HOW THE 1963 EQUAL PAY ACT AND 1964 CIVIL RIGHTS ACT SHAPED THE GENDER GAP IN PAY*

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In the 1960s, two landmark statutes—the Equal Pay and Civil Rights Acts—targeted the long-standing practice of employment discrimination against U.S. women. For the next 15 years, the gender gap in median earnings among full-time, full-year workers changed little, leading many scholars to conclude that the legislation was ineffectual. This article revisits this conclusion using two research designs, which leverage (i) cross-state variation in preexisting state equal pay laws and (ii) variation in the 1960 gender gap across occupation-industry-state-group cells to capture differences in the legislation's incidence. Both designs suggest that federal antidiscrimination legislation led to striking gains in women's relative wages, which were concentrated among below-median wage earners. These wage gains offset preexisting labor market forces, which worked to depress women's relative pay growth, resulting in the apparent stability of the gender gap at the median and mean in the 1960s and 1970s. The data show little evidence of short-term changes in women's employment but suggest that firms reduced their hiring and promotion of women in the medium to long term. The historical record points to the key role of the Equal Pay Act in driving these changes. *JEL Codes:* J16, J71, N32.

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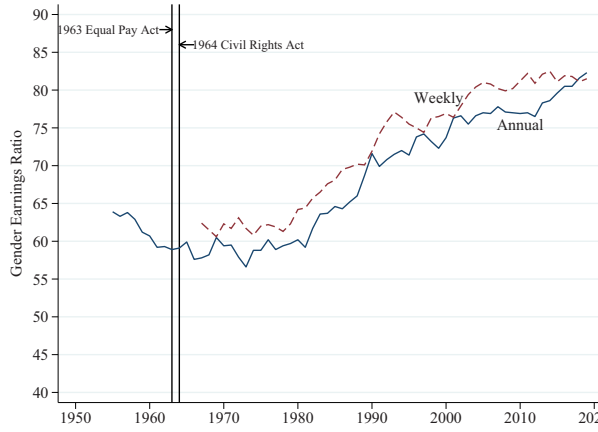
I. Introduction

In the 1960s, two landmark pieces of legislation targeted the long-standing practice of employment discrimination against U.S. women. The Equal Pay Act of 1963 became the first piece of federal legislation to mandate equal pay for equal work through an amendment to the Fair Labor Standards Act (FLSA) (P.L. 88–38). Title VII of the Civil Rights Act of 1964 went further to ban sex-based discrimination in hiring, firing, and promotion (P.L. 88–352). In the context of the 1960s, these acts were nothing short of revolutionary: according to the 1963 Occupational Wage Survey (OWS), women earned around 19% less than men working in the same jobs (U.S. Department of Labor 1963).

Today, few histories conclude that the legislation succeeded, at least in its early years. Annual estimates reported by the Census Bureau show that—among full-time, full-year workers—women's median annual wage earnings hovered around 60% of men's for 15 years after the legislation passed (Figure I, Panel A).[1] Goldin (1990) argues that "equal pay for equal work has been … a rather weak doctrine to combat discrimination" (201) and that "Title VII of the 1964 Civil Rights Act has also been weak in counteracting pay inequities that arise from differences in jobs and promotion" (209). Given high rates of occupational segregation (Blau 1977; Groshen 1991), the legal standard of "equal work" meant that firms could segregate workers across occupations or establishments to comply with the letter of the law while maintaining discriminatory pay practices. Gunderson (1989) notes that "because differences in pay across establishments and industries account for a substantial portion of the gap, this severely restricts the scope of policies like equal pay and comparable worth, both of which are limited to comparisons within the same establishment" (68). In addition, there is little evidence of enforcement of Title VII for sex discrimination until the 1970s (Simchak 1971), which has led research on the law's consequences to focus on this later period (Beller 1979, 1982a, 1982b). Blau and Kahn's (2017) article in the *Journal of Economic Literature* summarizes the professional consensus: "We see no indication of a notable improvement in women's relative earnings in the immediate

1. The Census Bureau has reported the gender gap at the median for full-time, full-year workers for decades to characterize pay gaps for individuals with a similar level of labor market attachment. However, full-time, full-year women workers make up only 45% of working women in 1964.

(A) Census Bureau Estimates for Full-Time, Full-Year Workers at the Median



(B) Authors' Estimates for Weekly Wages among Full-Time Workers with at Least 27 Weeks of Work, by Percentile

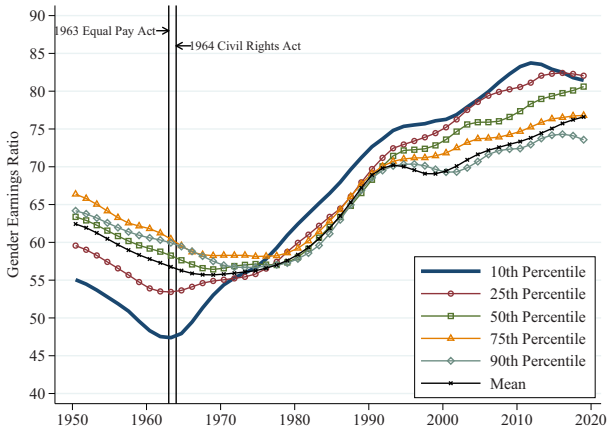


FIGURE I

Estimates of the U.S. Gender Pay Ratio in Annual and Weekly Wage Earnings

Panel A plots data on the ratio of median annual and weekly wage and salary earnings of full-time, full-year workers for women relative to men from the following sources: the Census Bureau's Consumer Income (P60) series for 1955 through 1960 (U.S. Census Bureau 1956, 1958a, 1958b, 1960, 1961, 1962); the female-to-male annual earnings ratio for full-time, full-year workers from DeNavas-Walt and Proctor (2015) for 1961 through 2014; and Shrider et al. (2021) for 2015 through 2019. Data on the female-to-male ratio of usual weekly earnings for full-time wage and salary workers come from Mellor (1984) for 1967 through 1978, the U.S. Department of Labor (2015) for 1979 through 2014; and U.S. Department of Labor, Bureau of Labor Statistics (2021) for 2015 through 2019. Panel B uses a sample of 25- to 64-year-old, full-time workers working at least 27 weeks in the

FIGURE I

(*Continued*) previous year. We plot the gender earnings ratio for weekly wages at the *p*th percentile/mean by taking the ratio of the *p*th percentile/mean of the weekly wage distribution for women over the *p*th percentile/mean of the weekly wage distribution for men. Panel B sources include the 1950 and 1960 censuses and the 1962 to 2020 ASEC (Flood et al. 2023; Ruggles et al. 2023). We linearly extrapolate values for earnings years 1950–1958 and 1960, when census and CPS data are not available. We smooth the series using a local linear regression with a bandwidth of two years. See Online Appendix Figure 1 for unsmoothed estimates.

post-1964 period that might be attributable to the effects of the government's antidiscrimination effort; the gender pay ratio remained basically flat through the late 1970s or early 1980s, after which it began to increase" (848).

A closer examination of long-term trends for a broader set of wage earners hints that federal antidiscrimination legislation mattered more than previously believed. Figure I, Panel B, reports the evolution of the gender gap in weekly wage earnings after broadening the Census Bureau's sample to include full-time women working at least 27 weeks—a sample more similar to modern analyses (Blau and Beller 1988; Bailey, Helgerman and Stuart 2021).[2] Trends predating the 1960s show that the gender gap was growing rapidly in the aftermath of World War II, which makes the stability of the gap after 1964 a notable departure from preexisting trends. In addition, the 10th and 25th percentiles saw sizable reductions in the gender gap after the mid-1960s, even though these gains are less evident at the median—the Census Bureau's standard metric. The historical record supports this conclusion as well. The Department of Labor reported great success with the Equal Pay Act's enforcement (Moran 1970), and the *Wall Street Journal* celebrated 10 years of the legislation, headlining that $475 million (2022 dollars) had been awarded to 140,000 workers in the legislation's first decade (Hyatt 1973). Although few contemporaries claimed that Title VII affected sex discrimination before 1971, the law's timing and role in broadening the Equal Pay Act make its effects difficult to rule out.

Motivated by this evidence, this article reexamines the combined effects of the Equal Pay Act and Title VII on women's labor market outcomes in the 1960s. We develop two research designs that leverage variation in the incidence of antidiscrimination

2. See Online Appendix Figure 1 for the gender gap at different percentiles for full-time, full-year workers and for annual wage earnings.

legislation across state labor markets and industry-occupation cells. Our first design builds on the analysis of Neumark and Stock (2006), who examine the wage and employment effects of state-level antidiscrimination laws passed before federal legislation. If state equal pay laws were effective in reducing pay discrimination, the Equal Pay Act and Title VII should have larger effects on women's relative pay in the 28 states without such laws after 1964. Drawing on the 1950–1960 Decennial Censuses and 1962–1975 Annual Social and Economic Supplements (ASEC) of the Current Population Survey (CPS), we find that women's weekly wages rose by around 9% (8.7 log points) more in states without preexisting equal pay laws after the federal legislation took effect. These estimates are robust to controlling for state-by-birth-cohort fixed effects, which flexibly account for cohort-level shifts in women's aspirations and skills (Goldin 2006a, 2006b; Goldin, Katz and Kuziemko 2006), as well as industry-by-year and occupation-by-year fixed effects, which flexibly account for national changes in the economy and help focus the analysis on the narrowly defined types of discrimination targeted by equal pay legislation. While this research design has the advantage of characterizing broad changes in the labor market, its internal validity is limited to the extent that unobserved forces may have differentially affected labor markets in states without preexisting equal pay laws.

Our second design addresses this concern by examining within-state changes in women's weekly wages after the passage of the legislation. This approach follows Card's (1992) influential work on the minimum wage, which exploits the fact that a national policy varies in incidence across labor markets. Although we do not observe sex discrimination in the data, we hypothesize that the gender gap in pay in industry-occupation-state-group cells is correlated with this latent variable. If this logic holds and federal antidiscrimination legislation was somewhat effective, we expect women's wages to rise more quickly after 1964 in job cells with larger preexisting gender gaps. An advantage of this research design is that it allows the inclusion of state-by-year fixed effects to absorb potentially confounding time-varying state-level factors that could compromise the first research design.

Consistent with federal legislation narrowing the gender gap, we find that women's weekly wages grew more quickly after 1964 in job cells with larger preexisting gender gaps—an effect equivalent to 10% (9.9 log points) at the mean gender gap. Noteworthy is

that effect sizes do not differ for White and Black women, which suggests that the estimates are not driven by the Civil Rights Act's effects on racial discrimination. In addition, the research design recovers no effects of the legislation on men's wages, which ameliorates concerns that other labor market shocks or policies drive these findings.

Heterogeneity tests underscore the complementarity and validity of the two empirical approaches. In states without preexisting equal pay laws—where federal antidiscrimination legislation should have been more effective—women's weekly wages grew by 18% at the mean after 1964, whereas women's wages grew by one-third that amount (6%) in states with preexisting equal pay laws. In addition, recentered-influence-function (RIF) regressions show that the largest effects of the legislation accrued to women in the lowest percentiles of the wage distribution, which connects these findings to the large wage growth after 1964 among women earning below median weekly wages in Figure I, Panel B. These patterns are consistent with pay equalization being greater in jobs where the "equality of work" was more easily judged and where the Wage and Hour Division (WHD)—the agency tasked with enforcing the Equal Pay Act—focused its investigations of compliance with the minimum wage.

A final analysis investigates how federal antidiscrimination legislation affected women's employment. Consistent with firms having some monopsonistic power to set wages, the data provide little evidence that women's employment or annual hours fell in response to wage increases in the short run—findings that align closely with Manning's (1996) study of the Equal Pay Act in the United Kingdom. In the long run, we find some evidence that women's employment grew more slowly in more affected job cells, which is consistent with Neumark and Stock's (2006) study of state-level antidiscrimination legislation before 1960. Contemporary accounts provide direct evidence as to why this might have been the case. After the passage of the Equal Pay Act but before the Civil Rights Act (which made the practice illegal), employers told journalists that they planned to "segregate male and female job classifications" and "downgrade job classifications for women and assign higher-paying duties to men" in response to the Equal Pay Act (Washington Post Times Herald 1964).

In summary, these results support the important role of the Equal Pay Act and Title VII in reducing pay discrimination against U.S. women in the 1960s. The magnitudes of our findings

are large enough to imply that federal antidiscrimination legislation reduced the within-job gender gap in pay by around 58% between 1964 and 1968. Some empirical evidence and the historical narrative suggest that this legislation slowed the integration of women into higher-paying, historically male jobs in the longer term. Both sets of findings are consistent with occupational segregation being a key driver of the gender pay gap by the late 1970s (Blau 1977). At first glance, these findings seem inconsistent with the stability of the gender gap at the mean and median in the 1960s and 1970s in Figure I. But the results suggest that antidiscrimination legislation offset trends tending to widen the gender gap before the 1960s. Our findings imply that the Equal Pay Act and potentially Title VII increased women's wages and halted the growth in the gender gap that would have occurred with the increasing supply and changing composition of women workers during the 1960s and 1970s (see also Blau and Kahn 2017).

