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Black Employment Trends since the Great Recession

by

Thomas Masterson*
Levy Economics Institute of Bard College

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Levy Economics Institute
P.O. Box 5000
Annandale-on-Hudson, NY 12504-5000
http://www.levyinstitute.org

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ABSTRACT

The Great Recession had a devastating impact on labor force participation and employment. This impact was not unlike other recessions, except in size. The recovery, however, has been unusual not so much for its sluggishness but for the unusual pattern of recovery in employment by race. The black employment–population ratio has increased since bottoming out in 2010, while the white employment–population ratio has remained flat. This paper examines trends in labor force participation and employment by race, sex, and age and determines that the explanation is a combination of an aging white population and an increase in labor force participation among younger black people. It estimates the likelihood of labor force participation and employment among young men and women to control for confounding factors (such as changes in educational characteristics) and decomposes the gaps among groups and the changes over time in labor force participation using a Oaxaca-Blinder-like technique for nonlinear estimations. Findings indicate that much smaller negative impacts of characteristics and greater returns to characteristics among young black men and women than among young white men and women explain the observed trends.

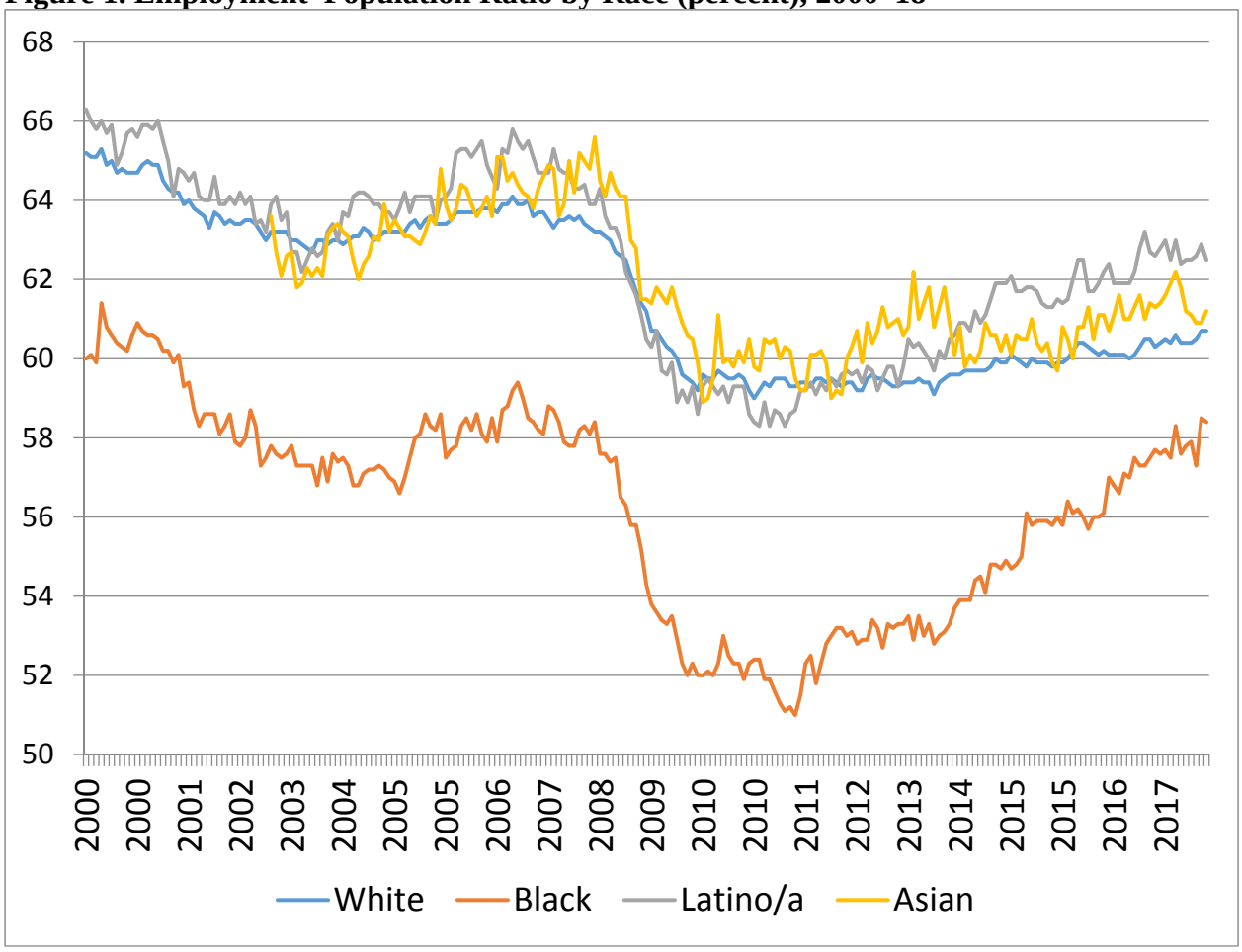
KEYWORDS: Racial Disparities; Labor Force Participation; Employment; United States

JEL CLASSIFICATIONS: J11; J21; J71

INTRODUCTION

The starting point for this paper is the following graph of employment–population ratios by race between 2000 and 2018 (see figure 1, below). As we can see, the employment–population ratio drops precipitously during the Great Recession (as did so many other measures during that period) for all racial groups. Black employment–population ratios are well below that of other racial groups, which has been a consistent characteristic of the US labor market for all the years for which we have this type of data. What is perhaps most remarkable about this graph, however, is the convergence that occurs after things bottom out, between the end of 2009 and the end of 2010. Starting in mid-2011, the employment–population ratio for blacks rises steadily, gaining over 7 percentage points by early 2018. No other group experienced such a dramatic rise. Latinos/as did see increases, but not as large (4.2 percentage points). The white employment–population ratio was flat, at about 59.5 percent between the end of 2009 and then end of 2013, after which it began to slowly rise. Still, in early 2018 the white employment–population ratio is just 60.5. The gap between white and black employment–population ratios has thus narrowed considerably. In February of 2018 it was lower than any other month in the Bureau of Labor Statistics' series at just 2.2 percentage points.

Figure 1. Employment–Population Ratio by Race (percent), 2000–18



Source: Current Population Survey Labor Force Statistics (http://www.bls.gov/cps)

What accounts for this remarkable trend? This paper attempts to answer this question by examining the trends in the components of the employment–population ratio and by analyzing changes since the Great Recession started. The rest of this paper is organized as follows. The next section briefly reviews the literature on racial differences in labor force engagement. The following section breaks down the trend in figure 1 in various ways in an attempt to see what underlies the aggregate phenomenon. The fourth section contains a labor force supply analysis of young men and women. The penultimate section contains a comparative decomposition analysis to attempt to determine the relative importance of changes in characteristics versus returns to characteristics between 2007 and now. A final section contains concluding remarks and thoughts about directions for further research.

LITERATURE REVIEW

Much of the literature on racial patterns of employment to this point has focused on the relative disengagement of black adults, and especially black males, from the labor force and employment. The stylized facts, on which we will elaborate in the next section, are that black male labor force participation is typically lower than that of white males, and that the unemployment rate for blacks is typically twice that of whites. This context is the reason that the recent increase in the employment–population ratio for blacks relative to whites is so notable. It is also worth noting that the bulk of the literature looking at racial differences in labor force engagement has focused exclusively on males.

Samuel Myers, Jr. (1989) analyzes trends in labor force withdrawal over the 1970s and 1980s. He assesses the evidence for voluntary labor force withdrawal due to welfare benefits and finds some backing for this idea. But he concludes that most withdrawal is due to disability, school enrollment, or retirement. The recovery from the stagflation of the late 1970s and early 1980s was characterized by substantial drops in unemployment rates, though not reaching previous lows. During the long expansion of the 1990s, employment grew more quickly for whites than for blacks. The unemployment rate of black men and women remained at least twice that of whites, a persistent characteristic of the US labor market. Spriggs and Williams (2000) argue that this gap in unemployment rates between black and white workers is what needs to be explained. Using spectral analysis of time series unemployment data, they find that even controlling for economic growth and "human capital," the two-to-one ratio in unemployment rates persists.

Western and Pettit (2000) point out that most studies of the relative employment–population ratios of blacks and whites in the United States employ Current Population Survey (CPS) data, which samples the noninstitutionalized population. Since at least the 1980s, incarceration rates for black males have exploded relative to that of whites, which means that the employment–population ratio for black males has become more and more overstated compared to whites. Adjusting for incarceration, the authors find that among young high school dropouts, inequality in employment rates between blacks and whites is underestimated by about 45 percent.

Ellis and Ödland (2001) decompose differences in labor force participation between black and white males in the metropolitan areas of the United States into differences due to the composition of the labor force (by age, race, and education), the differences in labor force participation between different subgroups, and the covariance between composition and participation rates. They find that differences in participation rates, rather than differences in composition, dominate the overall black-white differences in labor force participation, suggesting that differences in local labor markets are more important than individual characteristics in driving participation.

Ewing, Levernier, and Malik (2005) model the dynamics of the unemployment rate by race and sex. They find that shocks affect black males and females much more than white males and females, but that the differences by sex were not as great. So, we expect to see greater changes in black than in white unemployment rates in response to a change in the overall unemployment rate. The ratio of black to white unemployment is increasing over time, despite shrinking education gaps (Freeman 2012). Rodgers (2008) shows that contractionary monetary policies have race-specific impacts on unemployment. For whites these policies lengthen unemployment duration, while for blacks they increase the unemployment rate.

