Is the Gender Revolution Stalled?
An Update

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Abstract: We examine change in multiple indicators of gender inequality for the period of 1970 to 2018. The percent of women who are employed rose continuously until approximately 2000 when it reached its highest point to date of 75% (it was 73% in 2018). Women have surpassed men in receipt of baccalaureate and doctoral degrees. The degree of segregation of fields of study declined dramatically in the 1970s and 1980s, but little since then. The desegregation of occupations continues but has slowed its pace. The ratio of women’s to men’s hourly pay increased from .60 to .83 between 1970 and 2018, rising especially fast in the 1980s, but much slower since 1990. In sum, there has been dramatic progress in movement toward gender equality, but, in recent decades, change has slowed, and, on some indicators, stalled entirely.

Significance: Social scientists have documented dramatic change in gender inequality in the last half century, sometimes called a “gender revolution.” We show dramatic progress in movement toward gender equality between 1970 and 2018, but also that in recent decades, change has slowed or stalled. The slowdown on some indicators and stall on others suggests that further progress requires substantial institutional and cultural change. Progress may require increases in men’s participation in household and care work, and adoption by employers of policies that reduce gender bias and help both men and women combine jobs with family care responsibilities.

Gender inequality | gender and education | occupational gender segregation | gender pay gap |
INTRODUCTION

Social scientists have documented dramatic change in gender inequality in the last half century, sometimes called a “gender revolution.” Women’s employment increased and became the norm, even for mothers of young children (Cotter et al. 2008). Birth control became available to most (Goldin and Katz 2002; Bailey 2006). The proportion of women receiving baccalaureate or doctoral degrees increased dramatically (DiPrete and Buchman 2013; England et al. 2007). Women rose as a proportion of those getting degrees in fields of study that have traditionally been dominated by men, such as management, accounting, and STEM fields (England and Li 2006). A new and active Women’s Movement emerged. Equal opportunity, which had been the law since the 1960s, became somewhat institutionalized in the personnel policies of organizations from the 1970s onward (Dobbin 2009). Because of new opportunities and aspirations, many women entered professional and managerial jobs filled previously almost exclusively by men (Cotter et al. 2004). The gender gap in pay fell significantly after 1980 (IWPR 2018).

In this paper, we document dramatic change in gender inequality between 1970 and 2018 on multiple indicators, including employment, educational attainment, segregation of fields of study, segregation of occupations, and pay. Our examination of trends will also provide evidence of a slowdown of progress toward gender inequality. In fact, on some indicators, we will show that progress toward gender equality has stalled completely. We end by discussing possible reasons for the slowdown in progress, and by suggesting what may be necessary for further reductions in gender inequality to occur.

RESULTS

Employment

Figure 1 shows trends in employment for men and women, giving the percent of those age 25-54 who were employed in the week of the survey in each year from 1970 to 2018. Women’s employment rose almost steadily from 1970 to 2000, moving from 48% employed in 1970 to 75% employed in 2000. It then declined, plateaued, declined more in the Great Recession, reaching a bottom of 69%, rebounding to 73% in 2018. Despite the rebound after the Recession, in 2018 it was no higher than its level in 1996.

Men have a higher level of employment than women at each year, and their employment has gone up and down more than women’s with business cycles, including the Great Recession. Unlike for women, the long-term net trend for men has been slowly downward, from 91% in 1970 to 84% in 2018 (Figure 1). The percent of men employed fell more dramatically for men than women in the Great Recession, from 84% to 79%, between 2008 and 2009 with a larger rebound as well, back to 84% after 2010.
To assess the trend in the gender gap in employment, Figure 2 shows the ratio of women’s percent employed to men’s percent employed. The ratio rises continuously from .53 in 1970 to .85 in 1995. The progress toward equality was steepest from 1970 to 1995 as women’s employment went up dramatically and men’s employment went down some. Thereafter it was quite flat except for a rise and then decline of several points reflecting, as discussed, that the recession and recovery both affected men more than women. The ratio was .86 in 2018.

Examining men’s and women’s employment within groups defined by educational attainment, shown in the SI Appendix, Figure S1, reveals that men with a baccalaureate degree or more have seen almost no reduction in their employment, from 92% to 91% between 1970 and 2018. In contrast, the drop has been much greater among those who are high school graduates but do not have a college degree, from 93% to 82%, and even steeper among men who did not complete high school, from 89% to 74%. In the SI Appendix’s Figure S2, the ratio of women’s to men’s employment is shown separately by education groups. We see that the ratio of women’s employment to men’s goes up in all education groups until the mid-1990s, but hasn’t risen much since then in at any educational level.