These findings contribute to a long but mixed literature on the role of antidiscrimination legislation in reducing the gender gap in the United States, which has focused on the effects of affirmative action after 1967 or the expansion or enforcement of Title VII after 1970 (Beller 1979, 1982a, 1982b; Leonard 1984; Carrington, McCue, and Pierce 2000; Holzer and Neumark 2006; Kurtulus 2012; Helgerman 2023). Little evidence exists regarding the effects of the 1963 Equal Pay Act, and studies of equal pay initiatives in other countries suffer from a dearth of data, limited internal validity, and differences in policies and implementation (Gunderson 1989). This article develops two new empirical strategies to show that the Equal Pay Act of 1963, which was strengthened by Title VII, reduced the gender gap in pay in the mid-1960s.

II. A History of the Equal Pay Act and Title VII of the Civil Rights Act

Before the 1960s, sex discrimination was not only widely accepted in the United States, it was legislated and institutionalized. State laws mandated different minimum wage, break, and rest requirements for men and women and placed different restrictions on the jobs men and women could hold (Moran 1970; Marchingiglio and Poyker 2021). Union contracts delineated different pay schedules by sex for the same job (Eaton 1965). Newspapers posted help-wanted advertisements for male and female jobs (Pedriana and Abraham 2006), along with explicitly different

pay scales for what appear to be the same jobs.[3] Although marriage bars had largely disappeared by the 1950s, women tended to leave (or be pressured out of) jobs when they got married (Goldin 1991) or became pregnant (Gruber 1994).

Although World War II opened many jobs to women and women's labor force participation rates surged from 26% to 35% between 1940 and 1960, women tended to work in certain jobs—a pattern reinforced by the postwar rise of scheduled part-time work (Goldin 1990, 2006a). In the 1960 census, approximately 83% of male workers were employed in occupations in which no more than 20% of the workers were female (Blau 1977, 12); 58% of women worked in occupations where they made up more than 80% of the workers, with the other 42% working in more integrated occupations (Blau 1977, 12). For example, many women worked as secretaries, teachers, nurses, librarians, and social workers.

These changes in women's work were accompanied by an expansion of the gender gap. Between 1950 and 1960, men's weekly wages grew by 32 log points, whereas women's weekly wages only grew by around half that figure, increasing the gap in pay by around 16 log points (Online Appendix Table 1.A). Our investigation of the source of men's greater earnings growth over the 1950s reveals that their gains exceeded women's in almost every industry-occupation cell. A Blinder-Oaxaca-Kitagawa decomposition shows that around 90% of the change in the gender gap between 1950 and 1960 is explained by faster wage growth in jobs dominated by men but also faster wage growth for men who were working in the same industries and occupations as women. The remainder is accounted for by differential changes in men's representation in higher-earning job cells (see Online Appendix Figures 2–3 and Online Appendix Table 2 for details).

II.A. State and Federal Equal Pay Acts

In this broader context of a rising gender pay gap, the 1963 Equal Pay Act represented a watershed moment following decades of advocacy. Federal equal pay legislation was first introduced to Congress in 1945 after wage studies showed pervasive differences between women and men in wartime industries. The

3. In an analysis of these advertisements, Hunt and Moehling (2021) find an advertised gender wage gap of 38 log points in three cities in 1960, 28 log points of which corresponds to within-agency differences in pay.

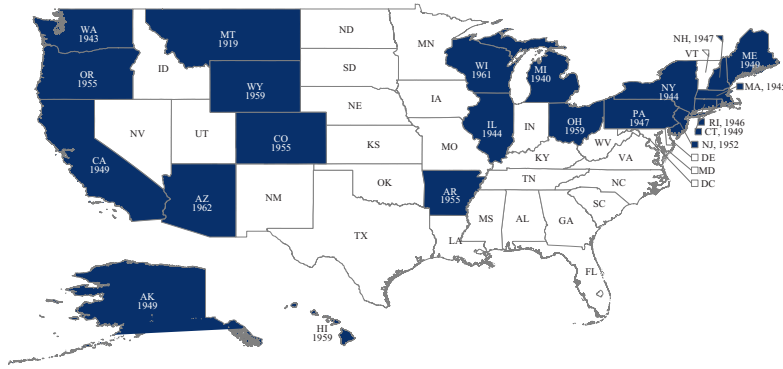


FIGURE II

Map of State Equal Pay Laws as of 1963

The figure plots the 22 states with equal pay laws in the United States as of 1963 (dark blue) and those without such a law (U.S. Congress 1963). The states with equal pay laws in 1963 are Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Hawaii, Illinois, Maine, Massachusetts, Michigan, Montana, New Jersey, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Washington, Wisconsin, and Wyoming. The year listed next to each state indicates the year when the state enacted its equal pay law. See also Neumark and Stock (2006).

Women's Bureau in the Department of Labor documented multiple examples of sex-based pay discrimination, including discrepancies in entry wages and pay for more experienced workers in identical jobs (Fisher 1948).[4] Although federal legislation failed to pass for two decades, 22 states passed equal pay laws before 1963 (U.S. Congress 1963). State equal pay laws were primarily in the Northeast, Midwest, and West (Figure II), where their aim was often to keep women from undercutting men's wages rather than raising women's earnings. Arkansas was the sole state in the South to pass equal pay legislation.

State equal pay laws varied in their language and enforcement. Michigan and Montana, the two states that passed the first equal pay laws in 1919, illustrate these differences well. While Montana's law applied to nearly any enterprise employing men and women, Michigan's law applied only to employees in manufacturing. A common thread across these two states is that

4. Fisher (1948) reports one particularly egregious example: "In the gun manufacturing industry … where *experienced* men and women worked on five different types of machines, the *lowest* rate for men was at least ten cents *above* the highest wage paid to women" (51).

neither one went beyond making a "general declaration of law," which made these laws difficult to enforce (Fisher 1948, 54). In making the case for a national Equal Pay Act to Congress, the Women's Bureau noted that state laws "leave large groups of workers out, and often have inadequate provisions for administration and enforcement" (U.S. Congress 1963, 20).

The momentum to pass federal antidiscrimination legislation in the 1960s grew out of President John F. Kennedy's Commission on the Status of Women. The Equal Pay Act was first introduced to Congress in August 1961 and managed to pass in both houses, but the business lobby undermined the bill during the reconciliation process (Harrison 1989). Esther Peterson, the Assistant Secretary of Labor and Director of the U.S. Women's Bureau under Kennedy, redoubled her efforts and revived the Equal Pay Act as an amendment to the FLSA (P.L. 75–718). In addition to producing detailed reports to document pay differences (U.S. Congress 1962), Peterson used her congressional testimony to describe pervasive sex discrimination in employment. Analyzing pay differences among similarly experienced bank tellers working comparable hours, the Department of Labor found that women had lower weekly earnings in every city studied (U.S. Congress 1963, 31). Furthermore, surveys found that men outearned women with the same title in nearly all establishments (30, 37).[5]

To quantify the gender gap in pay within narrowly defined jobs just before the Equal Pay Act passed, we digitized the 1963 OWS, which contains weekly or hourly wage observations by sex from 82 cities and 58 narrowly defined job classifications (U.S. Department of Labor 1963). The OWS shows a 32-log-point gap in pay across all cities and jobs in 1963 (Online Appendix Table 4), which is similar to the gap in weekly wages in the census and ASEC. When including fixed effects for detailed job classifications and cities, the within-job gap in weekly pay is 17 log points—a sizable wage gap within jobs that could be targeted by the Equal Pay Act. Jobs with hourly pay show a larger total gender gap in pay of 44 log points but a similar within-job difference in pay of 18 log points. The Labor Department noted that differences in pay occurred mostly in "large department stores, banks, airline

5. Online Appendix Table 3 reprints tabulations of gender differences in average hourly earnings across several industry-occupation categories in Chicago, Winston-Salem (NC), and Philadelphia.

reservation offices, chain stores, and other firms where men and women customarily perform similar work" (Eaton 1965).

Peterson's report also cited a National Office Management Association survey of employers in the United States and Canada, which asked, "Do you have a double standard pay scale for male and female office workers?" (U.S. Congress 1963, 27), where one third of employers answered, "Yes." In discussions with members of Congress, Peterson often cited a personal anecdote, noting that a manager told her, "We pay them less because we can get them for less" (quoted in Harrison 1989, 95).

Under Peterson's stewardship, the revised equal pay bill was introduced on February 14, 1963, and—after replacing the phrase "comparable work" with "equal work"—passed into law on June 10, 1963. The Equal Pay Act prohibited sex-based wage discrimination between men and women in the same establishment who perform jobs that require substantially equal skill, effort, and responsibility under similar working conditions. Sex discrimination can take many different forms, including women being paid less than their productivity solely due to their sex, being hired less, receiving different job assignments, and receiving different promotion opportunities. The Equal Pay Act only addresses sex discrimination to the extent that it manifests as unequal pay for equal work. For workers not covered under collective bargaining agreements, the Equal Pay Act took effect on June 10, 1964. For the 13% of women who were unionized in the early 1960s (LeGrande 1978), the act took effect the following year on June 10, 1965. As an amendment to the FLSA, the Equal Pay Act only applied to workers covered under the FLSA.[6]

6. Not all workers are covered under the FLSA, but its coverage was expanded in the 1961 and 1966 amendments and in the 1972 Educational Amendments. The 1961 amendments extended FLSA coverage to employees in retail or service, local transit, construction, and gasoline service stations. The 1966 amendments expanded coverage to include employees on large farms, federal service contracts, federal wage board employees, and certain Armed Forces employees (e.g., post exchanges). It also narrowed or repealed exemptions for employees of hotels, restaurants, laundries and dry cleaners, hospitals, nursing homes, schools, auto and farm implement dealers, small loggers, local transit and taxi companies, agricultural processing, and food services. Finally, the 1966 FLSA included an indirect expansion of coverage through its reduction in the enterprise volume test from $1 million (in the 1961 amendments) to $250,000. See Bailey, DiNardo, and Stuart (2021) for a discussion of changes in coverage and minimum wages in the 1960s. Another quirk of the FLSA is that section 13(a)(1) carves out an exemption to the minimum wage and overtime provisions for any worker employed in a *bona*

II.B. Title VII of the Civil Rights Act

Just one year after the Equal Pay Act passed, Congress enacted the 1964 Civil Rights Act. Title VII of the Civil Rights Act overlapped with the Equal Pay Act in its coverage of pay discrimination but also extended its provisions by (i) expanding coverage to many workers not covered under the FLSA and (ii) prohibiting sex-based discrimination in employment, including hiring, firing, and promotions. Coverage was not universal: Title VII did not apply to public sector employees until 1972 (Posner 1989), and the legislation covered only employers with at least 100 employees as of July 1965, a threshold that was gradually reduced to 25 employees by 1968.

The goal of the Civil Rights Act had little to do with gender equality, and the initial legislation did not include sex among the protected classes of race, color, religion, and national origin. "Sex" was added to Title VII's protected classes just one day before the final vote by a segregationist, Representative Howard Smith (D-Virginia), who opposed the act's passage. Many commentators believe Smith intended to make the bill unpassable (Harrison 1989).[7] Thomas (2016) explains how Smith played his amendment for laughs, claiming a letter from his constituent had asked him to "protect our spinster friends." One of the 12 women Representatives, Martha Griffiths (D-Michigan), silenced the laughter, saying, "if there had been any necessity to point out that women were a second-class sex, the laughter would have proved it" (102). The next day the legislation passed, codifying prohibitions of sex-based employment discrimination into federal law.

II.C. The Effectiveness of Antidiscrimination Legislation in the 1960s

As an amendment to the FLSA, the enforcement of the Equal Pay Act fell to the WHD in the Department of Labor, which monitors and enforces compliance with the FLSA (P.L. 75–718). Based on the WHD's long reputation, firms knew that noncompliance could be punished by mandating the payment of back

fide executive, administrative, or professional (EAP) capacity. Consequently, when the Equal Pay Act prohibited discrimination on the basis of sex by amending the FLSA, EAP-exempt workers were not covered. In 1972, Title IX of the Educational Amendments amended section 13(a)(1) to remove the EAP exemption from the equal pay provisions.

