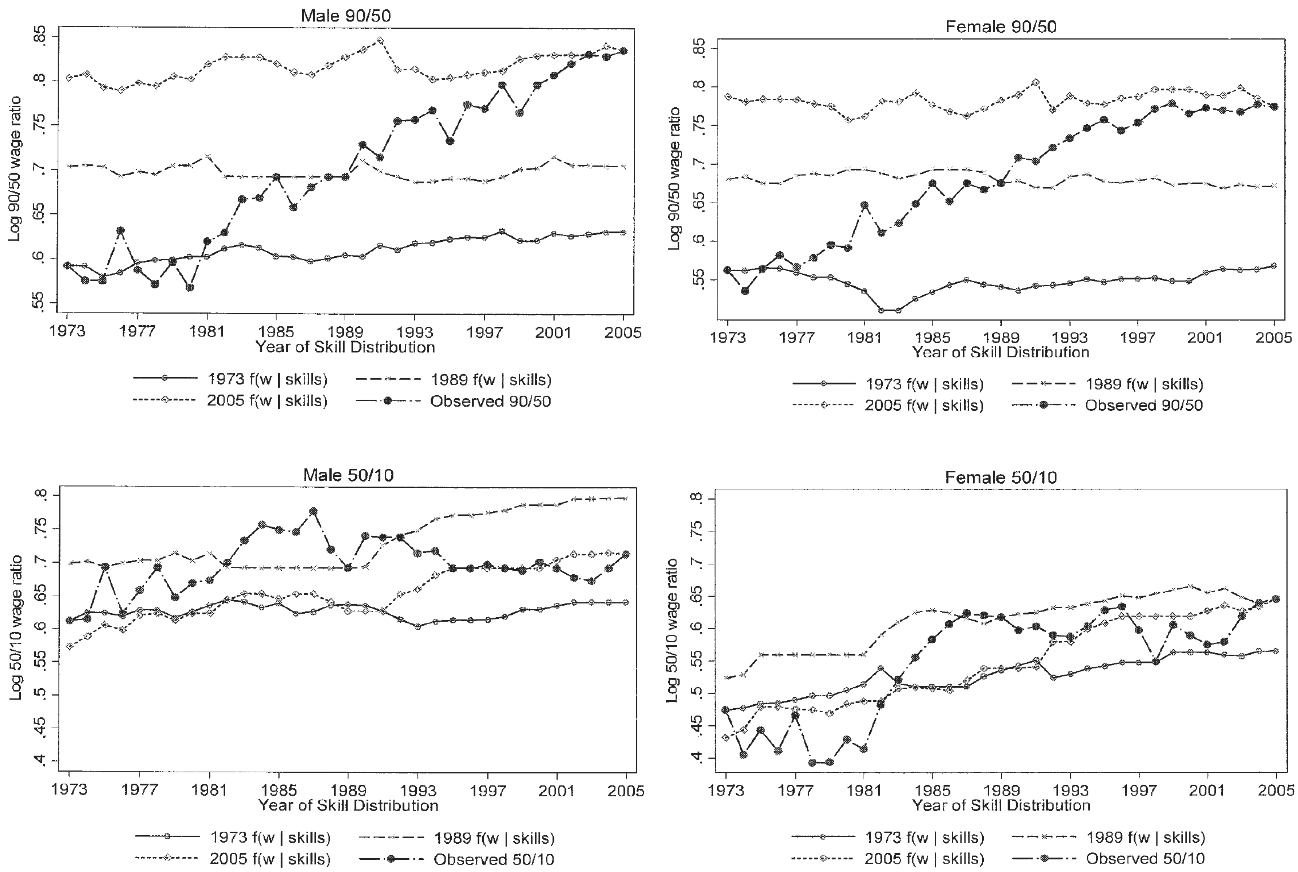


Table 1 in AKK

	1963–1971	1971–1979	1979–1987	1987–1995	1995–2005	1963–2005
All	19.5	0.6	−0.8	−4.8	7.6	22.2
Sex						
Men	21.1	0.1	−4.9	−7.8	6.7	15.3
Women	17.3	1.4	4.9	−0.7	9.0	31.8
Education (years of schooling)						
0–11	17.0	1.8	−8.4	−10.3	2.5	2.6
12	17.6	3.2	−3.2	−6.6	5.8	16.8
13–15	18.6	0.6	1.2	−5.3	9.5	24.6
16+	25.4	−4.2	6.8	2.8	12.5	43.3
16–17	22.9	−4.9	5.6	1.0	11.9	36.5
18+	31.3	−2.6	9.5	6.8	14.0	59.0
Experience (males)						
5 years	20.0	−3.6	−8.5	−7.6	9.0	9.3
25–35 years	21.6	3.4	−1.6	−8.1	3.8	19.2
Education and experience (males)						
Education 12						
Experience 5	19.4	0.7	−16.1	−10.3	7.1	0.7
Experience 25–35	17.0	6.3	−2.5	−7.6	0.3	13.6
Education 16+						
Experience 5	23.1	−11.0	9.3	−1.9	10.0	29.5
Experience 25–35	35.0	1.7	2.6	−2.2	13.8	50.9

