Preliminary

Between the Cracks: Discrimination Laws and Older Women

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Abstract:

The federal government enacted the Age Discrimination in Employment Act in 1967 to protect older workers from discrimination in the workplace. Title VII of the Civil Rights Act of 1964 was enacted to protect women from sex discrimination in employment. Most legal scholars believe that the two laws read together prohibit discrimination against a subset of people who are members of both protected classes (e.g. older women). However, there are mixed views at courts on this issue. The purpose of this study is to empirically test this hypothesis by estimating the differential effect of age discrimination laws on older men's and older women's labor market outcomes. This study finds significant differential effects between older men and older women in employment and retirement, thereby supporting some legal scholars' claims of the shortcomings of our discrimination laws in protecting older women.

1. Introduction

In 1967, the federal Age Discrimination in Employment Act (ADEA) was passed to prohibit discrimination against workers over age 40.[1] Title VII of the Civil Rights Act of 1964 prohibits employment discrimination on the basis of sex, race, color, religion, or national origin. However, there is a legal argument pointing out serious shortcomings of the acts protecting older women who are subject to discrimination targeted at a subgroup of two different protected classes (Porter 2003, Crocette 1998). Among legal scholars, this type of discrimination against a subset of people who are members of both protected classes is called intersectional discrimination. Most legal scholars believe that the two laws read together prohibit discrimination against a subgroup of protected classes such as older women. Nonetheless, not all courts share the same view on this matter. Porter claims that older women should be treated as a subgroup within the protected class due to two immutable characteristics -- age and sex -- similar to how black women are protected under the intersection of two characteristics -- race and sex. The implication of this argument is that the ADEA will be less effective in protecting women than men because older women are subject to age discrimination, sex discrimination, and intersectional discrimination of both age and sex. The purpose of this study is to provide an empirical test of this conjecture by analyzing the sex differential in the labor market outcome as a result of the passage of age discrimination laws. Although previous studies have shown that the ADEA has boosted the employment and lowered the retirement probability of older workers, the studies were only done on men (Neumark and Stock 1999, Adams 2004). The differential

[1] When the ADEA was passed in 1967, the act prohibited discrimination for all persons aged between 40 and 65. In 1978 it was amended to raise the upper age limit to 70 and subsequently, the upper age limit was removed in 1986.

effect between men and women and the effectiveness of the ADEA for older women has not been empirically studied to date.

If courts view intersectional discrimination experienced by older women separately as either age discrimination or sex discrimination, it will be inadequate in discerning whether older women experience discrimination. In demonstrating age discrimination for older women, older men would be included in statistical evidence; similarly, sex discrimination would include younger women. These statistics would be inadequate to prove the intersectional discrimination of age and sex that older women may encounter. This implies that courts should not separate the older women's claim into age or sex, but rather view the claim as a single entity because age and sex are not mutually exclusive characteristics.

2. Background

2.1. Legal Perspective

Legal scholars define the "sex-plus" theory of discrimination based on the combination or intersection of two characteristics. For example, older women may experience discrimination for being both female and older. Older men or younger women might be treated more favorably. The "sex-plus" theory applies to any subgroup of protected groups. In *Jefferies v. Harris County Community Ass'n*[2], a black woman argued that the defendant discriminated against her on the basis of both her race and sex. The trial court addressed the plaintiff's claim separately as separately alleging race discrimination and sex discrimination. The court found that the plaintiff had failed to prove either race or sex discrimination and dismissed her claim. On appeal, the Fifth Circuit reversed. It held that a court must consider a claim of combined discrimination

[2] Jefferies v. Harris County Communityty. Action Ass'n, 615 F.2d 1025 (5th Cir. 1980)

based on both race and sex. The court reasoned that if both black men and white women are considered to be within the same protected class as black females for the purpose of prima facie case, no remedy will exist for discrimination which is directed only toward black females.

The first case that recognized older women as a subgroup within the protected group did not occur until 1994 in *Arnett v. Aspin.*[3] This is the only case thoroughly discussing the sex plus age theory and recognizing the legal justification of establishing a prima facie case (Porter, 2003). In this case, the plaintiff Arnett alleged that she was discriminated against as an older woman since the promoted position she was passed over for was given to younger women or men over the age of forty. The defendant's argument was that Title VII[4] does not allow sex plus age discrimination claims because these are two separate statues and thus the claim should be viewed as two separate claims. The court allowed Arnett to pursue this under sex-plus line of cases to justify the result under Title VII and reasoned that sex-plus line cases closed a loophole that allowed employers to discriminate against some women as long as they did not discriminate against all women.[5] This shows the position of some courts recognizing the existence of the loophole in our legal system that cannot be closed unless the "sex-plus" discrimination theory is accepted.

The Courts' opinions in *Jefferies v. Harris County Community Ass'n* and *Arnett v. Aspin* explain the rationale for protecting older women as a subgroup, who are prone to interactive discrimination, in the legal environment. Nonetheless, very few other courts have addressed this

[3] Arnett v. Aspin, 846 F. Supp. 1234, 1238 (E.D. Pa. 1994)

[4] Title VII prohibits discrimination on the basis of race, color, religion, sex, or national origin.

[5] Title VII explicitly prohibits intersectional discrimination such as race and sex. That is, employer cannot discriminate against a subclass of women based on immutable characteristic or the exercise of a fundamental right (The U.S Equal Employment Opportunity Commission).

issue. They either have declined to discuss or recognized the cause of action with little or no discussion (Porter, 2003). Crocette (1998) also makes an interesting point that although theoretically, "age-plus" claims can be brought under the ADEA just like "sex-plus" claims are brought under Title VII, multi-factor discrimination claims under the ADEA are generally held not valid. For example, in *Kelly v. Drexel University*,[6] the plaintiff alleged discrimination based on age and disability during a reduction in workforce. According to the opinion of the Court, a protection for subclass is valid only under Title VII and that this applies only to "sex-plus" some other form of discrimination. The court also clarified that in *Arnett v. Aspin* it was recognized as a "sex-plus" discrimination under Title VII, not "age-plus" under the ADEA. The court further stated that it found no authority to make a decision for an "age-plus" claim under the ADEA. In *Luce v. Dalton*,[7] the viability of the plaintiff's claim of "age-plus-religion" and "age-plus-disability" discrimination was addressed. The court expressed the opinion that unlike Title VII, there is no argument for Congress's intention to include any subgroup for protection other than age under the ADEA. The court reasoned that the ADEA provides only one classification for protection.

Porter (2003) also illustrates the potential problem in proving the interactive discrimination older women may face by using a hypothetical example.[8] Let us assume that there is a company with eleven employees: one older woman, five younger women under the age of 40, and five older men above age of 40. Suppose there was a reduction in force and an older woman was the only employee to be laid off. According to Porter's argument, in the legal

[6] Kelly v. Drexel University, 907 F. Supp. 864 (E.D. Pa 1995)

[7] Luce v. Dalton, 166 F.R.D. 457 (S.D. Cal. 1996)

[8] This example is included in this study to illustrate how the statistical evidence can be weakened if older woman's claim is not viewed as "age-plus-sex" discrimination.

setting, to make out a prima facie case of age discrimination, the older woman has to establish additional direct, circumstantial, or statistical evidence indicating that the employer singled out the plaintiff for discharge for impermissible reasons. To prove this under the age discrimination claim, the older woman would have to show evidence that the employer favored younger employees. Porter argues she cannot under the given scenario because half of the remaining employees in the department are over the age of 40. Similarly, her sex discrimination claim would also fail because the same number of women are remaining as are men. Although this older woman was discriminated against all members of a particular subclass of the protected group, the employer will likely prevail by showing that they did not discriminate against all members of a protected class under age or sex discrimination separately.[9]

To analyze the employment discrimination in regression framework, Equation (a)[10] can be used, where i denotes individuals; Y is some employment outcome (e.g., hiring or layoff); A is a binary indicator for demographic indicator that is subject to discrimination (e.g., female, race or older); X is a vector of individual control variables such as education:

$$Y_i = \alpha + \beta A_i + X_i\psi + \epsilon_i \qquad \text{(a)}$$

If the coefficient β is statistically different from zero, then discrimination against individuals with certain characteristic examined said to exist. For example, if Y is a binary indicator for employment, A is the binary indicator for female and the coefficient β is negative and it is statistically significant, then the data shows that women are experiencing negative probability of

[9] In the legal environment, this case will not probably make it past a motion for summary judgment.

[10] In measuring discrimination, this is one of the basic econometric methods. More appealing method to estimate would require more sophisticate strategy such as the Oaxaca decomposition that controls for other skill characteristics. However, the greater detailed discussion of estimating discrimination in the labor market is beyond the scope of this study.

employment compared to men with similar characteristics. The coefficient β measures the average difference in employment outcome between a woman and a man, (or a younger and an older worker) given the similar characteristics. This is one possible way to obtain statistical evidence of discrimination.