7. Goldin (2023) notes some nuance to this interpretation, pointing out that Smith supported the Equal Rights Amendment.

wages and criminal prosecution, and courts had already settled many points of interpretation. Following the Equal Pay Act's effective date in 1964, the WHD instructed its field staff to check for compliance with the new equal pay provisions as part of all investigations under the FLSA (U.S. Department of Labor 1965). In addition, the Labor Department filed suits signaling its intent to enforce the law. *Wirtz v. Basic Incorporated* (1966) challenged an employer's claim that a male analyst was entitled to more money because he had greater experience and responsibility. The court supported the Labor Department's claim of discrimination, noting that the work of three employees (one man and two women) was the same and that the man's greater experience was not a requirement of the job. The ruling emphasized that the statutory requirement of "differences in working conditions" could not be established by job title alone and that the burden of proof for any exceptions to equal pay lay with the employer.

The Department of Labor continued to enforce compliance with the Equal Pay Act, reviewing labor union contracts and bringing multiple lawsuits. By the end of 1964, investigators had found $55,000 in discriminatory wage payments owed to women, and one firm voluntarily paid $227,000 (in 2022 dollars) in back pay when the WHD began checking for discrimination. By 1965, around 80% of sex-discrimination complaints led to back payments to workers. Likely due to the WHD's enforcement, Secretary Wirtz reported to Congress that "voluntary" compliance with the Equal Pay Act was high (U.S. Department of Labor 1966, 18). Many unions and employers made voluntary changes to eliminate contractual differences in wage rates, welfare and pension plans, sick leave, rest periods, and "marriage provisions" that dictated the loss of seniority and possible dismissal for women who married. At the same time, the courts strengthened the law by issuing rulings to eliminate employer justifications for unequal pay. (See Online Appendix E for contemporary newspaper articles about these enforcement efforts.)

Building on the federal Equal Pay Act, many states extended existing fair employment practice laws to prohibit pay discrimination on the basis of sex, while others passed new equal pay legislation. These state measures supplemented the federal law by extending the equal pay principle to areas not covered by federal statutes (Simchak 1971). By the end of the 1960s, some contemporaries concluded that the Equal Pay Act had been successful in achieving its aims (Moran 1970). Hole and Levine (1971)

argue that "the Equal Pay Act [is] the only law dealing with sex discrimination that is anywhere near properly enforced" (29).

The enforcement of Title VII was a different story. The Equal Employment Opportunity Commission (EEOC)—the newly created agency tasked with enforcing the 1964 Civil Rights Act—had limited will and authority to enforce the law's sex-based provisions (Munts and Rice 1970). The EEOC regarded its primary mission as reducing racial discrimination, maintaining that "the addition of *sex* to the law had been illegitimate—merely a ploy to kill the bill" (Harrison 1989, 187).[8] Another complication was that Title VII challenged decades of state protective legislation that explicitly set different standards by sex. Because the 1965 EEOC did not see "any clear Congressional intent to overturn all of these [state] laws" (Harrison 1989, 187), it created a task force to provide states with guidelines—a process that took years (Munts and Rice 1970). Unlike the Labor Department, the EEOC was initially unable to bring its own lawsuits and could only refer cases to the Department of Justice. Consequently, the EEOC had pursued very few sex discrimination cases by 1970. Simchak (1971) notes, "Of the total number of court cases filed by the Department of Justice to date (approximately fifty) under all the discrimination criteria in Title VII, only one has pertained to sex discrimination" (555).

Ambivalence about sex discrimination outside the Labor Department is also evident in President Lyndon Johnson's 1965 Executive Order 11246, an affirmative action mandate that omitted "sex" entirely (Johnson 1965). The order prohibited the federal government and federal contractors from employment discrimination on the basis of race, color, religion, or national origin only. This inaction galvanized women's groups and advocacy efforts and eventually resulted in Executive Order 11375 in 1967, which amended Order 11246 to include "sex" (Johnson 1967; Harrison 1989). But the EEOC's active enforcement of Title VII's sex provisions did not increase in earnest until after the U.S. Supreme Court's decision in *Phillips v. Martin Marietta Corporation* (1971), which ruled that an employer cannot hire

8. When a reporter asked Franklin D. Roosevelt Jr., the EEOC's first commissioner, "What about sex?" Roosevelt joked, "I'm all for it." Similarly, the EEOC's second executive director, Herman Edelsberg, dismissed the sex provision as a "fluke" that was "conceived out of wedlock" (Thomas 2016). Title VII became known as the "Bunny Law," named after a satirized case in which Playboy turned down a man for a job as a Playboy bunny.

men with young children while maintaining a policy to prohibit hiring women with young children.[9] Title VII was strengthened further by the amendments in the Equal Employment Opportunity Act of 1972, which gave the EEOC the authority to pursue independent lawsuits and expanded the act's coverage of individuals employed by the government and smaller firms (P.L. 92–261).

Overall, the historical record provides a mixed picture of the success of the Equal Pay Act and Title VII in addressing labor market discrimination against women in the 1960s. While the Equal Pay Act's provisions were seriously enforced starting in 1964 and extended through state legislation, the law's effects were likely limited by "equal work" requirements, which failed to address pay discrimination arising from differential hiring, assignment, and promotion of men and women. Title VII's provisions were broader, but the EEOC's reluctance to enforce the law's sex provisions and the EEOC's limited enforcement authority likely curbed the statute's effectiveness until the 1970s. Consistent with this history, research on the implications of Title VII for sex discrimination focuses on this later period (Beller 1979, 1982a, 1982b).

III. Data and Research Design 1

Our analysis complements these historical accounts by quantifying the effects of the Equal Pay Act and Title VII on women's wages and employment. To do so, we combine the 1% sample of the 1950 census, the 5% sample of the 1960 census, and the 1962 to 1975 CPS ASEC to document labor market outcomes in nationally representative data (Ruggles et al. 2021, 2023; Flood et al. 2023). Some analyses also use the combined 1% Form 1 and Form 2 state samples of the 1970 census, as well as the full count 1940 census (Ruggles et al. 2021).

III.A. Data Processing and Sample Restrictions

Our sample includes nonagricultural workers ages 25 to 64. We impose these age restrictions in part to focus on prime-age

9. Following *Marietta*, considerable ambiguity about sex discrimination remained. For instance, in *General Electric Co. v. Gilbert* (1976) the U.S. Supreme Court held that Title VII did not guarantee pregnant women equal coverage under employee benefit plans covering nonoccupational sickness and accidents, which Congress remedied with the Pregnancy Discrimination Act of 1978 (Posner 1989).

workers and to limit the influence of school-going and retirement on our results. To increase consistency between the ASEC and censuses, we restrict the censuses to individuals not in the Armed Forces or institutionalized. We additionally require that observations have non-missing data for industry, occupation, and state group of residence, which are critical for our empirical approach. Our analysis uses 9 industries (n), 8 occupations (o), and 21 state groups (s).[10] We exclude individuals working in agriculture by dropping individuals with the occupation of "farmer" or "farm laborer" or the industry of "agriculture, forestry, and fishing." We also exclude people if they report being self-employed in the survey reference week or if the ratio of their self-employment and farm income to labor income exceeds 10% in absolute value (Lemieux 2006).

We convert annual wage earnings into 2022 dollars using the CPI-U. The census and ASEC ask about annual earnings and weeks worked in the year before the survey, so we index wages and employment to the appropriate year (e.g., the 1965 ASEC provides information about wages and employment in 1964). Our preferred wage measure is log weekly wages, which we construct by subtracting from log annual wage earnings the mean log number of weeks worked in each reported interval.[11] Because weekly wage earnings are measured with error due to (i) the aggregation of weeks worked into intervals and (ii) misreporting by respondents about wage earnings and weeks worked, we evaluate the

10. The nine industries are mining, construction, manufacturing, transport/communications/electric/gas/sanitary services, wholesale trade, retail trade, finance/insurance/real estate, services, and public administration. The eight occupations are professional/technical, managers/officials/proprietors, clerical, sales, craftsmen, operatives, service, and nonfarm laborers. The public ASEC only identifies 21 state groups consistently in our period of interest, which dictates our use of 21 "state groups."

11. We prefer weekly wages as an outcome variable because this adjusts to some degree for labor supply (unlike annual earnings) and avoids combining questions on earnings and weeks worked in the prior year with hours worked in the survey reference week. The 1960 census and 1962–1975 ASEC report weeks worked last year in categories (1–13, 14–26, 27–39, 40–47, 48–49, and 50–52 weeks), whereas the 1976–1979 ASEC report weeks worked in integers. We use the 1976–1979 ASEC to estimate the mean log number of weeks worked in each category in the 1962–1975 ASEC by sex, race, and 10-year age bin. Similarly, the 1960 census reports hours worked in categories (1–14, 15–29, 30–34, 35–39, 40, 41–48, 49–59, and 60+). For 1960, we use the mean log hours worked in each category estimated from the 1962–1979 ASEC by sex, race, and 10-year age bin.

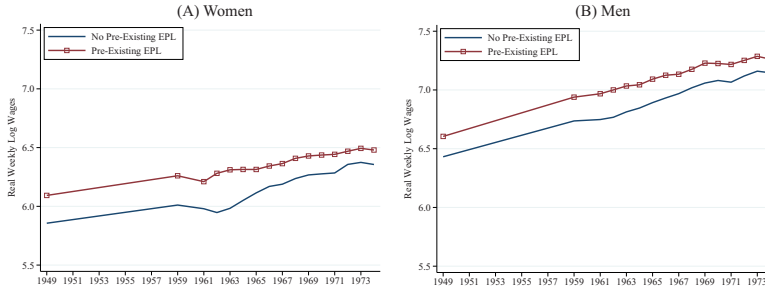


FIGURE III

The Evolution of Women's and Men's Weekly Wages in States with and without Preexisting Equal Pay Laws

The figure plots the mean of the log of weekly wages for women and men in state groups that did not have an equal pay law as of January 1, 1963, and state groups where at least one state did have such a law. *Sample*: Individuals aged 25 to 64 with positive annual wage and salary earnings and positive weeks worked in the prior year (restrictions necessary to construct real weekly wages) who are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. Because our primary analysis conditions on having positive hours in the survey reference week, we make this additional sample restriction for this figure. *Sources*: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023, Ruggles et al. 2023).

sensitivity of our results to using annual earnings and hourly wage earnings (see Online Appendix A) and to winsorizing the lowest 10 percentiles (see Online Appendix B). Our analysis sample for weekly wages and annual hours consists of individuals with positive annual earnings and weeks worked in the previous year and positive hours in the survey reference week. (Hours is used as a covariate in the weekly wage regressions and in the construction of the outcome in the case of annual hours.) Our analysis sample for employment is broader. To avoid missing potential disemployment effects among workers missing wages or hours, we count as employed all individuals with positive weeks worked (regardless of whether they also reported positive wage earnings or hours worked). Sample descriptions appear in the figure and table notes.

Figure III describes the evolution of mean log weekly wages in states with and without preexisting equal pay laws for both women and men. Several features of these plots stand out. First, weekly wages show a dip in the early 1960s relative to the 1960 census, which likely reflects changes in the CPS sampling frame

between 1961 and 1963.[12] The dip in weekly wages is slightly larger for women and in states without equal pay laws, which should be kept in mind when interpreting our estimates. Second, states without equal pay laws tended to have lower average weekly wage earnings, which is not surprising given that the standards of living were lower in the South and western Midwest, which were less likely to have equal pay laws (Figure II). Third, women's wages in states without preexisting equal pay laws converge on those of women in states with equal pay laws after the mid-1960s—a pattern less evident among men. Our first research design formalizes these comparisons in an event-study framework.

III.B. Research Design 1: Preexisting State Equal Pay Laws

Our first research design posits that antidiscrimination legislation should have larger effects in areas with more sex discrimination. Motivated by Neumark and Stock (2006), we test whether women's wages grew more quickly after 1964 in the 28 states that did not have preexisting equal pay laws. This would be the case if state equal pay laws had lowered sex discrimination somewhat before 1963, implying that federal legislation would have smaller effects in these states.

We focus on the legislation's effects on women's pay and employment as proxies for multiple types of labor market sex discrimination. Changes in women's weekly wage earnings capture the extent to which the Equal Pay Act directly raised women's pay or put upward pressure on market wages, which would have directly affected women in the same jobs as men and indirectly affected those employed in sex-segregated jobs and firms. Changes in women's weekly wages also embed changes in discrimination through hiring and promotion—the extent to which Title VII allowed women to transition to more lucrative positions or the lack of its enforcement, which may have increased occupational segregation and downgrading, mitigating women's pay growth. To the extent that Title VII's lack of enforcement allowed firms to lay off women, this should be reflected in reduced employment. In sum,

12. Changes to the sampling frame reflect changes in the population size and distribution as well as the industrial mix between areas as revealed in the 1960 census. Interested readers may find a history of the CPS at https://www2.census.gov/programs-surveys/cps/methodology/Techincal%20paper%2066%20chapter%202%20history.pdf (accessed December 30, 2021).

changes in women's relative wages and employment potentially capture a broad set of changes in labor market discrimination, even though we do not observe discrimination directly.