Educational Attainment

Because educational attainment strongly affects earnings, it is important for gender equality in earnings. In 1970, fewer women than men obtained baccalaureate and doctoral degrees. However, women’s attainment of these degrees has increased, such that they are now over half of those receiving each of baccalaureate and doctoral degrees, as shown in Figure 3. A ratio of 1 (dividing women’s number of degrees by men’s number) constitutes approximate equality because there are an approximately equal number of men in the population until midlife. For baccalaureate degrees, the ratio went from .76 in 1970-71 (76% as many women as men got degrees) to 1.34 in 2015-16 (34% more women than men got degrees). The ratio of women to men getting doctoral degrees went from .13 in 1970-71 to 1.18 in 2015-16. Yet, the trend is not

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1 Men’s falling employment rebounded slightly after 2010 in all education groups, due probably to the post-recession recovery.
linear. After a period of progress there was a stall, and the ratio has been approximately flat since 2000 for baccalaureate degrees, and flat since 2008 for doctoral degrees. However, in both types of degrees, the stall did not occur until women had already surpassed men.

**Figure 3**

Ratio of Women to Men Receiving BA and PhD, 1970-2015

![Graph showing ratio of women to men receiving BA and PhD, 1970-2015](image)

**Source:** Authors’ calculation using data from National Center for Education Statistics (NCES). Uses 17 major categories.

Segregation of Fields of Study

To examine how segregation changed among those being awarded baccalaureate and doctoral degrees, Figure 4 presents trends in D, the index of dissimilarity, which can take on values between 0 (no segregation) and 1 (total segregation). For baccalaureate degrees, D was .47 in 1970 and a much lower .33 in 2015. (For brevity, we refer to the academic year 1970-1971 as 1970, to 2015-2016 as 2015, and so forth.) However, the drop was not continuous; segregation declined until it reached .28 in 1998, and has come up again slightly since. For doctoral degrees, D moved from .35 in 1970 to a low of .18 in 1987 and has not gone lower since, but has risen slightly. Thus, desegregation of both levels of degrees has been substantial, but has stalled for 20 or more years. This enduring segregation is important because, for the approximately one third of adult Americans that have a baccalaureate degree or more, occupation and earnings are strongly affected, although by no means entirely determined, by their field of study (Kim et al. 2015).

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Next, we examine trends in how segregated occupations are, using D, the same measure used above to assess the segregation of fields of study. As Figure 5 shows, segregation of occupations has fallen steadily since 1970, moving from .60 to .42. However, it moved much faster in the 1970s and 1980s than it has since 1990; segregation dropped by .12 in the 20-year period after 1970, but by a much smaller .05 in the longer 26-year period after 1990. Occupational segregation is important in part because it is a large contributor to the gender gap in pay (Petersen and Morgan 1995; Cotter et al. 2004:21; Blau and Kahn 2016).
Earnings

A key indicator of gender inequality is the pay gap. We examine trends in men’s and women’s median hourly earnings separately first, in Figure 6. Earnings are in constant 2018 dollars. Men’s median hourly earnings were approximately $27-28/hour in the 70s, then fell to below $23/hour by the mid-1990s. Since then the median went up in the late 1990s boom, down during the Great Recession and up some since, but it has always been between $22 and $24/hour since the mid-1990s. Thus, the man at the middle of the distribution in 2018 earned less, after adjusting for inflation, than the man in the middle in 1970. Women’s median earnings have always been lower than men’s. During the 1970s they were quite stable at about $16/hour. They began to rise in the early 1980s for the rest of the decade, and rose in the late 1990s and early 2000s. Since then they have been fairly flat at about $19/hour. Like men’s they fell in the recession and rose in the recovery, although women’s movements were not as steep in either direction as men’s.

