THE EFFECTS OF STATE-LEVEL ANTI-DISCRIMINATION LAWS

ON SEX SEGREGATION IN THE WORKFORCE

by

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DEDICATION

I would like to dedicate my thesis to Oakley and Sylvia Kelch, who never left my side and always supported my dreams.

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ABSTRACT

Women's equal pay and sex segregation in the workforce has been a national discussion since the 1900s and is still relevant today. In 1963, the Federal Equal Pay Act was passed addressing this issue. This research examines state-level equal pay legislation that was passed prior to the federal law and how these laws affect sex segregation in the workforce. Using U.S. Census data from 1910 to 1960, sex segregation is analyzed using difference-in-difference regression analysis to determine the effects of state-level legislation on the D-index, concentration ratios, and the probability of being employed in a female-dominated or male-dominated job. Results from state-level analysis do not illustrate these laws having any effect on the D-index or concentration ratios, suggesting there are multiple counteracting effects. On an individual-level, state-level equal pay legislation reduces the likelihood of women being employed in female-dominated jobs. However, this legislation seems to have no effect on the likelihood of males being in a female-dominated job, or a male-dominated job.

INTRODUCTION

Women's equal pay and sex segregation in the workforce has been a nation-wide discussion since at least the 1940s. In 1963, the federal government passed the Equal Pay Act, and several individual states passed similar legislation prior to 1963. This legislation creates the opportunity to isolate and examine the effects of equal pay and anti-discrimination legislation on the labor market. Many researchers have studied the national effects of anti-discrimination legislation, but few have been able to use state-level laws as a natural experiment to examine the effects of anti-discrimination legislation. The research that examines the state-level effects of equal pay laws and anti-discrimination (Neumark and Stock 2006, Collins 2003, and Landes 1968) does not examine the legislation's effect on sex segregation in the workforce. This research aims to study the effects of state-level anti-discrimination legislation on sex segregation in the labor market.

U.S. Census data from 1910 through 1960 is used in this study to isolate the effects of state equal pay on sex segregation in the workplace. Section 2 discusses historic state-level anti-discrimination laws, while Section 3 reviews the existing literature on anti-discrimination effects on the workforce. Section 4 reviews the expected effects of equal pay legislation on sex segregation by occupation and Sections 5 through 7 present the empirical analysis of the data.

BACKGROUND

State-Level Anti-Discrimination Laws

This research seeks to examine the effects of anti-discrimination laws on sex segregation in the labor force. The first federal legislation prohibiting employment discrimination on the basis of sex was the Equal Pay Act (EPA) of 1963. The EPA requires equal pay and benefits for males and females when working for the same employer and under similar working conditions in jobs requiring similar skill, effort, and responsibility. Title VII of the 1964 Civil Rights Act (CRA) prohibits employment discrimination based on sex (as well as race, color, religion, and national origin), but includes broader employment protections than the EPA by prohibiting discrimination in any aspect of employment including hiring and firing, pay, classification of employees, promotions, layoffs, training programs, recruitment, and other terms and conditions of employment.[1] The CRA also created the Equal Employment Opportunity Commission (EEOC) as the CRA enforcement agency. In 1972, the Equal Employment Opportunity Act (EEOA) amended the CRA to cover previously-exempt smaller firms (those with 15-24 employees) and to expand the enforcement power of the EEOC.[2]

[1] The first presidential action taken to prohibit government contractors from engaging in employment discrimination based on color, race or national origin occurred in 1941 via President Franklin D. Roosevelt's Executive Order 8802. However, no president prohibited employment discrimination based on sex until Lyndon Johnson's Executive Order 11375 in 1967, after the EPA and CRA were passed.
[2] Before 1972, the EEOC had to refer any discrimination cases to the Department of Justice for litigation.

Table 1: State-level Sex Discrimination Laws, 1900-1970

State	*1900-1939*	*1940-1949*	*1950-1959*	*1960-1964*	*1965-1970*
AK		1949			**1969**
AR			1955		
AZ				1962	
CA		1949			1965[3]
CO			1955		**1969**
CT		1949	1953[4]		**1967**
DC					1965[5]
FL					1969
GA					1966; 1968[6]
HI			1959	**1963**	
ID					**1967**
IL		1944[1]			
IN					1967
KY					1966
LA					1968[7]
MA		1945			**1965**
MD					**1965**; 1966
ME		1949			1965
MI	1919[1]			1962[7]	**1966**
MN					**1969**
MO				1963	
MT	1919				
NB			1957[12]		**1965**; 1967
ND					1965
NH		1947			
NJ			1952		
NM					1969[9]
NV					**1967**; 1969
NY		1944			**1965**[10]
OH			1959		
OK					1965; **1969**
OR		1947[2]	1955		**1969**
PA		1947			1968[11]
RI		1946			
SD					1966
UT					**1965**
VT				**1963**	

Table 1: State-level Sex Discrimination Laws, 1900-1970, Continued

WA		1943			
WI				**1961**	
WV					1965
WY			1959		**1965**

Source: Author's compilation based on Neumark and Stock (2006) Tables 2 and 5. EPL = Equal Pay Law. FEPA = Fair Employment Practices Act. States not included (AL, DE, IA, KS, MS, NC, SC, TN, TX, VA) did not pass state-level sex discrimination laws during the 1900-1970 period. Year listed is the year the state passed an EPL. Bolded years are when states amended FEPAs to include sex discrimination.

[1] EPL passed only applies to manufacturing industry.
[2] Voluntary FEPA or EPL includes sex discrimination.
[3] Strengthens EPL enforcement.
[4] Amends EPL to permit employers to consider length of service and merit ratings as factors in determining wage/salary rates.
[5] Anti-discrimination ordinance include sex discrimination clause.
[6] Limits EPL to intrastate employers.
[7] Creates a Women's Division in the Department of Labor.
[8] EPL amended to include all employers.
[9] Human Rights Act includes sex-discrimination. Repeals CRA and EEO.
[10] Excludes employment agencies.
[11] Extends EPL to include state employees.
[12] Voluntary EPL.

Prior to the EPA, several states passed laws to address sex discrimination in the workforce. These laws are summarized in Table 1. With very few exceptions, the first state sex discrimination laws passed were Equal Pay Laws (EPLs) addressing sex discrimination in wages but not discrimination in hiring, firing or other employment conditions for female employees. The first EPLs were passed in 1919 in Michigan and Montana. A few EPLs (i.e., Michigan in 1919, Illinois in 1944) only addressed equal pay in the manufacturing industry, but the majority of the EPLs applied workforce-wide.

Eleven states passed EPLs during the decade from 1940-1949, and from 1950-1959 seven passed EPLs.[3] Thus, a total of 20 states had EPLs in place during the 1940-1960 period.

Prior to the CRA some states also passed Fair Employment Practices Acts (FEPAs).[4] FEPAs are similar to the CRA in that they prohibit discrimination in all aspects of employment, rather than only focusing on non-discrimination in wages or salaries. Before 1960, however, state FEPAs focused exclusively on racial discrimination. Only Oregon's 1947 FEPA (which made compliance voluntary) included sex as a protected class.[5,6] The focus on sex discrimination makes state EPLs fundamentally different from the FEPAs and CRA, which prohibited discrimination in hiring and firing as well as requiring equal pay for equal work.

Given their narrow scope, it could be of concern that EPLs had only limited effectiveness in addressing wage discrimination. To our knowledge, no previous research examines whether EPLs had strong enforcement for resolving disputes over discrimination in pay. Neumark and Stock (2006), however, summarize several sources of evidence regarding this issue, including those submitted by the Women's Bureau of the U.S. Department of Labor during U.S. Senate hearings on the 1963 Equal Pay Act.