1. *Event-Study Specification for Weekly Wages.* We estimate the following event-study specification using ordinary least squares:

$$Y_{it} = \sum_{\tau=1949,\tau\neq1964}^{1974} \alpha_\tau D_\tau NoEPL_{s(i)} + X_{it}'\beta + \gamma_{n(i)o(i)s(i)} + \delta_{s(i)b(i)} + \delta_{n(i)t} + \delta_{o(i)t} + \varepsilon_{it}. \quad (1)$$

The outcome, Y_{it}, is log weekly wage earnings of individual i in calendar year t = 1949, 1959, 1961–1974. The independent variable of interest, $NoEPL_s$, is equal to 1 if a state group did not have an equal pay law as of January 1, 1963. In the three state groups containing states with and without equal pay laws, we use the share of workers in the state group residing in states without an equal pay law.[13] We identify whether states had an equal pay law using statutory coding from U.S. Congress (1963), which agrees with Neumark and Stock (2006, Table II). Note that $NoEPL_s$ does not vary across year—it is time invariant and captures a state's legal environment as of 1963.

We interact $NoEPL_s$ with a set of year indicator variables, D_τ, omitting 1964—the year the Equal Pay Act took effect. Our parameter of interest, α_τ, captures the combined effects of the Equal Pay Act and Title VII on women's weekly wages. If (i) sex discrimination in pay or employment was larger in 1963 in states without state-level equal pay legislation and (ii) national antidiscrimination legislation reduced sex discrimination, we expect women's wages to grow after its passage such that that $\alpha_\tau > 0$ for $\tau > 1964$. If the parallel-trends assumption holds—implying that

13. We calculate the share of workers in a state group that lived in a state without an equal pay law using the 1960 census. In Arkansas-Louisiana-Oklahoma, 76% of wage earners were in a state without an equal pay law (Louisiana, Oklahoma). In Arizona-Colorado-Idaho-Montana-Nevada-New Mexico-Utah-Wyoming, 40% of wage earners were in a state without an equal pay law (Idaho, Nevada, New Mexico, Utah). In Maine-Massachusetts-New Hampshire-Rhode Island-Vermont, 5% of wage earners were in a state without an equal pay law (Vermont). Online Appendix Table 5 reports summary statistics by states' preexisting equal pay law status.

states with and without equal pay laws were trending similarly before the Equal Pay Act and Title VII took effect, then we expect $\alpha_\tau = 0$ for $\tau < 1964$. To the extent that the federal legislation affected discrimination in states with preexisting equal pay laws, this approach will understate the legislation's effects on states without equal pay laws—a point we revisit with the second research design. Changes in state laws after 1964 that targeted labor market discrimination tended to bring states into accord with federal law, and we regard these changes as part of the treatment effect of the federal legislation.

We include additional covariates to account for changes in workforce composition and improve precision. The vector X_{it} includes log hours worked in the reference week, an indicator variable for nonwhite race, and a quadratic in the worker's age.[14] Fixed effects for single-digit industry n by single-digit occupation o by state-group s, γ_{nos}, account for average differences in wages across *nos* job cells and labor markets. While these fixed effects focus the analysis on within industry-occupation-state-group wage changes, these cells are broader than the within-establishment, within-job pay gaps targeted by the Equal Pay Act. To the extent that men shifted to higher-paying jobs in industry-occupation-state-group cells, our results may understate the wage effects of the legislation in the same jobs. We view this as a feature of the research design: it recovers changes in women's pay net of these potentially offsetting shifts in employment as long as they occur in a single-digit industry-occupation-state group cell. In addition, even sex-segregated jobs and firms would have to pay more to attract women workers, both because of legislation-induced general equilibrium increases in women's market wages and because Title VII made it harder to exclude them from jobs. Our design captures this upward wage pressure as well as direct compliance with the law.

Although this specification cannot include state-by-year fixed effects to account for time-varying, within-state changes in labor

14. We control for the log of hours worked in the reference week because the usual number of hours worked during the year is not available. Although this variable is not ideal, it allows us to adjust for potential differences in labor supply that could contribute to differences in weekly earnings. The aggregation of "nonwhite" is necessitated by the data. Detailed race/ethnicity coding that would be used today is not consistently reported during the 1960s. Hispanic/Latinx origin is not available in the ASEC until 1971.

markets or policies (Chay 1998; Almond, Chay, and Greenstone 2003; Cascio et al. 2010; Bailey and Duquette 2014; Bailey and Goodman-Bacon 2015; Goodman-Bacon 2018), it accommodates other flexible controls. In some specifications we include state-group-by-birth-year (b) fixed effects, δ_{sb}, which flexibly account for cohort-level shifts in women's aspirations and skills (Goldin 2006a, 2006b) as well as differential state-level changes in labor-market skills (including educational quantity and quality, potential labor market experience, and unobserved cohort characteristics). Industry-year and occupation-year fixed effects, δ_{nt} and δ_{ot}, capture unobserved, national changes that affect all workers in these groups.[15]

A triple-differences specification accounts for gender-neutral labor demand or supply shocks by using men as an additional comparison group. To the extent that the Equal Pay Act and Title VII reduced men's wages (either as a means for firms to comply with the law or in response to general increases in the cost of labor), this specification may overstate the resulting gains in women's wages. On the other hand, this specification could understate the effect on women's wages if the legislation caused firms to increase men's responsibilities (and pay) to maintain existing wage hierarchies. Consequently, this exercise provides a complementary characterization of labor market adjustments, rather than a falsification test. This specification interacts all variables in equation (1) with an indicator variable for sex, which allows the relationship of all covariates and fixed effects to differ between men and women.

2. *Employment Outcomes.* Equation (1) cannot be estimated using employment as an outcome because industry and occupation tend to be reported only for individuals who are employed. To test for the legislation's employment effects, we define the dependent variable as the log of the survey-weighted number of employees or annual hours worked in a sex-specific industry-occupation-state-group (nos) cell in year t, where annual hours worked is the survey-weighted sum of the number of weeks worked last year multiplied by the number of hours worked in the reference

15. Educational attainment is available in all years except the 1963 ASEC. We omit this covariate from our main specifications to avoid dropping 1962 as a pre-treatment observation. Including education as a covariate changes the estimates little (see Online Appendix Figures 7 and 15).

week.[16] We estimate the following specification, which is similar to equation (1) with several modifications:

$$Y_{nost} = \sum_{\tau=1949,\tau\neq1964}^{1974} \alpha_\tau D_\tau NoEPL_s + X_{nost}'\beta + \gamma_{nos} + \delta_{nt} + \delta_{ot} + \varepsilon_{nost}. \quad (2)$$

The first modification is that we replace the individual covariates with *nos* cell averages, including a quadratic in age and the share of workers that are nonwhite (we omit hours worked, which is a covariate in the earnings specifications). Second, we make two further adjustments to minimize the importance of small *nos* cells. We limit the employment regressions to *nos* cells that have at least one wage earner in each year of interest and weight by the product of each cell's share of observations in the 1960 census and the total number of observations in each survey year. These two adjustments maintain the representation of different cells over time and account for year-to-year changes in census and ASEC sample sizes. This approach places higher weight on cells which have more observations in 1960 or come from survey years with larger total sample sizes, which reduces the influence of small, noisy cells (Solon, Haider, and Wooldridge 2015). The weight does not depend on the number of industry-occupation-state-group observations in each survey year, as this would generate weights that reflect shifts in employment that might be driven by the legislation.

3. *Spline Specification.* Although the event-study specification provides a highly flexible and transparent description of the data, the estimates for individual years are often noisy. We complement the event study with a three-part spline specification with knots in 1964 and 1968, which summarizes the event-study estimates and improves precision. Using log weekly wage earnings as an outcome, the spline specification is

$$\begin{aligned} Y_{it} = {} & \tilde{\alpha_0} NoEPL_{s(i)}\,(t-1964) + \tilde{\alpha_1} NoEPL_{s(i)} 1\,(t>1964)\,(t-1964) \\ & + \tilde{\alpha_2} NoEPL_{s(i)} 1\,(t>1968)\,(t-1968) + X_{it}'\tilde{\beta} + \tilde{\gamma}_{n(i)o(i)s(i)} \\ & + \tilde{\delta}_{s(i)b(i)} + \tilde{\delta}_{n(i)t} + \tilde{\delta}_{o(i)t} + \tilde{\varepsilon}_{it}. \end{aligned} \quad (3)$$

16. We first construct annual hours worked for individuals by multiplying the level of weeks worked by hours worked, where the level is calculated using the procedure described in note 11. Then, we aggregate to the *nos* cell.

The first three terms interact linear time trends, t, with the $NoEPL_s$ variable as well as with indicator variables for the post-1964 and post-1968 period.[17] Thus, the spline succinctly summarizes trends in the data without placing too much emphasis on one (potentially noisy) point estimate or year. The remaining covariates correspond to those defined in equation (1). The spline provides a parsimonious method to test and, if necessary, adjust for pre-trends, as captured in $\widetilde{\alpha_0}$.[18] The coefficient, $\widetilde{\alpha_1}$, and corresponding standard error also admit a formal test for a trend break in outcomes after 1964, when the federal legislation first took effect. The coefficient, $\widetilde{\alpha_2}$, allows the effects of the legislation to differ in the longer term (1969 and onward) relative to the shorter term (1965–1968). We constrain the spline coefficients to ensure that the lines intersect at the knots. Specifications for employment outcomes are analogous but estimated at the aggregated *nos* level as previously described.

4. *Standard Error Calculations.* In all regressions for research design 1, we cluster standard errors to correct for heteroskedasticity and account for an arbitrary covariance structure at the state-group level (Huber 1967; White 1980; Arellano 1987; Bertrand, Duflo and Mullainathan 2004). Because we only have 21 state groups, our tables also report p-values for tests of two null hypotheses, $\widetilde{\alpha_0} = 0$ and $\widetilde{\alpha_1} = 0$, from a wild cluster bootstrap procedure with 499 replications (Cameron, Gelbach, and Miller 2008).

IV. Results for Research Design 1

Figure IV presents event-study estimates for three different specifications: model 1 includes industry-occupation-state-group fixed effects, year fixed effects, and demographic controls; model 2 adds industry-year and occupation-year fixed effects to model 1; and model 3 adds state-group-by-year-of-birth fixed effects to model 2. The estimates are highly robust to additional controls. The three models show that women's weekly wages grew more slowly in states without equal pay laws between 1949 and 1963

17. Note that the terms, $\widetilde{\alpha_3}t + \widetilde{\alpha_4}1(t > 1964)t + \widetilde{\alpha_5}1(t > 1968)t$, are not identified due to the inclusion of year fixed effects.

18. For a discussion of pre-trend adjustments, see Freyaldenhoven, Hansen, and Shapiro (2019) and Rambachan and Roth (2022).

FIGURE IV

The Effect of the Equal Pay Act and Title VII on Weekly Wages Using Preexisting State Equal Pay Laws

The figure plots the event-study coefficients from equation (1) as well as 95% pointwise confidence intervals using standard errors that have been corrected for heteroskedasticity and an arbitrary correlation within state group (Huber 1967; White 1980; Arellano 1987). The spline specification is based on model 2 of equation (3). See Online Appendix Table 6 for the individual point estimates and standard errors. *Sample*: Individuals ages 25 to 64 with positive annual wage and salary earnings, positive weeks worked in the prior year, and positive hours

FIGURE IV

(*Continued*) worked in the survey reference week who are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. *Sources*: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023, Ruggles et al. 2023).

relative to states with equal pay laws, but this pattern reversed after 1964. The event-study coefficients in Figure IV, Panel A, show that women's weekly wages in states without equal pay laws rose by 7.3 log points (std. err. 1.9) more than in other states between 1964 to 1965, followed by more gradual gains through the late 1960s.[19]

The timing of effects helps to alleviate concerns that our results are driven by several other factors, such as the differential effects of minimum wage legislation during this period. The 1961 FLSA raised the minimum wage for previously covered workers in September 1961 and September 1963. If our estimates capture the fact that women were disproportionately affected by these minimum wage hikes, we expect to see gains in their wages in 1962 and 1964. Instead, Figure IV, Panel A, shows gains in 1965, which occurred in the aftermath of the Equal Pay Act's implementation. The 1961 FLSA also extended coverage to around 663,000 workers who were paid less than the minimum wage and worked primarily in large retail enterprises and construction (Martin 1967). For workers gaining FLSA coverage in 1961, a minimum wage was implemented in September 1961 and raised

19. This estimate is the event-study coefficient on 1965 for model 2 (Online Appendix Table 6). Online Appendix Figure 4 shows that results are similar when examining log hourly or annual wages instead of log weekly wages. We construct log hourly wages as log annual wages minus the sum of log weeks worked and log hours worked. Categories for weeks and hours worked are translated into values using the procedure described in note 11. In addition, Online Appendix Figure 5 shows the robustness of our findings to winsorizing up to the tenth percentile of the 1960–1964 wage distribution for women, which is equivalent to around one-half of the 1964 minimum wage, which covered fewer workers and was at a higher real level than in recent periods. One-half the minimum wage is similar to Katz and Murphy (1992) and more aggressive than Blau and Kahn (2017), whose average "too-low-wage" is 29% of the federal minimum wage. Online Appendix Figure 6 shows that our results are similar when limiting to a sample of more attached workers, Online Appendix Figure 7 shows that our estimates are robust to controlling for education, and Online Appendix Figure 8 provides a similar conclusion when dropping states that adopted equal pay laws between 1959 and 1962.

in September 1964 and September 1965. If our empirical strategy is capturing the effects of this coverage expansion, we expect to see gains in women's weekly wages in 1962, 1965, and 1966. Instead, Figure IV, Panel A, shows only one large increase in women's weekly wages in 1965. In addition, the estimated wage increases are nearly identical when excluding individuals employed in retail trade and construction (Online Appendix Figure 9), the industries that experienced the largest expansion in coverage under the 1961 FLSA (Martin 1967). We subsequently discuss how our analysis of men's wages also helps rule out the effects of the 1961 amendments to the FLSA.