While persistent racial differences in employment statistics constitute circumstantial evidence in terms of racial bias, direct evidence is more elusive. Audit studies are an attempt to find the smoking gun. In perhaps the most widely noted example, Bertrand and Mullainathan (2004) find significant discrimination in call backs for job interviews based solely on differences in names on résumés: applicants with white-sounding names were 50 percent more likely to get a call for an interview than those with black-sounding names. A recent meta-analysis (Quillian et al. 2017) of such field experiments shows no decline over time in bias in hiring decisions.

Here we hope to at least detail empirically the new trend in the relative employment–population ratios of black and white individuals. In the next section, we will decompose the trend in employment–population ratios to see if the differences are in the rates of growth of the relative populations, the relative labor force participation, the relative unemployment rate, or some combination of the three.

TRENDS

Of course the object of this study, the employment–population ratio, is properly conceptualized as a product of intersecting social and economic processes. The first process is an individual's entry into the labor force. The second process is attaining employment. At a macroeconomic level, we can decompose the employment–population ratio simply as:

$$EPOP = LFPR * (1 - u)$$

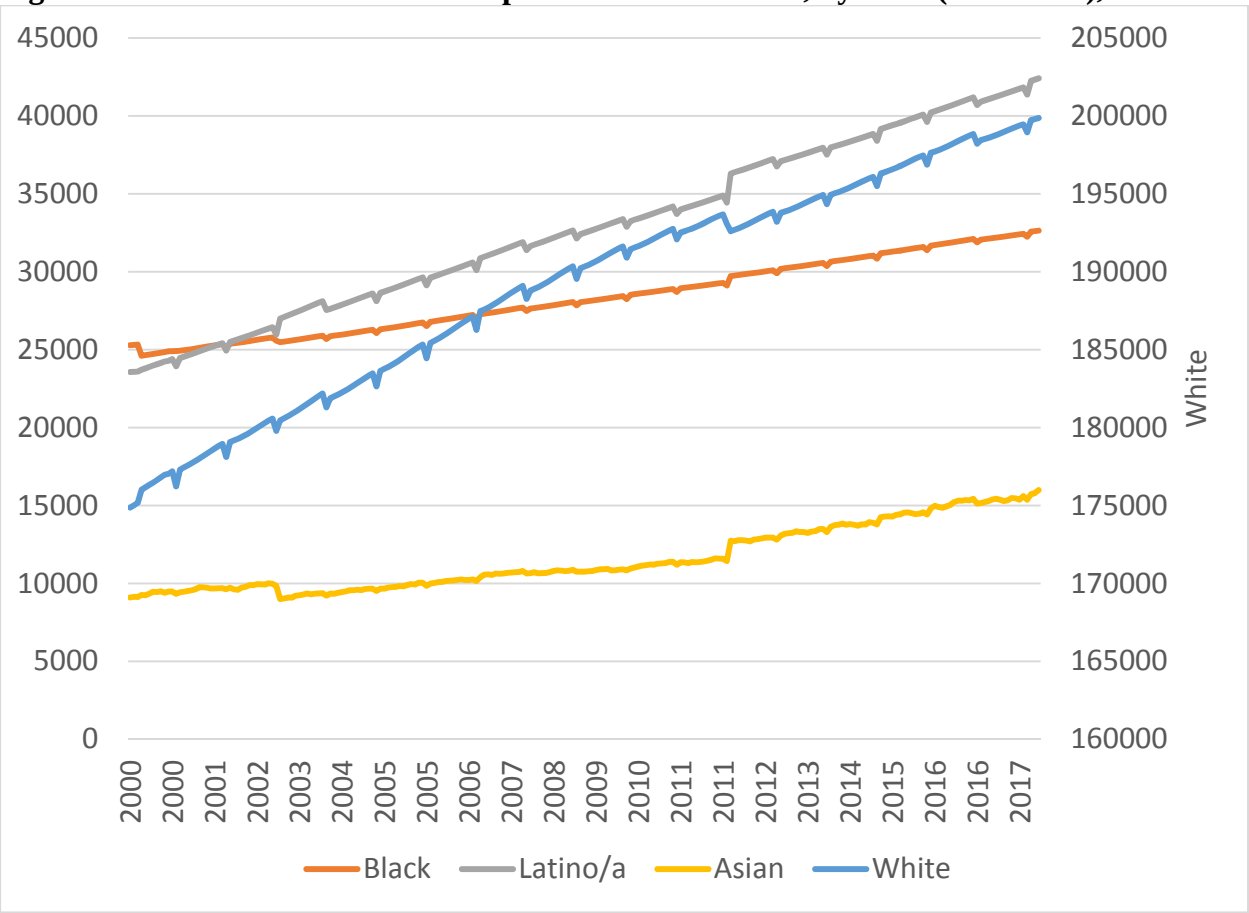
In other words, the employment–population ratio (*EPOP*) is the product of the labor force participation rate (*LFPR*) and the employment rate (1-*u*, where *u* is the unemployment rate). This relationship is of course merely an accounting identity at the macro level.

Changes in the employment–population ratio could be caused by a number of underlying factors. Differences in population growth could account for differences in the employment–population ratio, though such differences are unlikely to shift so dramatically in the short term. Changes in differences in LFPRs could also contribute to the overall trend. These changes are more likely to play out in a shorter time scale, and there seems to be evidence of such a change. Finally, changes in the ratio of unemployment rates could drive the overall trend as well. This last category would seem to be the least amenable to explanation, if true. We examine each in turn to see what can be learned from looking at the trends.

Since 2000, the civilian, noninstitutionalized population aged 16 years and older has grown quite slowly among whites (15.5 percent, or an average of 0.9 percent per year; left axis, figure 2, below) while growing much faster among blacks (31.3 percent, or 1.7 percent per year) and especially among Latinos/as and Asians (5.3 percent per year and 4.2 percent per year, respectively). Nevertheless, the absolute growth among whites was much larger, about 26.7 million, than even the Latino/a population growth (20.7 million), while the black and Asian population growth was about 7.8 million and 16 million, respectively. It's also worth repeating the point that Western and Pettit (2000) make that this is the civilian, noninstitutionalized population, so those in the military and those that are incarcerated are not included. However, it

does not appear that there has been a large increase in prison population in recent years. In fact, since its peak at 2.3 million 2010, the prison population has been slowly shrinking in the United States, reaching 2.17 million in 2015 (Kaeble and Glaze 2016).

Figure 2. Civilian Noninsitutional Population 16 and Older, by Race (thousands), 2000–18



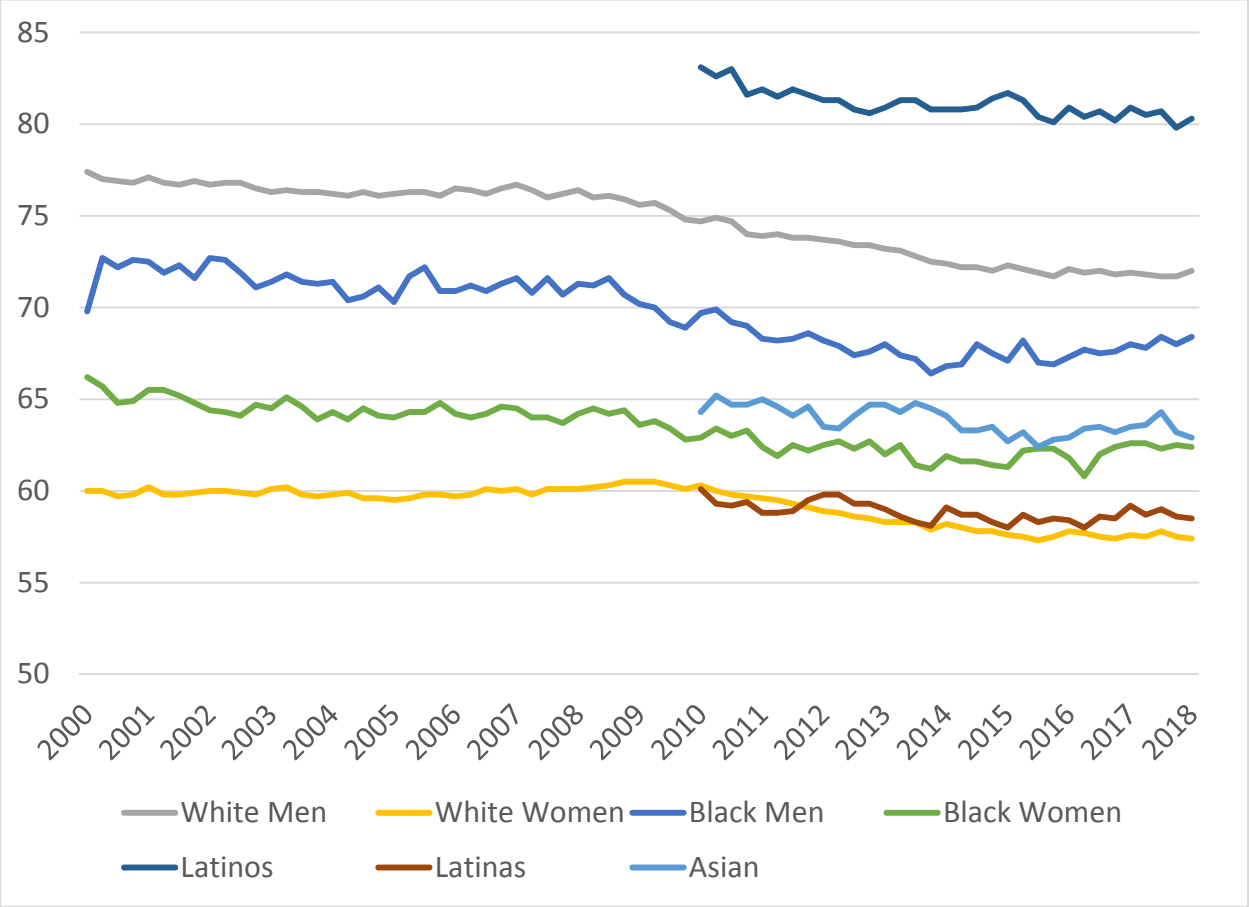
Source: Current Population Survey Labor Force Statistics (http://www.bls.gov/cps)