The legal argument of the shortcomings of our legislation raises an issue in analyzing the interactive discrimination of older women using the above Equation (a). It is implying that we need a modification to the econometric model that takes the intersectionality of two immutable characteristics into account. This proposes the following model with interaction term of both age and sex, where A is a binary indicator for being older (equal to one if in the protected age group) and F is a binary indicator for female:

$$Y_i = \alpha + \beta_1 A_i + \beta_2 F_i + \beta_3 A_i \cdot F_i + X_i \psi + \epsilon_i \qquad \text{(b)}$$

Equation (b) allows the employment outcome to depend on both age and gender. It explicitly shows statistically significant differentials across age-gender combinations. The legal argument pointing out the shortcomings of the legislation protecting older women in regression framework is stating that the statistical evidence of discrimination is not only the estimate of β_2, but it should be β_2 plus β_3. The estimate of β_2 plus β_3 measures the discrimination against intersection of two characteristics, gender and age.

In applying these empirical models to test for the statistical evidence of discrimination in Porter's example, Equation (a) would be used if the case were to be viewed as either sex or age discrimination. The coefficient β, which measure the either sex discrimination or age discrimination is estimated to be 0.17 in the example. In contrast, if the case were to be viewed as interactive discrimination of age plus sex, Equation (b) would be used and the estimate of the

coefficients β_2 plus β_3 is close to one. The statistics show that the probability of being laid off as a result of either being woman or older employee is 0.17 versus zero for the others, whereas it would be one versus zero for older woman. Therefore, if this case were to be reviewed as either sex or age discrimination separately, the strength of evidence for the plaintiff would be reduced drastically relative to "sex-plus-age" discrimination.[11]

2.2 . Older Women and Age Discrimination in Workplace: Sex and Age Bias

Interdisciplinary studies suggest that older women may be more susceptible to age discrimination than older men or younger women. Sociologists have studied sociobiological perspectives and sociocultural perspectives on when and why women's appearance is more important than men's. Jackson (1992) provides various sources and empirical evidence on this assertion. The main objective of her study is to address why and when women's physical appearance is more important than men's. She divides the settings in which these differences arise and professional and interpersonal domains are included. These domains relate to the differential treatment in workplace because working environment involves interpersonal and professional interaction among individuals. Her research shows that facial attractiveness is unequivocally more important for females than for males in the interpersonal and professional domain. She also includes a slew of research that indicates that the perception of facial attractiveness declines with age and is more pronounced for females than males.

Berman, O'Nan, and Floyd (1981)[12] had 200 male and 200 female undergraduates judge pictures of middle-aged women and men aged between 35 and 55 under different social groups:

[11] In litigation, even if the plaintiff has a strong evidence of discriminatory comment by the manager, this exemplary case would be too weak to pass beyond motion for summary judgment.

[12] Jackson (1992) includes this study in her research.

private, all men, all women, and mixed. When subjects were put in groups, either in same sex or mixed sex, they responded that middle-aged women are substantially less attractive than middle-aged men. The workplaces are usually in a mixed-sex group setting, implying that people find middle-aged women to be less attractive than middle-aged men in employment.

Although Biddle and Hamermesh (1998) do not examine the sex differential in attractiveness, they have shown that appearance matters in employment and there is evidence of appearance discrimination in employment. They have found that attractive attorneys earned more than their less attractive classmates after five years of practice and the gap increased after 15 years of practice, which also implies correlation between age and appearance. They conducted follow-up surveys of students from a law school after five and 15 years after graduation and studied a relationship between attractiveness and earnings. One possible explanation for this differential treatment is because people find attractive communicators more persuasive than less attractive ones (Hatfield and Sprecher, 1986). If appearance is found to be important and the middle-aged women are found to be less attractive than middle-aged men in employment, then this indicates a potential disadvantage for women as they age.

Bazzini *et al*. (1997) also suggest the possibility that women are more vulnerable to ageism than men. They examined top-grossing motion pictures and have shown that women are valued primarily for youth and beauty. The study involves viewing a total of randomly chosen 100 movies from 1940s through the 1980s with independent raters judging all of the significant characteristics in each film. The relationship between age and various personality characteristics were examined and it has found that there exists a stronger negative relationship between age and personal traits in women than men.

The broadcasting industry is another good illustrative example of this study in real employment setting. In *Craft v. Metromedia, Inc.,*[13] the main argument of the defendant in this case was that "youthful appearance" is a bona fide occupational qualification for the position and an attractive young anchorwoman establishes a "business necessity" justification. These parallel Jackson's (1992) claim that women's appearance is more important than men's.

I have focused on the differential treatment emanating from differences in appearance, but other sociological studies also have found other negative stereotypes of older women in our society. Payne and Whittington (1976) discussed the various stereotypes of older women including: (1) Older women have more health problems than older men (2) The older woman is often depicted as a pleasantly plump granny who spends her time in a rocking chair knitting or sewing. Thus, these authors claim that researchers aiming to study the issues of age ought to view men and women separately

From these interdisciplinary studies, I can deduce the following argument: (1) Appearance matters in the workplace (2) Appearance is more valued in women than men (3) Attractiveness declines with age (4) This decline is more prominent for women – ageism plus sexism. This line of logic signals the possibility of unique discrimination that only older women encounter, interactive discrimination in workplace that is stronger than sex discrimination or age discrimination alone. Although many studies from various perspectives have shown that older women are subject to both ageism and sexism, the previous discussion of legal perspective clearly raises a question in effectiveness of our antidiscrimination legislation in protecting older women.

[13] Craft v. Metromedia, Inc., 766 F.2d 1205, 1207 (8th Cir. 1985)

3. Data and Descriptive Statistics

The data used for analysis comes from annual social and economic March data files of Current Population Survey (CPS) between 1964 and 1970. I restricted the samples to white workers and workers older than 18 years old to avoid issues related to racial discrimination and working eligibility in employment. Because the ADEA was enacted in 1967, I limit the data to three years before and after the enactment to estimate the effect of the legislation. Not all states are uniquely identifiable in CPS from 1968 to 1972. Therefore, only the District of Columbia and 10 states can be uniquely identified in the CPS for the time frame of this study, which is between 1964 and 1970. Those 10 states include California, Connecticut, Florida, Illinois, Indiana, New Jersey, New York, Ohio, Pennsylvania, and Texas. Given these identifiable states, only the District of Columbia, Florida, Illinois, and Texas did not have state age discrimination laws before the federal legislation. Consequently, the treatment group consists of these states that will be used to identify the employment effect of the ADEA. The control group consists of the states that already had state age discrimination law: California, Colorado, Indiana, New Jersey, New York, Ohio, and Pennsylvania. Among these states, the New Jersey legislation covers all workers aged older than 22. The other states had similar age limitations to the ADEA, which is between 40 and 65 old. California and Pennsylvania were exceptions. The age group covered in California consisted of workers aged between 40 and 64 years old and the age group in Pennsylvania has between 40 and 62 years old. I can also use this additional variation in California and Pennsylvania to identify the effect of the legislation because the ADEA covers all workers aged between 40 and 65 years old during this sample period. The effect of the federal age discrimination law can be identified for workers aged 65 years old in California and workers

aged between 63 and 65 years old in Pennsylvania.[14] I merged this CPS data with the law data constructed based on the summary of state age discrimination laws.[15]

As an additional identification strategy, I used the data from all states from 1964 to 1967. During this time period, all the states are uniquely identified in the data and the variation in state age discrimination was used. I also merged this CPS data with the law data. During this time frame, Idaho, Indiana, Maine, Michigan, and North Dakota first enacted state laws against age discrimination and Massachusetts expanded the coverage range from the age group 45-65 to 40-65 year olds. This variation is used as an additional identification strategy.

Table 1 shows the preliminary evidence on how the effect of state age discrimination on employment and retirement of workers differs between men and women using the data from 1964 and 1967. As stated earlier, Idaho, Indiana, Maine, Michigan, and North Dakota are part of the treatment group because prior to 1965, these states did not have any age discrimination laws prohibiting discrimination against older workers.[16] Table 1 reports the estimates of the mean proportion of the employed and retired separately by men and women.[17] While the proportion of employed male individuals aged 50 and older increased by 3.59 percentage points after the law was enacted, the proportion of employed females is estimated to have decreased by 1.31 percentage points.[18] The proportion of employed men aged 60 and older increased by 2.15

[14] Adams used a similar identification strategy in his robustness check.

[15] The coverage of state age discrimination is found in Adams (2004).

[16] The federal legislation provides protection for older workers aged between 40 and 65 and during the time period of this study and state laws have various age limits.

[17] This result for male workers is similar to preliminary evidence found in Adams (2004).