The timing of these effects also alleviates concerns that our results are driven by the adoption of Executive Order 11375, which prohibited sex-based discrimination by the federal government after November 1967 and federal contractors after October 1968; the 1966 amendments to the FLSA (effective in 1967), which increased the minimum wage and expanded its coverage; or 1967 revisions to the ASEC sampling frame and definition of employment. Our estimates show little change between 1966 and 1967, whereas Bailey, DiNardo, and Stuart (2021) and Derenoncourt and Montialoux (2021) find effects of the 1966 FLSA in 1967 after it was implemented.

Our three-part linear spline specification averages across the small ASEC samples (and noisy estimates) in the early 1960s for our preferred model 2 (Table I, Panel A, Figure IV). The event-study estimate for 1968 (8.0, std. err. 1.8, Online Appendix Table 6, column 2) is almost identical to the spline estimate of 8.7 log points (std. err. 2.1, Table I, Panel A, column (1)). The spline also admits a formal pre-trend test, which fails to reject parallel trends in women's weekly wages prior to the legislation's enactment (column (1)). Finally, the spline estimates confirm a statistically significant, positive trend break in women's wages after 1964 in states without equal pay laws (2.2 log points, std. err. 0.5).

These estimates do not include changes after 1968, which are also noteworthy although more difficult to attribute to the 1964 implementation of the Equal Pay Act and 1965 implementation of Title VII of the Civil Rights Act. The event-study estimates show a slight increase in women's wages around 1972, which corresponds to changes in the coverage and enforcement of antidiscrimination legislation. For example, Title IX of the 1972 Educational Amendments amended the Equal Pay Act to include executive, administrative, and professional workers (who were

TABLE I

THE EFFECTS OF THE EQUAL PAY ACT AND TITLE VII ON WAGES AND EMPLOYMENT USING PREEXISTING STATE EQUAL PAY LAWS

	Women (1)	Men (2)	Women − men (3)
Panel A: Log weekly wage			
Spline estimate in 1968	0.087	0.055	0.032
	(0.021)	(0.018)	(0.011)
p-value, wild cluster bootstrap	[.000]	[.006]	[.010]
Trend break in 1964	0.022	0.014	0.008
	(0.005)	(0.004)	(0.003)
Pre-trend slope, 1949–1964	−0.001	−0.002	0.001
	(0.001)	(0.001)	(0.001)
p-value, wild cluster bootstrap	[.172]	[.080]	[.467]
R-squared	0.398	0.332	0.502
Mean log weekly wage in 1960 (2022 dollars)	6.16	6.86	—
Mean weekly wage in 1960 (2022 dollars)	595	1,089	—
Panel B: Log number of employees			
Spline estimate in 1968	0.020	−0.020	0.040
	(0.069)	(0.057)	(0.027)
p-value, wild cluster bootstrap	[.790]	[.768]	[.150]
Trend break in 1964	0.005	−0.005	0.010
	(0.017)	(0.014)	(0.007)
Pre-trend slope, 1949–1964	0.009	0.009	−0.000
	(0.005)	(0.006)	(0.003)
p-value, wild cluster bootstrap	[.116]	[.174]	[.904]
R-squared	0.982	0.987	0.986
Mean *nos* cell log number of employees in 1960	11.06	10.97	—
Mean *nos* cell number of employees in 1960	90,282	103,153	—
Panel C: Log number of annual hours worked			
Spline estimate in 1968	0.025	0.001	0.024
	(0.069)	(0.059)	(0.024)
p-value, wild cluster bootstrap	[.743]	[.990]	[.283]
Trend break in 1964	0.006	0.000	0.006
	(0.017)	(0.015)	(0.006)
Pre-trend slope, 1949–1964	0.010	0.007	0.003
	(0.006)	(0.006)	(0.003)
p-value, wild cluster bootstrap	[.178]	[.349]	[.301]
R-squared	0.977	0.985	0.983
Mean *nos* cell log number of annual hours in 1960	18.38	18.59	—
Mean *nos* cell number of annual hours in 1960	132 M	202 M	—
Observations	800,141	1,559,966	2,360,107
Sex-industry-occupation-state-year cells	5,264	10,640	15,904

Notes. The table presents the spline estimates for model 2 as described in the text. Dependent variables are indicated in panel subtitles. In column (3), demographic controls and fixed effects are allowed to vary by sex. Standard errors in parentheses are corrected for heteroskedasticity and arbitrary correlation within state-group (Huber 1967; White 1980; Arellano 1987). Wild cluster bootstrap *p*-values using 499 replications are in brackets.

Sample: Panel A includes individuals with positive annual wage and salary earnings, positive weeks worked in the prior year, and positive hours worked in the survey reference week. Panel B includes individuals with positive weeks worked in the prior year. Panel C additionally restricts the sample to individuals with positive hours worked in the survey reference week. All panels are limited to individuals aged 25 to 64 who are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed.

Sources: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023; Ruggles et al. 2023).

initially excluded from the federal law's coverage as an amendment to the FLSA). The EEOC's active enforcement of Title VII's sex provisions increased in earnest after the U.S. Supreme Court's decision in *Phillips v. Martin Marietta Corporation* (1971). The amendments to the Equal Employment Opportunity Act in 1972 also gave the EEOC the authority to pursue independent lawsuits and expanded Title VII coverage of individuals employed by the government and smaller firms (P.L. 92–261).

The absence of similar changes in men's wages helps to rule out the hypothesis that broad changes in labor markets or policies—rather than federal antidiscrimination legislation—are driving these results. Using the same specification and men's weekly wages as the dependent variable, we find some evidence of gains in states without equal pay laws after the mid-1960s (consistent with Figure III, Panel B). However, gains in men's weekly wages are entirely absent between 1964 and 1965 when the effects for women are largest. Figure IV, Panel B shows that men's weekly wages in states without equal pay laws rose slightly before the legislation took effect (in 1963), failed to grow between 1964–1965 after the antidiscrimination legislation was implemented, and increased slightly in 1967 after the implementation of the 1966 FLSA amendments. Highlighting the benefits of event-study analyses, these mistimed effects show up in the spline estimates as a positive trend break for men after 1964 (Table I, Panel A, column (2)), but with a magnitude about half as large as for women. Finally, if the 1961 or 1966 amendments to the FLSA are driving our findings, we would expect to find some increases for men's wages in the years of the minimum wage changes. Our analysis of the distributional effects of the legislation for men, however, show little evidence of a trend break in men's weekly wages overall or below the median (Online Appendix Figure 10). For completeness, we report estimates from a triple-differences specification that uses men as an additional comparison group. However, the pretreatment gains for men in the event study suggest that this approach understates women's wage gains.

The lack of wage changes among men also helps rule out that the Civil Rights Act's provisions to combat racial discrimination are driving these results (Heckman and Payner 1989; Donohue and Heckman 1991). Noteworthy is that the timing of women's gains in weekly wages, which occur between 1964 and 1965 (Figure IV, Panel A), largely predate the Civil Rights Act, which took effect in July of 1965, and are absent among men

(Figure IV, Panel B), who show no gains in weekly wages between 1965 and 1966. It seems unlikely that the Civil Rights Act's race provisions would have such large effects between July and December 1965 but smaller effects in the subsequent years, when the legislation was in place for the full 12 months covered in the ASEC earnings question. A third piece of evidence is that the estimates are not statistically different for White women (8.4, std. err. 2.0) and Black women (8.5, std. err. 5.1) (Online Appendix Table 7, columns 3 and 4).

Altogether, the results suggest that the Equal Pay Act and Title VII boosted the wages of working women—a group accounting for roughly one-third of the U.S. labor force in 1960. If labor markets were perfectly competitive and women were being paid their marginal product, differentials in pay would arise due to differences in men and women's skills. Consequently, mandating equal pay would encourage firms to lay women off, reduce their hours, and hire more men. However, if women's labor supply to a firm were not perfectly elastic, firms might counterintuitively respond to the Equal Pay Act by increasing the employment of women in response to their higher mandated wages (Manning 1996).

To test this hypothesis, Figure V describes the evolution of the log of the number of employees and the log of annual hours worked by states' equal pay law status. The time series shows different pre-trends in both outcomes for both sexes, as employment in states without equal pay laws caught up with the rest of the country. The event-study estimates in Figure VI, which formalize these comparisons and adjust for covariates, illustrate a violation of the parallel-trends assumption. (A difference-in-differences estimator would attribute the increase in the average difference in employment after 1964 to federal antidiscrimination policy, even though it is driven by a positive pre-trend, which is why we favor the spline in this context.) Consistent with the visual impression in Figure VI, we find no trend break after 1964 in women's employment or hours worked, including when we compare to the same outcomes for men, suggesting that the legislation had little effect on women's employment at the extensive or intensive margins (Table I, Panels B and C).

In summary, these findings suggest that the Equal Pay Act and Title VII increased women's wages rapidly. To put these effect sizes in perspective, our preferred estimate for women from Table I, column (1) (8.7 log points) is just over half of the average within-occupation weekly wage gap (17 log points) in the 1963 OWS (Online Appendix Table 4, column 3). There is little evidence

FIGURE V

The Evolution of Women's and Men's Employment and Annual Hours in States with and without Preexisting Equal Pay Laws

Panels A and B plot the mean of the log sum of employees (total employment) within an industry-occupation-state-group job cell for women and men in state groups that did not have an equal pay law as of January 1, 1963, and state groups where at least one state did have such a law. Because the total counts are depressed in 1961–1962 and to a lesser extent in 1963–1964, due to issues around whether variables were included in the February CPS, we inflate employment by the inverse of the fraction of observations in each year coded as a February-March match. Panels C and D show analogous results for the mean of log annual hours worked, which are adjusted using the same inflation factor. *Sample*: Panels A and B include individuals aged 25–64 with positive weeks worked in the prior year who are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. To provide a broad characterization of employment, this sample is deliberately less restrictive than the sample in Figure III. It includes individuals with positive weeks worked who do not report positive wage earnings in the previous year and individuals who do not have positive hours in the survey reference week. Panels C and D additionally restrict the sample to individuals with positive hours worked in the survey reference week to construct annual hours worked (equal to the product of weeks and hours). *Sources*: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023; Ruggles et al. 2023).

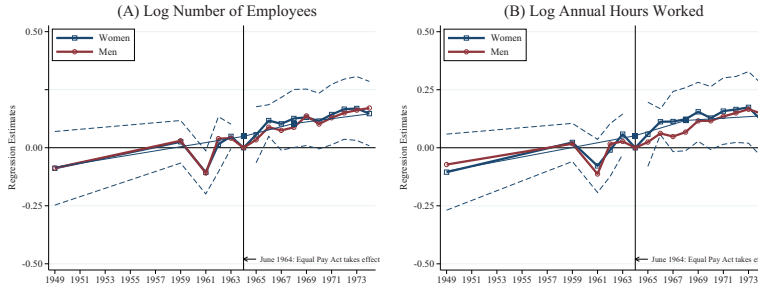


FIGURE VI

The Effect of the Equal Pay Act and Title VII on Employment Using Preexisting State Equal Pay Laws

The figure plots the event-study coefficients from model 2 of equation (2). Dependent variables are indicated in subtitles. Dashed lines are 95% pointwise confidence intervals for women, where standard errors have been corrected for heteroskedasticity and an arbitrary correlation within state group (Huber 1967; White 1980; Arellano 1987). See Online Appendix Table 8 for the individual point estimates and standard errors. *Sample*: Panel A includes individuals aged 25 to 64 with positive weeks worked in the prior year who are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. Panel B additionally restricts the sample to individuals with positive hours worked in the survey reference week. *Sources*: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023; Ruggles et al. 2023).

from this research design of a decline in women's employment, which is consistent with Manning's (1996) findings of labor market monopsony for women in the United Kingdom. As state-level variation in preexisting equal pay laws limits our ability to rule out alternative hypotheses, we use a second and complementary research design to narrow the scope for omitted variables.