Over the same period, labor force participation has been declining steadily for all races and sexes, with one exception (see figure 3). Since 2013, black men's and women's LFPR has risen. Overall no other trends have changed. Latinos have the highest LFPR throughout the period, at around 80 percent, while white women and Latinas have the lowest. Asian LFPR[1] roughly tracks those of whites, falling between that of white men and women. Between 2000 and 2018, the LFPR for white men dropped by 5.4 percentage points, with their slow decline accelerated by the Great Recession, but then slowing again afterwards. The LFPR of black women fell by 3.8 percentage points, that of white women by 2.6 percentage points, and that of black men by only

[1] The Bureau of Labor Statistics series do not provide LFPRs for Asians disaggregated by sex.

1.4 percentage points, although if we use either the last quarter of 1999 or the second quarter of 2000, the drop for black men is 4.3 percentage points. However, between the end of 2013 and the beginning of 2018, while whites' LFPR continued to decline (by 0.5 percentage points for both men and women), blacks' LFPRs rose, by 2 percentage points for men and 1.2 percentage points for women. In the same period, Latino LFPRs fell by 0.5, but that of Latinas rose by 0.4 percentage points. Asians showed the largest decline in their LFPR (1.6 percentage point). These trends certainly seem like a promising lead to explain the convergence in the employment–population ratio. First we will examine trends in unemployment rates over the same period.

Figure 3. Labor Force Participation Rate by Race and Sex (percent), 2001–18

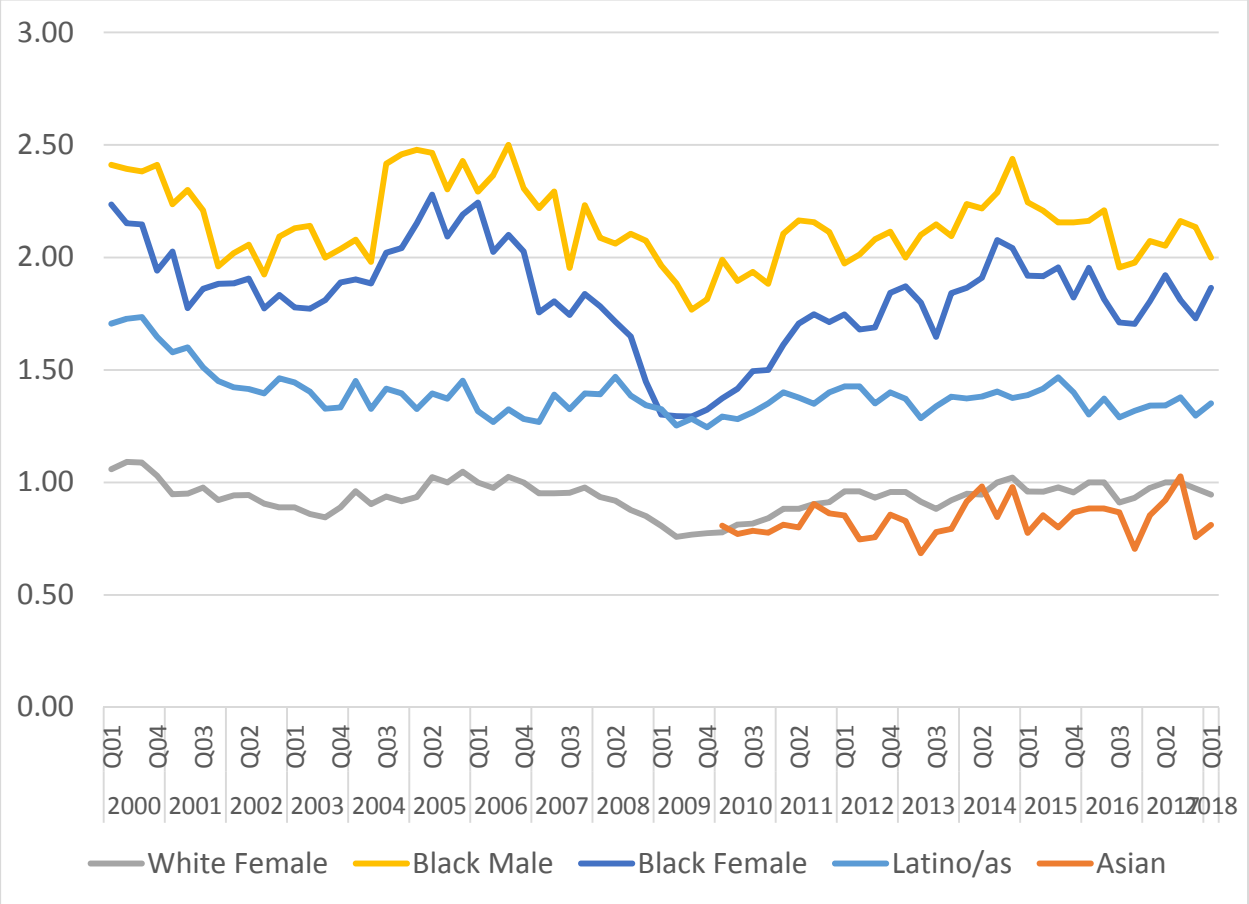


Source: Current Population Survey Labor Force Statistics (http://www.bls.gov/cps)

Looking at the breakdown of the trends in the unemployment rate relative to white males by race and sex over the last seventeen years (figure 4, below), we can see that not much has changed here. The black male unemployment rate varies between two and two-and-a-half times that of

white males, while that of Latinos/as averages one-and-a-half times that of whites. The unemployment rate of black females is somewhat lower relative to white males, varying between one-and-one-half and two times that of white males. The unemployment rate for white females is generally about the same as that of white males. All three of these ratios declined substantially relative to white males during the Great Recession and recovered to their usual levels since its end. The ratio of Latino/a unemployment rate to white males has been slightly below one-and-a-half for most of the century so far and that of Asians has been below unity since the Great Recession.[2]

Figure 4. Ratio of Unemployment Rate to White Males, by Race and Sex, 2000–16



Source: Current Population Survey Labor Force Statistics (http://www.bls.gov/cps)

[2] The series for Asians, LNS14032183Q, is only available for Q12010 on.

So, the relatively large increase in the employment–population ratio among black adults in the years since the end of the Great Recession looks like it is mostly due to the relative rise in the LFPR among blacks, especially among black men. To a lesser extent, the same patterns are to be found among Latino/as as well.

A first thought about the differences in the employment–population ratio growth by race since 2010 was that perhaps these differences could be explained by more whites than blacks opting for "early retirement" as a result of the Great Recession. Because white households tend to have much greater net worth,[3] they were in a better position to leave the labor force than their black counterparts. However, the employment–population ratios of those over 65 years of age have not fallen (see table 1).[4] In fact, since the end of the Great Recession, they have grown by more than 3 percentage points, from 16.1 percent to 19.3 percent. White and black elders have just about the same absolute change in employment–population ratios over time (from 16.3 percent to 19.9 percent for white elders and from 13.3 percent to 16.8 percent for black elders). The rate of increase is larger for black than for white elders (26.7 percent compared to 21.9 percent) because of the generally lower level of the employment–population ratio for blacks than for whites. More generally, while the employment–population ratio was falling for the entire population between 2007 and 2010, it was flat for elders. After 2010, it has grown faster for elders (3.2 percentage points) than for the rest of the population (2.6 percentage points). In the entire decade since the beginning of the Great Recession, the overall employment–population ratio is down by 3 percent, but that of elders has risen 3 percent. So the early-retirement explanation of overall employment–population ratios is clearly incorrect.

