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Self-reinforcing Glass Ceilings

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Abstract:
After the gender pay gap narrows, what labor choices do men and women make? Several factors contribute to the persistence of the pay gap, such as workplace flexibility, systemic discrimination, and career costs of family. We show that how the labor market responds to the narrowing of the gap is just as pivotal for understanding this persistence. When the gender pay gap declines in a specific sector, women are relatively more likely to seek jobs in that sector, while men readjust their search to less equitable sectors. These compositional effects decrease female participation in less equitable sectors, which typically offer higher wages, reinforcing gender stereotypes and social norms that contribute to the glass ceiling. Through these effects, the same forces that reduce the gender pay gap at the bottom of the pay distribution also contribute to the persistence of gender inequities at the top. This self-reinforcing cycle underscores the need for reforms that are cross-sectoral and comprehensive to effectively achieve meaningful reductions in gender inequities across the labor market.

JEL Classifications: J16, J71, O16
Keywords: Gender pay gap, gender norms, gender sorting, bank deregulation

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1 Introduction

Gender gaps in labor outcomes are remarkably persistent. Despite convergence in education and work experience (Goldin 2014), women still earn, on average, 20 percent less than men. Moreover, there is a pronounced gender gap in the types of work women and men do. Not only are women underrepresented in high-paying industries (Bureau of Labor Statistics 2017), but there is also substantial gender sorting across industries, with men more likely than women to sort into higher-paying sectors and firms over their life cycles (Goldin et al. 2017; Barth et al. 2021; Lagaras et al. 2023).

Several factors have been raised in the literature as important determinants of this persistence, including gender differences in demand for time flexibility (Bertrand et al. 2010; Goldin 2014; Wasserman 2023), negotiation behavior (Card et al. 2016; Säve-Söderbergh 2019), career costs associated with having children (Adda et al. 2017; Kleven et al. 2019), and willingness to commute (Petrongolo and Ronchi 2020; Le Barbanchon et al. 2021). There is also evidence that systemic discrimination against women by employers persists (Weber and Zulehner 2014; Kline et al. 2022). These determinants not only give men a relative advantage in the workplace, but they are also difficult to address—especially all at once. Rather than focusing on a specific determinant, we approach the analysis of persistence from a different, less explored perspective: We ask how labor markets respond when factors behind the pay gap subside and the gap narrows, and whether this response can itself perpetuate gender inequities. Understanding this response can reveal critical fault lines that inform policy design aimed at promoting gender equality in the workplace.

In this paper, we show that the labor market can indeed respond in ways that counteract reductions in the gender pay gap and contribute to the persistence of gender inequality. This labor market response operates through the way workers respond to changes in the relative degree of gender equity across sectors: When the gender pay gap narrows in a particular sector, women are more likely to seek jobs there, while men readjust their search toward less equitable sectors. These compositional effects reduce female participation in less equitable sectors, which typically pay higher wages, reinforcing gender stereotypes and social norms that contribute to the glass ceiling. Through these effects, the same forces that reduce gender inequities at the bottom of the pay distribution contribute to their persistence at the top.

We illustrate this mechanism in a simple framework of occupational choices in a two-sector economy. We choose competition as the lever for the narrowing of the gender gap: Competition among firms decreases the rents that could be disproportionally shared with certain groups of workers, and it increases labor demand, forcing firms to offer attractive conditions to all workers (Becker 1957; Black and Strahan 2001; Weber and Zulehner 2014). We use the model to examine how equilibrium outcomes change when the gender pay gap narrows in one sector in response to increased competitive pressure within the sector. A key insight is that, from an equitability perspective, there is too much sorting along gender lines when the competitive pressure originates in lower-paying sectors. This is because the marginal workers who move across sectors in search of better job prospects fail to internalize a negative externality associated with their choices: Their movement further entrenches male dominance in higher-paying sectors, widening sectoral gender gaps and reinforcing gender stereotypes and glass ceilings. In contrast, when competitive pressures originate in higher-paying sectors, sectoral gender gaps decline and reinforcement of gender stereotypes does not take place.

The insight that reducing gender inequities in a single sector is less effective in addressing overall labor market gaps in a multisector economy is critical, as it underscores the limitations of single-sector policy responses or market improvements—whether through competition,[1] job flexibility, or family-friendly policies—in closing the gender gap. The persistence of gender inequities across multiple sectors highlights the need for comprehensive, cross-sectoral policy implementation to achieve meaningful progress. When targeting gender inequities broadly at a cross-sectoral level is infeasible, interventions that target sectors at the top of the income distribution can be more effective, as they would not trigger the self-reinforcing mechanisms that we document in this paper.

A key challenge in empirically evaluating this self-reinforcing mechanism is identifying variations

[1]Fostering competition in every sector is inherently challenging. Recent studies document an increase in monopsony power in US local labor markets (Stansbury and Summers 2020; Berger, Herkenhoff, and Mongey 2022).

that impact the relative levels of pay gaps across sectors. To make empirical progress, we establish theoretically and then document empirically that sectors with low pay gaps are consistently lower paying and more capital-intensive than sectors with high pay gaps. This relationship between sectoral capital-intensity and pay gaps helps resolve our empirical challenge: We can now take advantage of the cross-sectoral heterogeneity in capital intensity and use interstate and intrastate US bank deregulation[2] as our source of variation. Because of the heterogeneity in capital intensity, the relaxation of firm-level credit constraints—which prevents competitive pressure from fully unleashing in the first place—should stimulate more competitive pressure in the more capital-intensive sectors and, hence, along the pay and pay gap distributions.

To map to our framework's two-sector structure, we validate that these shocks increase competitive pressure unevenly: They promote expansion in more capital-intensive sectors relative to those that rely more on intangible forms of capital. We then present our analysis in three steps. First, we show that the gender pay gap decreases in response to deregulation at the lower end of the pay gap distribution, which consists predominantly of occupations in more capital-intensive sectors. Second, we find that this gender gap reduction is counterbalanced by increased gender sorting across sectors with high and low gender pay gaps, consistent with our theoretical model. Finally, using survey data on sexism and gender roles, we show that these compositional effects reinforce the glass ceiling by cementing negative stereotypes about the role of women in the workforce.

We evaluate the effects of bank deregulation on wages across multiple industries by categorizing industries based on their preexisting gender pay gap. Because pay for men and women converged significantly during the 1980s (Blau and Kahn 1997), we fix pay-gap levels by industry prior to 1980 and classify industries into high-, medium-, and low-pay-gap sectors according to their pre-1980 pay-gap levels. As previously mentioned, we then document that low-pay-gap sectors are more capital-intensive, while high-pay-gap sectors consistently have a materially higher

[2]For details on US bank deregulation, see King and Levine (1993), Demirgüc-Kunt and Maksimovic (1998), Rajan and Zingales (1998), Beck and Levine (2004), Jayaratne and Strahan (1996), Cetorelli and Strahan (2006), Beck et al. (2010), among others.

share of intangible assets, which are harder to borrow against and thus limit the effects of deregulation. We validate that deregulation affected these industries differently: Low-pay-gap sectors responded by increasing borrowing and demand for labor, whereas high-pay-gap sectors showed no change in borrowing behavior or labor demand.

We find that while relative wages for women remained unchanged in high-pay-gap sectors following deregulation, they increased by 5 percent in low-pay-gap sectors, controlling for Mincerian traits. These results are robust to alternative methods of industry categorization. This increase in relative pay in low-pay-gap sectors compared with high-pay-gap sectors alters the opportunity cost for women relative to men. *At the margin*, this creates incentives for women to select into more equitable but lower-paying sectors, while men are incentivized to select into less equitable but higher-paying ones. Indeed, we document that following bank deregulation, the sectoral gender gap—measured by differences in participation in low-pay-gap/lower-paying sectors and high-pay-gap/higher-paying sectors—widened. This sorting behavior contributes to the persistence of the gender pay gap by perpetuating gender imbalances across industries along the pay distribution.

Lastly, we show that this sectoral gap has downstream implications: The resulting gender sorting patterns may reinforce traditional gender roles in the long run. Both men and women may interpret the differences in sorting and the resulting gender imbalance through a gendered lens, concluding that women are less suited to certain jobs, that career pursuits are less important for women, or that women have a comparative advantage in staying at home. We directly test for changes in gender norms by analyzing how bank deregulation, through shifts in sectoral composition, affects measures of sexism derived from the General Social Survey (GSS) data. We find that, following deregulation, attitudes toward women in the workplace deteriorated, particularly among men and individuals (men as well as women) with children.