V. RESEARCH DESIGN 2

Our second research design also hypothesizes that the Equal Pay Act and Title VII—if effective—should have larger effects after 1964 in jobs with more preexisting sex discrimination. Under the assumption that a larger 1960 gender gap in pay is correlated with more sex discrimination, we expect larger relative wage gains after 1964 for women in jobs with larger gender gaps. An additional benefit of this approach is that it allows us to account for state-level shifts in labor demand or supply, policies, and economic conditions, which could confound the state equal pay law design.

V.A. *The 1960 Gender Gap as a Proxy for Labor Market Discrimination*

We do not observe jobs or establishments in the censuses or ASEC, but we compute the gender gap in single-digit industry (n), occupation (o), and state-group (s) "job cells." We rely on the 1960 census (rather than the 1964 ASEC) because the census offers a much larger sample size, which yields more reliable gender wage-gap estimates for a larger number of industry-occupation-state-group cells and mitigates concerns about mean reversion.[20] Nine single-digit industries, eight single-digit occupations, and 21 state groups yield 1,512 potential job cells. We exclude from our analysis 562 cells that have fewer than 10 women or 10 men working at least 27 weeks and 35 hours per week in the 1960 census and 8 that have no observations in the ASEC during our period of interest.[21] Our final sample consists of 942 industry-occupation-state-group job cells, which is slightly more restrictive than the wage earner sample used in our state-level research design. For each job cell, we construct the unconditional gender wage gap in mean log hourly wages using the 1960 census, $\widetilde{Gap}_{nos} = logW^{m}_{nos} - logW^{w}_{nos}$, where m denotes men and w women, and the variable describes the extent to which men outearn women.[22]

20. The 1960 census has over 600,000 women in the wage earner sample, whereas the 1964 ASEC has around 6,000 such women, allowing us to construct only 75 job cells. If a high gender gap (due to lower women's wages) in a job cell in the 1964 ASEC reflects sampling variation, these job cells would tend to see higher wage growth for women in the year afterward due to mean reversion. Using the 1960 census to measure the gender wage gap eliminates this mechanical relationship.

21. Included job cells are listed in Online Appendix Table 9, and excluded job cells are listed in Online Appendix Table 10. Online Appendix Table 11 describes the number of observations by sex, year, occupation, and industry.

22. We use the sample of individuals working at least 27 weeks and 35 hours per week when calculating the gender wage gap. In addition, we use the gender gap in hourly wage earnings to minimize the influence of differences in labor market work between women and men. The gender wage gap is nearly identical when we control for individuals' demographic and education characteristics using a quadratic in age, an indicator for workers of a nonwhite race, and a set of indicators for each year of schooling. The correlation between the unadjusted gender gap and the covariate-adjusted gender gap is 0.97 (Online Appendix Figure 11.A), so we use the unadjusted gender gap for simplicity. Online Appendix Figure 11.B shows that the gender gap in hourly wages is very similar to the gender gap in weekly wages (correlation of 0.98), and Online Appendix Figure 11.C

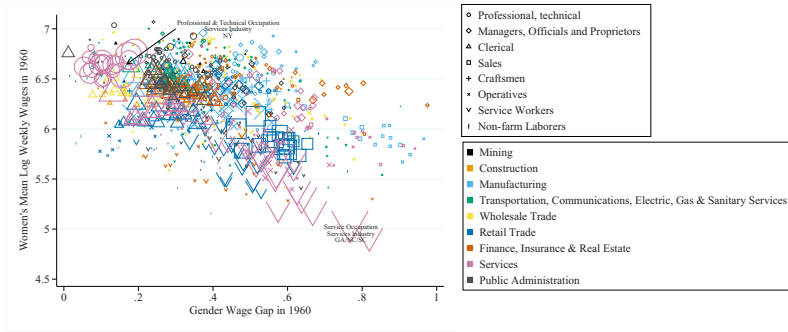


FIGURE VII

The Correlation of Women's Weekly Wages in 1960 with the 1960 Gender Wage Gap, by Industry, Occupation, and State-Group Cell

Each marker represents an industry-occupation-state-group job cell. The size of the marker represents the number of women working in the cell in 1960. The color of each marker captures the industry, and the marker shape captures the occupation as shown in the legend. The *x*-axis plots the gender wage ratio (*Gap*), which is calculated as the difference in average log hourly wages between men and women working full-time (at least 27 weeks and at least 35 hours per week) in 1960. The *y*-axis plots the average log weekly wages for women in the 1960 census. The figure is limited to cells within the *x*-axis and *y*-axis ranges, which omits several outliers. *Sample*: Individuals aged 25 to 64 with positive annual wage and salary earnings, positive weeks worked in the prior year, and positive hours worked in the survey reference week who are working in industry-occupation-state-group cells for which we estimate a gender wage gap variable and are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. *Source*: 5% sample of the 1960 census.

V.B. Descriptive Evidence That Federal Legislation Was More Effective in Jobs with Larger 1960 Gender Gaps

A key assumption of our approach is that a larger gender gap in wages in 1960 is correlated with greater sex discrimination. Available data make it almost impossible to validate this assumption directly. However, if this assumption does not hold or the federal legislation was ineffective, we should find no association between the 1960 gender gap and subsequent growth in women's wages. We begin by presenting descriptive evidence from the 1960 and 1970 censuses regarding the association between the gender gap, $\widehat{Gap}_{nos}$, and women's weekly wages. Figure VII shows that the gender gap tends to be much larger in lower-paying job cells

shows that the gender gap in weekly wages is nearly identical after controlling for demographics and hours worked (correlation of 0.97).

(slope coefficient: −1.9, std. err. 0.2), many of which were in services and retail sales. Reassuringly, these findings hold when accounting for sampling variation using a split-sample instrumental variables (IV) approach (slope coefficient: −1.9, std. err. 0.2; Inoue and Solon 2010), or when accounting for transitory wage shocks using the 1940 gender wage gap as an IV (slope coefficient: −2.0, std. err. 0.2).[23] Of course, this negative correlation is not causal and could reflect selection of women with more skill into certain jobs.

To motivate our research design, Figure VIII, Panel A plots the change in women's relative wages over the 1960s against the 1960 gender gap in wages. Each point represents the difference in outcomes between women and men for an industry-occupation-state-group cell, and the size of each point represents the number of women working in the cell in 1960. Consistent with the Equal Pay Act and Title VII ameliorating pay discrimination and increasing women's relative wages, we find that women's wages grew more than men's during the 1960s in job cells with larger gender gaps at the start of the decade. The similarity of the results when using the split sample IV (slope coefficient: 0.32, std. err. 0.04) or 1940 gender gap IV (slope coefficient: 0.42, std. err. 0.04) provides reassurance that these patterns are not driven by mean reversion due to measurement error or real transitory shocks to the labor market. Moreover, Figure VIII, Panel D shows that this relationship did not exist in the 1950s, before federal antidiscrimination legislation could have affected sex discrimination in pay. In the 1960s, women's employment and annual hours grew more slowly than men's in job cells where women's relative wages grew more quickly (Figure VIII, Panels B and C). As with wages, these patterns depart from the 1950s, where the gender gap was not predictive of changes in employment (Figure VIII, Panels E and F).

V.C. Event-Study and Spline Specifications

We use the following event-study specification to test whether these changes align with the passage of the Equal Pay

23. We use the full-count 1940 census to compute the 1940 gender gap in hourly wages for this exercise (Ruggles et al. 2021).

FIGURE VIII

Correlation of Changes in Relative Wages and Employment and the Gender Gap in Wages, by Industry, Occupation, and State-Group Cell

FIGURE VIII

(*Continued*) Each marker represents the difference in outcomes between women and men for an industry-occupation-state-group cell. The dependent variable in Panels A–C is $(Y^{w}_{nos,70} - Y^{w}_{nos,60}) - (Y^{m}_{nos,70} - Y^{m}_{nos,60})$, where $Y^{g}_{nos,t}$ is the outcome (average log weekly wages, log number of employees, log sum of annual hours worked) for sex g in year t, where g is either women (w) or men (m). The dependent variable in Panels D–F is constructed similarly but uses the change between 1950 and 1960. The size of each marker represents the number of women working in the cell in 1960 (Panels A–C) or 1950 (Panels D–F). Figures are limited to cells with variables in the indicated ranges, but regressions are estimated on all observations. The slope coefficient and heteroskedasticity-robust standard error are calculated using a bivariate regression of the outcome on the y-axis against the gender wage gap with weights equal to the number of women in each cell in 1960 (Panels A–C) or 1950 (Panels D–F). As described in the text, we use a split-sample instrumental variable procedure or use the 1940 gender wage gap as an instrument for the 1960 gender wage gap. *Sample*: Panels A and D include individuals with positive annual wage and salary earnings, positive weeks worked in the prior year, and positive hours worked in the survey reference week. Panels B and E include individuals with positive weeks worked in the prior year. Panels C and F additionally restrict the sample to individuals with positive hours worked in the survey reference week. All panels are limited to individuals aged 25 to 64 who are working in industry-occupation-state-group cells for which we estimate a gender wage-gap variable and are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. *Sources*: Authors' calculations using the 1% sample of the 1950 census, 5% sample of the 1960 census, and the combined 1% Form 1 and Form 2 state samples of the 1970 census (Ruggles et al. 2023).

Act and Title VII:

$$Y_{it} = \sum_{\tau=1949,\tau\neq1964}^{1974} \theta_\tau D_\tau \widehat{Gap}_{n(i)o(i)s(i)} + X_{it}'\beta + \gamma_{n(i)o(i)s(i)} + \delta_{s(i)t} + \delta_{n(i)t} + \delta_{o(i)t} + \varepsilon_{it}. \quad (4)$$

The dependent variable, Y_{it}, is log weekly wages of individual i in calendar year t = 1949, 1959, 1961–1974, and $\widehat{Gap}_{nos}$ is as defined previously. We interact $\widehat{Gap}_{nos}$ with a set of year indicator variables, D_τ, and omit 1964, the year the Equal Pay Act became effective in June. Because $\widehat{Gap}_{nos}$ varies within state groups, the addition of state-group-by-year fixed effects, δ_{st}, allows the analysis to account for unobserved state-level changes in labor markets and policies. The remaining notation remains as described previously. Specifications for employment outcomes are analogous to equation (2) but replace $NoEPL_s$ with $\widehat{Gap}_{nos}$ on the right side in equation (4) and add state-group-by-year fixed effects. Standard errors are corrected for heteroskedasticity

and arbitrary correlation within industry-occupation-state-group cells (Huber 1967; White 1980; Arellano 1987).[24]

Our parameters of interest, θ_τ, capture changes across time in the correlation of women's weekly wages with the gender pay gap in 1960. If federal legislation reduced labor market discrimination against women, we expect women's wages to increase more after 1964 in job cells with a larger gender gap (i.e., $\theta_\tau > 0$ for $\tau > 1964$). Testing for changes in this correlation before 1964 also helps rule out potential confounders and assess the validity of the parallel-trends assumption. For instance, if women's productivity and work intensity were increasing differentially in jobs with larger gender gaps predating the legislation, we would expect θ_τ to increase in years prior to 1964, leading us to reject the parallel-trends assumption.

We summarize the event-study estimates using a three-part spline:

$$
\begin{aligned}
Y_{it} = {} & \tilde{\theta}_0 \widehat{Gap}_{n(i)o(i)s(i)} (t - 1964) \\
& + \tilde{\theta}_1 \widehat{Gap}_{n(i)o(i)s(i)} 1(t > 1964)(t - 1964) \\
& + \tilde{\theta}_2 \widehat{Gap}_{n(i)o(i)s(i)} 1(t > 1968)(t - 1968) + X_{it}' \tilde{\beta} + \tilde{\gamma}_{n(i)o(i)s(i)} \\
& + \tilde{\delta}_{s(i)t} + \tilde{\delta}_{n(i)t} + \tilde{\delta}_{o(i)t} + \tilde{\varepsilon}_{it},
\end{aligned} \tag{5}
$$

where notation remains as previously defined, and we restrict the spline parameters to intersect at the knots in 1964 and 1968.