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[3] Alaska and Hawaii passed laws in 1949 and 1959, respectively, but are not included in the analysis because they were not states in until after 1950.
[4] See Neumark and Stock (2006) for a detailed summary of state-level FEPAs.
[5] In their analysis of the impact of EPLs and FEPAs on earnings and employment, Neumark and Stock (2006) found no impact of voluntary anti-discrimination laws on employment outcomes.
[6] Hawaii (1963), Vermont (1963) and Wisconsin (1961) passed FEPAs that included a sex discrimination clause, but these laws were passed after the period under analysis here.

This evidence includes summaries of states' record-keeping requirements regarding worker pay, occupation, and job classification, the administrator in each state responsible for maintaining a listing of the laws' enforcement, and details of possible court actions and penalties in cases of wage discrimination. The Women's Bureau also submitted evidence from its inquiries of the 22 states that passed EPLs prior to the EPA requesting information on administrative or informal hearings to settle equal pay disputes. Eighteen states responded, with 11 reporting they had held hearings, some of which resulted in action taken, and four attesting to the effectiveness of their efforts (Committee on Labor and Public Welfare, 1963). Finally, a 1967 U.S. Department of Labor report on state EPLs describes court cases that resulted in financial awards under Michigan and California EPLs, in which female employees who had suffered from wage discrimination were given monetary compensation (U.S. Bureau of Labor Standards, 1967, p. 249).

Because it could potentially affect the empirical estimates, it is important to note that some states also passed "protective legislation" restricting the number of hours, times of day, and occupations or industries where women were allowed to work. These laws came into existence in the early 1900s and were binding until the 1960s. During the late 1960s, several state judicial bodies issued opinions finding these laws inconsistent with the CRA, but it was only after the CRA was passed in 1964 that the laws were dismantled. The laws were largely non-binding by the 1970s (Neumark and Stock

2006).[7] Because these laws did not change during the time period under study here, they should have no effect on the empirical analysis.

[7] The one exception is Delaware, which repealed its law against night work for women in 1955. In regressions that exclude Delaware, the only coefficients that change in statistical significance are when the dependent variable is the probability of being in a female-dominated job. In Table 9, specification (1) the coefficient on "Years Since EPL" changes from 0.003* without Delaware, to 0.004** with Delaware, where * indicates statistical significance at the 10 percent level, and ** indicates significance at the 5 percent level. In Table 9, specification (5), the coefficient on "EPL" changes from -0.038* without Delaware, to -0.040** with Deleware.

LITERATURE REVIEW

Occupational Segregation

Employment discrimination occurs when people from different groups have the same level of education, skills, and other productivity-related characteristics but are treated differently with respect to wages, hiring and firing, promotion and training opportunities, and access to varying occupations. Occupational segregation exists when there is an unequal distribution of a group across occupations in comparison to that group's overall employment (Watts 1998). Segregation of males into "male jobs" and females into "female jobs" is known as "sex segregation." Sex segregation may result from explicit discrimination by employers and/or from different occupational choices by women relative to men. Regardless of why it occurs, sex segregation generates systematically different social and material opportunities, implying that it contributes to the unequal distribution of earnings, opportunities for promotion, and workplace authority for males relative to females in the labor force (Weeden, 1998). Indeed, Beller (1982) finds that women who are employed in male-dominated occupations earn 33 percent more than their counterparts in female-dominated occupations, and men in male-dominated occupations earn 50 percent more than their counterparts in female-dominated occupations.

Measuring Occupational Segregation

Occupational segregation can be measured in several ways, although most researchers use an "index" to describe the degree of sex segregation in a given labor force. Watts (1998) identifies four crucial factors that must be satisfied by an index of sex segregation, which include: (1) *organizational equivalence*, (2) *size invariance,* (3) *gender symmetry,* and (4) *the principle of transfers*. *Organizational equivalence* is when an index is not affected by combining two occupations that are of the same pattern of segregation or when an occupation is further subdivided into occupations with identical segregation. *Size invariance* is when the index does not change if the populations grow by a positive scalar. An index is *gender symmetric* if it is unaffected when female employment shares are replaced by corresponding measures of male employment shares. The *principle of transfers* requires the index to decline when a female-worker transfers out of a female-dominated occupation into a male-dominated occupation and is replaced by a male from the male-dominated occupation.

Watts (1998) and Jacobsen (2007) describe several different indexes commonly used to measure occupational segregation. The most commonly used is the index of dissimilarity (the "D-index"), which was originally developed by Duncan and Duncan (1955) and has become a standard measure for comparing segregation research (Jacobsen 2007).[8] The D-index is mathematically computed as:

[8] Watts (1998) also mentions the "A" index used by Charles and Grusky (1995), but states that this index is best for cross-national analysis, which does not apply here. He also mentions the "I" index developed by

$$D_{st} = \frac{1}{2}\sum_{j}\left|\frac{F_{jst}}{F_{st}} - \frac{M_{jst}}{M_{st}}\right|$$

where $\frac{F_{jst}}{F_{st}}$ is the proportion of the female labor force employed in occupation *j* in state *s* in year *t,* and $\frac{M_{jst}}{M_{st}}$ is the proportion of the male labor force employed in occupation *j* in state *s* in year *t*. The range of the index is 0-1, where zero represents a perfectly integrated labor market and 1 represents a perfectly segregated labor market. Perfect integration in the labor market occurs when the proportion of females (males) in each occupation is equal to the proportion of females (males) in the overall labor force. Perfect segregation in the labor market occurs when females (males) are concentrated into one occupation and not represented in other occupations. Lower values of the D-index are indicative of more integrated labor markets. The value of the D-index indicates the proportion of workforce that would have to change occupations without replacement to achieve zero sex segregation in state *s* in year *t.* It is important to note that the D-index is implicitly based on the workforce-wide proportions. For example, if the entire workforce is made up of 40 percent women, then the D-index will equal zero when each occupation is 40 percent female.

Table 2 presents several example calculations of the D-index in a labor market that is 66 percent male and 33 percent female and has two occupations (*i* and *j*). The top two rows of the table illustrate labor markets with perfect segregation and perfect

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Karmel and MacLachlan, which is linearly related to the D-index, but is not commonly used in existing sex segregation research.

integration, respectively, while the bottom two rows illustrate labor markets with varying degrees of segregation/integration. When the D-index equals 0.165, for example, then either 16.5 percent of the male workforce would need to move out of disproportionately male occupations into disproportionately female occupations or 16.5 percent of the female workforce would need to move out of disproportionately female occupations and into disproportionately male occupations in order for the share of females and males in each occupation to equal their respective share of the total labor force (i.e., in order for the labor force to be "perfectly integrated").[9] Watts (1998) demonstrates that this index satisfies the four criteria detailed above.

The D-index is sensitive to the number of occupations in the calculation. Jacobsen (2007) shows that as the number of occupational classifications increases, so does the D-index value. Because the time period under study here (1910-1960) was one of substantial occupational change and growth, estimates of the impacts of anti-discrimination laws on the D-index may be biased if the growth in occupational categories occurred differently in states and years with and without anti-discrimination laws. To address this issue, separate estimates are reported below based on varying levels of aggregation of occupations over which the D-index is computed.

[9] Note that integration as measured by the D-index assumes that the underlying occupations can absorb movements of males and females, i.e., that the number jobs in each occupation is not fixed.

Table 2: Example D-index Calculations

Workforce Characteristics	Male Proportion in Occupations ***i, j***	Female Proportion in Occupations ***i, j***	D-Index Calculations	Outcome
F=100, M=300 F:M ratio = 1:3	i=300 j=0	i=0 j=100	D=(1/2)[│(0-1)│+ │(1-0)│]=1	Perfect Segregation
F=100, M=300 F:M Ratio: 1:3	i=150 j=150	i=100 j=100	D=(1/2)[│(0.5-0.5)│+ │(0.5-0.5)│]=0	Perfect Integration
F=100, M=300 F:M Ratio 1:3	i=300 j=0	i=25 j=75	D=(1/2)[│(0.25-1)│+ │(0.75-0)│]=0.75	Segregated[1]
F=100, M=300 F:M Ratio 1:3	i=200 j=100	i=50 j=50	D=(1/2)[│(0.5-0.66)│+ │(0.5-0.33)│]=0.165	Segregated[2]

F = number of females in workforce, M = number of males in workforce. Subscripts *i* and *j* denote alternative occupations. Perfect integration occurs when the proportion of females to males in each occupation *i* and *j* is the same as the proportion of females to makes in the workforce.