Our findings contribute to the understanding of the persistence and evolution of the gender pay gap by highlighting the influence of labor market forces and the limits to competition and by reexamining gender sorting.

Market-driven persistence. Gender inequities in the labor market have been large and persistent. Although the pay gap between men and women has narrowed, especially during the 1980s, women still earn, on average, 20 percent less than men (Blau and Kahn 1997). Moreover, this narrowing took place primarily at the bottom and middle of the wage distribution, rather than at the top, and progress slowed in the subsequent decades (Blau and Kahn 1997, 2017). Previous studies of the gender pay gap present several factors to explain its persistence: the lack of temporal flexibility in job structure in the labor market (Goldin 2014), cultural differences that translate into differences in choices (Goldin 2006), and gender disparities in bargaining power (Babcock and Laschever 2003; Card, Cardoso, and Kline 2016; Säve-Söderbergh 2019). The self-reinforcing channel we present complements these mechanisms and highlights the challenges in closing the gender pay gap: As gender inequities transition from wage gaps to sectoral gaps and accentuate gender norms, progress in a narrow setting may obscure receding conditions that perpetuate inequities in the broader labor market.

Persistence of gender inequities despite competition. Becker (1957) argues that taste-based discrimination increases hiring costs for firms. Increased product market competition would reduce taste-based discrimination, as discriminatory firms would be at a disadvantage compared with less discriminatory, more profitable competitors. Subsequent empirical work finds evidence supporting this view (Black and Strahan 2001; Levine et al. 2008). However, our results emphasize that increases in competition within a single sector are insufficient to reduce gender inequities in the broader labor market in the presence of other less-competitive sectors. Instead, reductions in the gender pay gap within a single sector are transformed into wider sectoral gender gaps and reinforced of gender norms, perpetuating overall gender inequities in the labor market.

Determinants of gender sorting. We also contribute to the literature on the determinants of gender sorting into specific firms, occupations, or industries. While previous studies document differences in earnings between women and men over the life cycle (Goldin, Kerr, Olivetti, and Barth 2017; Barth, Kerr, and Olivetti 2021), the determinants explaining the relationship between gender sorting and lower pay are less well understood. One approach to assessing this relationship is to evaluate whether external conditions force women to sort into lower-paying firms (e.g., flexible hours, Goldin 2014; home production, Albanesi and Olivetti 2009). However, there is also evidence showing that job pay decreases concurrently with increased female participation (Levanon et al. 2009). In addition, gender norms may contribute to gendered patterns in labor participation (Crawford and MacLeod 1990; Ceci, Williams, and Barnett 2009; Bottia, Stearns, Mickelson, Moller, and Valentino 2015; Bertrand, Kamenica, and Pan 2015; Charles, Guryan, and Pan 2018; Mertz, Ronchi, and Salvestrini 2024). The self-reinforcing mechanism highlighted in this paper addresses this issue by showing how the uneven narrowing of the pay gap across sectors can lead to gender sorting and reinforce gender norms.

The paper is structured as follows. Section 2 lays out a model framework to organize and interpret our empirical results. Section 3 describes the data, while Section 4 discusses the empirical strategy. Section 5 shows "first-stage" effects—that is, that our identifying variation had uneven direct effects within and across sectors. Section 6 documents cross-sectoral effects on the gender pay gap and gender sorting. Finally, Section 7 explores how the cross-sectoral effects on the gender pay gap and gender sorting lead to an accentuation of gender norms. Section 8 concludes.

2 Theoretical Framework

2.1 Model Setup

Our model consists of a mass $2m > 0$ of workers (indexed by i), and two productive sectors ($s \in \{\ell, h\}$), each populated by a unit mass of firms (indexed by js). The sequence of events is as follows: (1) Workers choose which of the two sectors to work in, (2) firms make their production plans, and (3) product prices and wages adjust to balance supply and demand in each market and sector.

Half of the worker population is labeled in blue, and the other half in red. Within each group, workers differ in the disutility c_i they incur from entering sector h, where c_i is a positive continuous random variable with cumulative distribution function $F(\cdot)$, identical across labels. In the empirical analyses, (a) blue represents males and red represents females, though the model can apply to other forms of discrimination, so we keep the red and blue labels for generality, and (b) h can be regarded as occupations that, for example, require more cognitive work, so c_i can be interpreted as the cost of performing or training for these types of jobs compared with those offered in sector ℓ.

Each worker i is endowed with one unit of labor supply, and chooses in which sector to seek employment. i's expected payoff from entering sector s is

$$U_i = \mathbb{E}[w_i|\theta_i, s] - e_i c_i, \tag{1}$$

where $\theta_i \in \{R, B\}$ is i's label (R for red, and B for blue), $e_i \in \{0, 1\}$ denotes choice of sector, with $e_i = 1$ if i enters sector h, and 0 otherwise.

The expectation in Equation (1) reflects the fact that if worker i is blue, their wage depends on whether they secure a job at a "biased" firm (more on this shortly). Worker i can always choose not to work, in which case the expected payoff is $\overline{u} - e_i c_i$, where $\overline{u} > 0$ represents i's outside option. We use β_s to denote the mass of blue workers who seek jobs in sector s, and ρ_s for the mass of red workers in s.

Blue and red workers have the same productivity and share the same distribution for c_i, so the labels should be irrelevant to payoffs. However, a fraction χ_s of the firms in sector s is "biased" in that they have a preference for blue workers. Biased firms prefer to hire blue workers, and pay them a premium α above the equilibrium wage w_s. A blue worker hired by a biased firm receives a wage $(1 + \alpha)w_s$, while *all* other workers receive the equilibrium wage w_s.

Each unit of output requires one unit of labor and sells at the equilibrium price p_s. We conjecture (and later verify) that, in equilibrium, biased firms hire only blue workers, as there are enough of them in each sector. We can then write firm j's expected profit from producing

$q_{js} \in [0, \infty)$ as

$$\Pi_{js} = p_s q_{js} - w_s(1 + \iota_{js}\alpha)q_{js} - \kappa_s q_{js}^2, \tag{2}$$

where ι_{js} is an indicator function equal to 1 if firm js is biased, and 0 otherwise. $\kappa_s \in [0, \infty)$ is the unit cost of capital in sector s, and q_{js}^2 is the capital needed to produce q_{js} units of output. The quadratic specification captures decreasing returns to scale, which means that producing more becomes increasingly more costly as q_{js} rises.

Let $D(p_s)$ denote the product demand in sector s, where $D(\cdot)$ is a continuous and decreasing function. To simplify the exposition, we assume $D(0) < \frac{m}{2}$ and $\chi_s \leq \frac{1}{2}$. These conditions ensure that labor demand is always met and that, in equilibrium, the conjecture that b firms hire only blue workers holds.[3] An equilibrium is a collection of firms' production choices q_{js}, workers' occupational choices e_i, and equilibrium prices and wages—that is, $\{\{q_{js}\}, \{e_i\}, (p_h, p_\ell), (w_h, w_\ell)\}$, for $i \in [0, 2m]$, $j \in [0, 1]$, and $s \in \{\ell, h\}$—that jointly satisfy market clearing and sequential rationality.

2.2 Equilibrium Analysis

The first step in characterizing the equilibrium is to describe how firms and workers make their choices for fixed values of prices, wages, and relative shares of blue and red workers in each sector.

Since firms take prices and wages as given, each type makes the same choices in equilibrium. Thus, we can substitute the j subscript with b and n, where b denotes biased firms and n denotes non-biased ones. Given a product price p_s and wage w_s, firm js chooses its production to maximize profit as defined in Equation (2). Its optimal production choice q_{js}^* can then be written as:

$$q_{js}^* = \max\left\{\left[p_s - w_s(1 + \iota_{js}\alpha)\right]\frac{1}{2\kappa_s}, 0\right\}. \tag{3}$$

The expression for q_{js}^* calls for two important remarks. First, biased firms produce less than non-biased ones because they pay higher wages and, thus, have higher production costs. Second,

[3] In equilibrium, firms produce less than $D(0)$, so $D(0) < \frac{m}{2}$ ensures that there are enough blue workers in sector ℓ to satisfy $\chi_\ell q_{b\ell} \leq \beta_\ell$. By a similar logic, $D(0) < \frac{m}{2}$ and $\chi_h < 1/2$ together ensure that $\chi_h q_{bh} \leq \beta_h$ holds. If we had $\chi_s q_{bs} > \beta_s$, the expression for Π_{js} would be different, since the biased firms may also want to hire both types of workers. The assumption $D(0) < \frac{m}{2}$ also implies $w_\ell = \overline{u}$ in equilibrium: Since there is more labor supply than labor demand in sector ℓ, firms can pay workers their reservation utility in that sector.

for the same reason, their production is less sensitive to changes in κ_s: The more efficient, non-biased firms operate at larger scales, so they benefit more when the cost of capital declines.