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3 Winship (2016) argues that the Personal Consumer Expenditure (PCE) index is superior to the Consumer Price Index, which is more commonly used in labor market studies. The PCE shows less drop in men’s wages. It does not affect our measure of inequality, the ratio of women’s to men’s median wages, however.
To examine gender inequality in pay, Figure 7 shows the trend in the ratio of women’s to men’s median hourly earnings, which was fairly stable at approximately .60 in the 1970s, and rose dramatically in the 1980s to .72. The ratio has shown a net rise in each decade since 1990 but at a much slower rate than was observed in the 1980s. By 2018, women earned 83% what men did at the median. In percentage points, the rise was less in the 28 years of 1990 to 2018 than it was in the single decade of the 1980s. Yet progress has been fairly continuous since 1980, if slower after than before 1990.
Figure 7

Ratio of Women's to Men's Median Hourly Wage
Among Individuals Employed in the Last Week, Age 25-54, 1970 to 2018


The analyses of median hourly earnings above include those working full- and part-time. If instead we limit the analysis to just those working full-time, as shown in the SI Appendix (Figure S3), the results are similar. Thus, the conclusion that progress slowed substantially after 1990 holds for full-time as well as all workers.

It is also of interest whether the conclusion of a slowdown in wage convergence is seen if we examine the trend in the ratio for median annual (rather than hourly) earnings among full-time, year-round workers. Figure S4 of the SI Appendix shows this ratio. It too went up much more in the 1980s than any other subsequent decade, moving from .58 to .71 in the one decade of the 1980s, a larger percentage point increase than the increase from .71 to .81 that occurred across the almost 3 decades between 1990 and 2018. Thus, the conclusion of continuing progress, but a reduction in the steepness of the increase in the ratio since about 1990 is robust across measures.

To examine whether progress toward equality occurred more at the bottom, middle, or top of the distribution, we compare the 10th, 20th, 50th (the median, discussed above), 80th, and 90th percentile of the women’s distribution of hourly earnings to the same percentile of the men’s earnings for each year. First, we provide Figures 8A and 8B which show trends in men’s and women’s earnings at each of these percentiles. Figure 8A shows that men’s earnings at the 10th, 20th, and 50th percentiles all declined slightly. Men at the 80th percentile gained about $3/hour in net across the nearly 50-year period. But men at the 90th percentile gained approximately $8/hour across the same period. The rise at the top and decline at the bottom created substantially increased inequality among men, a focus of much recent research (Autor et al. 2008, Western and Rosenfeld 2011). Figure 8B shows increasing inequality among women as well, as past research has shown (Morris and Western, 1999; Autor et al. 2008). By comparing men and
women at the same percentile of their respective distributions, Figures 8A and 8B show that, unlike men at the bottom percentiles, women at the 10\textsuperscript{th} and 20\textsuperscript{th} percentiles of their distribution gained slightly. Women at the median gained more, about $4/hour across the almost 50-year period. But women at the 80\textsuperscript{th} percentile gained approximately $10/hour while women at the 90\textsuperscript{th} percentile gained $15/hour. As was true for men, women’s earnings at the top of the distribution got farther and farther away from the earnings of those at the bottom, and even those at the median. But, unlike men, women at the bottom did not see a net decline.

**Figure 8A**

*Hourly Wage of Men, Age 25-54, Employed in the Last Week, at 10th, 20th, 50th, 80th, and 90th Percentile of Distribution, 1970 to 2018*

We next examine whether gender inequality in pay is more extreme toward the top, middle, or bottom of men’s and women’s respective distributions, and how that has changed. As Figure 9 shows, in all years at since 1980, the most gender equality (indicated by a higher ratio of women’s pay to men’s pay) was found at the 10th percentile, and since 2000, the most inequality is at the 90th. Since 1980, progress toward gender equality has been made near the top and bottom as well as in the middle, but this progress was fastest at the bottom (Figure 9), mainly because of the fall at the bottom for men while women at the bottom had stability during the 1980s.


\[\text{\footnote{We are hesitant to interpret the large change in the ratio of women’s to men’s earnings at their respective 10th percentiles during the 1970s because of a change in how earnings were adjusted by hours worked between 1970-1975 and later years, discussed below in the Section on Materials and Methods.}}\]
DISCUSSION

Our analysis has shown substantial reductions in gender inequality on all indicators. Yet, progress in closing gender gaps has slowed down, and on some indicators progress has stalled entirely. Here we review our findings and use past research to speculate about the reasons change has slowed or stalled.

Women’s employment has stalled out at approximately 70% for decades. The ratio of women’s to men’s employment rose dramatically from .53 in 1970 to .85 in 1995 but has changed little ever since, except for a temporary uptick in the recent recovery to the recent recession. The long-term increase in the ratio reflects ratio women’s increasing and men’s declining employment, and the stall in the ratio mainly reflects a stall in the growth of women’s employment.