[1] 0.75 of males must move from *i* to *j* or 0.75 of females must move from j to i for perfect integration

[2] 0.165 of males must move from *i* to *j* or 0.165 of females must move from *j* to *i* for perfect integration

Beller (1982) takes a different approach to measuring occupational segregation by focusing on the relative "maleness" and "femaleness" of occupations in the labor force. Using the assumption that if choice were unconstrained and men and women had the same preferences and resources, the expected proportion of jobs held by men in each occupation should equal the proportion of men in the labor force. She defines a "male- dominated" occupation as one for which the proportion of men in the occupation is at least five percentage points above the proportion of men in the labor force (i.e., if the labor force is 60 percent male, a male-dominated occupation would be one in which more than 65 percent of the workers are male). Similarly, a female-dominated occupation would be one for which the ratio of women in the occupation is at least five percentage points higher than the proportion of females in the labor force.

Collins (2003) and Landes (1968) focus on changes in labor market outcomes resulting from FEPAs for non-white males relative to white males. Neither uses an index to measure occupational segregation but instead incorporates occupation-level income into their measurements of occupational status. Collins (2003) uses three different variables to examine occupational status. The first variable, OCCSCORE, was constructed by the Integrated Public Use Microdata Series (IPUMS) and assigns median income values to each occupation using 1950 dollars to provide a measure of the economic rewards associated with each occupation (Collins, 2003; Ruggles, et al., 2015). Collins also examines occupational segregation by focusing on changes in employment in the "craftsmen or operatives" and "clerical" occupational categories. He focuses on the craftsmen occupation because it was a highly desired job, both in terms of work stability and high levels of income for blue-collar workers. He focuses on the clerical occupations because a large majority of blacks, especially black females, were clustered in clerical occupations in 1940. Landes (1968) also uses an earnings measure to assess occupational differentials arising from FEPAs. Specifically, he estimates "relative occupational distribution" by multiplying the percentage of non-whites (whites) in each occupation by the median earnings by occupation, and computing the non-white to white ratios of this value. This relative occupational distribution value measures the relative mean earnings for blacks versus whites if their wages were the same but their occupational distributions differ.

Trends in Occupational Segregation

Beller (1985) uses the D-index to examine national trends in occupational sex segregation from 1960 to 1981. She estimates that the D-index fell from 69 in 1960 to 66 in 1970 and 62 by 1981, implying that at the national level the degree of worker occupational change required to obtain occupational integration fell by roughly seven percentage points from the 1960s to the 1980s. Her findings indicate that the most dramatic declines in occupational segregation during this period occurred in managerial occupations, while the heavily male dominated craft occupations, and heavily female dominated clerical occupations did not see significant changes in occupational segregation.

Using measures of the relative “maleness” and “femaleness” of occupations (rather than the D-index) to examine the impact of federal EEO laws and Executive Order 11246 (the federal contract compliance program) on occupational segregation, Beller (1982) finds that federal EEO laws generated an increase in women’s probability of being employed in male-dominated occupations. Although Beller’s 1982 and 1985 papers examine sex segregation, they do so at the national level by comparing differential outcomes for males and females before and after increases in EEO enforcement. The findings of this paper add to the literature by exploiting differences in state-level anti-discrimination laws across time using a difference-in-differences approach.

Anti-Discrimination Laws and Occupational Segregation

Although Neumark and Stock (2006), Landes (1968), and Collins (2003) all study the impacts of state-level anti-discrimination laws in place before the CRA was enacted, none focus directly on the impacts of these laws on occupational segregation by sex. Neumark and Stock (2006) measure the effect of state anti-discrimination laws on the employment of black and white women relative to men and the earnings of blacks relative to whites. Utilizing variation in state-level equal pay and anti-discrimination laws and U.S. Census Population data from 1940-1960, Neumark and Stock use a difference-in-difference-in-difference (DDD) estimator to assess how changes in the relative earnings and employment of different demographic groups varied between states that did and did not enact state level anti-discrimination laws. They find an immediate negative effect of sex discrimination laws on women's employment, which is consistent with the notion that a price increase on female labor leads to a substitution away from female labor. Given these employment effects, it is plausible for the laws to exacerbate or mitigate occupational segregation, depending on whether the substitution away from female labor occurred more in male verses female occupations. This question is investigated below.

Collins (2003) finds that FEPAs generated large, positive, and significant occupational status gains for black women, since black women in states with FEPAs were more likely than their counterparts to be in occupations with higher median earnings after those laws were passed. In addition, in states that passed FEPAs, the proportion of black women significantly increased in the operatives and craftsmen industries. Note, however, that Collins is studying FEPAs, which have different expected impacts on occupational segregation than EPLs.

EXPECTED EFFECTS

EPLs require that women be paid the same as men for equal skill and equal work. Prior to these laws, employers were legally able to discriminate against women by paying them lower wages than their equally skilled and equally productive male counterparts. There are several possible theoretical effects of EPLs on sex segregation in the workforce.

First, EPLs could have no effect on women's wages, employment or sex segregation if male and female workers are in perfectly segregated occupations. If a firm's secretarial pool is comprised entirely of women, the firm could not be found in violation of the EPL if women's wages were lower than men's wages in the firm, since there is no relative wage gap *within occupations*. For example, Bielby and Baron (1984) found that men and women were completely segregated by job type in 60 percent of the 373 establishments they examined.

Second, because EPLs raise the cost of female labor relative to male labor and do not include employment protections, they could generate a decrease in the quantity of female workers demanded and thus increase occupational segregation. Indeed, there is evidence that this was a concern for policymakers considering the federal Equal Pay Act. William Miller, representing the U.S. Chamber of Commerce during U.S. Senate hearings on the Act, notes, "More and more women are beginning to realize that the more you legislate specifically with respect to women, the more you hurt their job opportunities"

(p. 71). In the same hearings, former Labor Secretary Maurice Tobin is quoted, indirectly, as saying that “employers in states which have equal pay laws and consequently higher wage standards are often put at a competitive disadvantage with those in states where there is no legal barrier to unfair exploitation of women workers by means of discriminatory wage cutting practices” (p. 91-92). (Committee on Labor and Public Welfare, 1963).

Third, it is possible that EPLs could decrease sex segregation if they generate increases in the supply of women into segregated occupations. Ceteris paribus, this would lower wages in previously segregated occupations. Although a test of wage changes by occupation is beyond the scope of this thesis, Neumark and Stock (2006), find immediate negative effects of EPLs on women’s relative pay (although these are offset by positive effects of EPLs that grow over time). Landes (1968) describes a second potential mechanism by which sex segregation could fall as a result of EPLs. He notes that social costs or reputation costs for segregated firms could be enough to incentivize employers to desegregate despite the relative price increases of protected workers.

DATA

Two sources of data are used in this research. The data on state-level equal pay laws is obtained from Neumark and Stock (2006), who list equal pay laws by state and year in their Tables 2 and 5. Table 1 presents the laws used in this analysis.