Workers choose which sectors to work in, anticipating the relative shares of b and n firms that populate each sector in equilibrium. Worker i prefers to seek a job in sector h over sector ℓ if the expected wage differential is larger than the disutility c_i. That implies

$$\mathbb{E}[w_i|\theta_i, h] - \mathbb{E}[w_i|\theta_i, \ell] \geq c_i. \tag{4}$$

Inequality (4) implicitly defines a marginal type for each group of workers (the value of c_i for which the inequality holds strictly), which we denote by c_θ. In equilibrium, the mass of blue workers seeking jobs in h (β_h) is equal to the mass of those with $c_i \leq c_B$, which is $mF(c_B)$. Similarly, the mass of red workers ρ_h is equal to $mF(c_R)$. Since red workers never receive any wage premiums, while blues receive premiums only if they work for a biased firm, we can write the marginal types as:

$$c_B = w_h \left\{1 + \alpha \frac{\chi_h q_{bh}}{\beta_h}\right\} - w_\ell \left\{1 + \alpha \frac{\chi_\ell q_{b\ell}}{m - \beta_h}\right\}; \quad c_R = w_h - w_\ell. \tag{5}$$

The probability that a blue worker in sector h secures a job in a b-firm is $\frac{\chi_h q_{bh}}{\beta_h}$, as there are more blue workers than biased firms ($\chi_h q_{bh} \leq \beta_h$), so only a fraction can work for a biased firm in equilibrium. The corresponding probability in sector ℓ is $\frac{\chi_\ell q_{b\ell}}{m-\beta_h}$. The mass of red workers choosing to work in h depends solely on the wage difference between sectors, $w_h - w_\ell$. By contrast, the mass of blue workers also depends on the relative size of biased firms in each sector, as the more biased firms produce in a given sector, the easier it is to get the wage premium α in that sector.

Given the optimal production and occupational choices, market clearing pins down the equilibrium prices and wages. Since each unit of production requires one unit of labor, the demand and supply of goods, as well as the demand and supply of labor, are all interconnected in equilibrium. We can write the market clearing conditions for the two sectors as

$$D(p_h) = \int_0^1 q^*_{jh}\, dj \leq \beta_h + \rho_h; \quad D(p_\ell) = \int_0^1 q^*_{j\ell}\, dj \leq 2m - (\beta_h + \rho_h). \tag{6}$$

An equilibrium of the game is a collection of choices, wages, and product prices that jointly satisfy equations (3), (5), and (6). Proposition 1 shows that one such collection always exists, and describes some of the key properties of the equilibrium.

Proposition 1 (Closing the gap from the bottom). *An equilibrium always exists, and there may be more than one. In equilibrium, the h sector pays higher wages (that is, $w_h \geq w_\ell$), and when the cost of capital in ℓ decreases:*

1. *Production in ℓ is reallocated toward non-biased firms, that is, $\frac{\chi_\ell q_{b\ell}}{D(p_\ell)}$ decreases with κ_ℓ.*

2. *The fraction of the workforce in ℓ that receives a wage premium decreases.*

3. *In the limit where the product market demand is inelastic, more blue workers and fewer red workers enter sector h, that is, β_h increases and ρ_h decreases.*

Due to decreasing returns to scale, expanding production requires increasingly more capital as q_{js} increases. Even biased firms, which pay higher wages and, thus, have higher production costs, may still survive in equilibrium (that is, set $q_{js} > 0$), as non-biased firms may be unwilling to meet the entire product market demand on their own. This effect is less pronounced when capital is cheaper because expanding production is less costly. Consequently, production in ℓ is reallocated away from biased firms when κ_ℓ decreases.

As production reallocates away from biased firms, the fraction of workers receiving a wage premium decreases. Therefore, the relative wages of red and blue workers who work in sector ℓ converge, since a smaller share of the workforce earns wage premiums. In absolute terms, however, biased firms may produce more or less than before, depending on the net effect of two opposing forces. On the one hand, output production is now less costly for all firms, incentivizing higher production across the board. On the other hand, non-biased firms are more sensitive to changes in κ_ℓ (see our discussion of Equation 3), meaning that their production increases relatively more when κ_ℓ decreases. The increase in $q_{n\ell}$ drives down the product price p_ℓ, making it harder for less efficient, biased firms to produce.

If product demand is sufficiently inelastic, aggregate production does not change substantially when κ_ℓ declines, so the increase in $q_{n\ell}$ must come at the expense of $q_{b\ell}$. In this case, biased firms in ℓ produce less and, thus, hire fewer workers as κ_ℓ decreases. All else equal, ℓ becomes less attractive for blue workers, since landing a job at a biased firm is now less likely in this sector. This effect leads to more blue workers seeking jobs in h, which drives down the unbiased wage w_h. In response to the decrease in w_h, some red workers leave h to seek jobs in ℓ.

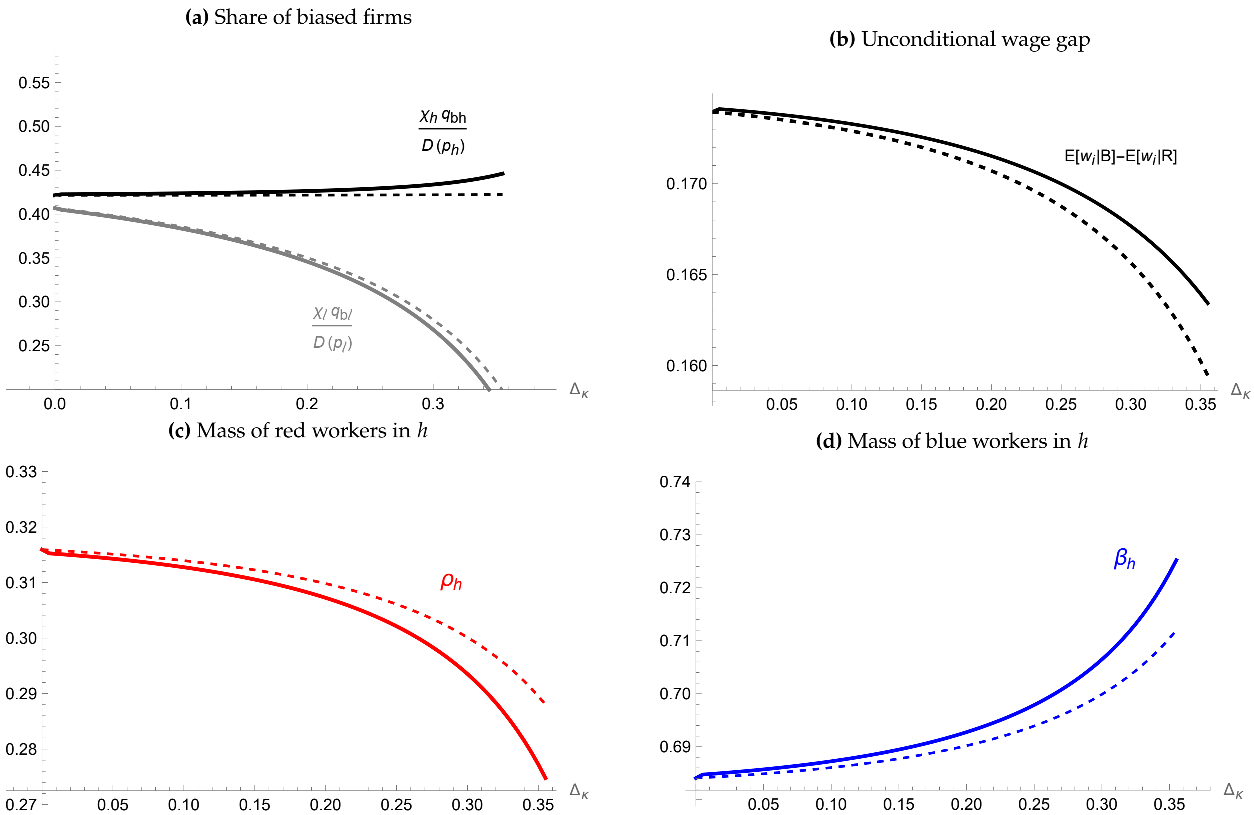
For simplicity, we have described the case in which the cost of capital declines and, therefore, competition intensifies only in the ℓ sector. In Appendix A.4, we show that the insights described here are robust to the case in which the cost of capital decreases in *both* sectors, but the decline is more pronounced in the ℓ sector. It is worth mentioning that the unbiased wage in the h sector, w_h, may increase when both κ_h and κ_ℓ decrease: The inflow of blue workers who move from ℓ to h seeking better chances to secure jobs at biased firms may not be enough to satisfy the increased labor demand in h, in which case w_h increases to also attract more red workers. Yet, the group difference in participation in h, that is, $\beta_h - \rho_h$, still increases, meaning blue workers are still relatively more eager to enter h, since they respond to both the increase in w_h and the relatively better chances of securing jobs at biased firms in h compared with ℓ.