Table 2 in AKK

	(1) 1963–1987	(2)	(3)	(4)	(5) 1963–2005	(6)	(7)	(8)
CLG/HS relative supply	−0.636	−0.411	−0.619	−0.599	−0.609	−0.728	−0.403	
	(0.130)	(0.046)	(0.066)	(0.112)	(0.102)	(0.155)	(0.067)	
Log real minimum wage						−0.049	−0.117	−0.144
						(0.051)	(0.047)	(0.065)
Male prime-age unemp. rate						0.004	−0.001	−0.018
						(0.004)	(0.004)	(0.003)
Time	0.026	0.018	0.026	0.028	0.021	0.028	0.017	0.006
	(0.005)	(0.001)	(0.002)	(0.006)	(0.006)	(0.007)	(0.002)	(0.001)
$\text{Time}^2/100$				−0.011	0.030	0.017		
				(0.006)	(0.015)	(0.017)		
$\text{Time}^3/1000$					−0.006	−0.005		
					(0.002)	(0.002)		
Time $\times$ post-1992			−0.008					
			(0.002)					
Constant	−0.159	0.043	−0.146	−0.143	−0.124	−0.160	0.266	0.689
	(0.119)	(0.037)	(0.057)	(0.108)	(0.098)	(0.191)	(0.112)	(0.120)
Observations	25	43	43	43	43	43	43	43
R-squared	0.563	0.934	0.953	0.940	0.952	0.955	0.944	0.891

Table 3 in AKK

	Potential Experience Groups					
	All Experience Groups		0–9 yrs	10–19 yrs	20–29 yrs	30–39 yrs
Own supply minus aggregate supply	−0.282	−0.281	−0.169	−0.325	0.101	0.002
	(0.027)	(0.027)	(0.130)	(0.084)	(0.084)	(0.119)
Aggregate supply	−0.600	−0.705	−0.855	−0.474	−0.398	−0.544
	(0.087)	(0.131)	(0.262)	(0.182)	(0.224)	(0.239)
Log real minimum wage		−0.074	−0.340	−0.145	0.098	0.028
		(0.037)	(0.076)	(0.049)	(0.054)	(0.067)
Prime-age male unemployment		0.004	0.005	0.002	0.003	0.000
		(0.003)	(0.007)	(0.004)	(0.005)	(0.006)
Time	0.027	0.031	0.040	0.015	0.016	0.027
	(0.004)	(0.006)	(0.012)	(0.009)	(0.011)	(0.011)
$\text{Time}^2/100$	−0.009	−0.012	−0.025	0.010	0.000	−0.021
	(0.005)	(0.006)	(0.012)	(0.009)	(0.010)	(0.012)
Constant	−0.046	−0.013	0.268	0.359	−0.032	−0.065
	(0.079)	(0.151)	(0.300)	(0.223)	(0.256)	(0.275)
N	172	172	43	43	43	43
R-squared	0.863	0.868	0.926	0.969	0.898	0.663

Table 4 in AKK

	Residual Inequality			Overall Inequality		
	1973–1989	1989–2005	1973–2005	1973–1989	1989–2005	1973–2005
A. Δ 90/50						
Males						
Observed	4.4	4.0	8.4	10.2	14.2	24.4
1973 X's	4.0	2.8	6.8	11.2	9.2	20.4
1989 X's	3.6	2.6	6.2	8.8	13.5	22.3
2005 X's	2.8	2.9	5.7	7.9	13.0	20.9
Females						
Observed	8.2	4.8	12.9	11.3	9.8	21.1
1973 X's	6.8	−0.9	5.9	11.8	9.9	21.7
1989 X's	7.6	1.9	9.5	13.2	10.5	23.7
2005 X's	8.0	4.0	12.0	10.7	10.1	20.8
B. Δ 50/10						
Males						
Observed	5.7	−1.3	4.4	8.1	2.1	10.2
1973 X's	3.9	−7.1	−3.2	8.7	−12.6	−3.9
1989 X's	6.3	−4.0	2.3	5.2	−6.4	−1.2
2005 X's	4.9	−3.5	1.4	15.7	−8.4	7.3
Females						
Observed	8.8	0.4	9.2	14.4	2.8	17.3
1973 X's	4.4	−4.5	−0.1	4.9	−8.4	−3.5
1989 X's	5.7	−3.9	1.8	8.5	−7.9	0.6
2005 X's	6.2	−2.5	3.7	8.3	−0.1	8.2
C. Δ 90/10						
Males						
Observed	10.1	2.8	12.8	18.3	16.4	34.6
1973 X's	7.9	−4.3	3.6	19.9	−3.4	16.5
1989 X's	8.0	−1.5	6.5	13.7	7.0	20.7
2005 X's	7.7	−0.7	7.0	23.4	4.6	28.0
Females						
Observed	16.9	5.2	22.1	25.7	12.7	38.4
1973 X's	11.2	−5.4	5.8	16.7	1.5	18.2
1989 X's	13.3	−2.0	11.3	21.7	2.6	24.3
2005 X's	14.2	1.4	15.6	18.9	9.9	28.8

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