The EPL variable identifies states that passed EPL laws by each census decade. For example, by 1940, two states, Montana and Michigan, had EPLs. Ten states passed EPL's between 1940 and 1949, and six states passed EPL's between 1950 and 1959.[10]

The second set of data comes from the 1910-1960 U.S. Censuses of Population at Integrated Public Use Microdata Series (Ruggles et.al, 2015).[11] The samples have been restricted to include only employed, white, non-military individuals aged 18 to 65. Data include state and year identifiers, as well as sex, educational attainment, Hispanic origin, and occupation at the individual level. The Census data are used to compute the three dependent variables of interest in the empirical analysis: (1) the D-index, (2) occupational concentration ratios, and (3) binary variables to indicate whether an individual's occupation is predominately "male" or "female." Two different levels of aggregation are used to group occupational categories. The first uses 3-digit occupational codes, which identify 303 different occupational categories observed over

[10] Hawaii passed an EPL in 1959, and Alaska passed an EPL in 1949. Because they were not states throughout the 1910-1960 time period, they were not included in this analysis.
[11] The samples used by year are: 1910-1%, 1920-1%, 1930-1%, 1940-1% sample, 1950-1% sample, and 1960-1% sample.

the 1910 to 1960 time period. The second aggregates these occupations into 10 categories.

The D-index is sensitive to the number of occupations in the calculation. Jacobsen (2007) shows that as the number of occupational classifications increases, so does the D-index value. This is easily seen in Figures 1 and 2. Figures 1 and 2 illustrate box plot graphs of the means and spread of the D-index over time, comparing states with an EPL to those without an EPL. Figure 1 has 10 occupational categories, and has uniformly lower D-index means than Figure 2, with 303 occupational categories, reflecting that the D-index is sensitive to occupational aggregation. In Figure 1, for 1940, the average D-index in EPL states is higher than in non-EPL states. However, in 1950 and 1960, EPL states have lower average D-indexes than non-EPL states. Figure 2 shows similar trends.

Figure 1: Box Plot Comparing the D-index of States that Passed an EPL and Did Not Pass an EPL, 10 Occupational Categories, 1910-1960

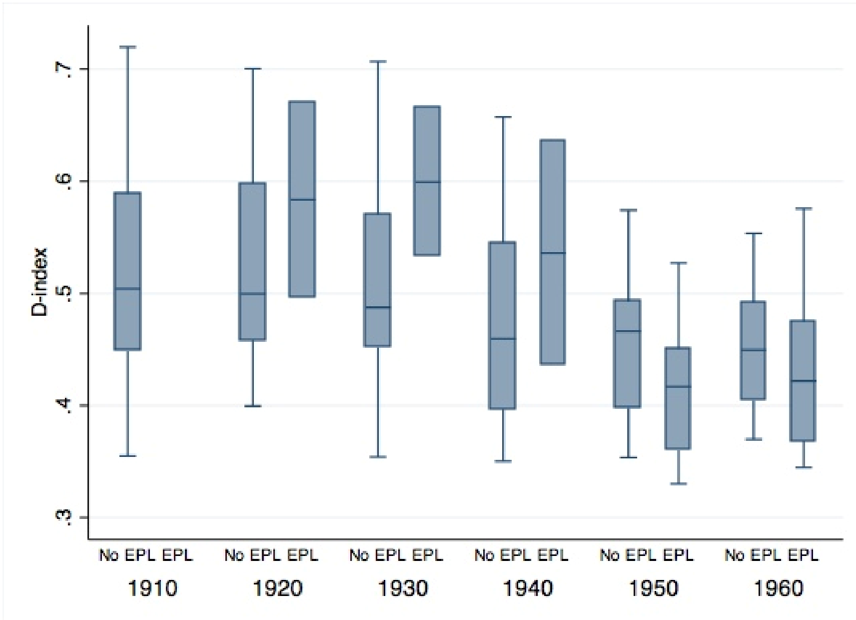


Figure 2: Box Plot Comparing the D-index of States that Passed an EPL and Did Not Pass an EPL, 303 Occupational Categories, 1910-1960

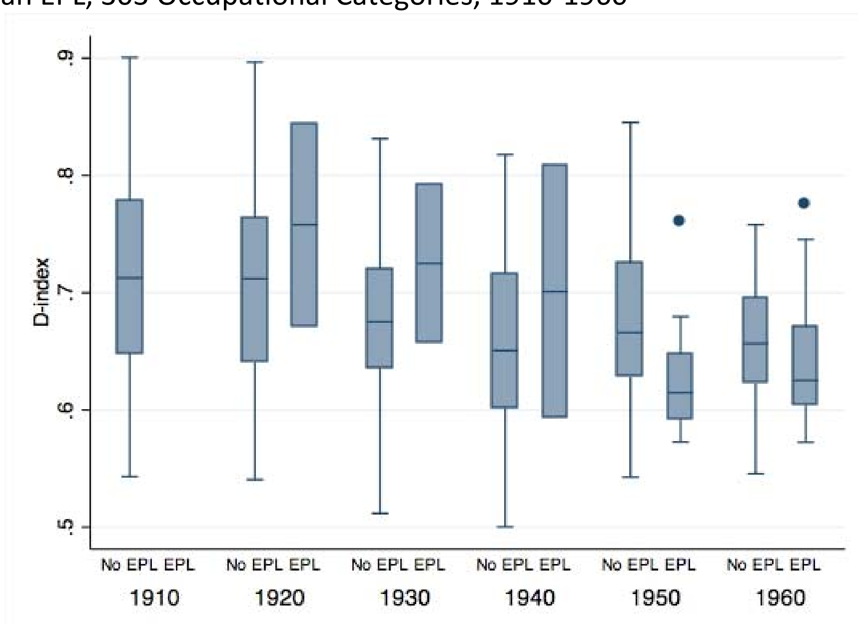


Table 3: D-index Means for States With and Without an EPL, 1910-1960

303 Occupational Categories

	States with EPL (1)			**States without EPL** (2)			**All States** (3)		
Year	Mean	Std. Dev.	N	Mean	Std. Dev	N	Mean	Std. Dev.	N
1910			0	0.716	0.013	49	0.716	0.013	49
1920	**0.758**	0.087	2	**0.704**	0.012	47	0.706	0.012	49
1930	0.723	0.065	2	0.691	0.011	47	0.681	0.010	49
1940	0.701	0.108	2	0.660	0.010	47	0.662	0.011	49
1950	**0.628**	0.015	12	**0.675**	0.011	37	0.664	0.010	49
1960	0.637	0.013	18	0.656	0.009	31	0.650	0.007	49

10 Occupational Categories

	States with EPL (1)			**States without EPL** (2)			**All States** (3)		
Year	Mean	Std. Dev.	N	Mean	Std. Dev	N	Mean	Std. Dev.	N
1910			0	0.517	0.013	49	0.517	0.013	49
1920	0.583	0.087	2	0.523	0.012	47	0.525	0.012	49
1930	0.599	0.066	2	0.514	0.013	47	0.518	0.013	49
1940	0.536	0.100	2	0.471	0.012	47	0.473	0.012	49
1950	0.414	0.019	12	0.450	0.010	37	0.441	0.009	49
1960	0.427	0.016	18	0.453	0.010	31	0.443	0.009	49

Note: D=1 implies perfect segregation, D=0 implies perfect integration. N=294 for both tables, or 49 observations for each state over 6 observed points. EPL= Equal Pay Laws are in place by that census decade. Bolded entries indicate means in states with an EPL for that year are significantly different than means for states without an EPL.

Table 3 summarizes the D-index over time for the 303 and 10 aggregated occupational categories. Using the disaggregated occupational classifications, the average state-level D-index ranges from 0.628 to 0.758 during the 1910 to 1960 period, whereas using the aggregated occupational classifications, the average state level D-index ranges from 0.414 to 0.599. In 1940, the average D-index across all states equals 0.662. This means that 66.2 percent of the female labor force would have to move into male dominated jobs, or 66.2 percent of the male labor force would have to move into female dominated jobs in order to achieve perfect integration in the workforce.

Using the aggregated (10) occupational categories, the average D-index is not statistically different from the average D-index in states without an EPL by 1960. In the disaggregated (303) occupational categories, the D-index is only statistically different from the average D-index in states without an EPL in 1920, and in 1950.