Lastly, the model generates a cross-sectoral correlation among the cost of capital, wages, and wage gaps, which we will evaluate and exploit in our empirical analysis. In the model, the ℓ sector always pays lower wages, but the relative equitability of the two sectors (that is, the relative share of biased firms) depends on the parameters. Proposition 2 describe conditions such that sector ℓ features *both* lower wages and lower wage gaps than h in equilibrium.

Proposition 2 (Sectoral Equivalence: more capital intensive = lower wages = lower pay gaps). *In the limit where the product market demand is inelastic, if the cost of capital in sector ℓ is sufficiently smaller than that in sector h, a smaller fraction of the workforce receives a wage premium in ℓ compared to h.*

If capital is sufficiently less costly in sector ℓ, competitive pressure is greater in this sector. Consequently, if product demand is sufficiently inelastic, biased firms produce and hire less in sector ℓ than in sector h. The gap in expected wages for blue and red workers is then smaller in ℓ, meaning

Figure 1. Closing the Gap from the Bottom



Notes: This figure plots some of the equilibrium outcomes against Δ_κ, where $\kappa_\ell = 0.5 - \Delta_\kappa$. Solid lines represent second-period outcomes, and dashed lines represent first-period outcomes. In Panel (a), black lines correspond to sector h, and gray lines to sector ℓ. The parameter values are as follows: $\kappa_h = 0.7$, $D(p_s) = 1 - 0.1 * p_s$, $c \sim U(0, m)$, $\alpha = 0.3$, $\overline{u} = 1$, $m = 2$, $\chi_h = \chi_\ell = 0.5$, $\gamma = 10$.

this sector simultaneously features lower wages and lower wage gaps.

2.3 Effects on Gender Norms

A simple way to incorporate gender norms into our framework is to assume that the game described in Section 2.1 is played over two consecutive periods $t \in \{1, 2\}$. The economy remains the same in each period, except that the proportion of biased firms in $t = 2$ depends on the compositional effects of changes in the economic environment at $t = 1$.

Formally, we assume that:

$$\chi_s' = \chi_s + \gamma(d\beta_s - d\rho_s), \tag{7}$$

where the prime denotes equilibrium outcomes in period $t = 2$, and $d\beta_s$ and $d\rho_s$ represent the equilibrium effect of a change in parameters on the first-period equilibrium outcomes β_s and ρ_s.

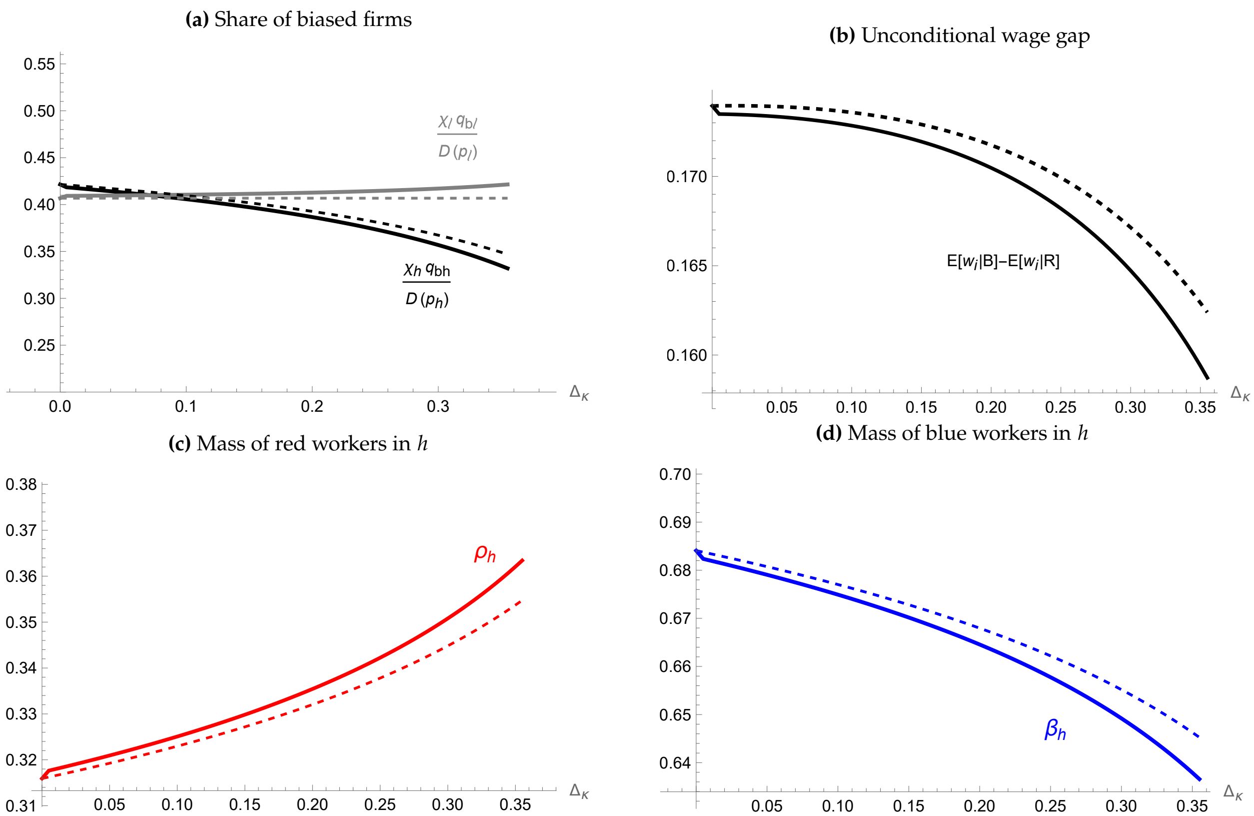
The parameter $\gamma > 0$ captures how discrimination depends on the relative composition of the workforce in each sector. If sector s becomes more blue-dominated following a shock in $t = 1$ (that is, if $d\beta_s > d\rho_s$), more firms in the sector become biased in $t = 2$. Our interpretation is that the preference for blue workers arises from either distorted beliefs about their relative productivity or homophily among firm decision-makers, both of which become more common as the sector becomes more blue-dominated.

Firms and workers re-optimize in each period, with χ_h and χ_ℓ being the only parameters that differ across periods. Given these values, the equilibrium remains the same as that described in the preceding section. However, the comparative statics with the respect to the model's parameters are now richer, as the fraction of biased firms χ'_s depends on the sorting of blue and red workers in sector s in the first period, which, as discussed previously, responds to changes in the parameters.

Figure 1 illustrates how the equilibrium changes as capital becomes cheaper, intensifying competition in sector ℓ. We plot the equilibrium outcomes for each period against the drop in κ_ℓ, denoted by Δ_κ. The dashed lines represent the first-period outcomes (where only κ_ℓ changes), and the solid lines describe the second-period outcomes (where both χ_h and χ_ℓ also change).