While it is also true that in the period from 2007 to 2017 the overall employment–population ratio has fallen among those below 65 years of age (from 73.9 percent to 71.8 percent), this trend has been somewhat more evident in the younger population. Among those 55 to 64 years of age, the employment–population ratio has risen slightly overall (and by almost 5 percent among Latinos/as). The only young group under 55 years old that has seen an increase in the

[3] The median black household had a net worth of $3,400 in 2016, compared to the median white household's $140,500 (Wolff 2017).
[4] In order to produce estimates disaggregated by race and age, going forward we use the BLS's Annual Social and Economic Supplement (ASEC) datasets for 2007, 2010, and 2017.

employment–population ratio is blacks under 25, who saw a decrease of 7.3 percentage points during the Great Recession, but have rebounded by 8.8 percentage points since its end, compared to 5.6 percentage points for all those under 25. The white-black gap in employment–population ratios is largest among the very young: 15.6 percent in 2007 for those under 25. However, it is this age group that saw the only decrease in the gap between 2007 and 2017, to 12.6 percent. And while all age groups under 55 saw decreases in the white-black employment–population ratio gap since 2010, those under 25 saw the largest decrease, at 3.6 percent. The gap shrank by 2 percentage points and 2.9 percentage points between 2010 and 2017 among those aged 25 to 34 and those aged 35 to 44, respectively. Only among those under 25 and over 65 was there a decrease in the white-black gap in the employment–population ratio—over 3 percentage points for the former but only one-half a percentage point for the latter.

Table 1. Employment–Population Ratios by Race and Age Categories (percent), 2007, 2010, and 2017

2007	**Under 65**	**Under 25**	**25 to 34**	**35 to 44**	**45 to 54**	**55 to 64**	**65 or older**	**Total**
White	75.8	61.0	81.5	82.0	80.8	64.2	16.3	64.1
Black	67.3	45.4	73.1	78.3	72.3	52.9	13.3	60.6
Hispanic	71.2	58.5	76.4	77.5	74.5	54.8	16.3	66.6
Other	72.1	52.9	74.4	78.8	77.1	61.6	15.1	65.2
Total	73.9	57.7	78.9	80.7	78.9	62.2	16.0	64.1
2010	**Under 65**	**Under 25**	**25 to 34**	**35 to 44**	**45 to 54**	**55 to 64**	**65 or older**	**Total**
White	71.8	54.2	76.5	78.8	77.0	62.6	16.5	60.5
Black	60.2	38.0	64.3	69.1	66.4	51.4	12.9	54.0
Hispanic	65.0	46.9	70.1	71.3	68.8	55.2	15.6	60.4
Other	68.5	43.2	70.1	75.2	75.7	60.5	15.5	61.6
Total	69.2	49.5	73.2	76.0	74.7	60.6	16.1	59.8
2017	**Under 65**	**Under 25**	**25 to 34**	**35 to 44**	**45 to 54**	**55 to 64**	**65 or older**	**Total**
White	74.3	59.3	80.3	80.6	79.4	65.0	19.9	61.1
Black	63.9	46.8	70.2	73.8	69.8	50.4	16.8	56.7
Hispanic	69.3	53.2	74.1	75.7	73.2	59.4	17.6	63.8
Other	70.3	47.9	71.2	78.5	76.3	63.3	18.7	62.5
Total	71.8	55.1	76.8	78.5	77.0	62.6	19.3	61.1

Source: Annual Social and Economic Supplement to the Current Population Survey for 2007, 2010, and 2017

A closer look at changes in the different trends in the LFPR and unemployment rates between white and black individuals is warranted, as well as breaking the numbers down by gender. The LFPR for white males under 25 fell from 72.2 percent to 69.3 percent between 2007 and 2010, and then remained flat through 2017, though still below the 2007 level (table 2). Among prime working age white males, the trend was a steady decline through the Great Recession and after.

The LFPR of white females under 25 fell by 2 percent between 2007 and 2010, then grew by 3.3 percent by 2017, while for those between 25 and 34 years of age, the LFPR fell slightly from 77.4 percent to 77.3 percent then increased to 79.9 percent by 2017. For black males under 25 years old, the LFPR *grew* slightly between 2007 and 2010 from 59.5 percent to 59.8 percent and then jumped to 61.4 percent by 2017. For black males between 25 and 34, the LFPR fell from 83.3 percent to 81.9 percent before rising to 83.2 percent in 2017. Black females under 25 increased their LFPR though the Great Recession and afterwards: it grew from 54.8 percent in 2007 to 56.3 percent in 2010, and 62.5 percent in 2017. Both black males and females under 25 had large increases in their LFPR relative to whites between 2007 and 2016 (4.8 percentage points and 6.4 percentage points, respectively). The same is true for black males aged 25 to 34 years, though their 3 percentage point gain happened entirely after the Great Recession. The convergence among young white and black individuals' LFPRs is a strong contender for the convergence in overall employment–population ratios, assuming that unemployment rate differences are not outweighing these trends.

Table 2. Labor Force Participation Rate (LFPR) by Race, Sex, and Age Categories (percent), 2007, 2010, and 2017

2007	Under 65	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 +	Total
White Male	85.3	72.2	92.7	92.9	88.9	71.7	21.6	74.1
White Female	72.4	62.7	77.4	76.7	77.9	60.6	13.1	59.6
Black Male	74.8	59.5	83.3	84.2	78.6	55.1	16.8	68.4
Black Female	71.8	54.8	77.3	81.0	76.2	55.8	12.2	63.6
2010								
White Male	84.4	69.3	91.3	92.7	88.5	72.0	22.1	72.7
White Female	72.8	60.7	77.3	77.9	78.0	62.7	13.9	59.6
Black Male	74.4	59.8	81.9	84.2	77.7	58.5	17.0	67.9
Black Female	69.9	56.3	76.2	78.1	73.4	55.4	13.4	61.8
2017								
White Male	82.7	69.3	89.6	91.1	86.8	71.5	25.6	69.3
White Female	72.5	64.0	79.9	77.4	76.2	62.4	16.0	57.6
Black Male	73.3	61.4	83.2	81.5	74.2	59.6	20.9	65.9
Black Female	71.0	62.5	77.3	79.9	76.7	52.2	18.0	61.9

Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

The unemployment rate for people under 25 is always higher than that of prime-age workers. In fact, looking at the total unemployment rates for each period in table 3, we can see that for the most part there is a negative relationship between age and the unemployment rate. The exception to this rule is in 2017, when the unemployment rate of those 65 and older is higher than that of adults aged 35 to 54. Over the last decade, the patterns of changes in unemployment have been fairly consistent across race and sex: increases between 2007 and 2010 are more than made up for by decreases since 2010. The unemployment rate for white males under 25 jumped from 10.6 percent in 2007 to 19.7 percent in 2010, thereafter falling to 8.7 percent by 2017. White females under 25 enjoyed lower unemployment rates than their white male counterparts in each of the three years, ending up nearly 2 percentage points lower than in 2007. For black males under 25, the unemployment rate grew from an already Depression-like 22.5 percent in 2007 to 41.7 percent in 2010, falling back to "only" 18.5 percent in 2017. The unemployment rate of black females under 25 followed a similar pattern. Notably, the unemployment rate among black females under 25 in 2017 (14.7 percent) is higher than that for their white female counterparts at the depth of the employment recession (13.5 percent). For whites and blacks 25 to 34 years old, the trends were similar, but with smaller magnitudes than the younger group. It is remarkable that at the business cycle peak, young black men and women experience recession-level unemployment conditions, while during a period when their white counterparts experience recession-level unemployment rates, their own experience resembles the Great Depression. Overall the changes for young white and black men and women followed a similar trend throughout the period. As always, the magnitudes were larger for black males and females, but the relative changes were quite similar across race.[5]

[5] But not across sex: men suffered much greater relative increases in their unemployment rates than women (85 percent versus 47 percent) during the Great Recession.

Table 3. Unemployment Rates by Race, Sex, and Age Categories (percent), 2007, 2010, and 2017

2007	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 or older	Total
White Male	10.6	4.5	3.5	3.2	3.3	3.3	4.2
White Female	9.0	3.5	2.7	2.7	2.3	2.2	3.2
Black Male	22.5	10.2	6.1	8.4	5.7	6.0	9.5
Black Female	18.6	7.5	4.0	4.8	3.8	4.6	6.4
Total	11.2	4.9	3.7	3.5	3.1	3.1	4.5
2010							
White Male	19.7	11.3	8.2	9.0	8.2	5.8	9.8
White Female	13.5	6.9	6.9	5.8	5.6	5.6	6.7
Black Male	41.7	23.1	18.2	15.7	11.8	16.7	20.7
Black Female	27.1	14.0	11.2	8.3	7.6	9.3	12.3
Total	20.8	10.8	9.2	8.4	7.3	6.6	9.9
2017							
White Male	8.7	4.4	3.8	2.7	2.9	3.5	3.8
White Female	7.1	3.2	3.0	2.8	2.4	4.4	3.3
Black Male	18.5	10.0	6.9	5.0	5.5	4.5	8.3
Black Female	14.7	8.8	6.5	5.2	4.1	7.3	7.2
Total	9.3	4.9	4.0	3.3	3.2	4.1	4.4

Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

Given the divergence in the LFPR across race since the Great Recession and the lack thereof in unemployment rates, the labor force participation decision seems to be the key to explaining the convergence in employment–population ratios. It is worth looking at the information available about the reasons for not engaging in the labor force. We limit the discussion here to males aged 16 to 25, since this group is the most striking in terms of differences in 2017. There are clear differences by race in the reasons that individuals give for being out of the labor force (see table 4, below). Most young men give school as the reason they are not in the labor force, though the gap is smaller in 2017 (5 percentage points) than in either 2007 or 2010 (7 percent). The other significant change in 2017 is that the percentage (and absolute number) of young white males that say they were ill or disabled has doubled since 2007, while that of young black males has remained at the same level. Only the latter difference could contribute to a narrowing of the LFPR between young white and black males.