VI. Results from Research Design 2

Figure IX, Panel A, presents the event-study results for women, and Table II, Panel A, summarizes the event-study estimates using the spline. Point estimates and confidence intervals are scaled by the mean gender gap in the 1960 census (equal to 0.374).[25] Model 1 includes demographic covariates and industry-occupation-state-group and year fixed effects. Model 2

24. Online Appendix C uses a combination of a parametric bootstrap and a Bayesian bootstrap to show that accounting for sampling variability in estimates of the gender gap variable leads to standard errors that are similar to those reported in the main tables.

25. See Online Appendix Table 12 for the event-study coefficients and standard errors in numerical form.

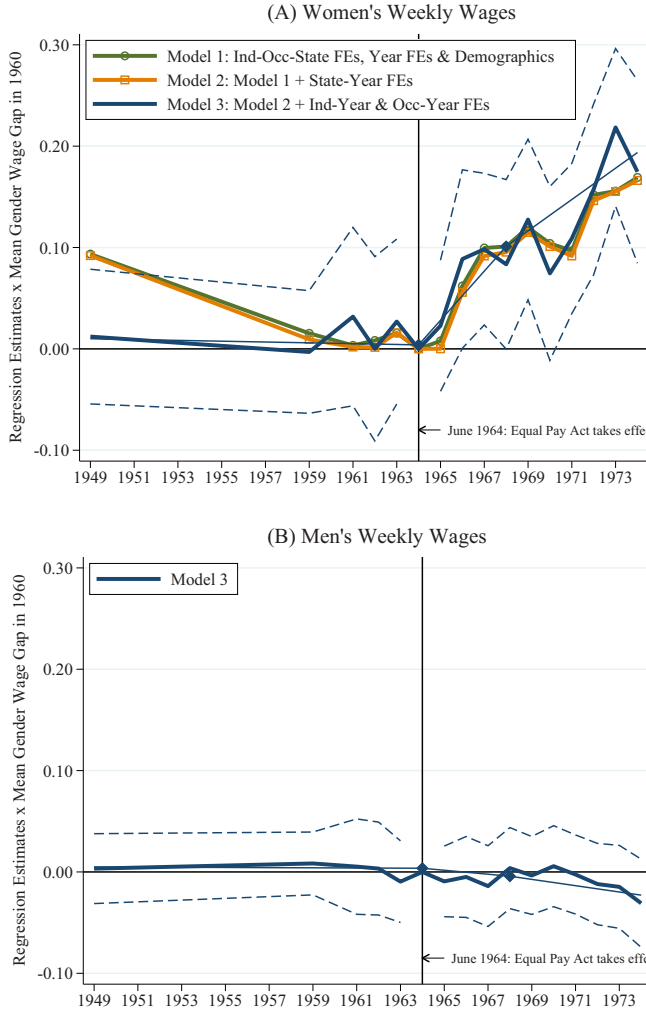


FIGURE IX

The Effect of the Equal Pay Act and Title VII on Weekly Wages Using the 1960 Gender Wage Gap

The figure plots the event-study coefficients from equation (4) as well as 95% pointwise confidence intervals based on standard errors corrected for heteroskedasticity and an arbitrary correlation within industry-occupation-state-group (Huber 1967; White 1980; Arellano 1987). Dependent variables are indicated in subtitles. The solid thin lines correspond to model 3 spline estimates of equation (5). Point estimates and confidence intervals are multiplied by the average gender wage gap in the 1960 census for the relevant sample of women (equal to 0.374). See Online Appendix Table 12 for the individual point estimates and

FIGURE IX

(*Continued*) standard errors. *Sample*: Individuals aged 25 to 64 with positive annual wage and salary earnings, positive weeks worked in the prior year, and positive hours worked in the survey reference week who are working in industry-occupation-state-group cells for which we estimate a gender wage gap variable and are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. *Sources*: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023; Ruggles et al. 2023).

adds state-group-by-year fixed effects to model 1, and model 3 adds industry-year and occupation-year fixed effects to model 2.

Consistent with the Equal Pay Act and Title VII reducing labor market discrimination against women, the data show that women's weekly wages increased by 9.9 log points (std. err. 2.3) between 1964 and 1968 in job cells with the average 1960 gender gap in pay (Table II, Panel A, column (1)). The magnitude of this estimate is equivalent to 58% of the average within-occupation weekly wage gap in the 1963 OWS (Online Appendix Table 4, column 3). Wages rise almost immediately after the legislation and remain stable between 1967 and 1970. Although changes in women's wages are not correlated with the gender gap after the implementation of the 1966 FLSA in 1967, the correlation again increases between 1970 and 1973. This timing is reminiscent of similar patterns in our first research design and corresponds to the Education Amendments broadening the coverage of the Equal Pay Act and the Supreme Court's 1971 decision and the Equal Employment Opportunity Act of 1972 strengthening and expanding the enforcement of Title VII's sex provisions.

These estimates are not only robust across specifications, they are also robust to using annual or hourly wage earnings (Online Appendix Figure 12), winsorizing low wage levels (Online Appendix Figure 13), limiting the sample to more attached workers (Online Appendix Figure 14), controlling for education (Online Appendix Figure 15), accounting for measurement error or mean reversion after transitory labor market changes in the 1950s or early 1960s (Online Appendix Figure 16), excluding industries that saw substantial increases in minimum wage coverage under the 1961 FLSA (Online Appendix Figure 17), and including state-by-birth-cohort fixed effects (Online Appendix Figure 18). In contrast, we find no evidence of wage gains for men (Figure IX, Panel B; Table II, Panel A, column (2)), which narrows the scope for alternative labor market or policy explanations.

TABLE II

THE EFFECTS OF THE EQUAL PAY ACT AND TITLE VII ON WAGES AND EMPLOYMENT USING 1960 GENDER WAGE GAPS

				Equal pay law	
	Women (1)	Men (2)	Women–men (3)	State law, women–men (4)	No state law, women–men (5)
Panel A: Log weekly wage					
Spline estimate in 1968 at mean Gap	0.099	−0.008	0.106	0.058	0.162
	(0.023)	(0.011)	(0.025)	(0.039)	(0.034)
Trend break in 1964	0.066	−0.005	0.071	0.040	0.103
	(0.015)	(0.007)	(0.017)	(0.027)	(0.022)
Pre-trend slope, 1949–1964	−0.001	−0.000	−0.001	0.007	−0.012
	(0.004)	(0.002)	(0.004)	(0.006)	(0.006)
R-squared	0.399	0.328	0.511	0.476	0.538
Mean log weekly wage in 1960 (2022 dollars)	6.17	6.89	—	—	—
Mean weekly wage in 1960 (2022 dollars)	599	1,114	—	—	—
Panel B: Log number of employees					
Spline estimate in 1968 at mean Gap	−0.118	−0.061	−0.057	−0.011	−0.112
	(0.047)	(0.029)	(0.049)	(0.077)	(0.069)
Trend break in 1964	−0.079	−0.041	−0.038	−0.008	−0.071
	(0.031)	(0.019)	(0.032)	(0.053)	(0.044)
Pre-trend slope, 1949–1964	−0.005	0.015	−0.020	−0.000	−0.033
	(0.011)	(0.005)	(0.011)	(0.014)	(0.020)
R-squared	0.989	0.991	0.990	0.991	0.989
Mean *nos* cell log number of employees in 1960	11.06	10.97	—	—	—
Mean *nos* cell number of employees in 1960	90,345	103,153	—	—	—
Panel C: Log number of annual hours worked					
Spline estimate in 1968 at mean Gap	−0.087	−0.047	−0.040	−0.061	−0.046
	(0.052)	(0.030)	(0.054)	(0.095)	(0.082)
Trend break in 1964	−0.058	−0.032	−0.026	−0.042	−0.029
	(0.034)	(0.020)	(0.036)	(0.065)	(0.052)
Pre-trend slope, 1949–1964	−0.018	0.008	−0.026	−0.002	−0.047
	(0.013)	(0.005)	(0.012)	(0.016)	(0.021)
R-squared	0.984	0.989	0.987	0.989	0.985
Mean *nos* cell log annual hours in 1960	18.38	18.59	—	—	—
Mean *nos* cell number of annual hours in 1960	132 M	202 M	—	—	—
Observations	797,068	1,360,755	2,157,823	1,434,325	723,495
Sex-industry-occupation-state-year cells	5,264	10,640	15,904	9,904	5,968

Notes. The table presents the spline estimates for model 3 of equation (5). The spline estimates and standard errors in 1968 are scaled by the mean gender gap in the 1960 census (equal to 0.374). Columns (4) and (5) split the sample into state groups where at least one state had an equal pay law as of January 1, 1963, and state groups that did not (U.S. Congress 1963). We use separate values of the mean gender gap for these two columns (equal to 0.364 for column (4) and 0.392 for column (5)). Standard errors are corrected for heteroskedasticity and an arbitrary correlation within industry-occupation-state-group (Huber 1967, White 1980, Arellano 1987).

Sample: Panel A includes individuals with positive annual wage and salary earnings, positive weeks worked in the prior year, and positive hours worked in the survey reference week. Panel B includes individuals with positive weeks worked in the prior year. Panel C additionally restricts the sample to individuals with positive hours worked in the survey reference week. All panels are limited to individuals aged 25 to 64 who are working in industry-occupation-state-group cells for which we estimate a gender wage-gap variable and are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed.

Sources: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023; Ruggles et al. 2023).

Recent work on difference-in-differences estimators highlights difficulties in interpreting the magnitudes of event-study regressions with a continuous treatment variable and treatment-effect heterogeneity, even in settings like ours without staggered treatment timing (Callaway, Goodman-Bacon, and Sant'Anna 2021). Considering this issue, evidence of limited treatment-effect heterogeneity for *nos* cells with average wages above and below the *nos*-cell median is reassuring (Online Appendix Figure 19).

We also explore the heterogeneity in women's wage gains to shed light on the mechanisms for these effects. Following Firpo, Fortin, and Lemieux (2009), we estimate RIF regressions to understand the effects of federal antidiscrimination legislation on the unconditional percentiles of women's log weekly wages. Figure X, Panel A shows results, which are scaled by the mean gender gap in the 1960 census. We find large increases in women's wages at the 10th and 25th percentiles after the legislation took effect (31 and 18 log points in 1968, respectively; Online Appendix Table 13), which is consistent with the legislation benefiting the lowest-earning women, for whom the gender gap in wages was largest (Figure VII) and for whom convergence in the gender gap was the most rapid in the 1960s (Figure I, Panel B). RIF regressions using only the 1950, 1960, and 1970 censuses yield similar results (displayed as single points), which ameliorates concerns that the estimates are driven by revisions in the ASEC sampling frame. In contrast, percentiles above the median show little evidence of a trend break after 1964 or any change through the 1970s. The same specification for men's wages shows little change at any point in the distribution (Figure X, Panel B), which mitigates concerns that the results are driven by broad labor market trends or policies. These findings suggest that federal antidiscrimination legislation reduced the gender wage gap and also the wage gap in earnings between the highest- and lowest-paid women.[26]

26. Online Appendix Table 14 examines effect heterogeneity across other population subgroups. The results show that the within–job cell wage gains for women following the Equal Pay Act and Title VII were pervasive. Wage increases are evident for White workers, which addresses the concern that our results are driven by provisions in the Civil Rights Act targeting racial discrimination. Similar regressions yield no evidence of wage increases for White or Black men, which is consistent with a key role for the Equal Pay Act or our research design not picking up the race-based provisions of the Civil Rights Act.