As Δ_κ increases, competition intensifies in sector ℓ, leading biased firms to significantly reduce their production. The unconditional difference in expected wages, $\mathbb{E}[w_i|B] - \mathbb{E}[w_i|R]$ (that is, before c_i is realized and worker i chooses a sector to enter) decreases, as far fewer blue workers in ℓ receive a wage premium. However, the convergence in expected wages provides only a partial view of the equilibrium effects. Because securing a job at a biased firm in ℓ becomes more difficult, blue workers become increasingly more likely to seek employment in sector h. The inflow of blue workers into h crowds out the marginal red workers in that sector, since it leads to a drop in the unbiased wage w_h. As a result, red workers are unambiguously worse off: fewer of them enter the higher-paying sector, and those who remain receive lower wages. The second-period outcomes reflect the reinforcing of gender norms, with the first-period increase in the sectoral gap represented as $\chi'_h > \chi_h$, and $\chi'_\ell < \chi_\ell$. These effects further reduce the presence of red workers in

Figure 2. Closing the Gap from the Top



Notes: This figure plots some of the equilibrium outcomes against Δ_κ, where $\kappa_h = 0.7 - \Delta_\kappa$. Solid lines represent second-period outcomes, and dashed lines represent first-period outcomes. In Panel (a), black lines correspond to sector h, and gray lines to sector ℓ. The other parameter values are the same as in Figure 1.

sector h in the second period, leaving more of them stuck in low-paying jobs.

2.4 Closing the Gap from the Top

Since the existence of biased firms affects the equilibrium, the reinforcement of gender norms described above can be understood as an (intertemporal) externality, arising from the marginal workers who move across sectors in the first period to the broader economy in the second period. For the red workers, who are discriminated against, this externality is negative: an increase in the fraction of biased firms in h attracts even more blue workers to enter this sector at time $t = 2$, further compressing the unbiased wage w_h and pushing more red workers out of the high-paying sector.

A natural question is how these results change when the competitive pressure originates at the top of the wage distribution—that is, in the high-paying sector h—rather than at the bottom, in the low-paying sector ℓ. Proposition 3 describes the sectoral gap implications when the competitive pressure originates in sector h.

Proposition 3 (Closing the gap from the top). *In the limit where the product market demand is inelastic, when the cost of capital in sector h decreases, there always exists an equilibrium where fewer blue workers and more red workers enter h, that is, β_h decreases and ρ_h increases.*

Similar to Proposition 1, when capital becomes less costly in sector h, the sector's production reallocates toward the more efficient, non-biased firms. If product demand is sufficiently inelastic, the increase in q_{nh} must come at the expense of q_{bh}, so biased firms in h produce less and, therefore, hire fewer workers as κ_h decreases. Blue workers now find h *less* attractive, prompting more of them to seek jobs in ℓ. This movement reduces labor supply in h, pushing the unbiased wage w_h upward. In response to the increase in w_h, some red workers leave ℓ to seek jobs in h.

Figure 2 illustrates how the equilibrium changes as competition intensifies in sector h, and the implications for gender norms in the context of the two-period model introduced in Section 2.3. We plot the equilibrium outcomes for each period against Δ_κ, which denotes the drop in κ_h. Like before, the dashed lines represent the first-period outcomes (where only κ_h changes), and the solid lines describe the second-period outcomes (where both χ_h and χ_ℓ change, as specified in Equation 7). Since, more blue workers move to the low-paying sector and more red workers move to the high-paying one when κ_h decreases, the compositional effects generate a *positive* externality to the red workers: Since $\chi_h' < \chi_h$ in this case, there are fewer biased firms in h at $t = 2$. As a consequence, more blue workers leave, and more red workers also move to h in that period.

The main insight from this subsection is that when the gender gap narrows at the top of the income distribution (that is, in high-paying sectors), the sectoral gap closes and gender norms do not intensify or even soften. In contrast, when the gender gap narrows at the bottom of the distribution (that is, in low-paying sectors), the sectoral gap increases and gender norms accentuate.

2.5 From Theory to Empirics

The model has three main empirical implications that we can take to the data.

Empirical Predictions. *When competitive pressure intensifies in a given sector:*

P1. The relative wages of women and men converge within the sector. The convergence is driven mostly by a reduction of expected wages for men, because fewer of them receive a wage premium.

P2. Women are more likely to seek or remain in jobs in that sector, while men tend to seek jobs in other sectors that still offer wage premiums.

P3. The belief that women are more suited to work in that sector, compared with other sectors, is reinforced. When the competitive pressure originates in low-paying sectors, this reinforcement translates into an accentuation of gender norms.

To test these implications, we need to empirically map two important elements of the model: (1) changes in competitive pressure that vary unevenly across sectors; and (2) a categorization of sectors based on their equitability, since the model predicts that men are more likely to seek jobs in less equitable sectors after the shock.

3 Data

Our main data come from the March Supplement of the Current Population Survey (CPS) for the years 1976–2014.[4] We restrict our sample to working-age, full-time, full-year workers in the private sector. To ensure that our estimates are not driven by industrial organization changes within the finance industry (Black and Strahan 2001), we exclude individuals working in the Finance, Insurance, and Real Estate (FIRE) industries. Our primary outcome variable of interest is individual hourly wage.[5] The CPS also contains individual demographic information such as

[4]Similar to Beck, Levine, and Levkov (2010), we start the analysis in 1976 because, in the CPS data, states cannot be identified separately until the 1977 survey (which covers data from 1976). In Section 6.3, as a robustness check, we conduct our analysis using an expanded dataset that starts in 1968.

[5]We use the log transformation of this outcome as our dependent variable.

race, gender, age, and educational attainment, as well as detailed information on employment, including occupation and industry, and preceding-year industry. We use the latter to construct measures of sector-to-sector transitions. The CPS incorporates probability sampling weights for each individual, indicating their representativeness in the population. We use these sampling weights in all our specifications.

We supplement the CPS data with Compustat data to evaluate effects at the firm level including borrowing, investment (including tangible assets and R&D spending), and measures of profitability per employee (to assess efficient use of labor). We also use the GSS data to construct indexes of sexism following Charles, Guryan, and Pan (2018), which we use in Section 7 to evaluate the effects of bank deregulation on changes in gender norms.[6]

3.1 Summary Statistics

Employment Summary Statistics. Table (1.A) presents summary statistics on characteristics of male and female workers across all industries (columns 1 and 2) and then (in columns 3 through 6) separately for industries at the bottom and top 25 percent of the pay gap distribution, as measured in the first five years of our sample (1976 through 1980). We refer to industries in these categories as low- and high-pay-gap sectors, respectively. We will offer more detail on this categorization in Sections 4.2 and 4.3. Table (B.1) lists examples of low- and high-pay-gap sectors.

Hourly wage. On average, hourly wages are \$5.43 lower for women than for men in high-pay-gap sectors, while the difference is only \$0.99 in low-pay-gap sectors. This translates into a difference of –33 and –8.5 percent in hourly wage between women and men in the high- and low-pay-gap sectors, respectively. Overall, women earn \$3 (22 percent) less than men for each hour of work. In Figure (3), we present trends in (1) the average (log) wage for low- and high-pay-gap sectors (Panel A), and (2) the difference in median (log) wage between low- and high-pay-gap sectors separated by men and women. At every point in time, the high-pay-gap sectors were also the higher-paying sectors.

[6] In Appendix D, we also evaluate women's vulnerability to reversing treatment, using data from the FDIC call reports on mergers.

Demographics. Years of education for women are similar between high- and low-pay-gap sectors, at about 13.4 years of schooling. Male workers in high-pay-gap sectors have an additional 1.4 years of schooling on average. Age of workers is similar across sectors and across genders, ranging from 39.7 to 40.9 years. Men tend to have 0.6 to 0.7 more years of experience than women across all industries.

Labor force participation. Female labor force participation is noticeably higher in low-pay-gap sectors at 41.9 percent, while high-pay-gap sectors have a female participation rate (38.3 percent) that is higher than the average rate (34.9 percent) in the full sample (which also contains the medium-pay-gap sectors). The differences in female participation between low- and high-pay-gap sectors are stable over time, as shown in Appendix Figure (B.2).

Firm Summary Statistics. In Table (1.B), we present summary statistics on characteristics of public firms across all industries (column 1) and in low- and high-pay-gap sectors (column 2 and 3, respectively). Compared with firms in high-pay-gap sectors, those in low-pay-gap sectors have slightly more assets (a statistically insignificant difference of 3 percent), more workers, and greater revenues and income by worker. High-pay-gap sectors have lower book leverage (48 percent versus 54 percent), higher Tobin's Q (1.09 versus 0.92), and lower levels of tangibility (0.22 versus 0.55).[7]

Consistent with Proposition 2 in Section 2, low-pay-gap sectors rely more on external financing and are more capital-intensive than high-pay-gap sectors. In Table (2), we compute debt-to-asset ratios (for secured debt, debt notes, and long-term debts) and leverage by sector. Low-pay-gap sectors consistently rely more on debt than high-pay-gap sectors, regardless of the debt instrument: The former industries are twice as likely to use secured debt, debt notes, and long-term debt, and leverage in low-pay-gap sectors is 7.4 percent higher. Low-pay-gap sectors are also more capital-intensive throughout our estimation period. In Figure (4), we plot total assets, total plant and equipment, and total tangibility per employee by sector. Across all instruments, low-pay-gap

[7]Asset tangibility is defined as the ratio of tangible assets to total assets.

sectors exhibit greater capital intensity than high-pay-gap sectors throughout the sample period. The difference in reliance on external financing and capital is important, as we will discuss in Section 5.