[18] Although this result cannot be interpreted as substitution away from female workers without formal analysis, it definitely shows the different effect of law for female workers, perhaps the opposite as the preliminary evidence indicates.

percentage points, the proportion employed for women is estimated to have decreased by 1.67 percentage points. The percentage point increase is estimated to be the largest for age group 65 and older, with an increase of 4.14 percentage points. The percentage point decrease in women is the largest for age group 65 and older, estimated to be a 4.62 percentage point decrease. The proportion of retired individuals shows the similar pattern. After the passage of the age discrimination law, the proportion of the retired males decreased between 0.84 and 3.12 percentage points. In contrast, the proportion of retired female individuals increased by between 2.02 and 3.34 percentage points. Specifically, the proportion of retired male workers aged 50 and older decreased from 31.90 percent to 28.77, which is a 3.12 percentage point decrease. The effect was the opposite for female workers. For female workers, the proportion of the retired increased from 1.24 to 3.26 percent, which is a 2.02 percentage point increase after the enactment of the age discrimination law. The similar pattern is reported for other age groups. This implies that the age discrimination law does not have a similar effect on females and on males.

Additional preliminary evidence of differential effects by sex is found by estimating the proportion of the employed and retired after the enactment of the ADEA in 1967 in Illinois, District of Columbia, Florida, and Texas. In the data from 1964 to 1970, the main variation used to estimate the effect of the ADEA comes from these treatment states, which did not have state age discrimination law until 1967. I estimated the proportion of employed and retired individuals separately by state and sex. Table 2 reports the proportions employed and Table 3 shows the proportions retired. The general pattern of change in the proportion of the employed after the passage of the ADEA is similar to the result discussed in Table 1 except for Illinois. There is a positive increase in employment for men, whereas there is a decrease in employment

for women. However, this pattern is not true for Illinois. In Illinois, the employment increased for females as well as for males after the ADEA. In addition, the magnitude of the difference in employment and retirement varied greatly across states. For example, in District of Columbia, the employment increased by 10.3 percentage points for men and it decreased by 4.3 percentage points for women after the ADEA was passed. The magnitude is found to be much smaller in Florida. The proportion of employed individuals increased only by 1.8 percentage points for men and it decreased by 1.6 percentage points for women. One explanation for this large difference is the state-specific effect on labor market outcome and this is accounted for in the formal analysis. Nonetheless, the preliminary evidence suggests that there is difference in the effect of age discrimination legislation on labor market outcomes of older men and older women across states. This is exactly what is predicted by the lack of protection for older women, under the ADEA and Title VII, given the intersectionality of discrimination based on age and sex they may experience, but the inability of the law to protect against this kind of discrimination.

4. **Empirical Methods and Design**

The purpose of this study is to empirically test the legal argument that age discrimination law inadequately protects older women. One way to test this is to estimate whether there is sex difference in changes in labor market outcomes as a result of the passage of age discrimination laws. My empirical strategy focuses on using the time-series variation as well as state variation in the passage of age discrimination laws. I use a difference-in-difference-in-difference empirical approach similar to that used by Neumark and Stock (1999) and Adams (2004).

To better explain the DDD empirical strategy[19], I begin with the simple difference estimator for the sample of covered age groups of men in all states with and without age discrimination laws at one point in time.[20] Thus, a time subscript is omitted.

$$Y_{is} = \alpha + \delta \cdot AD_{is} + X_{is}\psi + \epsilon_{is} \quad (1)$$

In all estimations, i indexes individuals and s indexes states. Y is a binary indicator for individual labor market outcomes, specifically employment or retirement. AD is a dummy variable equal to one if an individual lives in a state with an age discrimination law in effect. X is a vector of dummy variables for individual characteristics. They include the Standard Metropolitan Statistical Area (SMSA) status, marital status, and education level.[21] In Equation (1), the simple difference estimator δ measures the difference in labor market outcome between workers in states with an age discrimination law and workers in states without an age discrimination law.

To study the differential effect between men and women, I modify the simple difference Equation (1) to include the female dummy, dF, which gives the following equation:

$$Y_{is} = \alpha + \delta_1 \cdot AD_{is} + \delta_2 \cdot dF_{ist} \cdot AD_{is} + \mu \cdot dF_{ist} + X_{is}\psi_1 + dF_{ist} \cdot X_{is}\psi_2 + \epsilon_{is} \quad (2)$$

In Equation (2), δ_1 measures the difference in labor market outcome between male workers in states with an age discrimination law versus states without an age discrimination law. $\delta_1 + \delta_2$ measures the difference in labor market outcome for female workers between states with an age

[19] Because the legislation may affect both the covered and non-covered workers, Adams does not call this empirical strategy a difference-in-difference-in-difference (DDD), but the conceptual framework is based on DDD.

[20] This development of the DDD model closely follows Neumark and Powers (2005).

[21] The SMSA status is a vector of dummy variables indicating whether an individual lives in a central city, boundary, or nonmetropolitan area. The marital status is a set of dummy variables for separated or divorced, never married, and widowed. The education level is a set of dummy variables for high school, some college, and college.

discrimination law versus states without an age discrimination law. δ_2 measures the differential effect of age discrimination laws between male workers and female workers.

However, if there are other sources of labor market outcome differences across states, these may spuriously be attributed to differences in age discrimination laws. For example, if there were a state-specific positive labor demand shock in a state that happened to have an age discrimination law in effect, the coefficients δ in Equation (1) and δ_1 and δ_2 in Equation (2) will be biased upward. Other sources of upward bias in δ_2 include industry specific labor demand differences such as more employment in industries that employ more female workers in states with age discrimination laws. I take advantage of time-series variation in repeated cross-sections to address these sources of bias. The time-series variation is used to generate the control group in the same state from other periods. The control groups are the protected age groups from the same state, but before the age discrimination legislation was enacted. Specifically, I modify the simple difference strategy in Equation (1) as follows:

$$Y_{ist} = \alpha + \delta \cdot AD_{ist} + STATE_{is}\pi + YEAR_{it}\rho + X_{ist}\psi + \epsilon_{ist} \qquad (3)$$

In Equation (3), subscript t denotes time, STATE is a vector of state dummy variables, and YEAR is a vector of year dummy variables. The coefficient δ is the difference-in-difference (DD) estimator that identifies the effects of age discrimination laws on labor market outcomes from the differences in changes in labor market outcomes over time across states as a result of the passage of an age discrimination law. δ identifies the effects of the age discrimination law from whether the labor market outcome of the covered age groups changes differently in states that enacted the legislation than in states that already had an age discrimination law in effect or states that never had one. In cross-section data only with cross-sectional variation, one approach

is introducing a control group that exhibits the same cross-state variation to capture any systematic labor market outcome differences across states to attack the issues of bias. One possible control group in cross-section data would be unprotected workers, assuming that the state-level labor market outcome differences are common across all age groups. In all models, π captures the state-specific differences in labor market outcomes and ρ captures the differences over time common to all states. Paralleling the modification to the simple difference, to estimate the sex differential, I add the female dummy and all its interactions to Equation (3):

$$Y_{ist} = \alpha + \delta_1 \cdot AD_{ist} + \delta_2 \cdot dF_{ist} \cdot AD_{ist} + STATE_{is}\pi_1 + dF_{ist} \cdot STATE_{is}\pi_2 + YEAR_{it}\rho_1 + dF_{ist} \cdot YEAR_{it}\rho_2 + \xi \cdot dF_{ist} + X_{ist}\psi_1 + dF_{ist} \cdot X_{ist}\psi_2 + \epsilon_{ist} \quad (4)$$

In Equation (4), δ_1 captures the difference in labor market outcome for male workers in states that had the change in age discrimination law relative to the states that did not have any change in the legislation.[22] δ_2 measures the sex differential in the labor market outcome between men and women as a result of age discrimination and $\delta_1 + \delta_2$ estimates the overall effects on women as a result of passage of the law.