Occupational concentration ratios are also computed at the state and year level. The concentration ratio variables identify the top four (eight) occupations that employed the highest proportion of women (men) in each state. For each state in 1940, the occupation concentration ratios measure the percent of women (men) in each of the four (eight) most concentrated occupations. When computing occupation ratios in later and earlier years, the "top" occupations are fixed over time at their 1940 values. To calculate the occupation concentration ratio for each state and year in 1940, the percent of the state's females who are in each occupation is computed as $\gamma = \frac{F_{jst}}{F_{st}}$ where *j* = occupation, *s* = state and *t* = year. The four-occupation concentration (eight-occupation) ratio is the sum of the highest four (eight) γ values in that state and year. These variables are also calculated for men. In 1940, the most frequently occurring occupations with the highest male concentration were laborers, farm laborers, truck and tractor drivers, clerical and kindred workers, salesmen and clerks, operative and kindred workers, managers, officials and proprietors. The most frequently occurring occupations with the highest female concentration in 1940 were teachers, nurses, bookkeepers, clerical and kindred workers, private household workers, salesmen and clerks, operative and kindred workers, and waitresses.

Table 4: Concentration Ratios for States With and Without an EPL, 1940-1960

	Female-Concentration Ratio (4 Top Occupations)								
	States with EPL (1)			**States without EPL** (2)			**All States** (3)		
Year	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev	N
1910			0	0.408	0.014	49	0.408	0.014	49
1920	0.461	0.067	2	0.464	0.011	47	0.464	0.011	49
1930	0.467	0.063	2	0.466	0.010	47	0.466	0.010	49
1940	0.450	0.002	2	0.507	0.012	47	0.504	0.011	49
1950	0.454	0.025	12	0.424	0.015	35	0.431	0.013	49
1960	0.411	0.020	18	0.409	0.015	31	0.410	0.012	49
	Female Concentration Ratio (8 Top Occupations)								
	States with EPL (1)			**States without EPL** (2)			**All States** (3)		
Year	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N
1910			0	0.606	0.014	49	0.606	0.014	49
1920	0.642	0.002	2	0.650	0.008	47	0.650	0.008	49
1930	0.680	0.017	2	0.649	0.010	47	0.650	0.010	49
1940	0.693	0.006	2	0.718	0.009	47	0.717	0.008	49
1950	0.672	0.018	12	0.625	0.012	35	0.636	0.011	49
1960	0.640	0.016	18	0.618	0.012	31	0.626	0.010	49

Table 4: Concentration Ratios for States With and Without an EPL, 1940-1960, Continued

	Male-Concentration Ratio (4 Top Occupations)								
	States with EPL (1)			**States without EPL** (2)			**All States** (3)		
Year	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N
1910			0	0.422	0.012	49	0.422	0.012	49
1920	0.411	0.052	2	0.380	0.010	47	0.381	0.010	49
1930	0.449	0.084	2	0.402	0.010	47	0.404	0.010	49
1940	0.355	0.018	2	0.368	0.008	47	0.367	0.008	49
1950	**0.326**	0.011	12	**0.292**	0.008	35	0.300	0.007	49
1960	0.272	0.012	18	0.239	0.010	31	0.251	0.008	49

	Male-Concentration Ratio (8 Top Occupations)								
	States with EPL (1)			**States without EPL** (2)			**All States** (3)		
Year	Mean	Std. Dev	N	Mean	Std. Dev	N	Mean	Std. Dev.	N
1910			0	0.538	0.009	49	0.538	0.010	49
1920	0.551	0.036	2	0.512	0.008	47	0.513	0.008	49
1930	0.573	0.056	2	0.546	0.010	47	0.547	0.009	49
1940	0.501	0.009	2	0.529	0.007	47	0.528	0.007	49
1950	0.471	0.010	12	0.463	0.008	35	0.465	0.007	49
1960	0.438	0.008	18	0.416	0.010	31	0.424	0.007	49

Table 4 reports the average four- and eight-occupation concentration ratios for males and females in states with and without EPLs. In 1940, for example, the top four occupations employed an average of 45 percent of women in states with EPLs, while the top four occupations employ an average of 51 percent of women in states without an EPL. In contrast, in 1940 the top four occupations employed 36 percent of men in EPL states, and 37 percent of men in non-EPL states. As expected, the eight-occupation concentration ratios are higher in all cases. The top eight occupations employed an average of 69 percent of women in EPL states, and 72 percent of women in 1940 in non-

EPL states. In 1940, the concentration ratios are uniformly lower in states with an EPL than in other states. By 1950 and 1960, the concentration ratios are generally higher in states with an EPL than without an EPL,[12] and these means are only significantly different from each other for the top four occupation concentration ratio for males in 1950.

Following Beller (1982), indicators for “male” and “female” jobs by state and year were generated by comparing the proportion of females (males) in each occupation in the state to the proportion of females (males) in the workforce in the state. If the proportion of females in a given occupation is 0.05 or higher than the proportion of females in the state’s workforce, this is classified as a “female” job. A similar criterion is used to define “male” jobs by state and year. The mean proportions of the workforce employed in male and female jobs are summarized in Table 5. In 1920, 35 percent of the workforce in states with EPLs was employed in “female” jobs, while 77 percent of the workforce in states without EPLs was in female jobs. The proportion of individuals in male jobs decreases over time, for both states with and without EPLs. The proportion of individuals in female jobs increases steadily over this time period.

[12] The only exception is in the Top 8 Occupation Concentration ratio for males in 1950.

Table 5: Mean Values of “Male” and “Female” Occupations for States With and Without an EPL, 1910-1960

	Female Jobs						
	States with EPL (1)		**States without EPL** (2)		**All States** (3)		Total
Year	Mean	Std. Dev.	Mean	Std. Dev	Mean	Std. Dev.	N
1910			0.373	0.001	0.373	0.001	197,006
1920	**0.345**	0.004	**0.402**	0.001	0.399	0.001	236,107
1930	**0.391**	0.002	**0.418**	0.000	0.416	0.000	305,874
1940	0.489	0.004	0.483	0.001	0.484	0.001	287,658
1950	**0.513**	0.002	**0.483**	0.002	0.498	0.002	110,884
1960	0.494	0.001	0.497	0.001	0.495	0.001	429,510
	Male Jobs						
	States with EPL (1)		**States without EPL** (2)		**All States** (3)		Total
Year	Mean	Std. Dev.	Mean	Std. Dev	Mean	Std. Dev.	N
1910			0.705	0.001	0.705	0.001	197,006
1920	**0.774**	0.004	**0.657**	0.001	0.662	0.001	236,107
1930	**0.734**	0.002	**0.646**	0.000	0.649	0.000	305,874
1940	**0.699**	0.004	**0.605**	0.001	0.610	0.001	287,658
1950	**0.553**	0.002	**0.609**	0.002	0.582	0.001	110,884
1960	**0.575**	0.001	**0.585**	0.001	0.579	0.001	429,510

EMPIRICAL FRAMEWORK

A difference-in-difference model (DD) is used to isolate the effect state-level EPLs on sex segregation over time. Using a DD model allows for comparison of changes in dependent variables among treatment and comparison groups over time while controlling for state-level characteristics, year fixed effects, and state-level time trends. Equation (1) estimates the effects of EPLs on the state-level sex segregation:

$$Y_{st} = \alpha + \beta_1 \, EPL_{st} + \beta_2 YrsSinceEPL + \beta_3 \, S_s + \beta_4 T_t + \beta_5 \, S_s{*}trend + \varepsilon \qquad (1)$$

Where Y_{st} alternately measures D_{st} (D-index for each state and year), and CR_{fst}, and CR_{mst} (occupational concentration ratios for females and males, respectively, by state and year). The variable EPL_{st} is a dummy variable corresponding to states and years when EPLs are in place, S_s is a set of dummy variables corresponding to states, T_t is a set of dummy variables corresponding to the years of observation, and S_s*trend allows for different time trends in each state. The coefficient β_3 captures time-invariant differences across states, β_4 captures state-invariant changes to Y_{ist} that are common to all states in a given year, and β_5 captures the trends in Y_{st} that occur differently over time for different states. For example, Figure 3 illustrates that the D-index trended differently over time in states that did and did not pass EPLs.