Table 4. Reason Individual Was Not in Labor Force Prior Year, Males under 25, 2007, 2010, and 2017 (percent)

	2007		2010		2017	
	White	Black	White	Black	White	Black
Ill or disabled	3.6	7.0	5.4	7.1	7.2	6.8
Retired	0.9	0.8	0.8	0.7	0.8	0.5
Taking care of home or family	3.5	4.1	2.4	4.3	2.2	4.5
Going to school	85.5	78.3	79.1	72.2	84.2	79.2
Could not find work	3.8	7.1	8.7	12.7	3.3	6.1
Other	2.6	2.8	3.5	3.0	2.2	2.9
Percent of Total	31.8	52.8	38.9	60.0	38.4	53.6

Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

Finally, it will be useful to decompose the overall convergence in the employment–population ratio by sex and age into the contributions of population, the LFPR, and employment. Between 2010 and 2017 the gap in the employment–population ratio between white and black individuals dropped by 4.2 percentage points (see table 5, below). While the largest single contribution to this drop was among women aged 45 to 54, young men and to a lesser extent young women were the main drivers of this convergence. Those under 35 contributed to one-half of the total decrease in the gap in employment–population ratios.

Table 5. Contributions to Changes in the White-Black Difference in Employment–population Ratio by Sex and Age, 2007–17

		2007–10	2010–17	2007–17
Male	**Under 25**	0.20	-0.62	-0.42
	25 to 34	0.51	-0.85	-0.34
	35 to 44	0.20	-0.57	-0.37
	45 to 54	-0.01	-0.68	-0.69
	55 to 64	-0.23	-0.22	-0.45
	65 or older	0.16	0.37	0.53
Female	**Under 25**	-0.09	-0.52	-0.61
	25 to 34	0.44	-0.16	0.29
	35 to 44	0.70	-0.23	0.48
	45 to 54	0.39	-0.91	-0.52
	55 to 64	0.10	0.21	0.31
	65 or older	0.00	-0.02	-0.02
Total		2.37	-4.19	-1.82

Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

We move on now to analyze what the data can tell us about the contributions to these shifts in employment–population ratios and the LFPR.

ANALYSIS

While at the macro level the relationships between the employment–population ratio, the LFPR, and the unemployment rate are accounting identities between independent measures, at the individual level, the unemployment rate and the LFPR are not unrelated. The decision to enter the labor market or not will be influenced by the rate of unemployment, and differential rates of unemployment can be expected to have different impacts on the rate of labor force participation. In addition, different groups of individuals have different experiences in and expectations about the labor force and these also enter into an individual's decision-making processes. For example, it may be that white adults react differently to movements in the unemployment rate than black adults, because people in each group have different expectations of finding gainful employment. In this section we will attempt to analyze these differences. However, the data we use contains demographic information rather than information about the sorts of power relationships that might drive different responses to changing conditions. So, using this data in this way can point to economically significant differences and changes by "race" without doing much to explain those differences.

Analyses of labor supply often use a sample selection approach to explain wage and earnings differentials. Because wages are observed only for those who are employed, a regression of wages using that sample produces biased estimates of coefficients. The usual procedure is to first perform a probit maximum likelihood estimation of labor force participation, calculate the inverse Mills ratio from the results, and use that in the wage regression (Heckman 1979). This approach deftly omits a critical step in the whole scenario: the attainment of employment. It is not at all clear that the factors that determine employment are identical to either those that determine labor force participation or those that determine the wage. A stronger argument could be made for the latter.

Racial and sexual discrimination are socioeconomic processes that run through both of these stages. A number of ways to theorize discrimination exist, of course. Much of neoclassical theorization of discrimination in the labor market rests on the idea that either the people discriminated against actually have individual characteristics that set them apart from those who are not or that the discriminating employers have a taste for discrimination. These approaches sidestep the question of systemic oppression based on race or sex. And for the time being we do as well.

With the Annual Social and Economic Supplement (ASEC) to the CPS we will examine to what extent differential labor market outcomes (labor force participation and employment status) are related to the characteristics of individuals and their families. This dataset is in fact intended for just this sort of analysis. While we can use this data to show that there may be evidence for the existence of systemic oppression, it would be difficult if not impossible to use this data to draw conclusions about how those systems of oppression work themselves out. With this initial statistical analysis, we hope to provide a solid context for further elaboration of such processes. We use the ASEC datasets from 2007, 2010, and 2017: 2007 is just before the Great Recession really hit the labor market; 2010, after the initial impact of the American Reinvestment and Recovery Act; and 2017, the latest year of data that is available. Given the findings above, the universe for the study is that of individuals 16 to 34 years old that are neither in school, institutionalized, nor in the military.

In this first stage of the analysis we estimate the likelihood of entering the labor force for men and women separately using the *probit* model for each of three years (2007, 2010, and 2017):

$$P(lfpr = 1|x) = G(\alpha + \beta \boldsymbol{X} + \mu)$$

As independent variables, we use individual's age, age squared, years of education and its square, race,[6] the marital status of the individual, the number of the individual's own never-married children under 18 living in the household, family income net of the individual's earnings (which we normalize by dividing by the mean), and census region. With the results of these maximum likelihood estimations, we calculate the inverse Mills ratio. We then perform separate maximum likelihood estimations for men and women in the labor force being employed, again using the probit model. As independent variables, we use the individual's age, age squared, years of education and its square, race, and census region in addition to the inverse Mills ratio calculated in the previous set of estimations.

We report the results of the probit estimation of labor force participation for all three years for young men in table 5, below. We report marginal effects calculated at the means of the independent variables to clarify the interpretation of the results. The results for the most part reflect the broad trends outlined above. Young black and other males are less likely to be engaged in the labor force than young white men (the comparison group in these estimates), while young Latinos are more likely to participate in the labor force. More interesting are the changes within these categories over time as the Great Recession unwinds and the slow recovery takes hold. Black males grew more likely to participate relative to white males between 2007 and 2017 (going from 11.5 percent to 7.7 percent less likely). Latino males' estimated likelihood of being in the labor force declined slightly from 3.4 percent to 2.4 percent more likely than white males between 2007 and 2010, while that of other males dropped from 8.1 percent to 11.1 percent less likely than white males. Between 2010 and 2017, others' relative likelihood recovered to 6.7 percent, while young Latinos became only 0.7 percent more likely to participate than young white males.

Young married men were estimated to be more likely to participate in the labor market than the nonmarried in all three years. From 10.1 percent more likely in 2007, they rose to 11.6 percent more likely in 2010, which remained essentially unchanged in 2017. The number of children in

[6] Racial categories are defined as follows in this study. "Latinos/as" include anyone identifying themselves as having Hispanic heritage. Everyone else is divided into "white," "black," and "other" depending on how they identified themselves. White and black individuals are those that identified themselves as white only and black only, respectively. Everyone else is categorized as other.

the household reduced the likelihood of participation by young men by 1.2 percent per child in 2007, which rose to 1.9 percent in 2010, but back to 1.1 percent in 2017. The impact of other family income, which was normalized by dividing by its mean, was unchanged between 2007 and 2010, before falling by one-third by 2017.

In terms of the impact of educational achievement on participation, there are few surprises. The likelihood of participating increases with educational achievement in each year. In 2007 and 2010, an additional year of education increased the likelihood of participation by a bit over 2 percent. In 2017, this impact had risen to 2.5 percent. The effect of age increases by less than a percentage point between 2007 and 2010, but falls again to nearly where it was by 2017. Young men were more likely to be employed in all three regions other than the Northeast and they all follow a similar pattern: a decline in their advantage between 2007 and 2010, followed by a recovery. Young men in the South were the most likely to be employed in all three years, ending up 6.7 percent more likely in 2017. Finally, students were one-third less likely to be employed, and despite an increase in likelihood during the Great Recession, even less likely to be in the labor force in 2017 than in 2007.

Table 6. Marginal Effects Calculated at Means from Probit Estimation of the LFPR for Young Men by Year

	2007	2010	2017
Black	-0.115	-0.094	-0.077
	(0.000)**	(0.000)**	(0.000)**
Latino	0.034	0.024	0.007
	(0.000)**	(0.000)**	(0.000)**
Other	-0.081	-0.111	-0.067
	(0.000)**	(0.000)**	(0.000)**
Married	0.101	0.116	0.117
	(0.000)**	(0.000)**	(0.000)**
Number of children	-0.012	-0.019	-0.011
	(0.000)**	(0.000)**	(0.000)**
Family income	-0.011	-0.012	-0.008
	(0.000)**	(0.000)**	(0.000)**
Years of school	0.021	0.022	0.025
	(0.000)**	(0.000)**	(0.000)**
Age	0.006	0.01	0.008
	(0.000)**	(0.000)**	(0.000)**
South	0.063	0.038	0.067
	(0.000)**	(0.000)**	(0.000)**
Midwest	0.037	0.009	0.023
	(0.000)**	(0.000)**	(0.000)**
West	0.036	0.011	0.004
	(0.000)**	(0.000)**	(0.000)**
Student	-0.344	-0.338	-0.366
	(0.000)**	(0.000)**	(0.000)**

Note: Standard errors in parentheses:
* significant at 5 percent; ** significant at 1 percent
Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

The marginal effects on likelihood estimates of the LFPR for young women are reported in table 7, below. Black, Latina, and other young women all had a lower estimated likelihood of labor force participation than young white women. Like their male counterparts, young black women's estimated participation gap with white women shrank during the Great Recession, dropping from 6.9 percent to 4.8 percent, and shrank further to 3 percent in 2017. Young Latinas started out slightly ahead of black women, at 5.6 percent less likely than white women to participate in the labor force, but in 2017 were less likely than young black women to be in the labor force. Other

young women started out 13.2 percent less likely to participate than white women in 2007 and remained around 13 percent in 2010 and 2017.