Although the DD empirical strategy is introduced to capture underlying systematic differences in changes in the labor market outcome between the control group and the treatment group, Neumark and Powers (2005) still raise a concern that there may be any labor market changes over time that are spuriously correlated with time-series changes in the age discrimination law. This motivates the introduction of the difference-in-difference-in-difference (DDD) estimator. The DDD strategy introduces an additional control group that is assumed to exhibit the same time-series changes in the labor market outcomes as the protected age groups, irrespective of changes in age discrimination laws. Using all data available, I use unprotected

[22] δ_1 in Equation (4) estimates the same effect as the δ in Equation (3).

age groups to capture the same time-series changes in labor market as the protected age groups. In Equations (5) through (10), PTD is a binary variable assigned one if an individual is in the protected age group by the legislation. Although Equations (5) and (6) are not central to my empirical analysis, to clarify the DDD set up, Equation (3) is modified as follows to include the additional control group:

$$Y_{ist} = \alpha + \delta \cdot AD_{st} \cdot PTD_{ist} + \beta \cdot AD_{st} + \gamma \cdot PTD_{ist} + STATE_{is}\pi + YEAR_{it}\rho + PTD_{ist} \cdot STATE_{is}\theta + PTD_{ist} \cdot YEAR_{it}\mu + X_{ist}\psi + \epsilon_{ist} \quad (5)$$

Similar to the previous modifications, Equation (6) includes the female dummy variable and all its interactions to capture the sex differential effect:

$$Y_{ist} = \alpha + \delta_1 \cdot AD_{ist} \cdot PTD_{ist} + \delta_2 \cdot dF_{ist} \cdot AD_{ist} \cdot PTD_{ist} + \beta_1 \cdot AD_{ist} + \beta_2 \cdot dF_{ist} \cdot AD_{ist} + \gamma_1 \cdot PTD_{ist} + \gamma_2 \cdot dF_{ist} \cdot PTD_{ist} + STATE_{is}\pi_1 + dF_{ist} \cdot STATE_{is}\pi_2 + YEAR_{it}\rho_1 + dF_{ist} \cdot YEAR_{it}\rho_2 + PTD_{ist} \cdot STATE_{is}\theta_1 + dF_{ist} \cdot PTD_{ist} \cdot STATE_{is}\theta_2 + PTD_{ist} \cdot YEAR_{it}\mu_1 + dF_{ist} \cdot PTD_{ist} \cdot YEAR_{it}\mu_2 + \xi \cdot dF_{ist} + X_{ist}\psi_1 + dF_{ist} \cdot X_{ist}\psi_2 + \epsilon_{ist} \quad (6)$$

Using the above extension of DDD model from DD model, Equations (5) and (6), the actual DDD I used for my analysis is as follows:

$$Y_{ist} = \alpha + \delta \cdot AD_{ist} \cdot PTD_{ist} + STATE_{is} \cdot YEAR_{it} \cdot \beta + AGE_{ist}\gamma + STATE_{is}\pi + YEAR_{it}\rho + AGE_{ist} \cdot STATE_{is}\theta + AGE_{ist} \cdot YEAR_{it}\mu + X_{ist}\psi + \epsilon_{ist} \quad (7)$$

Equation (7) is more general than Equation (5) in that once I introduce the interaction term of state and year, it is not possible to identify the coefficient of AD because it is absorbed in the state-year correlation. Adding state-year interactions to the specification allows me to address the downward bias of the standard errors that arise from any economic shocks that are not persistent across state or across year, but that affect all workers in the same state and year (Neumark and Stock, 1999). Similarly, all the variables involving PTD have been replaced by

AGE, a vector of age dummy variables denoting different age groups.[23] As a result, the coefficients of PTD, PTD-STATE and PTD-YEAR have been absorbed in AGE, AGE-STATE, and AGE-YEAR variables, respectively, in this more general model.

In this specification, γ captures age group specific differences in labor market outcome, θ captures the fixed differences across state among the labor market outcome for various age groups, and μ captures differences in the time-series changes in labor market outcome for different age groups. δ estimates the difference in the change in labor market outcome of protected age group versus unprotected age groups associated with enactment of the ADEA.

Parallel to earlier extensions, the female dummy variable and all its interactions is added to Equation (7) to estimate the differential effect for women, which is shown in Equation (8). This is one of my final empirical models used in this study.

$$\begin{aligned} Y_{ist} = {} & \alpha + \delta_1 \cdot AD_{ist} \cdot PTD_{ist} + \delta_2 \cdot dF_{ist} \cdot AD_{ist} \cdot PTD_{ist} + \beta_1 \cdot STATE_{is} \cdot YEAR_{it} + \beta_2 \cdot dF_{ist} \cdot STATE_{is} \cdot YEAR_{it} \\ & + \gamma_1 \cdot AGE_{ist} + \gamma_2 \cdot dF_{ist} \cdot AGE_{ist} + STATE_{is}\pi_1 + dF_{ist} \cdot STATE_{is}\pi_2 + YEAR_{it}\rho_1 + dF_{ist} \cdot YEAR_{it}\rho_2 \\ & + AGE_{ist} \cdot STATE_{is}\theta_1 + dF_{ist} \cdot AGE_{ist} \cdot STATE_{is}\theta_2 + AGE_{ist} \cdot YEAR_{it}\mu_1 + dF_{ist} \cdot AGE_{ist} \cdot YEAR_{it}\mu_2 \\ & + \xi \cdot dF_{ist} + X_{ist}\psi_1 + dF_{ist} \cdot X_{ist}\psi_2 + \epsilon_{ist} \end{aligned} \tag{8}$$

As the previous studies show (Neumark and Stock, 1999 and Adams 2004), if the antidiscrimination law boosts the employment of older male workers, δ_1 should be positive and significant. And as Porter (2003) claims, if the age discrimination law is not as effective in protecting older women as older men, then δ_2 should be negative and significant. In the specification, the coefficient δ_2 estimates the difference in the employment or the retirement rate between male workers and female workers due to the age discrimination law. Moreover, a

[23] The age dummy variables denoting age categories are follows: 18-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, and 70 and older.

statistically insignificant overall differences $\delta_1 + \delta_2$ would indicate that the age discrimination law is not effective in protective older women. The results of this estimate and the standard errors are reported in each table separately as female.

I also estimate the more restricted model where the control variable STATE-YEAR is replaced by the unprotected age group, 1-PTD, yielding the following specifications:

$$Y_{ist} = \alpha + \delta \cdot AD_{ist} \cdot PTD_{ist} + \beta \cdot AD_{ist} \cdot (1 - PTD_{ist}) + \gamma \cdot AGE_{ist} + STATE_{is}\pi + YEAR_{it}\rho + AGE_{ist} \cdot STATE_{is}\theta + AGE_{ist} \cdot YEAR_{it}\mu + X_{ist}\psi + \epsilon_{ist} \quad (9)$$

$$\begin{aligned} Y_{ist} = {} & \alpha + \delta_1 \cdot AD_{ist} \cdot PTD_{ist} + \delta_2 \cdot dF_{ist} \cdot AD_{ist} \cdot PTD_{ist} + \beta_1 AD_{ist} \cdot (1 - PTD_{ist}) + \beta_2 \cdot dF_{ist} + AD_{ist} \cdot (1 - PTD_{ist}) \\ & + \gamma_1 \cdot AGE_{ist} + \gamma_2 \cdot dF_{ist} \cdot AGE_{ist} + STATE_{is}\pi_1 + dF_{ist} \cdot STATE_{is}\pi_2 + YEAR_{it}\rho_1 + dF_{ist} \cdot YEAR_{it}\rho_2 \\ & + AGE_{ist} \cdot STATE_{is}\theta_1 + dF_{ist} \cdot AGE_{ist} \cdot STATE_{is}\theta_2 + AGE_{ist} \cdot YEAR_{it}\mu_1 + dF_{ist} \cdot AGE_{ist} \cdot YEAR_{it}\mu_2 \\ & + \xi \cdot dF_{ist} + X_{ist}\psi_1 + dF_{ist} \cdot X_{ist}\psi_2 + \epsilon_{ist} \end{aligned} \quad (10)$$

Equations (9) and (10) are another version of models, more restrictive than Equations (7) and (8) in that the unprotected group is used as a control group to capture any labor market changes over time that are spuriously correlated with time-series changes in the passage of antidiscrimination legislation. As Adams (2004) points out, the legislation may affect both the labor market outcomes of covered and uncovered workers. Despite this concern, it will still provide an estimate of the relative difference in the effects of age discrimination law between men and women. Consequently, for the purpose of this study, which is to estimate the sex difference in the effect of the age discrimination law, it is not my main concern. The main reason for the modification is to control for the state-year effect in more restrictive manner.

In addition, another point to note is that δ_1 and $\delta_1 + \delta_2$ could also be obtained by fitting the above models without the female dummy variables and its interaction terms, that is Equations (7) and (9), separately by men and women. Nonetheless, the aim of this study is to estimate the

sex differential in legislation effect and its statistical significance, which requires making inference with regard to the difference in estimate between two genders, which is δ_2.