Following Neumark and Stock (2006), in some specifications *YrsSinceEPL* is also included to measure the years since the EPL was passed in order to capture changes in the laws' effects over time.

The coefficient β_1 is the parameter of interest and captures the effect of anti-discrimination laws on occupational segregation. If EPLs decrease sex segregation, β_1 will be negative, indicating that EPLs decrease either the index of segregation or the degree of concentration of females and males in highly concentrated occupations.

Equation (2) estimates the effects of EPLs on individual workers' probabilities of being employed in segregated occupations:

$$PR(Y_{ist}) = \alpha + \beta_1 EPL_{st} + \beta_2(EPL_{st} * Male_i) + \beta_3 YrsSinceEPL + \beta_4 S_s + \beta_5 T_t + \beta_6 S_s{*}trend + \beta_7 X_{ist} + \varepsilon \quad (2)$$

where Y_{ist} is a binary variable indicating whether individual *i* is employed in a male (female) dominated occupation. The interaction $EPL_{st}*Male_i$ allows EPLs to have different impacts for males than females, which would be expected if EPLs move females into traditionally male occupations and males into traditionally female occupations. The *X* vector controls for individual demographic characteristics including age, education level, and parental status. In this equation, β_1 measures the effect the EPLs have on the probability that a male (female) worker is employed in a male- (female-) dominated occupation and β_2 captures the differential effect of EPLs on this probability for females relative to males.

All specifications include state time trends to account for the possibility of unobserved trending variables that are correlated with Y_{st}. If Y_{st} is growing or shrinking systematically by state over time for reasons unrelated to the variables accounted for, then excluding state-time trends from equations (1) and (2) would result in biased estimators. Figures 3 through 6 help to motivate the use of state time trends. In all figures, "Early" defines states that adopted EPLs early in this period of study, before 1949. "Late" defines states that adopted EPLs late in this time period, from 1950-1963. "Never" defines states that did not adopt EPLs before the federal law was passed, after 1963. In Figures 3, 4 and 6, early and late adopters trend parallel and similarly over time. In Figures 5 and 7, early, late and never adopters all trend the same direction over time, but do not run parallel to each other.

For all individual-level specifications, errors are clustered at the state level to prevent heteroskedasticity-robust standard errors (Woolridge, 2009 and Bertrand, et. al., 2004).

Figure 3: The D-index over time, by EPL Adopters, 1910-1960

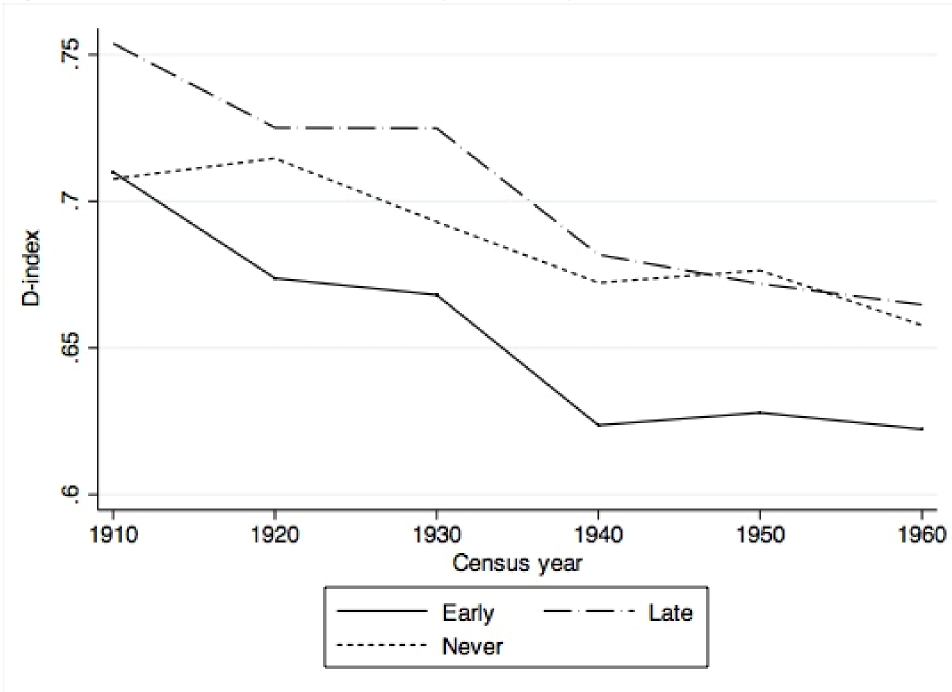


Figure 4: The Top 4 Female Concentration Ratios over Time, by EPL Adopters, 1910-1960