4 Empirical Methodology

To test our model's empirical predictions, we evaluate how changes in conditions that reduce the gender pay gap in one sector alter the sorting of workers across sectors with varying levels of equitability and how this channel, in turn, influences the cross-sectoral dynamics of gender inequities in labor markets. For this purpose, it is necessary to identify an event that differentially affected gender pay gaps across industrial sectors that vary in their (ex ante) equitability. In particular, two elements from the model require empirical mapping: (1) a change in conditions that affects sectors unevenly, and (2) a categorization of sectors according to their equitability.

To capture exogenous changes in conditions across sectors, we exploit the temporal and spatial variation in US bank deregulation, and we document that the penetration of the shock is uneven. We categorize industrial sectors according to their presample gender gaps and show that this categorization is stable, with conceptually similar alternative categorizations yielding consistent results. Below, we first provide a brief background of US bank deregulation, followed by a discussion of our empirical approach, including the methodology for categorizing industries into sectors according to their preexisting levels of equitability.

4.1 Intrastate and Interstate Banking Deregulation

The US bank deregulation during the 1970s–1990s is well-documented, starting with Jayaratne and Strahan (1996). There were two major waves of deregulation in the banking industry. The first involved the removal of restrictions on branching within states, which occurred mostly from 1970 to 1994. In line with the literature, we refer to this event as intrastate bank deregulation, or simply branch deregulation. The second event comprised the removal of restrictions on cross-state ownership of banks.[8] Following Maine's lead, all states except Hawaii started allowing the entry of out-of-state bank holding companies through legislative changes from 1978 to 1992. We refer to this event as interstate bank deregulation.

Jayaratne and Strahan (1996) and Kroszner and Strahan (1999) provide detailed analyses of the political and economic factors behind the timing of the deregulation events, noting that states did not deregulate their banks in anticipation of future growth prospects. Bank deregulation led to increased competition among lenders and improved efficiency in the banking industry, which facilitated firm borrowing and investment by easing financial constraints (Jayaratne and Strahan 1996; Black and Strahan 2002; Rice and Strahan 2010; Jiang et al. 2020). Therefore, we exploit the cross-state, cross-time exogenous variations in credit availability resulting from banking deregulation to examine the causal effects of the relaxation in credit constraints on the cross-sectoral dynamics of the gender pay gap.

4.2 Empirical Specification and Sectoral Categorization

To estimate the causal effect of uneven changes in competitive pressure on the cross-sector dynamics of the gender pay gap, we employ a generalized difference-in-differences (DiD) design, exploiting cross-state and cross-year variation in the timing of intrastate and interstate banking deregulation. Specifically, we estimate the differential labor market outcomes for female workers relative to male workers across industrial sectors with varying levels of preexisting equitability in response to banking deregulation.

To proxy for each sector's preexisting equitability, we categorize industries into sectors according to their gender pay gap levels during the first five years of CPS data (1976 through 1980), which precedes our estimation sample period.[9] Using the 1990 Census Industry Codes (CIC), we classify industries into high-, medium-, and low-pay-gap sectors based on the distribution of pay gaps in the pre-period. High-pay-gap sectors are defined as those in the top quartile of distribution;

[8]The Douglas Amendment to the 1956 Bank Holding Company Act prohibited bank holding companies from acquiring banks outside the state(s) where their headquarter(s) resided, unless the state(s) actively permitted such acquisitions.

[9]The estimation sample spans the years 1981 to 2014. The choice of the pre-period is driven by both data limitations and the importance of the 1980s for understanding the evolution of the pay gap (Blau and Kahn 1997).

low-pay-gap sectors are those in the bottom quartile; and the medium-pay-gap sectors are those in between. We discuss the stability of this categorization in Section 4.3.

Let $\Omega = \{High, Medium, Low\}$ denote the high-, medium-, and low-pay-gap sectors, and let I_j^k be a dummy variable indicating whether industry j belongs to classification $k \in \Omega$. Our primary empirical specification is as follows:

$$\begin{aligned} Y_{ijst} \quad = \quad & \alpha + \sum_{k \in \Omega} \beta_k D_{st} \times I_j^k + \sum_{k \in \Omega} \gamma_k D_{st} \times I_j^k \times F_i + \sum_{k \in \Omega} \delta_k I_j^k \times F_i \\ & + \sum_{k \in \Omega} \zeta_k I_j^k + \pi X_{ijst} + \tau_{t,female} + \mu_{s,female} + \epsilon_{ijst}, \end{aligned} \tag{8}$$

where D_{st} is a dummy variable denoting whether deregulation has taken place in state s and year t, F_i indicates whether individual i is female, and X_{ijst} is a vector of demographic controls including Mincerian traits (education, experience, and experience squared) × gender. $\tau_{t,female}$ and $\mu_{s,female}$ are time-gender and state-gender fixed effects, respectively. To account for gender differences across the life-cycle and effects by race, we also include specifications with age × gender, race × gender, and marital status × gender interactions as controls. The single order F_i term is absorbed by the fixed effects.

However, a substantial body of research highlights the potential bias in two-way fixed effects (TWFE) estimators in staggered-DiD settings (for example, De Chaisemartin and d'Haultfoeuille 2020; Sun and Abraham 2020; Goodman-Bacon 2021; Callaway and Sant'Anna 2021). Bias in TWFE occurs due to time-varying treatment heterogeneity or effects that strengthen over time after treatment. We address this concern in three different ways. First, we provide event studies of our main results following the bias-robust estimator proposed by Callaway and Sant'Anna (2021), which requires only the assumption of post-treatment parallel trends. Second, we provide additional results in which we saturate Equation (8) with state-year-gender fixed effects. This allows us to make use of the efficiency of TWFE, while approximating the canonical DiD setting where variation is provided at the female × sector classification level, thus assuaging concerns about negatively (or unintuitively) weighting events in the estimation (Goodman-Bacon 2021). This saturated specification is valuable, as it allows us to provide an extensive set of robustness specifications assessing the importance of many sensible covariates. Third, we offer evidence that potential deviations from treatment homogeneity are not likely to be significant for this analysis. We do so by showing that alternative treatments with different implementation timings provide nearly identical results within a wide variety of analyses and specifications.

4.3 Stability of Categorization of Industries into Sectors

Our empirical analysis embeds the assumption that the rank of sectors by equitability is stable before 1980. We conduct four tests to assess the stability of the equitability categorization. First, because legislative changes leading to interstate deregulation took place after our categorization period (1976 through 1980) for all states except Maine (where interstate deregulation occurred in 1978), we repeat our interstate deregulation analysis excluding Maine and find that our industry categorization remains stable (see Appendix E). Second, we note that intrastate deregulation occurred before our categorization period in 17 states, raising concerns about the contamination of our industry categorization by intrastate deregulation (Amel 1993). To address these concerns, we conduct our intrastate deregulation analysis excluding these 17 states. We show that our categorization of industry equitability is not sensitive to this exclusion, confirming that the categorization is not driven by the treatment (see Appendix E). Third, we show that alternative categorization methods, including categorizing using the 1968–1972 CPS data, yield the same results (see Appendix G.) Fourth, in all subsequent analyses, we present results from analyses that use both interstate and intrastate bank deregulation and show that the estimates are nearly identical.

4.4 Balance and Pre-trends

Next, we show that the treatment and control groups are balanced in observable characteristics and that there are no pre-period trends.

First, we study the differences in characteristics between states about to undergo bank deregulation (treatment group) and states where deregulation legislation had not passed and would not pass in the following year (control group), to examine whether the two groups approximate an "apples-to-apples" comparison. Appendix Figure (C.3), Panel A, illustrates the differences for intrastate deregulation, and Panel B illustrates those for interstate deregulation. Most differences between the characteristics of the two groups of states are not statistically significant at the 5 percent level; the differences are economically small in magnitude and precisely estimated.