I extend Equations (8) and (10) to identify the separate effects for older and younger individuals within covered age ranges. To do this, I include additional interaction terms OAG, which indicates any workers over a certain age group[24] to the interaction term of PTD and AD and to the triple interaction term of PTD, AD, and dF. This gives the following modification:

$$\begin{aligned} Y_{ist} = {} & \alpha + \delta_1 \cdot AD_{ist} \cdot PTD_{ist} \cdot OAG_{ist} + \delta_2 \cdot dF_{ist} \cdot AD_{ist} \cdot PTD_{ist} \cdot OAG_{ist} + \delta_3 \cdot AD_{ist} \cdot PTD_{ist} \cdot (1 - OAG_{ist}) \\ & + \delta_4 \cdot dF_{ist} \cdot AD_{ist} \cdot PTD_{ist} \cdot (1 - OAG_{ist}) + \beta_1 \cdot STATE_{is} \cdot YEAR_{it} + \beta_2 \cdot dF_{ist} \cdot STATE_{is} \cdot YEAR_{it} \\ & + \gamma_1 \cdot AGE_{ist} + \gamma_2 \cdot dF_{ist} \cdot AGE_{ist} + STATE_{is}\pi_1 + dF_{ist} \cdot STATE_{is}\pi_2 + YEAR_{it}\rho_1 + dF_{ist} \cdot YEAR_{it}\rho_2 \\ & + AGE_{ist} \cdot STATE_{is}\theta_1 + dF_{ist} \cdot AGE_{ist} \cdot STATE_{is}\theta_2 + AGE_{ist} \cdot YEAR_{it}\mu_1 + dF_{ist} \cdot AGE_{ist} \cdot YEAR_{it}\mu_2 \\ & + \xi \cdot dF_{ist} + X_{ist}\psi_1 + dF_{ist} \cdot X_{ist}\psi_2 + \epsilon_{ist} \end{aligned} \tag{11}$$

$$\begin{aligned} Y_{ist} = {} & \alpha + \delta_1 \cdot AD_{ist} \cdot PTD_{ist} \cdot OAG_{ist} + \delta_2 \cdot dF_{ist} \cdot AD_{ist} \cdot PTD_{ist} \cdot OAG_{ist} + \delta_3 \cdot AD_{ist} \cdot PTD_{ist} \cdot (1 - OAG_{ist}) \\ & + \delta_4 \cdot dF_{ist} \cdot AD_{ist} \cdot PTD_{ist} \cdot (1 - OAG_{ist}) + \beta_1 \cdot AD_{ist} \cdot (1 - PTD_{ist}) + \beta_2 \cdot dF_{ist} \cdot AD_{ist} \cdot (1 - PTD_{ist}) \\ & + \gamma_1 \cdot AGE_{ist} + \gamma_2 \cdot dF_{ist} \cdot AGE_{ist} + STATE_{is}\pi_1 + dF_{ist} \cdot STATE_{is}\pi_2 + YEAR_{it}\rho_1 + dF_{ist} \cdot YEAR_{it}\rho_2 \\ & + AGE_{ist} \cdot STATE_{is}\theta_1 + dF_{ist} \cdot AGE_{ist} \cdot STATE_{is}\theta_2 + AGE_{ist} \cdot YEAR_{it}\mu_1 + dF_{ist} \cdot AGE_{ist} \cdot YEAR_{it}\mu_2 \\ & + \xi \cdot dF_{ist} + X_{ist}\psi_1 + dF_{ist} \cdot X_{ist}\psi_2 + \epsilon_{ist} \end{aligned} \tag{12}$$

This modification estimates the possible differential effect of the law within covered age ranges. The coefficient δ_1 captures the effect of the legislation on the workers above the specified age group within the protected age range and δ_3 estimates the effect of the legislation on the workers below the specified age group within the protected age range for men. For example, for the specification of age 50, OAG is equal to one if the individual is 50 years or older, thus δ_1 will measure the effect of the law on male workers aged 50 or above. Similarly, $\delta_1 + \delta_2$ estimates the effect of the law of the on female workers above the specified age group, and $\delta_3 + \delta_4$ estimates the effect of the law on workers below the specified age group. δ_2

[24] The specifications I use are ages 50, 60, and 65.

measures the differential effect between men and women above the specified age group and δ_4 estimates the differential effect between men and women below the specified age group. The comparison of these estimates across specifications is used to draw further conclusions about the effects of age discrimination laws. This explains the different effects of the law on older women in different age categories.

5. Employment and Retirement Effects of ADEA

5.1. Employment Effect

I present the estimations of the main model, measuring the sex difference in the effect of age discrimination laws on employment that allows for the state-year shocks, corresponding to Equation (8) in column (1) of Table 4. The estimations of the model that separates the effect into younger and older protected groups (Equation (11)) are reported in columns (2) to (4) of Table 4. Column (5) reports the results from the estimation of more restrictive model using unprotected group as a control group (Equation (10)) and columns (6)-(8) report the estimation of separate effect by older and younger protected groups (Equation (12)). For all my estimations, observations are clustered at the state level so that all my standard errors are adjusted for within state correlation. The results indicate a positive effect of the federal ADEA on all males in the protected group. It shows that the legislation increased the probability of employment for all males in the protected age group by 8.5 percentage points when I controlled for any possible labor demand differences that are persistent to all workers in the same year and state (i.e. state-year effect), as well as individual controls. When I control for the state-year effect in a more restrictive manner, by introducing unprotected workers in estimation, the estimation shows that the law increased the probability of employment for all male by 5.0 percentage points. Both of

these results are statistically significant.[25] My results also indicate that the effect of the federal legislation for females was 1.2 to 3.5 percentage points lower than males, but this estimate is not significant. However, when I performed additional hypothesis testing of the overall effect of the age discrimination law on the female workers, the estimation result shows that the law boosted the employment probability of female workers by 3.7 to 5.0 percentage points and this is found to be statistically significant at a one percent level for the Equation (11). In other words, the law boosted the employment probability for females less than for males but the differential effect between male and female are not statistically significant.

To analyze the effect of age discrimination laws on employment further, I differentiate the effect of the law on older and younger protected workers. The estimates are reported in columns (2) to (4) and (6) to (8). By comparing the estimates obtained for coefficient δ_1 across different age specifications, I conclude that the effects are stronger for the older male workers. Specifically, results indicate that all protected males above age 50 benefit from a 5.9 to 9.4 percentage points increase in employment, whereas the protected males above age 65 enjoy an increase of 13.9 to 16.0 percentage points. The overall effect of the legislation for females, $\delta_1 + \delta_2$ shows that all protected females above age 50 only enjoy 2.7 to 4.2 point increase in employment rate, whereas it was 5.9 to 9.4 increase for males. The estimates of point differentials, δ_2 between males and females above age 50 is -5.2 to -3.2, but only the estimate from the general model is found to be statistically significant. This differential effect is more pronounced for the older group of workers. For the protected workers aged 60 years or older, the increase in the employment rate was 5.5 to 6.9 percentage points lower for women, and for

[25] This estimate is higher than what is reported in Adams (2004). His estimate of 2.94 percentage point increase is based on a probit model evaluated at the sample means.

protected workers above 65 or older,[26] the increase in employment rate was 7.6 to 8.8 percentage points lower for women. They are all found to be significant. This indicates that the ADEA boosted the employment by only 4.8 to 6.0 for females above age 60, whereas it was 10.3 to 12.9 for males. These estimates are found to be significant. Similarly, females older than aged 65 benefit from only 6.4 to 7.2 increase in employment rate, whereas it was 13.9 to 16.0 for males. Both the overall effects and the differential effects are found to be statistically significant.

Table 5 reports the result obtained from the alternative identification strategy, using the variation in state age discrimination laws in 1965. I estimated the same set of equations using all the data available from 1964 to 1967. During this time period, as stated earlier, all states are uniquely identified. In 1965, many states passed the state age discrimination and this variation is used to identify the sex differential effect of the age discrimination. These states include Idaho, Indiana, Maine, Michigan, and North Dakota. The overall results from this strategy are similar to the previous method that relies on the variation in age discrimination law due to the enactment of the ADEA. That is, the differential effect for older women was lower than the for older men workers and they are all found to be significant. Under this identification strategy, the results show that in general, all males enjoy 2.8 percentage point increase in employment probability, which is significant. Nevertheless, females only benefit by 0.07 to 1.0 percentage points increase in employment probability, but this is statistically insignificant. Moreover, the differential effect of -1.8 to -2.7 decrease in probability is found to be significant. Columns (2) – (4) of Table 5 report the estimations of the general model with state-year effect, Equation (11) and columns (6) – (8) of the table report the estimations of the model using unprotected group as an alternate

[26] These are the workers from New Jersey because during this time frame, the state law protected all the workers above age 22.

control group. The general pattern of the findings is similar in both models. Specifically, women benefit less from the passage of the age discrimination law and the difference between men and women are statistically significant. The differential effect between men and women are more evident for older age groups. The probability of employment for men in the age group 50 and older increased by 7.4 percentage points when it increased by 3.5 to 4.7 percentage points for women in the same age group. The probability of employment increased by 11.1 to 11.5 percentage points for males aged 60 and older and it is increased by only 6.0 to 7.3 percentage points for females aged 60 and older. For males aged 65 and older, the employment probability was increased by 14.7 to 15.2 percentage points when it only increased by 5.5 to 7.4 percentage points for women in the same age group. As the results indicate, similar to the previous findings, the differential effect is more pronounced for older individuals. The differential effect between men and women for protected group older than 50 years old is 2.7 to 3.8 percentage points; it is 3.8 to 5.5 percentage points for group older than 60 years old; it is 7.2 to 9.6 percentage points lower for group older than 65 years old.