While for young men marriage increases the likelihood of labor force participation, for young women the opposite is true, although the effect is similar in scale. Young married women were 13.2 percent less likely than their single counterparts to participate in 2007. This gap was unchanged in 2010 but dropped a bit by 2017, when young married women were estimated to be 12.3 percent less likely to participate. The number of children has a larger impact on women's labor force participation than on men, but has slowly fallen from a 4.9 percent decrease in likelihood per child in 2007 to 4.5 percent decrease in 2017. Other family income had a slightly larger negative impact on women's labor force participation than on men's and while it inched upward during the Great Recession, it has since fallen slightly.

For young women the impact of education on the likelihood of participating in the labor force is an order of magnitude larger than the impact of age. During the Great Recession both impacts increased, but since 2010, the impact of education has remained essentially unchanged, while the impact of age has fallen to near zero. Regional patterns for young women mirror those of young men, and young women also show a decreasing likelihood over time of combining school and work, though young women are considerably more likely to do so than young men.

Table 7. Marginal Effects Calculated at Means from Probit Estimation of the LFPR for Young Women by Year

	2007	2010	2017
Black	-0.069	-0.048	-0.03
	(0.000)**	(0.000)**	(0.000)**
Latino	-0.056	-0.042	-0.038
	(0.000)**	(0.000)**	(0.000)**
Other	-0.132	-0.13	-0.129
	(0.000)**	(0.000)**	(0.000)**
Married	-0.132	-0.132	-0.123
	(0.000)**	(0.000)**	(0.000)**
Number of children	-0.049	-0.048	-0.045
	(0.000)**	(0.000)**	(0.000)**
Family income	-0.017	-0.018	-0.014
	(0.000)**	(0.000)**	(0.000)**
Years of school	0.038	0.044	0.043
	(0.000)**	(0.000)**	(0.000)**
Age	0.009	0.011	0.004
	(0.000)**	(0.000)**	(0.000)**
South	0.07	0.072	0.076
	(0.000)**	(0.000)**	(0.000)**
Midwest	0.03	0.014	0.015
	(0.000)**	(0.000)**	(0.000)**
West	0.029	0.018	0.043
	(0.000)**	(0.000)**	(0.000)**
Student	-0.216	-0.238	-0.291
	(0.000)**	(0.000)**	(0.000)**

Note: Standard errors in parentheses:
* significant at 5 percent; ** significant at 1 percent
Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

In order to confirm that the major change happening among employment–population ratios was in the LFPR of young people, we present the results of a second stage of estimates of employment for young individuals. The results for young males are presented in table 8, below. We first notice that the marginal effect of selection (the inverse Mills ratio) increased between 2007 and 2010 (from 2.1 percent to 3.5 percent), whereas it dropped to just less than zero by 2017 (to -0.3 percent). This may be due to the high rate of unemployment in the Great Recession. Another way of saying this is that supply-side effects dominate young male employment in 2007 and 2017, while the same is not true in 2010, in which demand-side effects are clearly important. In probit estimates without the inverse Mills ratio for 2010, being a black man reduced the

likelihood of being employed by 14.5 percent relative to white men, while the inclusion of the selection correction increases that impact to 15 percent. Leaving out the correction for selection bias would clearly have an important if modest effect.

Moving on to the significance of race in determining employment outcomes, let us first note that young black men are at the greatest disadvantage with respect to young white men in terms of estimated likelihood of being employed (8.2 percent, 15 percent, and 6.2 percent less likely, in 2007, 2010 , and 2016, respectively). Black men clearly suffered relatively greater employment losses as a result of the Great Recession than any other group of young men. Latinos are 1.6 percent more likely than white males to be employed in 2007 and 1.9 percent more likely in 2010, but almost equally likely in 2017. Other young males were 2.8 percent less likely than white men to be employed in 2007 and 2017, but the gap decreased to 1.4 percent in 2010, indicating that they were not quite as hard hit by the recession as young men of any other race.

Educational achievement had a small but positive impact on the likelihood of being employed. Between 2007 and 2010, the estimated impact of an additional year of school on the likelihood of being employed doubled from 1.1 percent to 2.3 percent, ending up with 1 percent per year increase in likelihood by 2017. The Great Recession also temporarily increased the impact of age on the likelihood of being employed, though it remained small throughout: a 0.5 percent per year increase in likelihood in 2007 grew to 0.8 percent by 2010, before falling back to 0.4 percent in 2017. While it was still going on, the Great Recession clearly prevented younger men in particular from entering employment. Regionally, young men everywhere else were likelier to be employed than those in the Northeast in 2007 and 2017, while those in the South and West were around 3.5 percent less likely in 2010. The Great Recession seems to have reduced the Midwestern males' advantage by nearly half.

Table 8. Marginal Effects Calculated at Means for Probit Estimation of Employment for Young Men by Year

	2007	2010	2017
Black	-0.082	-0.150	-0.062
	(0.000)**	(0.000)**	(0.000)**
Latino	0.016	0.019	0.004
	(0.000)**	(0.000)**	(0.000)**
Other	-0.028	-0.014	-0.029
	(0.000)**	(0.000)**	(0.000)**
Years of school	0.011	0.023	0.010
	(0.000)**	(0.000)**	(0.000)**
Age	0.005	0.008	0.004
	(0.000)**	(0.000)**	(0.000)**
South	0.003	-0.038	0.017
	(0.000)**	(0.000)**	(0.000)**
Midwest	0.027	0.007	0.015
	(0.000)**	(0.000)**	(0.000)**
West	0.01	-0.033	0.014
	(0.000)**	(0.000)**	(0.000)**
Inv. Mills ratio	0.021	0.035	-0.003
	(0.000)**	(0.000)**	(0.000)**

Note: Standard errors in parentheses:

* significant at 5 percent; ** significant at 1 percent

Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

In table 9, we present the corresponding results for young women. Again, the marginal effects of the inverse Mills ratio are significant and large (as large as in the estimates for young men in 2007 and larger in 2017), indicating strong selection bias in the employment estimation. Black women are least likely to be employed relative to white women, but young Latinas and other women are also less likely (with the exception of Latinas in 2007, who are estimated to be just as likely to be employed as young white women). All three groups saw their likelihood of being employed relative to young white women decrease significantly (more for black and Latina women than for others) between 2007 and 2010. Between 2010 and 2016, black and Latina women regained most but not all of the ground they lost with respect to young white women, while other women ended up slightly more similar to white women than before the Great Recession. In 2017, young black, Latina, and other women were 3.3 percent, 0.5 percent, and 1 percent less likely to be employed than their white counterparts, respectively.

Education was a more important determinant of the likelihood of being employed for young women than age. The marginal impact of education grew during the Great Recession, rising from 0.7 percent to 1.3 percent per year, but fell back to 0.6 percent per year by 2017. This implies that unemployment during the Great Recession fell more heavily on those young women with less education. Age has an almost negligible impact in each of the three years, but its impact follows the same pattern of growth during the Great Recession (from 0.1 percent to 0.2 percent per year of age) and falling off afterwards (to 0.1 percent). Although young women were less likely to be employed outside of the Northeast in 2007 (from 0.3 percent in the Midwest to 0.8 percent less likely in the South), this started to change afterwards. By 2010, young women in the South were just as likely and those in the Midwest were slightly more likely (0.8 percent) to be employed than those in the Northeast. Young women in the West lost ground relative to their Northeastern counterparts, falling to 1.2 percent less likely to be employed by 2010, but rebounding to just 0.9 percent less likely in 2017.

Table 9. Marginal Effects Calculated at Means for Probit Estimation of Employment for Young Women by Year

	2007	2010	2017
Black	-0.025	-0.048	-0.033
	(0.000)**	(0.000)**	(0.000)**
Latino	0.000	-0.015	-0.005
	(0.000)**	(0.000)**	(0.000)**
Other	-0.017	-0.022	-0.010
	(0.000)**	(0.000)**	(0.000)**
Years of school	0.007	0.013	0.006
	(0.000)**	(0.000)**	(0.000)**
Age	0.001	0.002	0.001
	(0.000)**	(0.000)**	(0.000)**
South	-0.008	0	0.001
	(0.000)**	0	(0.000)**
Midwest	-0.003	0.008	-0.002
	(0.000)**	(0.000)**	(0.000)**
West	-0.004	-0.012	-0.009
	(0.000)**	(0.000)**	(0.000)**
Inv. Mills ratio	0.021	0.030	0.018
	(0.000)**	(0.000)**	(0.000)**

Note: Standard errors in parentheses:

* significant at 5 percent; ** significant at 1 percent

Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

We have demonstrated that the racial gap in labor force participation among young people is not all due to confounding factors. When we control for age, education, and family characteristics, there are still important differences in the shift over time in labor force participation, especially between young white and black men. These effects on labor force participation are larger in magnitude than those on employment of young people, though the same patterns are evident over time. Therefore, we move on to decomposing the intersectional gaps in labor force participation among young people, as well as the changes in labor force participation by race and sex over time. This will allow us to say something about the relative importance of the different groups' characteristics and the returns to those characteristics in driving the gaps in labor force participation, as well as their changes over time.