Women’s attainment of college and advanced degrees has increased absolutely and relative to men’s. The ratio of women to men getting degrees went from .76 to 1.34 for baccalaureate degrees and from .13 to 1.18 for doctoral degrees. The ratios have been approximately flat since 2000 for baccalaureate and since 2008 for doctoral degrees. But this stalling of change did not occur until after women had gone beyond gender equality to a point that they were more likely to get degrees than men; thus, on these indicators, the stall means that the rise in the magnitude of men’s disadvantage has halted.

While women have surpassed men in amount of education attained, there has been nothing like convergence in the fields of study in which men and women get degrees. For baccalaureate
degrees, D, the measure of segregation, which ranges from 0 to 1 (complete segregation), fell from .47 in 1970 to .28 in 1998, and has not gone down since, but rather, has risen slightly. For doctoral degrees, segregation went from .35 in 1970 to a low of .18 in 1987 and has hovered slightly higher since. In neither case has there been any reduction in segregation for the last 20 years.

Segregated fields of study contribute to occupational gender segregation. This segregation of occupations has fallen substantially since 1970, moving from .60 to .42. However, it moved much faster in the 1970s and 1980s than it has since 1990. Thus, there has been a slow-down, but not a complete stall of occupational desegregation.

All of the trends we have considered affect the gender gap in pay; individuals’ pay is affected by their education, field of study, occupation, and years of employment experience. The gap is also affected by various forms of gender discrimination by employers—in hiring, pay differences within jobs, and the relative pay levels set in predominantly female versus predominantly male jobs. Reflecting changes in all these factors, our main measure of gender earnings inequality, the ratio of women’s to men’s median hourly earnings, went up strongly from .60 in 1980 to .83 in 2018, with much faster progress in the 1980s than in decades since 1990. The gap closed the least near the top (at the 90th percentile) of men’s and women’s respective wage distributions; this reflects the fact that, while the women’s wage distribution, like men’s, has become more unequal and risen disproportionately at the top, the gains at the top have been greater for men. We compared results using other earnings measures (hourly earnings for those working full-time year-round, or annual earnings for those working full-time year-round). Whatever the measure, the closing of the gender gap in pay, measured by upward movement in the ratio of women’s to men’s pay at the mean, has slowed since 1990, although progress continues.

Our analysis shows a clear slowing of progress toward equality, and, for some indicators, a complete stall of progress in women’s relative status. Discovering why progress has slowed or stalled is beyond the scope of our analysis, but we offer a few speculations. First, we suggest that the changes that took place in the 1970s and 80s were analogous to picking low hanging fruit. When legal and other changes presented new opportunities to women, many jumped at the opportunities, and some entered what had been traditionally male fields of study and jobs. Further change is more difficult, and may require deeper changes in both cultural attitudes and institutional practices.

Change in the gender system has been deeply asymmetric; women’s entrance to careers came more readily than changing men’s roles at home (England 2010). This can be seen in our analysis that shows a much larger increase in women’s employment than decrease in men’s employment, implying that there was nothing close to an increase of one stay-at-home husband for every one increased woman employed. The asymmetry is also seen in other research showing a much larger increase in women’s paid work hours than increase in men’s family work (housework, child care, and shopping) (Bianchi et al. 2006: Tables 5A.1 and 5A.2, data on married mothers and fathers). This asymmetry in behavioral change by women and men is

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5 While we showed that the proportion of men who are not employed has gone up, especially among the less educated, most scholars believe that this is not mainly a result of more couples deciding that men would be become stay-at-home dads, but mainly reflects the deterioration of the pay of jobs available to men without a college degree.
reflected in attitudes as well. A recent study of trends in attitudes showed that gender egalitarian favoring women’s career opportunities are at a higher level and have changed faster than attitudes favoring an equal sharing unpaid family work (Scarborough et al. 2019). There is a strong norm eschewing anything but full-time paid work for men (Killewald and Garcia-Manglano 2016); this often goes along with an expectation that women do more family work than men and adjust their careers accordingly. Given that most women form families with men, it may be difficult to close the remaining gender gap in pay without increases in men’s domestic work. Institutional change in employer policies that eased both men’s and women’s ability to combine family with work would also help close the gender gap in pay.