5.2. Retirement Effect

Table 6 reports the effects of law on retirement using variation arising from the passage of federal legislation. The estimates of Equation (8) for retirement are shown in column (1) of Table 6 and the estimates of Equation (11) with three different age specifications are reported in column (2) to (4) of the table. Columns (5) – (8) of the table report results of the same model using more restrictive control variables for state-year effect, which are represented in Equations (10) and (12) with unprotected aged groups. The results from Table 6 indicate that the retirement rate decreased by 6.5 percentage points for male workers as a result of the enactment of the ADEA under a more general model. The probability of retirement is found to be 6.1

percentage points higher for women than men and this difference is significant. However, the overall effect of the legislation for female workers is found to be statistically insignificant. The estimates obtained using unprotected as a control group indicates that the retirement probability is measured to be 4.5 percentage points lower for men after the ADEA was enacted. The differential effect between men and women is estimated to be 4.5 percentage points higher for women and it is statistically significant. The overall effect of the ADEA on women is statistically zero.

Similar to the pattern shown with regard to employment, the effects of law on retirement as well as the differential effects between men and women are more pronounced for older age groups. Comparing across between the more general model, Equation (11) and the restrictive model, Equation (12), the ADEA decreased the probability of retirement for male workers aged 50 or older by 7.4 to 9.1 percentage points; it decreased the probability for male workers aged 60 and older by 12.8 to 13.4 points; it decreased the probability for male workers aged 65 and older by 17.6 to 17.8 percentage points. All these are estimates are statistically significant. The difference in the retirement rate between men and women are more pronounced for older age groups. The probability of retirement for female workers aged 50 and older was higher by 7.5 to 8.9 percentage points; it is higher by 12.9 to 13.1 percentage points; it is higher by 17.6 to 18.3 percentage points. The overall effects of the ADEA on women are found to be statistically insignificantly different from zero. Therefore, I cannot reject the hypothesis that the law does not have any effect on older women.

The estimated effects on retirement using the variation arising from the passage of state antidiscrimination between 1964 and 1967 have been reported in Table 7. As in Table 6, the estimates of the general model, equation (8) for retirement are shown in column (1) of Table 7

and the estimates of the model differentiating between older and younger workers within the covered age group, Equation (11) with three different age specifications are reported in columns (2) to (4). Columns (5) – (8) report the results using more restrictive control variables, that is Equation (10) and (12) with unprotected aged groups as the control groups. The general finding is consistent with the previous results, but the magnitude of the coefficient is found to be slightly greater. The state age discrimination law decreased the probability of retirement for male workers aged 50 or older by 7.6 to 8.1 percentage points. The effect was greater for older aged groups. It decreased the probability of male workers aged 60 and older from retiring by 13.4 to 13.5 percentage points. The retirement rate of the male workers aged 65 and older decreased by 19.9 to 20.0 percentage points. On the contrary, the overall effects of the legislation on women are found to be statistically insignificant. Nevertheless, the estimates for the coefficient of main interest δ_2, measuring the differential effect between men and women are all found to be significant. Across all age groups, the differential effect was higher for women by the similar magnitude in the decrease in retirement probability men enjoyed from the passage of the legislation. For example, as column (2) shows, the probability of male workers retiring due to the law decreased by 8.1 percentage point, but it was higher by 7.9 percentage points for female workers. In addition, the overall effect on women is found to be statistically zero. In other words, there is statistical evidence that men benefited from the legislation, but not women, and the difference in effect between men and women are statistically significant. The retirement probability for women aged 50 and older is 7.7 to 7.9 percentage points higher than men; it is 12.8 to 13.1 percentage points higher than men; it is 19.2 to 19.7 percentage points higher for workers aged 65 or older.

6. Conclusion

The federal government enacted the Age Discrimination in Employment Act in 1967 to protect older workers from discrimination in the workplace; Title VII of the Civil Rights Act of 1964 was enacted to protect women from sex discrimination. Although the objective of the ADEA is to reduce discrimination against older persons in the workplace, there is a legal argument about the effectiveness of the legislation in protecting older women. Older women, who are prone to an intersectional discrimination for being both older and female, need to be treated as a subgroup within the protected group. Currently, there are mixed views at courts on this issue.

The purpose of this study is to empirically test the differential effect of age discrimination laws on older men's and older women's market outcomes. This study finds significant differential effects between men and women in the probability of employment and retirement after the age discrimination laws were passed. Older women do not enjoy the same benefit that older men do from the age discrimination laws. These empirical findings were true for both the federal age discrimination law and the state age discrimination laws. The results support the legal scholars' claims of shortcoming in our legislation in protecting older women.

Table 1
Proportions by age group: before and after passage of legislation

	Before a law was passed	*After a law was passed*	*Percentage point difference*
Employment			
White men			
Age 50 and older	61.25%	64.84%	3.59%
(N_{before}=1182, N_{after}=2207)	(0.014)	(0.010)	(0.017)
Age 60 and older	38.61%	40.77%	2.16%
(N_{before}=676, N_{after}=1165)	(0.019)	(0.014)	(0.024)
Age 65 and older	22.46%	26.59%	4.14%
(N_{before}=472, N_{after}=816)	(0.019)	(0.015)	(0.025)
White women			
Age 50 and older	28.30%	26.99%	-1.31%
(N_{before}=1371, N_{after}=2519)	(0.012)	(0.009)	(0.015)
Age 60 and older	16.48%	14.81%	-1.67%
(N_{before}=807, N_{after}=1465)	(0.013)	(0.009)	(0.016)
Age 65 and older	12.66%	8.04%	-4.62%
(N_{before}=624, N_{after}=1070)	(0.013)	(0.008)	(0.015)
Retirement			
White men			
Age 50 and older	31.90%	28.77%	-3.12%
	(0.014)	(0.010)	(0.016)
Age 60 and older	52.51%	51.67%	-0.84%
	(0.019)	(0.015)	(0.024)
Age 65 and older	68.22%	65.93%	-2.29%
	(0.021)	(0.017)	(0.027)
White women			
Age 50 and older	1.24%	3.26%	2.02%
	(0.003)	(0.004)	(0.005)
Age 60 and older	1.73%	4.57%	2.84%
	(0.005)	(0.005)	(0.008)
Age 65 and older	2.08%	5.42%	3.34%
	(0.006)	(0.007)	(0.010)

Note. The sample are the individuals who are 18 years or older from states that passed state laws in 1965. These are the treatment group and they include Idaho, Indiana, Maine, Michigan, and North Dakota. The sample size for retirement is same as the employment.

Table 2					
Employment		DC	FL	IL	TX
White men					
Age 50 and older	Before	0.584	0.487	0.679	0.674
		(0.053)	(0.017)	(0.011)	(0.013)
Age 50 and older	After	0.616	0.492	0.688	0.707
		(0.046)	(0.011)	(0.008)	(0.009)
Percentage point difference		0.032	0.005	0.009	0.033
		(0.070)	(0.020)	(0.014)	()0.015
Age 60 and older	Before	0.397	0.267	0.423	0.483
		(0.065)	(0.019)	(0.017)	(0.019)
Age 60 and older	After	0.500	0.284	0.460	0.505
		(0.060)	(0.012)	(0.012)	(0.013)
Percentage point difference		0.103	0.018	0.037	0.022
		(0.089)	(0.023)	(0.021)	(0.023)
Age 65 and older	Before	0.308	0.170	0.271	0.337
		(0.075)	(0.018)	(0.018)	(0.022)
Age 65 and older	After	0.467	0.161	0.281	0.362
		(0.065)	(0.011)	(0.014)	(0.016)
Percentage point difference		0.159	-0.009	0.009	0.025
		(0.101)	(0.021)	(0.023)	(0.027)
White women					
Age 50 and older	Before	0.323	0.251	0.320	0.303
		(0.042)	(0.013)	(0.010)	(0.011)
Age 50 and older	After	0.259	0.233	0.337	0.309
		(0.034)	(0.008)	(0.008)	(0.008)
Percentage point difference		-0.064	-0.018	0.017	0.006
		(0.053)	(0.015)	(0.013)	(0.014)
Age 60 and older	Before	0.179	0.128	0.180	0.200
		(0.044)	(0.013)	(0.011)	(0.013)
Age 60 and older	After	0.137	0.112	0.198	0.182
		(0.032)	(0.008)	(0.008)	(0.009)
Percentage point difference		-0.043	-0.016	0.018	-0.018
		(0.053)	(0.014)	(0.014)	(0.016)
Age 65 and older	Before	0.131	0.072	0.100	0.147
		(0.044)	(0.011)	(0.011)	(0.014)
Age 65 and older	After	0.089	0.071	0.123	0.113
		(0.028)	(0.007)	(0.008)	(0.009)
Percentage point difference		-0.042	-0.0004	0.022	-0.034
		(0.050)	(0.013)	(0.014)	(0.016)
Sample size:					
Age 50 and older (Men) - before		89	904	1719	1337