The characteristic that varies the most between the two groups is the percentage of the workforce that is Black. States deregulating intrastate branching have, on average, 0.6 percent more Black workers than the non-deregulating states (with the average workforce share of Black workers in deregulating states at 6 percent), while states deregulating interstate branching have 0.006 percent fewer Black workers (with an average workforce share of 7.5 percent). However, both estimates are highly imprecise. Also, the workforce share of nonroutine manual workers is marginally different between deregulating and non-deregulating states, with a difference of 1.5 percent for intrastate deregulation (the average share in the deregulating states is 26.5 percent) and 2.1 percent for interstate deregulation (the average share is 26.4 percent). Overall, this analysis shows that observable characteristics are largely similar between the treatment and control groups, which mitigates concerns about unobservable institutional differences confounding our estimation results.

Next, we use two methods to assess whether the parallel trends assumption holds. First, we examine differences in pre-period trends between the treatment and control groups. Appendix Figure (C.4) illustrates the differences in average yearly trends of a wide range of characteristics between states that are about to undergo bank deregulation and states where deregulation legislation had not passed and would not pass in the following year. As before, Panel A shows the estimates for intrastate deregulation, and Panel B for interstate deregulation. All differences in average trends between the two groups are not statistically significant at the 5 percent level. The differences are economically small in magnitude and precisely estimated, including the differences in workforce shares of Black workers and the differences in workforce shares of nonroutine manual workers. This evidence supports the parallel trends assumption.

We further assess the parallel trends assumption by observing the behavior of the outcomes of interest around deregulation years in an event study. In Figures (5) and (6), we show that "first-stage" effects on borrowing and subsequent wage changes in low-pay-gap sectors occurred immediately after deregulation, with no pretrend. In the subsequent section, we conduct similar event studies for all the other outcomes and show that there are no pretrends. In addition, in Figure (7), we plot the difference between the raw fraction of workers in high- and low-pay-gap sectors by gender 10 years before and 10 years after intrastate deregulation. The fractional difference is computed by assigning -1 to workers in low-pay-gap sectors, 1 to workers in high-pay-gap sectors, and 0 otherwise. We then take the average of the indicators by gender in each period, using CPS data. The plot shows that labor participation changed sharply across sectors after the passage of deregulation, with no evidence of leading trends. We validate these patterns in event studies that evaluate relative female participation (Figure (8), and again show no signs of pre-trends.

5 First-stage Results: Uneven Competitive Pressure across Sectors

5.1 Cross-sectoral Differences in Borrowing

To establish that bank deregulation exerts uneven competitive pressure across sectors, we document a new stylized fact on the relationship between asset tangibility and the gender pay gap: High-pay-gap sectors tend to have less tangible assets, and low-pay-gap sectors tend to have more tangible assets. This is consistent with Proposition 2 of our framework in Section 2. The tangibility of assets affects firm borrowing and, thus, the intensity of treatment.[10]

In Panel A of Figure (4), we plot asset tangibility per employee for the low-pay-gap and high-pay-gap sectors. Low-pay-gap sectors tend to have a significantly higher share of tangible assets, while high-pay-gap sectors have a higher share of intangible assets. We also observe that high-pay-gap sectors are relatively less capital intensive, having fewer physical assets and fewer total

[10] Tangibility affects firm borrowing because high and low tangibility assets differ in debt capacity. Williamson (1988) and Shleifer and Vishny (1992) stress the importance of asset redeployability, or the asset's potential for alternative uses, for debt capacity. In case of default, tangible assets can be seized by creditors and redeployed, which increases their recovery value and, thus, their ability to sustain external financing (Almeida and Campello 2007). On the other hand, intangible assets, which can be, for example, in the form of R&D or brand name, have limited capacity for pledgeability as collateral, even though they can provide the firm with a competitive edge (Lev 2000).

assets on a per-worker basis (Panel B and C of Figure 4).

Given the differences in pledgeability between tangible and intangible assets, bank deregulation could lead to differential firm borrowing behavior between high-asset-tangibility and low-asset-tangibility industries. While bank deregulation increases access to credit in general, it should have a greater effect on borrowing in sectors with more tangible assets (that is, those with a lower pay gap), as the higher pledgeability of tangible assets enhances borrowing capacity. By contrast, borrowing in sectors with more intangible assets (that is, those with a higher pay gap) may not be affected as much, as intangible assets are harder to post as collateral.

We verify whether banking deregulation differentially affected firm borrowing in low-pay-gap sectors versus high-pay-gap sectors by examining the effects on firm overall debt growth and long-term debt growth. Table (3) shows the results of the effects of bank deregulation on firm borrowing changes for sectors that had higher or lower gender pay gaps before the deregulation, as specified in Equation (8).Results show that debt and long-term debt increased in low-pay-gap sectors in response to deregulation. Specifically, intrastate deregulation increased overall debt and long-term debt growth by about 5 log points in these sectors. On the other hand, the high-pay-gap sectors saw no significant growth in debt. Figure (5) shows that this differential effect on borrowing took place after deregulation.

5.2 Labor Composition across Low- and High-pay-gap Sectors

Next, we show that low-pay-gap sectors increased their labor share of workers after deregulation, which we interpret as a first piece of evidence of increased competitive pressure in those industries.

To examine whether the labor share of workers tilts toward low-pay-gap sectors after deregulation, we plot the difference in labor share between the high-pay-gap and low-pay-gap sectors before and after banking deregulation, as illustrated by the solid black line in Figure (7). High-pay-gap and low-pay-gap sectors are categorized based on whether their pay gap falls in the top or bottom quartile, respectively, of the pay gap distribution from 1976 through 1980. So, by construction, the share of labor in the high-pay-gap and low-pay-gap sectors each made up 25 percent of the total labor market at the period of construction. Thus, the difference in labor share between high-pay-gap and low-pay-gap sectors was roughly zero before deregulation, as shown by the solid black line. In the years after deregulation, the difference in labor share between the high-pay-gap and low-pay-gap sectors turned negative, indicating a change in labor share towards low-pay-gap sectors and away from high-pay-gap sectors, consistent with more pronounced expansions and competitive pressures in low-pay-gap sectors.

We confirm this is also true at the firm level by running within-firm estimations using Compustat data. Columns (1) through (3) of Table (4) show results from estimations of the differential effects of banking deregulation on firm employment between high-pay-gap and low-pay-gap sectors. Based on the estimates in column (3), employment in low-pay-gap sectors increased 7 log points (relative to the omitted medium-pay-gap sectors) in response to banking deregulation, controlling for firm and state-year fixed effects and firm controls. These estimates are robust to alternative specifications (columns 1 and 2) and interstate deregulation as an alternative treatment.

5.3 Firm-level Measures of "Surplus" and Revenue per Worker

Next, we show that revenue per worker declines in low-pay-gap sectors, which we interpret as a proxy for reductions in the excess rents available to share with workers and, thus, in potential premiums available to male workers (α in our framework). This is our second piece of evidence in support of deregulation creating more competitive pressure in low-pay-gap sectors.

We test whether banking deregulation differentially affects average revenue per employee in high-pay-gap versus low-pay-gap sectors. Results are shown in columns (4) through(6) in Table (4). The estimates in columns (4) and (5) indicate that revenue per employee decreased 12 log points in low-pay-gap sectors in response to deregulation, controlling for firm and state-year fixed effects. Importantly, that decline is explained by the inclusion of firm controls, notably for borrowing (that is, leverage). By contrast, relative revenue per employee increased in high-pay-gap sectors, which face less access to financing.

Revenue per employee proxies for surplus absorbed by all firm stakeholders, including creditors, employees, and the employer itself. We decompose the total surplus into components absorbed by employers, employees, or others, such as creditors. We first remove potential surplus absorbed by creditors by dropping non-operating expenses from revenue. This step corresponds to testing for the differential effects of banking deregulation on net income plus operating expenses per employee between high-pay-gap and low-pay-gap sectors. Net income captures the surplus absorbed by the employers and does not include wages, while operating expense is driven in large part by wages—the surplus absorbed by employees. We then focus on net income solely as the dependent variable, or surplus absorbed exclusively by employers.