Deeper cultural change may be required to tackle the strong level of sex segregation in fields of study and in occupations. For several decades, girls’ high school math coursework and scores have been as good as boys’ so they explain none of gender differences in baccalaureate majors (Xie and Schauman 2003). Nor does women’s anticipation of more family work explain gender differences in choice of major (DiPrete and Buchman 2013, Chapter 8). But this does not mean the explanation lies entirely with policies of universities; indeed, most universities allow any student to declare a major in any field (sometimes with grade point average requirements, which advantages women). Gender differences in fields of study may arise from lingering essentialist beliefs about differences in men and women’s natures (Charles and Bradley 2009). These beliefs create external social pressure to choose gender normative fields of studies and careers, and, when internalized, they create a different (although overlapping) distribution of choices by men and women. Similar gender beliefs may affect supply-side decisions of men and women who don’t complete college degrees but gravitate toward gender-typical choices among the jobs open to them.

Policy changes that reduce employers’ biases would also help further change occupational segregation and the gender gap in pay. At the time that gender discrimination in hiring and pay was outlawed in the 1960s, many firms had explicit policies of not hiring women in certain jobs, and sex preferences were stated in advertisements. Such overt policies are largely gone. However, more subtle discrimination persists, although it is hard to measure. For example, one audit study showed that, among job candidates for a professional job where employers had no information on parenthood status, there was no gender difference in callbacks for an interview, but when resumes were manipulated to show that candidates were parents, fathers were preferred to mothers (Correll et al. 2007). Biases may affect pay differences within jobs as well despite how simple “equal pay for equal work” sounds; one study showed men getting higher raises than women in the same company even when they received the same quantitative evaluations by their supervisors (Castilla 2008).

A substantial part of the gender gap in pay is between occupations (Petersen and Morgan 1995; Blau and Kahn 2016; Weeden et al. 2018). This portion could be reduced by supply or demand-side changes that reduced segregation. It could also be reduced by policies that successfully remove gender bias from decisions about the relative pay levels of predominantly male and predominantly female jobs. There is strong suggestive evidence that employers take the sex

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6 Gender differences in math test scores are now small or nonexistent on most tests at the mean. However, there are more men than women at the extreme top tail of the distribution, and for those few fields of doctoral study that draw almost exclusively from this tail, this may provide a partial explanation for gender composition.
composition of jobs into account when setting their pay levels; studies find lower pay in predominantly female occupations than can be explained by their skill requirements or working conditions (Kilbourne et al. 1994; Levanon et al. 2009). This issue, called “comparable worth” or “pay equity” in the 1990s never led to legislation, so it is a type of discrimination that is generally not illegal in the U.S.

In the movement toward gender equality we are now in the period where “low hanging fruit” has been picked. Future change is likely to require deliberate efforts to promote both cultural and institutional change along the lines we have discussed. Without this, progress toward gender equality may remain slow or stalled.

MATERIALS AND METHODS

We provide trend data from 1970 to circa 2018 on several important indicators with which social scientists have gauged gender inequality: employment, educational attainment, gender segregation of fields of study for baccalaureate and doctoral degrees, occupational gender segregation, and hourly and annual earnings.

For employment and earnings, we provide data for each year from 1970 to 2018 from the Current Population Surveys. For occupational sex segregation, where a large N is crucial, we provide Census data for 1970, 1980, 1990, 2000 and thereafter every year through 2017 from the American Community Study (ACS). For women’s percent of baccalaureate and doctoral degrees in all fields combined, and the extent of segregation by gender in the fields in which these baccalaureate and doctoral degrees were awarded, we use data from the National Center for Educational Statistics for every academic year from 1970-71 to 2015-16, the latest year available.

Analyses of Employment and Earnings


For our analyses of employment, we included individuals between 25 and 54 years old (N=3,371,391); these are ages when few individuals are still in school and few have retired yet. Thus, most people at these ages are employed, unless they cannot find a job (whether they are still looking or have given up) or are not seeking paid work because they are taking care of children or elders. When analyzing median (or other percentiles of) hourly earnings, we further exclude unemployed and self-employed individuals as well as individuals who reported 0 wage and salary earnings (resulting N=2,258,863). The SI Appendix compares results from the analyses just described to those from a more limited sample of those employed full-time (at least 35 hours/week). The SI Appendix also compares trends for median hourly earnings (all or full-time only) to trends for median annual earnings among full-time year-round workers; the analysis of annual earnings limits the sample to individuals between 25 and 54 years old who are

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7 Specifically, we use the IPUMS 1% state form 1 sample for 1970, 5% state samples for 1980 and 1990, 5% sample for 2000, and 1% samples for 2001 through 2017.
full-time, year-round workers (i.e., working 35 or more hours per week, and 50 or more weeks per year) (N=1,777,328).