Age 50 and older (Men) - after	112	2132	3109	2654
Age 60 and older (Men) - before	58	559	885	718
Age 60 and older (Men) - after	70	1373	1633	1375
Age 65 and older (Men) - before	39	429	623	478
Age 65 and older (Men) - after	60	1045	1083	900
Age 50 and older (Women) - before	127	1103	2011	1602
Age 50 and older (Women) - after	166	2611	3794	3180
Age 60 and older (Women) - before	78	703	1171	939
Age 60 and older (Women) - after	117	1673	2216	1860
Age 65 and older (Women) - before	61	517	788	660
Age 65 and older (Women) - after	101	1237	1565	1305

Table 3		DC	FL	IL	TX
Retirement					
White men					
Age 50 and older	Before	0.337	0.452	0.270	0.256
		(0 .050)	(0 .017)	(0.011)	(0.012)
Age 50 and older	After	0.339	0.445	0.258	0.219
		(0.045)	(0.011)	(0.008)	(0.007)
Percentage point difference		0.002	-0.007	-0.012	-0.037
		(0.068)	(0.020)	(0.013)	(0.014)
Age 60 and older	Before	0.517	0.664	0.504	0.428
		(0.066)	(0.020)	(0.017)	(0.018)
Age 60 and older	After	0.486	0.648	0.468	0.391
		(0.060)	(0.013)	(0.012)	(0.011)
Percentage point difference		-0.032	-0.015	-0.035	-0.037
		(0.090)	(0.024)	(0.021)	(0.023)
Age 65 and older	Before	0.641	0.781	0.648	0.556
		(0.078)	(0.020)	(0.019)	(0.023)
Age 65 and older	After	0.641	0.770	0.641	0.519
		(0.517)	(0.013)	(0.015)	(0.013)
Percentage point difference		-0.124	-0.011	-0.008	-0.038
		(0.102)	(0.024)	(0.024)	(0.028)
White women					
Age 50 and older	Before	0.087	0.021	0.015	0.018
		(0.025)	(0.004)	(0.003)	(0.003)
Age 50 and older	After	0.127	0.025	0.034	0.033
		(0.026)	(0.003)	(0.003)	(0.003)
Percentage point difference		0.040	0.004	0.019	0.015
		(0.037)	(0.005)	(0.005)	(0.005)
Age 60 and older	Before	0.103	0.031	0.023	0.023
		(0.034)	(0.007)	(0.004)	(0.005)
Age 60 and older	After	0.171	0.029	0.053	0.047
		(0.035)	(0.004)	(0.005)	(0.005)
Percentage point difference		0.068	-0.003	0.030	0.024
		(0.051)	(0.008)	(0.007)	(0.008)
Age 65 and older	Before	0.115	0.035	0.025	0.027
		(0.041)	(0.008)	(0.006)	(0.006)
Age 65 and older	After	0.188	0.032	0.066	0.058
		(0.039)	(0.005)	(0.006)	(0.006)
Percentage point difference		0.073	-0.002	0.041	0.031
		(0.060)	(0.009)	(0.010)	(0.010)
Sample size:					
Age 50 and older (Men) - before		89	904	1719	1337

Age 50 and older (Men) - after	112	2132	3109	2654
Age 60 and older (Men) - before	58	559	885	718
Age 60 and older (Men) - after	70	1373	1633	1375
Age 65 and older (Men) - before	39	429	623	478
Age 65 and older (Men) - after	60	1045	1083	900
Age 50 and older (Women) - before	127	1103	2011	1602
Age 50 and older (Women) - after	166	2611	3794	3180
Age 60 and older (Women) - before	78	703	1171	939
Age 60 and older (Women) - after	117	1673	2216	1860
Age 65 and older (Women) - before	61	517	788	660
Age 65 and older (Women) - after	101	1237	1565	1305

Table 4 - Federal Legislation 1964-1970								
Employment Regression Results (DDD)								
N=269,730	(1) Eq. 8	(2) Eq. 11	(3) Eq. 11	(4) Eq. 11	(5) Eq. 9	(6) Eq. 12	(7) Eq. 12	(8) Eq. 12
Protected (all age) – male , δ_1	**0.085**	…	…	…	**0.050**	…	…	…
	(0.025)				**(0.016)**			
Protected (all age) interacted with female, δ_2	-0.035	…	…	…	-0.012	…	…	…
	(0.028)				(0.022)			
Protected (all age) – female, $\delta_1 + \delta_2$	**0.050**	…	…	…	**0.037**			
	(0.015)				**(0.014)**			
Protected (50 or older) – male, δ_1	…	**0.094**	…	…	…	**0.059**	…	…
		(0.018)				**(0.013)**		
Protected (50 or older) interacted with female, δ_2	…	**-0.052**	…	…	…	-0.032	…	…
		(0.023)				(0.020)		
Protected (50 or older) – female, $\delta_1 + \delta_2$	…	**0.042**	…	…	…	**0.027**		
		(0.015)				**(0.013)**		
Protected (50 or younger) – male, δ_3	…	0.069	…	…	…	0.035	…	…
		(0.047)				(0.036)		
Protected (50 or younger) interacted with female, δ_4	…	-0.003	…	…	…	0.018	…	…
		(0.051)				(0.042)		
Protected (50 or younger) – female, $\delta_3 + \delta_4$	…	**0.066**	…	…	…	**0.053**		
		(0.018)				**(0.020)**		
Protected (60 or older) – male, δ_1	…	…	**0.129**	…	…	…	**0.103**	…
			(0.015)				**(0.015)**	
Protected (60 or older) interacted with female, δ_2	…	…	**-0.069**	…	…	…	**-0.055**	…
			(0.024)				**(0.024)**	
Protected (60 or older) - female, $\delta_1 + \delta_2$	…	…	**0.060**	…	…	…	**0.048**	
			(0.017)				**(0.016)**	
Protected (60 or younger) - male, δ_3	…	…	0.050	…	…	…	0.025	…
			(0.038)				(0.025)	
Protected (60 or younger) interacted with female, δ_4	…	…	-0.009	…	…	…	0.007	…

			(0.037)				(0.028)	
Protected (60 or younger) - female, $\delta_3 + \delta_4$	…	…	**0.041**	…	…	…	**0.032**	
			(0.017)				**(0.016)**	
Protected (65 or older) - male, δ_1	…	…	…	**0.160**	…	…	…	**0.139**
				(0.012)				**(0.018)**
Protected (65 or older) interacted with female, δ_2	…	…	…	**-0.088**	…	…	…	**-0.076**
				(0.021)				**(0.024)**
Protected (65 or older) - female, $\delta_1 + \delta_2$	…	…	…	**0.072**	…	…		**0.064**
				(0.015)				**(0.015)**
Protected (65 or younger) - male, δ_3	…	…	…	0.048	…	…	…	0.028
				(0.035)				(0.021)
Protected (65 or younger) interacted with female, δ_4	…	…	…	-0.010	…	…	…	0.003
				(0.036)				(0.026)
Protected (65 or younger) - female, $\delta_3 + \delta_4$	…	…	…	**0.038**	…	…		**0.030**
				(0.019)				**(0.017)**
R^2	0.3685	0.3686	0.3686	0.3687	0.3682	0.3682	0.3683	0.3683

Notes: Standard errors are in parentheses and they are clustered at state level.

Table 5 - State Legislation (1964-1967)								
Employment Regression Results (DDD)								
N=259,024	(1) Eq. 8	(2) Eq. 11	(3) Eq. 11	(4) Eq. 11	(5) Eq. 9	(6) Eq. 12	(7) Eq. 12	(8) Eq. 12
Protected (all age) – male , δ_1	**0.028**	…	…	…	**0.028**	…	…	…
	(0.011)				**(0.010)**			
Protected (all age) interacted with female, δ_2	**-0.018**	…	…	…	**-0.027**	…	…	…
	(0.009)				**(0.011)**			
Protected (all age) – female, $\delta_1 + \delta_2$	0.010	…	…	…	0.0007			
	(0.013)				(0.015)			
Protected (50 or older) – male, δ_1	…	**0.074**	…	…	…	**0.074**	…	…
		(0.014)				**(0.012)**		
Protected (50 or older) interacted with female, δ_2	…	**-0.027**	…	…	…	**-0.038**	…	…
		(0.013)				**(0.012)**		
Protected (50 or older) – female, $\delta_1 + \delta_2$	…	**0.047**	…	…	…	**0.035**		
		(0.011)				**(0.010)**		
Protected (50 or younger) – male, δ_3	…	0.004	…	…	…	0.004	…	…
		(0.012)				(0.011)		
Protected (50 or younger) interacted with female, δ_4	…	-0.015	…	…	…	-0.023	…	…
		(0.013)				(0.009)		
Protected (50 or younger) – female, $\delta_3 + \delta_4$	…	-0.010	…	…	…	-0.019		
		(0.016)				(0.018)		
Protected (60 or older) – male, δ_1	…	…	**0.111**	…	…	…	**0.115**	…
			(0.018)				**(0.018)**	
Protected (60 or older) interacted with female, δ_2	…	…	**-0.038**	…	…	…	**-0.055**	…
			(0.020)				**(0.022)**	
Protected (60 or older) - female, $\delta_1 + \delta_2$	…	…	**0.073**	…	…	…	**0.060**	
			(0.017)				**(0.019)**	
Protected (60 or younger) - male, δ_3	…	…	0.009	…	…	…	0.011	…
			(0.011)				(0.010)	
Protected (60 or younger) interacted with female, δ_4	…	…	-0.015	…	…	…	**-0.023**	…