DECOMPOSITION

In order to better understand the differences in employment by race and sex, we can employ a technique similar to the Oaxaca-Blinder decomposition used in the wage gap literature. While Oaxaca-Blinder decomposes the difference in mean of a linear function, we are estimating a nonlinear function. We therefore follow the method used by Fairlie (2005) for such a case:

$$\bar{Y}^{WM} - \bar{Y}^{BM} = \left[\sum_{i=1}^{N^{WM}} \frac{F\left(X_i^{WM}\hat{\beta}^{WM}\right)}{N^{WM}} - \sum_{i=1}^{N^{BM}} \frac{F\left(X_i^{BM}\hat{\beta}^{WM}\right)}{N^{BM}}\right] + \left[\sum_{i=1}^{N^{BM}} \frac{F\left(X_i^{BM}\hat{\beta}^{WM}\right)}{N^{BM}} - \sum_{i=1}^{N^{BM}} \frac{F\left(X_i^{BM}\hat{\beta}^{BM}\right)}{N^{BM}}\right]$$

The first term is the difference due to characteristics and the second term is the difference due to the estimated coefficients on those characteristics. Getting these numbers is not hard: for each year, we run a probit model maximum likelihood estimation on labor force participation for each subgroup and predict the probability using the results. Taking the average for each subgroup gives you the terms in the brackets. Note that the prediction using white males' probit results is used for the counterfactual term in each of the brackets. The independent variables (characteristics) used for this exercise were individual's marital status, number of children under 18, other family income, educational attainment, age, census region, and school enrollment status.

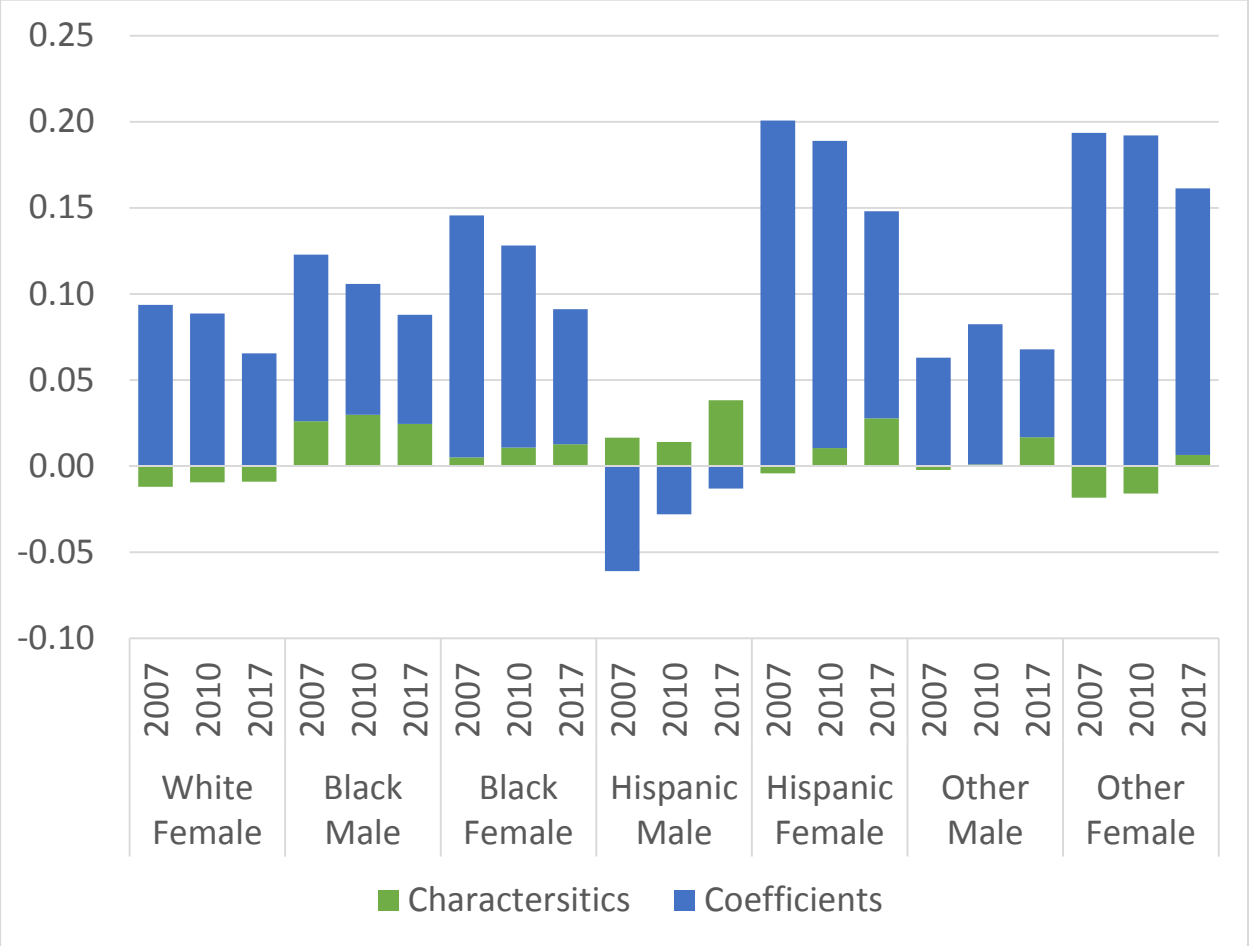
This results of this decomposition of the gap in labor force participation between young white men and young people in the seven other race-sex combinations for each of the three years are presented in figure 5, below. A number of things need to be emphasized. A negative number for one of the effects in the graph means a higher predicted LFPR for that group compared to white males. The coefficient effect is an estimate of the impact of a given set of characteristics on the difference in the likelihood of being in the labor force between the group in question and young white men. The characteristic effect is the impact of differences in individual characteristics between a specific group and young white men on the difference in labor force participation. It is

clear at a glance that for most groups and years the coefficient effect is large and positive. In other words, for a given set of characteristics (for example, married with children), those groups are less likely to be in the labor force than young white men.

Accordingly, for the most part, labor force participation is higher for young white males than for all the other groups. Young Hispanic males are the exception, at least through 2010. Clear trends over time emerge: for white women and black, Latino, and other men and women, the size of the coefficient effect is falling. Note especially that for young black men, the characteristic effect is more or less unchanged between 2007 and 2017 (though there is a small uptick in 2010). The substantial decline in the gap in labor force participation between young white and black men has to do with the returns to those characteristics: in 2007 it accounted for 9.7 percentage points of the gap, while in 2017 that amount was 6.3 percentage points. This leaves 2.4 percentage points of the gap due directly to differences in characteristics. This substantial difference leads to an important question: Why are young black men so much less likely than their white counterparts with similar characteristics to enter the labor force?[7] The significant drop in the contribution to the gap of returns to characteristics leads to a second question: What has changed?

[7] Survey responses to the question of why individuals were not working in 2017 indicate that young black men were twice as likely as their white counterparts to be ill or disabled, four times as likely to report that they could not find work, and 25 percent more likely to be in school.

Figure 5. Decomposition of Changes in the LFPR Gap During and After Great Recession, by Race and Sex



Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

Moving on to decompose the changes in participation among groups over time, the equation above becomes:

$$\bar{Y}^{2010} - \bar{Y}^{2007} = \left[\sum_{i=1}^{N^{2010}} \frac{F\left(X_i^{2010}\hat{\beta}^{2010}\right)}{N^{2010}} - \sum_{i=1}^{N^{2007}} \frac{F\left(X_i^{2007}\hat{\beta}^{2010}\right)}{N^{2007}}\right] + \left[\sum_{i=1}^{N^{2007}} \frac{F\left(X_i^{2007}\hat{\beta}^{2010}\right)}{N^{2007}} - \sum_{i=1}^{N^{2007}} \frac{F\left(X_i^{2007}\hat{\beta}^{2007}\right)}{N^{2007}}\right]$$

Thus we decompose the change in likelihood of labor force participation within a group between 2007 and 2010 into the change due to changes in the group's characteristics (the first term) and the change in returns to that group's characteristics (the second term). We perform this calculation for each of the eight race-sex categories and present the results for two time periods in figure 6, below.