Measures of Employment and Earnings. For employment, we use the CPS variable providing information on whether the individual reported being employed in the last week (whether full- or part-time).

For all of our measures of earnings, we begin from annual earnings from wages or salaries reported by respondents. The Census Bureau top-codes annual earnings to provide confidentiality for extremely high earners. Because CPS top-coding procedures vary from 1970 to 2018, we recoded any earnings above a given year’s top-code threshold to the appropriate top-code threshold value. We then multiplied these top-coded income values for each sample by 1.5.8 We converted the resulting measure of annual earnings to constant 2018 dollars using the Consumer Price Index.9

Our main analyses of the pay gap use hourly wage, constructed from the annual earnings measure described above and information on weeks and hours of employment. Due to data availability, our construction of hourly wage is different for 1970 to 1975 and 1976 onwards. For 1970 to 1975, we construct hourly wage by dividing annual earnings by the number of weeks worked in the last year and dividing the product by the total hours worked in the last week; since hours worked was presented in intervalled form, we used the midpoint of the interval.10 For 1976 onwards, the data on hours worked were not intervalled, so we did not have to estimate with a midpoint, and the question on hours worked asked about usual hours worked per week in the last year, rather than hours worked last week. Thus, changes in the ratio at about 1975 should be interpreted with caution.

The SI Appendix shows supplementary analyses dividing respondents by education. For these we used the CPS measure of educational attainment, assuming completion of Grade 12 implies a high school degree and completion of 4 years of higher education implies a baccalaureate degree. We thus use three categories: less than a high school degree, a high school degree,11 and a baccalaureate degree or more.

Descriptive analyses. For each year, we show the percent of men and women employed for pay the week before the survey, as well as the ratio of women’s to men’s percent employed. For hourly wage we present the median, as well as the 10th, 20th, 80th, and 90th percentiles of the wage distribution, separately for each gender at each year. We then examine the ratio of women’s to men’s earnings at each year for the 10th, 50th, and 90th percentiles. All descriptive analyses employ CPS sample weights.12

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8 We follow Autor et al. (2008) in using the convention of multiplying by 1.5, which approximates what is achieved by assuming a Pareto distribution for values in high percentiles.
9 See: https://data.bls.gov/cgi-bin/cpicalc.pl.
10 For these years, weeks worked information is provided in intervals, so we divided annual earnings by the midpoint of each weeks worked interval.
11 Anyone with 12, 13, 14, 15 years of education is classified as “high school,” so some of these individuals have attended some college.
12 A small number of CPS weights are negative. We recoded any negative weights to 0.
Regression Adjustment for Demographic Composition. Analyses in the SI Appendix supplement our descriptive analyses by performing adjustments that remove effects of compositional change across the years examined. We adjust for changes in age (treated as continuous), age squared, race (white, black, Asian, Native American, other), and Hispanic ethnicity. To produce adjusted versions of the percents, means, or percentiles described above, we used regression analyses estimated separately for men and women. We used logistic regressions predicting employment, OLS regressions predicting hourly or annual earnings, and quantile regressions predicting wages at the various percentiles. These regressions were pooled across years, and contained indicator variables for each year, as well as the factors for which we were adjusting, listed above. Regression analyses were weighted by CPS sample weights. Using parameters from these regressions, and (via the margins command in STATA) an average-marginal-effects approach, we produced predicted, compositionally adjusted values for each of the dependent variables for each year and each gender. We then computed female to male ratios of these adjusted estimates to assess gender gaps. There are no predictive values for 1970 because Hispanic status was not asked in that year in the CPS. These regression-adjusted results yield the same substantive conclusions as our descriptive analyses.

Analysis of Educational Attainment and Segregation of Fields of Study

We use data from the National Center for Education Statistics (NCES) on the number of men and women getting baccalaureate and doctoral degrees in each academic year from 1970-1971 to 2015-2016. Doctoral degrees include PhD, MD, DDS, JD, and some other professionally oriented degrees. To show the trend in women’s and men’s relative educational attainment, we calculate the ratio of the number of women to men among those receiving baccalaureate and doctoral degrees in all fields combined for each year.