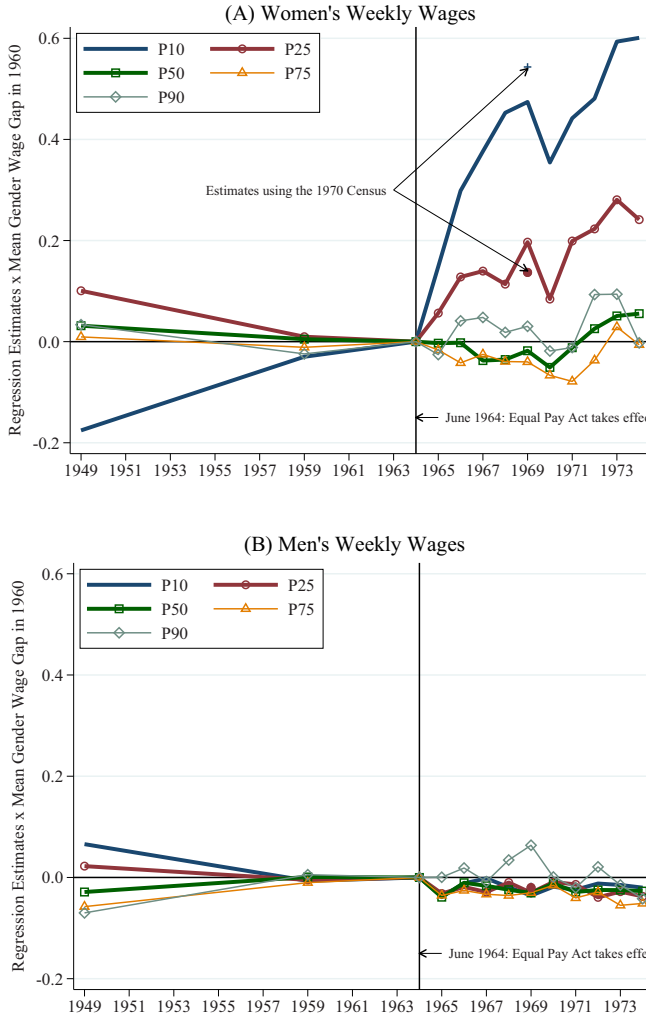


FIGURE X

The Effect of the Equal Pay Act and Title VII on the Distribution of Wages Using the 1960 Gender Wage Gap

The figure plots estimates from model 3 of equation (4) where the dependent variable is the RIF for log weekly wages for women (Panel A) and men (Panel B). Because sample sizes are much smaller in the early ASEC years and this is a demanding specification, we pool 1959 and 1962–1964 into a single event-study coefficient (plotted in 1959). Coefficients are scaled by the average gender wage gap (equal to 0.374). Estimates for the 1970 census are shown for the 10th and 25th percentiles, from a regression estimated using only the 1950, 1960, and 1970 censuses. See Online Appendix Table 13 for the estimates and standard errors. *Sample*: Individuals aged 25 to 64 with positive annual wage and salary earnings,

FIGURE X

(*Continued*) positive weeks worked in the prior year, and positive hours worked in the survey reference week who are working in industry-occupation-state-group cells for which we estimate a gender wage-gap variable and are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. *Sources*: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, combined 1% Form 1 and Form 2 state samples of the 1970 census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023; Ruggles et al. 2023).

As a final check on the validity of these results, we bring both research designs together. If state equal pay laws were somewhat effective in reducing sex discrimination, we expect women's wages to increase by more in job cells that had the same 1960 gender wage gap in states without existing equal pay laws relative to states with equal pay laws. Said another way, effective prior legislation implies that the correlation of the same gender gap in pay in 1960 with sex discrimination should be weaker in states with equal pay laws. Table II, columns (4) and (5) confirm this prediction. In the 22 states with existing equal pay laws, we find women's relative wages grew by 5.8 log points at the mean gender gap (std. err. 3.9, column (4)). In states without equal pay laws, we find women's relative wages grew by much more after 1964—an increase of 16.2 log points by 1968 (std. err. 3.4, column (5)). Although the estimates are not statistically different from one another (p-value on test of equality is .18), this evidence is consistent with antidiscrimination legislation—first at the state level and then at the federal level—reducing the gender gap in wages.

Considering these large wage gains for women, how did the legislation affect their employment? Some direct evidence on this question comes from reports around the time the Equal Pay Act was passed. On June 14, 1964, the *Washington Post* interviewed different employers and reported (see Online Appendix E):

> *The head of a new Virginia manufacturing plant put it: "We had planned to employ women in some of our light manufacturing jobs, but we decided against it because of anticipated complications arising from the equal pay law." An Ohio manufacturer said his plant would downgrade some job classifications for women and reassign higher-level, higher-paying duties to men. . . .*
>
> *Many employers said they would hike women's wages to bring them into line with men's. Some firms said they would equalize salaries now, but in the future would segregate male and female job classifications.*

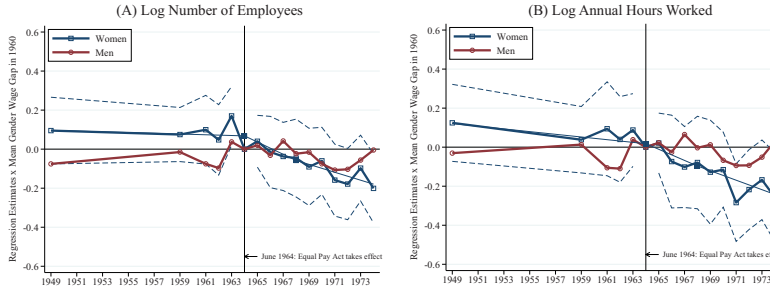


FIGURE XI

The Effect of the Equal Pay Act and Title VII on Female Employment Using the 1960 Gender Wage Gap

These figures plot the event-study coefficients from model 3 of equation (4) run on data aggregated at the industry-occupation-state-group level. Dependent variables are indicated in subtitles. Point estimates and confidence intervals are multiplied by the average gender wage gap (equal to 0.374). Dashed lines are 95% pointwise confidence intervals for women and based on standard errors corrected for heteroskedasticity and an arbitrary correlation within industry-occupation-state-group (Huber 1967; White 1980; Arellano 1987). See Online Appendix Table 15 for the individual point estimates and standard errors. *Sample*: Panel A includes individuals aged 25 to 64 with positive weeks worked in the prior year who are working in industry-occupation-state-group cells for which we estimate a gender wage-gap variable and are not in the Armed Forces, institutionalized, employed in agriculture, or self-employed. Panel B additionally restricts the sample to individuals with positive hours worked in the survey reference week. *Sources*: Authors' calculations using the 1% sample of the 1950 Decennial Census, 5% sample of the 1960 Decennial Census, and the 1962 to 1975 CPS ASEC (Flood et al. 2023; Ruggles et al. 2023).

Although Title VII made this type of behavior illegal the next year, honest reporting before it passed provides important context. Notably, no employer said they would fire women in response to the Equal Pay Act—which is consistent with our findings when examining employment responses using state equal pay laws. However, employers indicated that they planned to change job classifications and hiring, which could show up as industry-occupation level changes in women's employment in the longer term.

Figure XI tests this prediction using the event-study and spline specifications.[27] In 1966, when women's wages soared in

27. See Online Appendix Table 15 for the event-study coefficients and standard errors in numerical form.

jobs with higher 1960 gender gaps, the number of female or male employees or annual hours worked changed little. Although Table II reveals a larger trend break after 1964 for women than men, which translates into a reduction in employment of 11.8 log points by 1968 at the mean (std. err. 4.7, column (1)) for women versus a 6.1 log point decline for men (std. err. 2.9, column (2)), the difference between the two groups is not statistically significant (column (3)). The decline in women's employment in states without preexisting equal pay laws is larger (where women's wages grew more quickly), but neither estimate is statistically significant at conventional levels. In these states, the number of female employees relative to male employees experienced a sizable and marginally statistically significant decline of 11.2 log points (std. err. 6.9, column (5)), although their relative number of annual hours did not fall discernibly.[28] In contrast, in states with preexisting equal pay laws where wages grew by less than one-third the amount by 1968, the trend break in employment and annual hours worked was much smaller and statistically insignificant.[29]

In summary, this evidence shows that the Equal Pay Act and Title VII lifted the wages of working women and suggests that their employment may have fallen as a consequence in the longer term. Like what was reported in the *Washington Post*, different employers likely varied in their response to the legislation, which is difficult to detect with the limited data available in the 1960s on jobs and establishments.

VII. How the Equal Pay Act and Title VII Shaped the Gender Gap in Wages

Almost 60 years after the Equal Pay Act and Title VII passed, little quantitative work suggests that this legislation reduced labor market discrimination against women in the 1960s. Studies have noted the roles of Title VII and federal affirmative action mandates under Executive Order 11375 in facilitating women's wage and employment gains and increasing their

28. The *p*-values on the test of the null hypothesis that estimates in Table II, columns (4) and (5) are equal are .07 in Panel B (employment) and .19 in Panel C (annual hours worked).

29. Online Appendix Table 14 shows that the employment effects of the Equal Pay Act and Title VII are large but imprecise across subgroups.

enrollment in colleges and professional schools in the 1970s and later (Beller 1979, 1982a, 1982b; Leonard 1984; Carrington, McCue, and Pierce 2000; Kurtulus 2012; Blau and Kahn 2017; Helgerman 2023). This article provides new evidence that federal antidiscrimination legislation—especially the Equal Pay Act—had larger effects on sex discrimination in the 1960s than previously understood.

Using two complementary research designs, we find that federal legislation prohibiting sex-based pay and employment discrimination led to large increases in women's wages, especially in lower-paying jobs where the "equality of work" was more easily measured and federal investigations for compliance with the minimum wage were focused. After the legislation took effect, women's weekly wages grew by around 10% in jobs with the average gender gap, with most of these effects benefiting women in the lower half of the weekly wage distribution. Importantly, antidiscrimination legislation appears to have had a negligible effect on median wages among full-time, full-year workers, which has been the focal statistic released annually by the Census Bureau (Figure I, Panel A). However, our estimates of larger gains among lower-wage workers in the mid-1960s correspond closely to the gains below the median in the time series during this period (Figure I, Panel B) (Bailey, Helgerman, and Stuart 2021). Consistent with firms having some monopsony power, the Equal Pay Act and Title VII had little effect on women's employment in the short run. In the longer term, historical accounts and suggestive evidence from our own analyses imply that some firms shifted their hiring away from women workers and reclassified them to lower-paying positions, which tracks with scholars' critiques of the legislation.

These findings are not at odds with stability of the gender earnings ratio at the mean and median during the 1960s, because this stability masks two opposing trends. First, economic forces predating the legislation put downward pressure on women's relative pay increases. After World War II, strong economic growth drove up wages, but it raised wages for men faster than for women. Trends predating the 1960s imply that the gender wage ratio would have fallen rather than stabilized in the absence of federal legislation. Naively extrapolating from the 1950s using a linear trend, women's relative pay would have dropped by about 2 log points had the path of the gender pay in the 1950s continued. We are not the first to point this out. Beller (1979) argues that

Equal Employment Opportunity laws staved off a larger 7-point increase in the earnings gap in the 1970s, and others, notably Blau and Kahn (2017), suggest that the increase in female labor force participation during the 1960s may have masked the effects of the legislation in the aggregate time series.

Second, our findings using the gender-gap design reflect large changes in the within-job component of the gender gap, which is smaller than the overall gender gap. A Kitagawa-Blinder-Oaxaca decomposition shows that around 70% of the 1960 gender gap in wage earnings is attributable to differences within industry-occupation-state-group cells used in our analysis.[30] Assuming the legislation had little effect on the allocation of workers across job cells, our estimate of a 10-log-point increase at the mean gender gap in job cells (Table II) would translate into a 7-point gain in the aggregate gender gap in the absence of pre-trends slowing women's pay growth.

These two countervailing changes imply a net gain of around 5 log points at the mean (7 less 2 log points due to the pre-trend). But this change is still larger than observed in the time series, likely because changes in firm hiring and promotion behavior, selection, and larger shifts in the economy worked to offset women's wage gains within jobs.

In conclusion, our findings claim an important role for the Equal Pay Act, strengthened by Title VII, in reducing pay discrimination against U.S. women in the 1960s. Yet they also provide a cautionary tale: targeting pay discrimination without sufficient protections against employment discrimination provided

30. We calculate this number as the sum over industry-occupation-state-group cells of the difference in the mean log hourly wage for men and women, multiplied by the share of men employed in the cell. This calculation is 64.5% when multiplying the within-cell gender wage gap by the share of women employed in the cell. This share is not directly comparable to estimates of occupational segregation because our occupation/industry cells are larger groupings than job classifications. Polachek (1987) similarly finds that only 17%–21% of gender differences in annual wage earnings in 1960 and 1970 can be explained by occupational segregation, which is similar to the conclusion of Goldin (1990, 71–73). Blau (1977) finds that intrafirm pay differences are a small share of the total gender wage gap in 1970 in office occupations in three Northern cities for establishments with at least 50 employees (Tables 4–6). Using data from 1974 to 1983, Groshen (1991) finds that wage gaps from establishment and job segregation account for around 6% of the gender wage gap, whereas occupational segregation accounts for considerably more. These results are consistent with our findings that the Equal Pay Act and potentially Title VII narrowed within-job pay gaps.

leeway for firms to shift how they discriminated, reshaping the gender gap. These developments led the economics literature to focus on occupational segregation and the legal community to focus on strengthening the breadth and enforcement of Title VII over the next 60 years.

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SUPPLEMENTARY MATERIAL

Supplementary material is available at *The Quarterly Journal of Economics* online.

DATA AVAILABILITY

The data and code underlying this article are available in the Harvard Dataverse, https://doi.org/10.7910/DVN/PIVKHC (Bailey, Helgerman, and Stuart 2024).

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