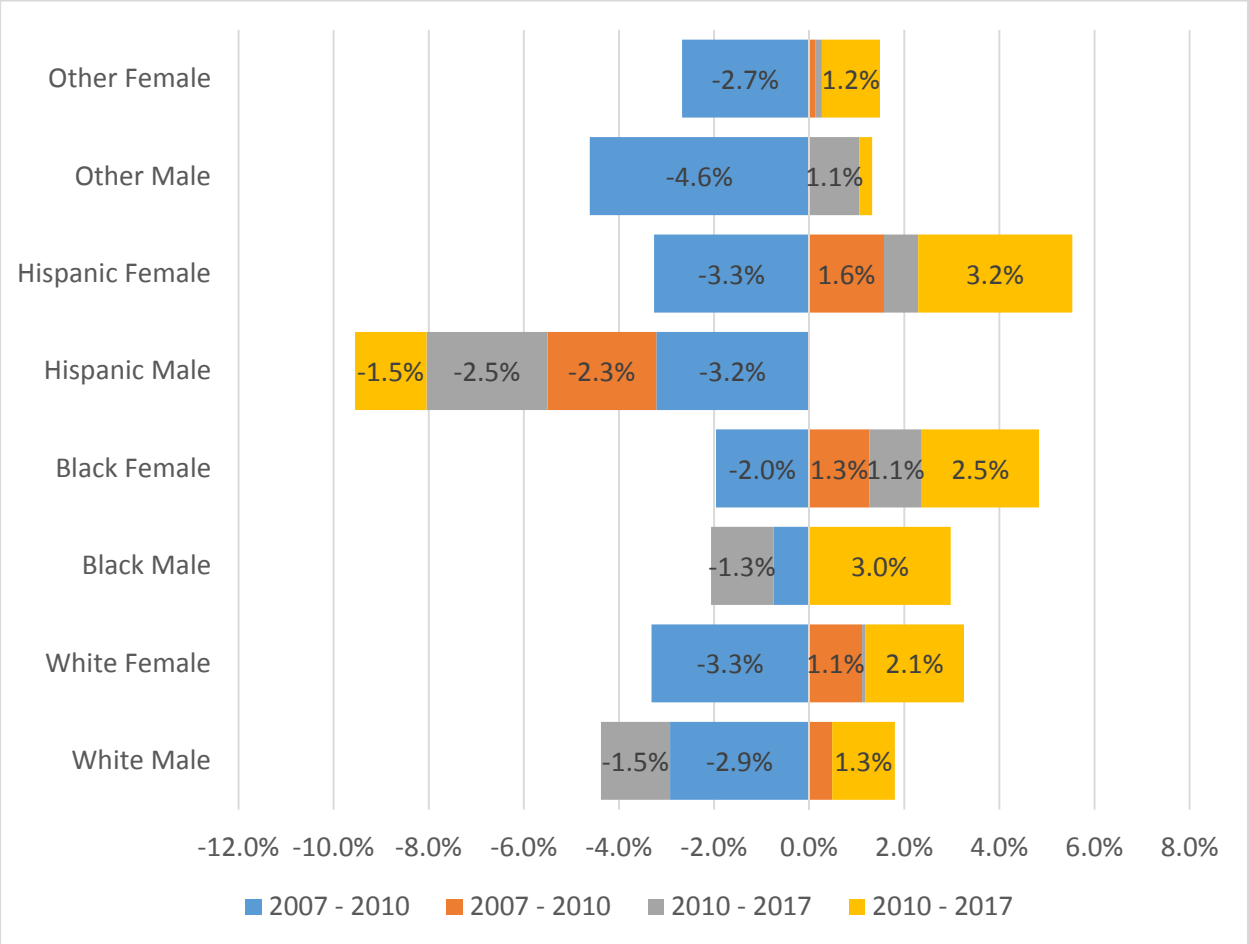
Again we see that Hispanic males are exceptional in the changes over time in their labor force participation. Both characteristic and coefficient effects explain reductions in labor force participation over time, totaling 9.6 percentage points between 2007 and 2017.[8] Given the evidence above, the most important comparison here is that between young white and black men. For young white men the characteristic effect accounts for a 2.9 percentage point reduction in labor force participation between 2007 and 2010 (for young white women the reduction is larger, at 3.3 percentage points), while for young black men the amount is 0.8 percentage points. This is to say that for young white men a shift in their characteristics between 2007 and 2010 explains much of their reduced labor force participation in 2010. A smaller shift between 2010 and 2017 leads to an overall slight decline in labor force participation in the period, as the recovery boosted the returns of young white men leading to an unchanged participation rate. By contrast, although young black men had a similarly sized characteristic effect (-1.3 percentage points) driving changes between 2010 and 2017, the returns to their characteristics accounted for a 3 percentage point boost to their labor force participation by 2017.

At the same time, the LFPRs for young black women had almost converged with their male counterparts by 2017. During the Great Recession, characteristic effects accounted for a 2 percentage point reduction in their LFPR, countered by a 1.3 percentage point boost due to the returns to those characteristics. Since the end of the Great Recession, however, both characteristic and coefficient effects have contributed to higher LFPRs among young black women. The same patterns, magnified, are evident among young Latinas, though their LFPR levels are also much lower.

[8] Note that young Hispanic males had the highest LFPR of any race-sex category in 2007 (82 percent). By 2017, only young white males exceeded their LFPR (74.9 percent versus 72.5 percent).

In all race-sex categories, young people had a significantly lower LFPR at the end of the Great Recession than just before it. In all race-sex categories, changes in characteristics are the main contributor to reductions in the LFPR. The most significant change in characteristics across all race-sex categories is the drop in the percentage of married individuals, from 29.7 percent to 26.8 percent. That trend slowed after the Great Recession, but in 2017 the percentage of young people that are married is 24.4 percent. Among young men, black males have been especially boosted by the returns to their characteristics since the end of the Great Recession, while young white men have seen the returns to their characteristics swamped by the decline in the contribution of those characteristics to their labor force participation.

Figure 6. Decomposition of Changes in Labor Force Participation of Young People During and After the Great Recession, by Race and Sex



Source: Author's calculations based on 2007, 2010, and 2017 Current Population Survey, Annual Social and Economic (ASEC) Supplement

CONCLUSIONS

We have shown that the interesting trend in the employment–population ratio of black adults compared to that of whites after the Great Recession can be explained by the entry of young black individuals into the labor market after 2010. Unlike changes in unemployment rates, which have followed the racial patterns typical of US recessions and recoveries, labor force participation patterns have deviated from previous historical patterns.

Examining the labor force series from the Bureau of Labor Statistics, it becomes clear that the changes in the overall trend in employment–population ratios is due to the aging of the white population and the relative increase in young black labor force participation. Our estimates of the likelihood of labor force participation demonstrate that the gap between young white and black men and women has been shrinking when controlling for age, education, and household characteristics, even during the Great Recession. Decomposing these estimates shows that young men's and women's characteristics have produced larger reductions in white than black labor force participation, even as the positive impact of the returns to those characteristics has been greater for young black men and women than for their white counterparts.

The next steps in further elaborating this analysis include deeper analysis of the decomposition of the returns to characteristics as well as producing some added analysis of the mechanisms by which black males, especially, but also black females are excluded from employment as a matter of course in US labor markets, and how this may be changing over time due to demographic or other factors.

REFERENCES

Bertrand, Marianne, and Sendhil Mullainathan. 2004. “Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination.” *American Economic Review* 94(4): 991–1013.

Ellis, Mark, and John Odland. 2001. “Intermetropolitan Variation in the Labour Force Participation Rates of White and Black Men in the United States.” *Urban Studies* 38(13): 2327–48.

Ewing, Bradley T., William Levernier, and Farooq Malik. 2005. “Modeling Unemployment Rates by Race and Gender: A Nonlinear Time Series Approach.” *Eastern Economic Journal* 31(3): 333–47.

Fairlie, Robert W. 2005. “An Extension of the Blinder-Oaxaca Decomposition Technique to Logit and Probit Models.” *Journal of Economic and Social Measurement* 30(4): 305–16.

Freeman, Donald G. 2012. “On (Not) Closing the Gaps: The Evolution of National and Regional Unemployment Rates by Race and Ethnicity.” *Review of Black Political Economy* 39(2): 267–84.

Heckman, James. 1979. “Sample Selection Bias as a Specification Error.” *Econometrica* 47(1): 153–62.

Kaeble, Danielle, and Lauren E. Glaze. 2016. “Bureau of Justice Statistics (BJS)—Correctional Populations in the United States, 2015.” Correctional Populations in the United States Bulletin NCJ 250374. Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

Myers, Jr., Samuel L. 1989. “How Voluntary Is Black Unemployment and Black Labor Force Withdrawal?” In Steven Shulman and William Darity, Jr. (eds.), *The Question of Discrimination: Racial Inequality in the U.S. Labor Market*. Middletown, CT: Wesleyan University Press.

Quillian, Lincoln, Devah Pager, Ole Hexel, and Arnfinn H. Midtbøen. 2017. “Meta-Analysis of Field Experiments Shows No Change in Racial Discrimination in Hiring over Time.” *Proceedings of the National Academy of Sciences* 114(41): 10870–75.

Rodgers, William M. 2008. “African American and White Differences in the Impacts of Monetary Policy on the Duration of Unemployment.” *The American Economic Review* 98(2): 382–86.

Spriggs, William E., and Rhonda M. Williams. 2000. “What Do We Need to Explain about African American Unemployment?” In Robert Cherry and William M. Rodgers, III (eds.), *Prosperity for All? The Economic Boom and African Americans*. New York: Russell Sage Foundation.

Western, Bruce, and Becky Pettit. 2000. “Incarceration and Racial Inequality in Men’s Employment.” *Industrial and Labor Relations Review* 54(1): 3–16.

Wolff, Edward N. 2017. “Household Wealth Trends in the United States, 1962 to 2016: Has Middle Class Wealth Recovered?” NBER Working Paper 24085 (November). Cambridge, MA: National Bureau of Economic Research (NBER).