To assess the level of segregation by gender in fields of study, we use data from NCES that report the total number of men and women who received each of baccalaureate and doctoral degrees in each academic year from 1970-71 to 2015-16 in the following 17 fields: agriculture and natural resources; architecture and related services; biological and biomedical sciences; business; communication, journalism, and related programs and in communications technologies; computer and information sciences; education; engineering technologies; English language and literature/letters; foreign languages and literatures; health professions and related programs; mathematics and statistics; physical sciences and science technologies; psychology; public administration and social services; social sciences and history; and visual and performing arts. While more detailed fields would be preferred, this is the most detailed categorization of fields for which NCES provides data on consistent categories for years 1970 to 2016.

For both baccalaureate and doctoral degrees, we compute the Index of Dissimilarity (D) (Duncan and Duncan 1955) for each year. It is the mostly commonly used measure of segregation of two groups across multiple units (here fields of study). The scale can take on values from 0 (no segregation, meaning women are the same proportion of every field that they are of all fields combined for that year) to 1 (perfect segregation, with no field having both men and women in it). D is often explained in a shorthand way as the percentage of women (men) who would have

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to “trade” fields with a man (woman) to achieve perfect integration, the state in which women’s representation in each field is the same as their representation in all fields combined. This shorthand describes only the numerator of D, which is then divided by the maximum number of such integrative trades possible starting from perfect segregation. The denominator depends on the relative number of men and women in all fields combined; it is maximized when men and women are each 50% of the population of those getting degrees across all fields combined. D is implicitly weighted; big fields count more, thus telling us how segregated the experience of the average person is.

As a supplemental analysis, in the SI Appendix we also calculate A, an alternative measure of segregation devised by Grusky and Charles (1998), which is based upon log linear models. (Figures S14 and S15 compare results using D and A for baccalaureate and doctoral degrees, respectively.) Our broad conclusion that desegregation has stalled holds with this measure as well.

Analysis of Segregation of Occupations

To examine trends in occupational gender segregation, we use data from IPUMS decennial Census samples for 1970, 1980, 1990, and 2000, and American Community Survey (ACS) samples for 2001 through 2017. Because occupational categories used by the Census and ACS changed between some years, we created a collapsed classification of 77 categories into which all more detailed schemes were coded, and used them to have a common set of categories for all years in the analysis.

For Census and ACS samples, IPUMS provides a harmonized occupation variable, OCC1990, which reflects a modified version of the Census Bureau’s 1990 3-digit (detailed) occupational classification scheme. Because some occupations in this scheme did not exist as classification possibilities for some particular years, and we wanted to compute indices of segregation over consistent categories for each year, we collapsed OCC1990 into Weeden and Grusky’s occupational microclass scheme (Jonsson et al. 2009, specifically Table A2). Our occupational segregation analyses include 77 of Weeden and Grusky’s 82 microclasses because these 77 have at least one observation in each sample year.

Using all employed respondents who report an occupation (N=25,274,871), we use the Index of Dissimilarity, the same measure we use to examine segregation of fields of study and described above, to assess change in occupational sex segregation. In the SI Appendix, Figure S16, we also calculate A, an alternate measure of segregation (Grusky and Charles 1998), and it shows a similar trend of continuing to decline but at a slower rate.
REFERENCES


SUPPLEMENTARY INFORMATION APPENDIX

Here we present supplemental analyses and sensitivity tests. We show trends in employment, earnings, and the gender gaps in each disaggregated by education. We show trends in earnings and the earnings gap at various percentiles of the male and female earnings distributions. We show that trends in the gender gap in hourly wage are similar whether all workers or full-time workers are considered, and are similar if annual earnings of full-time, year-round workers are used. We show that our substantive conclusions about trends in employment, wages, and gender gaps in each hold if we regression adjust figures for change in the composition of the population over time on race/ethnicity and age. We show that segregation trends for occupations and fields of study are similar whether the Index of Dissimilarity or A, another index, is used.

Figure 1 in the paper showed the percent of men, and of women, who were employed in each year. Here we show this separately by three education groups—those who are college graduates, those with high school or some college, and those with less than a high school degree. The figure shows that employment dropped very little among men with a college degree, but dropped substantially among less educated men, and the most among those without a high school degree. It also shows that education impacts employment more strongly for women than men. Figure S2 shows the ratio of women’s to men’s percent employed, separately by education. There is a much larger gender gap among those who have not completed high school, and the gender gap in employment has trended toward equality least among them.