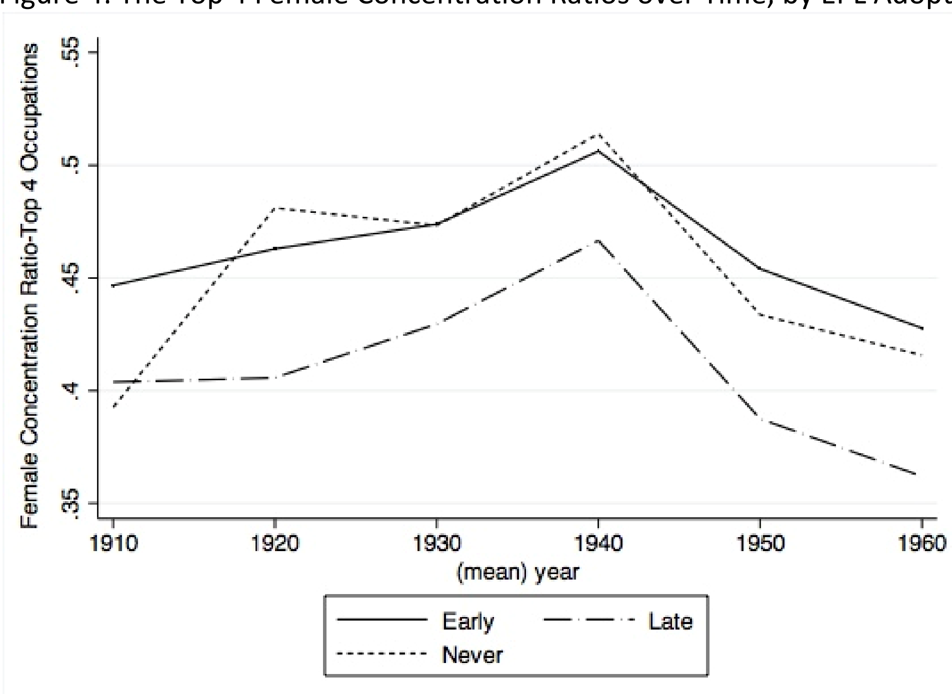


Figure 5: The Male Top 4 Concentration Ratios, by EPL Adopters, 1910-1960

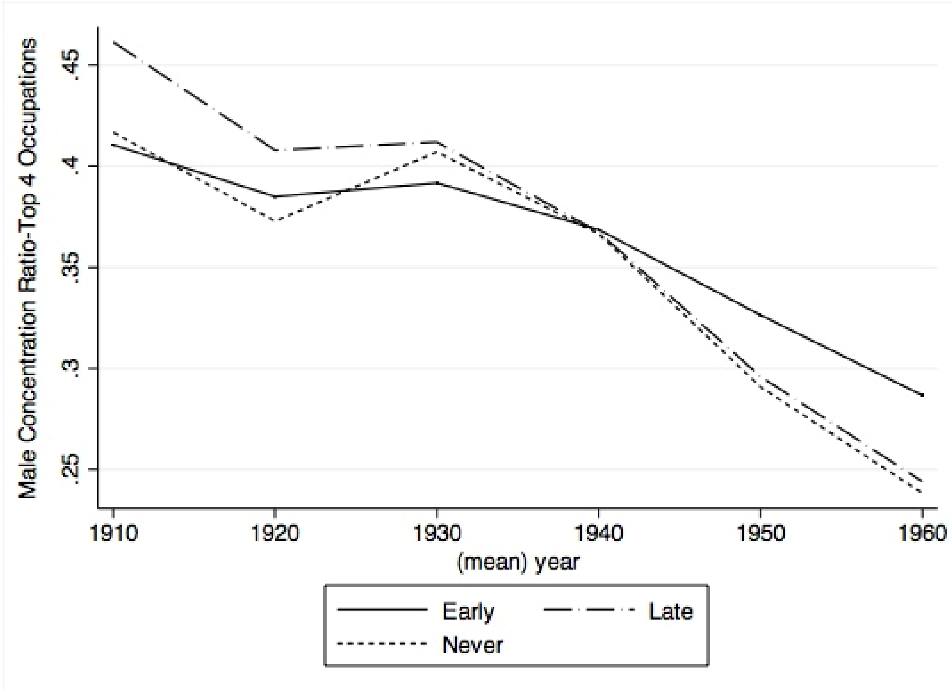


Figure 6: The Probability of Being in a Female Job, by EPL Adopters, 1910-1960

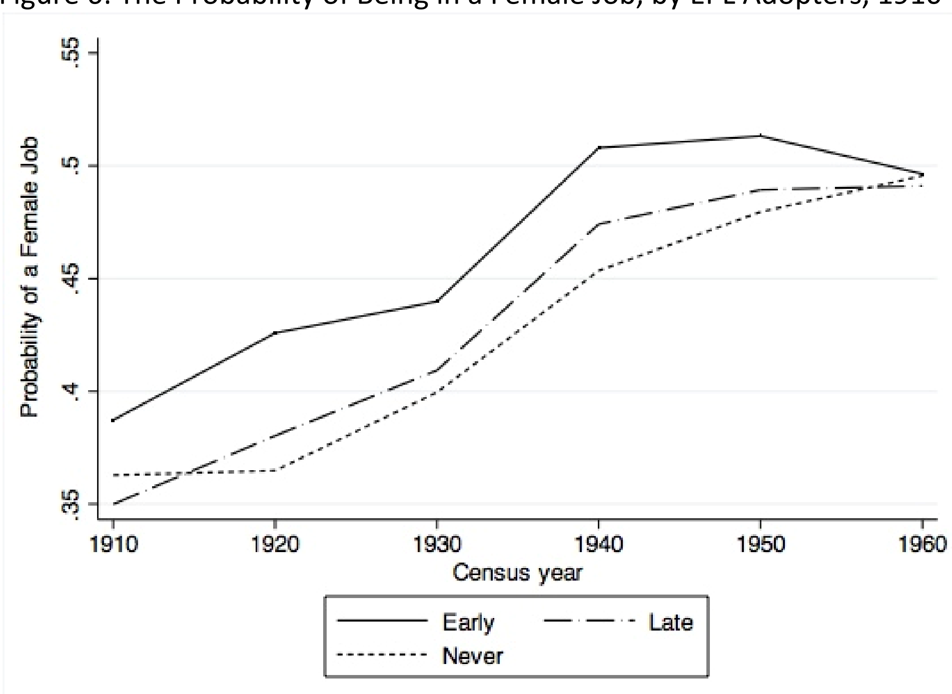
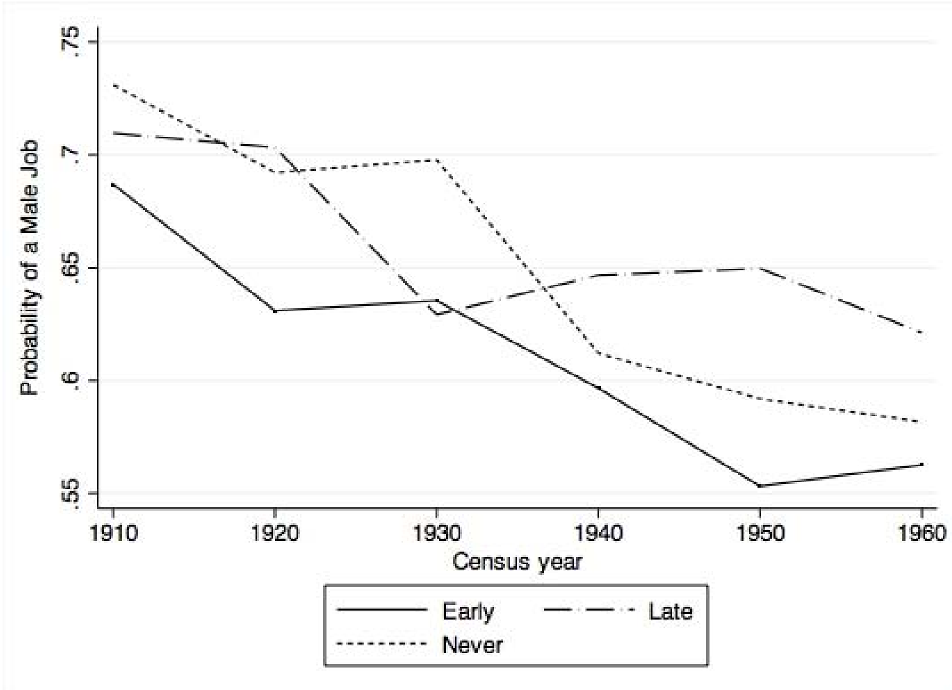


Figure 7: The Probability of Being in a Male Job, by EPL Adopters, 1910-1960



RESULTS

Table 6 reports evidence of EPLs on state-level D-index outcomes. There are two panels of results, panel A for the disaggregated (303) occupational categories, and panel B for the aggregated, (10) occupational categories. The first three specifications include state and year fixed effects, while the fourth and fifth specifications also include state-level time trends. The second specification also controls for years since the EPL passed. In both panels, there are no statistically significant effects of EPLs on the D-index. In panel A, all specifications are consistent with EPL laws reducing workforce segregation, but these estimated effects are not statistically significant.

Table 6: D-index Regression Results, 1910-1960

PANEL A					
	303 Occupational Categories				
	D-Index (1)	D-Index (2)	D-Index (3)	D-Index (4)	D-Index (5)
EPL	-0.010	-0.005	-0.006	-0.006	-0.004
	(0.008)	(0.009)	(0.009)	(0.017)	(0.022)
Years since EPL		-0.001*	0.000	-0.001	-0.001
		(0.000)	(0.001)	(0.001)	(0.002)
$YrsSinceEPL^2$			0.000		0.000
			0.000		0.000
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
State Time Trends	No	No	No	Yes	Yes
Observations	294	294	294	294	294
R-squared	0.871	0.871	0.871	0.951	0.951

Table 6: D-index Regression Results, 1910-1960, Continued

PANEL B					
	10 Occupational Categories				
	D-Index	D-Index	D-Index	D-Index	D-Index
	(1)	(2)	(3)	(4)	(5)
EPL	-0.008	0.002	0.002	0.008	-0.015
	(0.011)	(0.012)	(0.011)	(0.023)	(0.033)
Years since EPL		-0.001	-0.001	-0.001	0.003
		(0.001)	(0.001)	(0.001)	(0.003)
$YrsSinceEPL^2$			0.000		0.000
			(0.000)		(0.000)
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
State Time Trends	No	No	No	Yes	Yes
Observations	294	294	294	294	294
R-squared	0.826	0.828	0.828	0.926	0.927

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Tables 7 and 8 report the results of the state-level regression analysis with concentration ratios as the dependent variables. Table 7 reports results for the top four (eight) concentration ratios for females, and Table 8 reports results for the top four (eight) concentration ratios for males. At first glance, it appears that EPLs lead to increased concentration of males and females in the top four and eight occupations, but once state-level time trends are controlled for, there is no statistically significant effect of EPL laws.