			(0.010)				**(0.011)**	
Protected (60 or younger) - female, $\delta_3 + \delta_4$	…	…	-0.006 (0.014)	…	…	…		
Protected (65 or older) - male, δ_1	…	…	…	**0.147** **(0.034)**	…	…	…	**0.152** **(0.034)**
Protected (65 or older) interacted with female, δ_2	…	…	…	**-0.072** **(0.031)**	…	…	…	**-0.096** **(0.034)**
Protected (65 or older) - female, $\delta_1 + \delta_2$	…	…	…	**0.074** **(0.015)**	…	…		**0.055** **(0.019)**
Protected (65 or younger) - male, δ_3	…	…	…	0.017 (0.011)	…	…	…	**0.019** **(0.010)**
Protected (65 or younger) interacted with female, δ_4	…	…	…	-0.014 (0.010)	…	…	…	**-0.023** **(0.010)**
Protected (65 or younger) - female, $\delta_3 + \delta_4$	…	…	…	0.003 (0.014)	…	…		-0.004 (0.015)
R^2	0.3768	0.3770	0.3770	0.3770	0.3765	0.3767	0.3767	0.3767

Notes: Standard errors are in parentheses and they are clustered at state level.

Table 6 - Federal Legislation (1964-1970)								
Retirement Regression Results (DDD)								
N=269,730	(1) Eq. 8	(2) Eq. 11	(3) Eq. 11	(4) Eq. 11	(5) Eq. 9	(6) Eq. 12	(7) Eq. 12	(8) Eq. 12
Protected (all age) – male , δ_1	**-0.065**	…	…	…	**-0.045**	…	…	…
	(0.018)				**(0.010)**			
Protected (all age) interacted with female, δ_2	**0.061**	…	…	…	**0.045**	…	…	…
	(0.018)				**(0.010)**			
Protected (all age) – female, $\delta_1 + \delta_2$	-0.004	…	…	…	0.0004			
	(0.003)				(0.001)			
Protected (50 or older) – male, δ_1	…	**-0.091**	…	…	…	**-0.074**	…	…
		(0.017)				**(0.014)**		
Protected (50 or older) interacted with female, δ_2	…	**0.089**	…	…	…	**0.075**	…	…
		(0.018)				**(0.013)**		
Protected (50 or older) – female, $\delta_1 + \delta_2$	…	-0.003	…	…		0.001		
		(0.004)				(0.003)		
Protected (50 or younger) – male, δ_3	…	**-0.017**	…	…	…	0.0004	…	…
		(0.007)				(0.005)		
Protected (50 or younger) interacted with female, δ_4	…	**0.011**	…	…	…	-0.001	…	…
		(0.006)				(0.004)		
Protected (50 or younger) – female, $\delta_3 + \delta_4$	…	-0.005	…	…		-0.001		
		(0.003)				(0.002)		
Protected (60 or older) – male, δ_1	…	…	**-0.134**	…	…	…	**-0.128**	…
			(0.011)				**(0.010)**	
Protected (60 or older) interacted with female, δ_2	…	…	**0.131**	…	…	…	**0.129**	…
			(0.013)				**(0.011)**	
Protected (60 or older) - female, $\delta_1 + \delta_2$	…	…	-0.004	…			0.0005	
			(0.005)				(0.006)	
Protected (60 or younger) - male, δ_3	…	…	**-0.011**	…	…	…	-0.006	…
			(0.006)				(0.005)	
Protected (60 or younger) interacted with female, δ_4	…	…	0.007	…	…	…	0.006	…

			(0.008)				(0.005)	
Protected (60 or younger) - female, $\delta_3 + \delta_4$	…	…	-0.004	…			0.0003	
			(0.004)				(.001)	
Protected (65 or older) - male, δ_1	…	…	…	**-0.176**	…	…	…	**-0.178**
				(0.012)				**(0.013)**
Protected (65 or older) interacted with female, δ_2	…	…	…	**0.176**	…	…	…	**0.183**
				(0.014)				**(0.015)**
Protected (65 or older) - female, $\delta_1 + \delta_2$	…	..	…	0.0005				0.004
				(0.006)				(0.007)
Protected (65 or younger) - male, δ_3	…	…	…	-0.01	…	…	…	**-0.012**
				(0.008)				**(0.006)**
Protected (65 or younger) interacted with female, δ_4	…	…	…	0.004	…	…	…	**0.011**
				(0.009)				**(0.006)**
Protected (65 or younger) - female, $\delta_3 + \delta_4$	…	…	…	-0.006				-0.0009
				(0.003)				(0.001)
R^2	0.4615	0.4618	0.4622	0.4624	0.4611	0.4614	0.4618	0.4621

Notes: Standard errors are in parentheses and they are clustered at state level.

Table 7 - State Legislation 1964-1967								
Retirement Regression Results (DDD)								
N=259,024	(1) Eq. 8	(2) Eq. 11	(3) Eq. 11	(4) Eq. 11	(5) Eq. 9	(6) Eq. 12	(7) Eq. 12	(8) Eq. 12
Protected (all age) – male , δ_1	**-0.028**	…	…	…	**-0.024**	…	…	…
	(0.009)				**(0.007)**			
Protected (all age) interacted with female, δ_2	**0.027**	…	…	…	**0.0267**	…	…	…
	(0.008)				**(0.007)**			
Protected (all age) – female, $\delta_1 + \delta_2$	-0.0005				0.002			
	(0.002)				(0.002)			
Protected (50 or older) – male, δ_1	…	**-0.081**	…	…	…	**-0.076**	…	…
		(0.018)				**(0.016)**		
Protected (50 or older) interacted with female, δ_2	…	**0.079**	…	…	…	**0.077**	…	…
		(0.017)				**(0.014)**		
Protected (50 or older) – female, $\delta_1 + \delta_2$		-0.003				0.0008		
		(0.002)				(0.002)		
Protected (50 or younger) – male, δ_3	…	0.0001	…	…	…	0.003	…	…
		(0.002)				(0.003)		
Protected (50 or younger) interacted with female, δ_4	…	0.0004	…	…	…	-0.0001	…	…
		(0.003)				(0.004)		
Protected (50 or younger) – female, $\delta_3 + \delta_4$		0.0006				0.003		
		(0.0017)				(0.002)		
Protected (60 or older) – male, δ_1	…	…	**-0.135**	…	…	…	**-0.134**	…
			(0.020)				**(0.020)**	
Protected (60 or older) interacted with female, δ_2	…	…	**0.1276**	…	…	…	**0.131**	…
			(0.018)				**(0.018)**	
Protected (60 or older) - female, $\delta_1 + \delta_2$			-0.007				-0.003	
			(0.004)				(0.006)	
Protected (60 or younger) - male, δ_3	…	…	-0.003	…	…	…	-0.0029	…
			(0.003)				(0.003)	
Protected (60 or younger) interacted with female, δ_4	…	…	0.004	…	…	…	0.006	…

			(0.003)				(0.003)	
Protected (60 or younger) - female, $\delta_3 + \delta_4$			0.001				0.003	
			(0.002)				(0.001)	
Protected (65 or older) - male, δ_1	…	…	…	**-0.200**	…	…	…	**-0.199**
				(0.022)				**(0.023)**
Protected (65 or older) interacted with female, δ_2	…	…	…	**0.192**	…	…	…	**0.197**
				(0.021)				**(0.022)**
Protected (65 or older) - female, $\delta_1 + \delta_2$				-0.008				-0.002
				(0.003)				(0.004)
Protected (65 or younger) - male, δ_3	…	…	…	-0.011	…	…	…	-0.012
				(0.005)				(0.005)
Protected (65 or younger) interacted with female, δ_4	…	…	…	0.011	…	…	…	**0.014**
				(0.005)				**(0.005)**
Protected (65 or younger) - female, $\delta_3 + \delta_4$				0.0003				0.003
				(0.002)				(0.002)
R^2	0.4419	0.4423	0.4427	0.4427	0.4416	0.442	0.4423	0.4424

Notes: Standard errors are in parentheses and they are clustered at state level.

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