**Figure S1**

Percent of Women and Men, Age 25-54, Employed in the Last Week, by Education, 1970 to 2018

Figure S2

In the paper, Figure 7 showed the ratio of women’s median hourly wage to men’s median hourly wage, which is reproduced in Figure S3 below. The purpose of Figure S3 is to show whether conclusions about the trend in the pay gap differ if we examine only full-time (at least 35 hours/week) workers. While the ratio is always a few points higher in the full-time-only sample, the trend is very similar, showing faster declines in the 1980s than subsequently. Figure S4 provides the same trend in ratio using annual earnings among full-time, year-round workers; it too shows a declining gap, but faster change in the 1980s than thereafter.

**Figure S3**

Ratio of Women's to Men's Median Hourly Wage Among Individuals Employed in the Last Week, Age 25-54, 1970 to 2018


**Figure S4**

Ratio of Women's to Men's Median Annual Income Among Full-Time, Year-Round Workers, Age 25-54, 1970 to 2018

While the paper examined the trend in women’s and men’s hourly wage, and the gender gap, with all education groups combined, Figure S5 and S6 examines them disaggregated by education. Figure S6 shows that in every education group the gender gap closed most during the 1980s.

**Figure S5**

![Graph showing median hourly wage of women and men by education level and gender, 1970 to 2018.](source)

Figures S7 through S13 are offered to supplement those in the paper, showing how similar the trends are when figures are regression adjusted for compositional changes in the population. We adjust for changes in age (treated as continuous), age squared, race (white, black, Asian, Native American, other), and Hispanic ethnicity. To produce adjusted versions of the percents, means, or percentiles described above, we used regression analyses estimated separately for men and women. We used logistic regressions predicting employment, OLS regressions predicting hourly or annual earnings, and quantile regressions predicting wages at the various percentiles. These regressions were pooled across years, and contained indicator variables for each year, as well as the factors for which we were adjusting, listed above. Regression analyses were weighted by CPS sample weights. Using parameters from these regressions, and (via the margins command in STATA) an average-marginal-effects approach, we produced predicted, compositionally adjusted values for each of the dependent variables for each year and each gender. We then computed female to male ratios of these adjusted estimates to assess gender gaps. These regression-adjusted results yield the same substantive conclusions as our descriptive analyses regarding when change was greatest, and the slowdown or stall in change.
Figure S7

Predicted Percent of Women and Men, Age 25-54, Employed in the Last Week, 1970 to 2018


Figure S8

Ratio of Women's to Men's Predicted Percent Employed in the Last Week, Age 25-54, 1970 to 2018

Figure S9

Predicted Median Hourly Wage of Women and Men, Age 25-54, Employed in the Last Week, 1970 to 2018


Figure S10

Ratio of Women’s to Men’s Predicted Median Hourly Wage Among Individuals Employed in the Last Week, Age 25-54, 1970 to 2018

Figure S11
Predicted Hourly Wage of Men, Age 25-54, Employed in the Last Week, at 10th, 20th, 50th, 80th, and 90th Percentile of Distribution, 1970 to 2018


Figure S12
Predicted Hourly Wage of Women, Age 25-54, Employed in the Last Week, at 10th, 20th, 50th, 80th, and 90th Percentile of Distribution, 1970 to 2018

The paper presented analyses of trends in segregation of fields of study (baccalaureate and doctorate) and occupations, using the Index of Dissimilarity (D), the most common segregation measure. Figures S14 through S16 show the analogous computations using A, an alternative segregation index based on log-linear models. As the figures show, which index is used does not affect the conclusion that progress has slowed (occupations) or stalled entirely (fields of study).
Figure S14

Dissimilarity Index (D), BA, 1970-2015

A Index, BA, 1970-2015

Source: Authors’ calculation of D (index of dissimilarity) across fields of study divided into 17 categories, using data from National Center for Education Statistics (NCES).
Figure S15

Dissimilarity Index (D), PhD, 1970-2015

A Index, PhD, 1970-2015

Source: Authors’ calculation of D (index of dissimilarity) across fields of study divided into 17 categories, using data from National Center for Education Statistics (NCES).
Figure S16

Dissimilarity Index (D), 77 Occupational Categories, 1970-2017

A Index, 77 Occupational Categories, 1970-2017