Table 7: Concentration Ratios, Top 4 and 8 Occupations by Female, 1910-1960

PANEL A

	Female Concentration Ratio Top 4 Occupations in 1940			
	(1)	(2)	(3)	(4)
EPL	0.010	0.019	0.007	0.004
	(0.022)	(0.023)	(0.020)	(0.053)
Years Since EPL		-0.001	0.001	0.000
		(0.001)	(0.002)	(0.006)
Years Since EPL^2			0.000	0.000
			(0.000)	(0.000)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
State Time Trends	No	No	No	Yes
Observations	294	294	294	294
R-Squared	0.526	0.527	0.528	0.847

	Female Concentration Ratio Top 8 Occupations in 1940			
	(1)	(2)	(3)	(4)
EPL	0.020	0.026	0.014	0.016
	(0.013)	(0.016)	(0.015)	(0.050)
Years Since EPL		-0.001	0.002	0.002
		(0.001)	(0.001)	(0.005)
Years Since EPL^2			0.000	0.000
			(0.000)	(0.000)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
State Time Trends	No	No	No	Yes
Observations	294	294	294	294
R-Squared	0.632	0.633	0.634	0.838

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 8: Concentration Ratios, Top 4 and 8 Occupations by Male, 1910-1960

	Male Concentration Ratio Top 4 Occupations in 1940			
	(1)	(2)	(3)	(4)
EPL	0.032*	0.030	0.016	0.003
	(0.019)	(0.021)	(0.021)	(0.048)
Years Since EPL		0.000	0.003	0.003
		(0.003)	(0.002)	(0.005)
Years Since EPL^2			0.000	0.000
			(0.000)	(0.000)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
State Time Trends	No	No	No	Yes
Observations	294	294	294	294
R-Squared	0.773	0.773	0.775	0.928

	Male Concentration Ratio Top 8 Occupations in 1940			
	(1)	(2)	(3)	(4)
EPL	0.041***	0.044***	0.036**	0.038
	(0.012)	(0.012)	(0.014)	(0.033)
Years Since EPL		0.000	0.001	0.000
		(0.001)	(0.002)	(0.005)
Years Since EPL^2			0.000	0.000
			(0.000)	(0.000)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
State Time Trends	No	No	No	Yes
Observations	294	294	294	294
R-Squared	0.803	0.803	0.804	0.931

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 9: Regression Results for the Probability of an Individual Being in a Female Job, 1910-1960

	Probability of Being in a Female Job				
	(1)	(2)	(3)	(4)	(5)
EPL	-0.023	-0.021	-0.007	-0.036	-0.041**
	(0.020)	(0.015)	(0.012)	(0.024)	(0.020)
Male*EPL		0.026**	0.031***	0.022**	0.034***
		(0.011)	(0.008)	(0.010)	(0.007)
Yrs Since EPL	0.004**		-0.002***	0.003	0.003*
	(0.002)		(0.000)	(0.003)	(0.002)
YrsSinceEPL^2	0.000***			0.000*	0.000***
	(0.000)			(0.000)	(0.000)
Age	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.632***	0.636***	0.637***	0.635***	0.637***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.009)
Hispanic	0.084***	0.083***	0.085***	0.083***	0.083***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
High School	0.042***	0.042***	0.042***	0.042***	0.042***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Some College	0.068***	0.067***	0.067***	0.067***	0.069***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
B.A. Plus	0.049***	0.049***	0.049***	0.048***	0.050***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Any Children	-0.002	0.003	0.004	0.002	0.005
	(0.005)	(0.006)	(0.006)	(0.007)	(0.006)
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
State Time Trends	Yes	No	No	No	Yes
Observations	1,567,039	1,567,039	1,567,039	1,567,039	1,567,039
R-squared	0.345	0.343	0.344	0.344	0.345

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 10: Regression Results for the Probability of an Individual Being in a Male Job, 1910-1960

	Probability of Being in a Male Job				
	(1)	(2)	(3)	(4)	(5)
EPL	0.012	0.017	0.019	0.021	0.027
	(0.031)	(0.014)	(0.015)	(0.020)	(0.032)
Male*EPL		-0.029**	-0.028**	-0.027***	-0.028***
		(0.012)	(0.011)	(0.010)	(0.007)
Yrs Since EPL	0.000		0.000	-0.001	0.001
	(0.003)		(0.000)	(0.002)	(0.003)
YrsSinceEPL^2	0.000			0.000	0.000
	(0.000)			(0.000)	(0.000)
Age	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	-0.636***	-0.641***	-0.641***	-0.641***	-0.641***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Hispanic	-0.100***	-0.100***	-0.100***	-0.100***	-0.100***
	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
High School	-0.041***	-0.040***	-0.040***	-0.040***	-0.042***
	(0.011)	(0.010)	(0.010)	(0.010)	(0.011)
Some College	-0.074***	-0.073***	-0.073***	-0.073***	-0.075***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
B.A. Plus	-0.068***	-0.067***	-0.067***	-0.067***	-0.069***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Any Children	0.021***	0.015***	0.015***	0.015***	0.015***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
State FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
State Time Trends	Yes	No	No	No	Yes
Observations	1,567,039	1,567,039	1,567,039	1,567,039	1,567,039
R-squared	0.367	0.363	0.363	0.363	0.367

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 9 reports the estimates of EPLs' effect on an individual's probability of being in a female job, and Table 9 reports the estimates for the probability of being in a male job. Results show that passage of EPLs have a statistically significant effect of reducing the probability that females are employed in female-dominated jobs. The effect of EPLs on the probability that a male is in a female job is not statistically significant from zero in specifications (2), (4) and (5)[13]. When EPL effects are allowed to grow over time (columns 4 and 5), there are mixed results on individuals' likelihood of being in a female job.

The results in Table 9 illustrate that EPLs decrease the probability of women being employed in female dominated jobs by four percentage points. Estimates indicate that EPLs have no impact on the probability of men being employed in female jobs.

The results of Table 10 illustrate that EPLs have no statistically significant effect on the probability that women are in male-dominated jobs. Estimates indicate that the effect of EPLs have no impact on the probability of men being employed in male jobs in specifications (4) and (5)[14].

Overall relative to their counterparts in states without EPLs, females in states with EPLs are roughly four percentage points less likely to be in female jobs.

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[13] When examining the t-test for EPL + EPL*Male = 0, p-values for Table 9, specifications (2), (4) and (5) are 0.705, 0.532, and 0.730, respectively.

[14] When examining the t-test for EPL + EPL*Male = 0, p-values for Table 10, specifications (4) and (5) are 0.687 and 0.968, respectively.

CONCLUSION

The issue of equal pay for women has been a popular discussion for several decades, and is still being debated today. However, the effects of equal pay laws on workplace sex segregation has not been examined in detail. This research paper presents new research on workplace sex segregation based on state-level variation in equal pay legislation that was introduced before 1963.

Previous research only examined the effects of equal pay laws on a national level. This research compliments Beller's (1982 and 1985) workplace sex segregation research, and builds on findings from Neumark and Stock (2006). Three different dependent variables are used to assess sex-segregation in the workplace: the dissimilarity index developed by Duncan and Duncan (1955), concentration ratios, and the probability of an individual being in a "male" or "female" occupation. Findings show that at the state level, EPLs have an insignificant effect on state-level D-index measures. EPLs also have no statistically significant effects on state-level concentration ratios of males and females. EPLs reduce the probability that females are employed in female-dominated jobs but do not appear to affect the probability that females are employed in male-dominated jobs.

This research helps illuminate and isolate the specific effects of equal pay laws on the composition of statewide labor markets.

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