Columns (7) through (9) of Table (4) show the results for net income plus operating expense per employee, and columns (10) through (12) show those for net income alone. Based on the results in columns (7) and (8), net income plus operating expenses decreased by about 13 log points in low-pay-gap sectors in response to banking deregulation, similar to estimates where revenue per employee was the dependent variable. At the same time, columns (10) and (11) show that net income per employee decreased by a lower amount (by about 9 log points). This means that operating expenses, including wages, absorb part of the effects. The differences in outcomes between the two sets of results proxy the change in surplus absorbed by the employees. Taken together, our results show that the net relative loss absorbed by workers in low-pay-gap sectors is about –4 log points, which, comparatively, is on par with the decline in wages we estimate using labor data (Table 5 and Figure 9 Panel B).

6 Main Results: Uneven Competitive Pressures and Gender Inequality

In this section, we test the first two empirical predictions of our model: (1) there is a reduction in the gender pay gap in low-pay-gap sectors, driven by a reduction in the wages of men, and (2) there is an effect on gender sorting patterns across sectors. We explore effects on gender norms in Section 7.

6.1 Effects on Wages

The first empirical prediction of our framework is that, when competitive pressure intensifies, the relative wages of women and men will converge, driven mainly by a reduction in the wages of men. Figure (6) presents event study results directly showing the dynamics of wages in low-pay-gap sectors after deregulation. Consistent with our prediction, women's wages in low-pay-gap sectors do not change after deregulation (Panel A), while men's wages decline (Panel B), which leads to a closure of the pay gap in low-pay-gap sectors (Panel C). These event studies follow heterogeneity-robust DiD methods (Callaway and Sant'Anna 2021) to account for negative weighting issues discussed in the empirical methodology section (Section 4).

We expand on these results in Table (5), in which we present the estimation results for the differential effects of banking deregulation on wages by gender in the low-pay-gap and high-pay-gap sectors based on Equation (8), accounting for a range of potential major confounders. Columns (1) through (5) show results using intrastate deregulation as the treatment, while columns (6) through (10) show results for when the treatment is given by interstate deregulation. All specifications control for Mincerian traits (education, experience, experience squared) $\times$ gender fixed effects to account for gender differences in education and experience. We also account for gender differences across years and across states. In columns (1) and (6), we present TWFE estimates—using year $\times$ gender and state $\times$ gender fixed effects—which are efficient under treatment effect homogeneity, but could exhibit negative weighting issues if this assumption is violated. Instead, Columns (2) through (5) and (7) through (10) use an intermediate approach applying state $\times$ year $\times$ gender fixed effects, which absorbs treatment at the gender level, approximating a standard DiD where variation takes place at the cross-sector level. Columns (2) and (7) show our baseline estimates with state $\times$ year $\times$ gender fixed effects. Columns (3) and (8) additionally control for age-gender fixed effects to account for gender differences in the workplace across the life cycle. Columns (4) and (9) control for gender differences in the skill content of jobs.[11] Columns (5) and (10) add demographic $\times$ gender controls.

[11] A job's skill content follows the routine/nonroutine, cognitive/manual classification used in Autor et al. (2003).

All our tests show a closure of the gender gap in low-pay-gap sectors that is driven by a reduction in men's wages. This reduction is 4 percent to 5 percent in all specifications except for those presented in columns (4) and (9), and it is consistent with the reductions in firm surplus we document in Section 5.3. This means that gender differences along the life cycle or demographic characteristics are not driving this effect. Columns (4) and (9), which control for gender differences in the skill contents of jobs, do show smaller effects, but these effects still account for 62 percent to 74 percent of the baseline effect and are both economically and statistically significant. While we cannot fully evaluate the reduction of men's wages using a state $\times$ year $\times$ gender specification, both heterogeneity-robust Figure (6), as well as the TWFE Columns (1) and (6), show that this reduction in the gender gap is driven by a decline in men's wages. These result are quite general: In Figure (9), we show that they are also robust to alternative industrial categorizations, each of which we discuss in more detail in Section 6.3.

In addition to results showing a closure of the gender gap in low-pay-gap sectors, all columns in Table (5) show an increase in the absolute wages in high-pay-gap sectors. In our model, increases in wages in high-pay-gap sectors occur when deregulation improves access to credit in those sectors but significantly less so than in low-pay-gap sectors. This result is driven by increases in labor demand outpacing gains in labor supply in high-pay-gap sectors. In Appendix A.4, we show simulations of the model that are consistent with these findings.

These differential effects in pay by gender accrue to pre-banking deregulation wage differentials between low- and high-pay-gap sectors by gender. Before banking deregulation, the average pay for men was 21 percent higher in high-pay-gap than in low-pay-gap sectors, controlling for education and experience. The corresponding difference for women was only 7 percent. A similar stylized fact is observed in Figure (3), Panel B. When we incorporate the effects of bank deregulation, the difference in wages between high-pay-gap and low-pay-gap sectors amplifies to 29 percent for men and 11 percent for women.

Reversability of treatment. How symmetric are these effects? In Figure (9) and Appendix Section D, we show that the results are robust to a "reverse treatment." Using data from the FDIC Call Reports on bank mergers, we show that bank mergers, which the literature has shown to reduce access to credit (Nguyen 2019), lead to a reemergence of the gender gap similar in size to the reduction documented in this section (Table D.2). The fact that these effects on the gender gap are symmetric highlights the potential fragility of pay convergence.

Hours Worked. In Table (6), we show results for the differential effects of banking deregulation on weekly hours worked by gender in the low-pay-gap and high-pay-gap sectors based on Equation (8). In terms of hours worked, low-pay-gap sectors are more time-intensive than high-pay-gap sectors. Before deregulation, women in low-pay-gap sectors would work about two fewer hours than men in low-pay-gap sectors but about the same number of hours as men in high-pay-gap sectors. Driven by a reduction in weekly hours for men, the gap in hours worked between men and women in low-pay-gap sectors decreases by about one hour per week. These results mirror the effects that deregulation has on wages.

6.2 Gender Sorting

The ensuing empirical prediction of our framework is that sectoral choices for men and women will diverge following these changes in wages. To explore whether there is differential sorting by gender, we first examine the raw data averages in labor share in both high-pay-gap and low-pay-gap sectors for women and men before and after banking deregulation, as illustrated by the dotted red and blue lines, respectively, in Figure (7). The data shows a sharp transition from high-pay-gap to low-pay-gap sectors for women in the years after deregulation. While some men also transitioned toward low-pay-gap sectors immediately after deregulation, the extent of the transition is more muted.

We first evaluate these patterns with event studies (Figure 8) tracking (1) gender differences in the likelihood of transitioning out of low-pay-gap sectors; and (2) the fraction of all women who work in low-pay-gap sectors, following Callaway and Sant'Anna (2021). Using CPS information on an individual's prior-year and current-year industries, we measure sector-to-sector transitions using a dummy variable that takes the value 1 for individuals who moved from a low-pay-gap to a high-pay-gap sector during the preceding year, and 0 otherwise. These event studies show that women become significantly less likely to transition into a high-pay-gap sector immediately following deregulation (Panel A) and that, unsurprisingly, women working in low-pay-gap sectors as a percentage of total female labor participation increases (Panel B).

As we did for our wage results, we test the robustness of our results for gender sorting in Table (7). As before, sector-to-sector transitions measure individuals moving from a low-pay-gap to a high-pay-gap sector and vice versa during the preceding year. A negative estimate means that workers are more likely to stay in the same sector following deregulation, and a positive estimate means that they are more likely to transition. Columns (1) through (5) show results using intrastate deregulation as the treatment, while columns (6) through (10) show results for when the treatment is given by interstate deregulation. Again, we present TWFE estimates in columns (1) and (6) and state $\times$ year $\times$ gender specifications in columns (2) through (5) and (7) through (10). Columns (3) and (8) control additionally for age-gender fixed effects to account for gender differences in the workplace across the life cycle. Columns (4) and (9) control for Mincerian traits $\times$ gender. Columns (5) and (10) account for gender differences in the skill content of jobs.

The results across all specifications show that women, relative to men, are more likely to *stay*,in low-pay-gap sectors following deregulation by about 7 to 10 percentage points. These differences in transitions within low-pay-gap sectors is partly explained by men becoming more likely to *leave* by slightly more than 3 percentage points, which explains a third to two-fifths of the gap. These estimates are of similar magnitude regardless of controls. Since we examine transitions, these effects do not capture whether men may become more active in targeting a start to their careers in high-pay-gap sectors to begin with. The total gender gap in these transitions between low- and high-pay-gap sectors after deregulation is 10 percentage points when state-year gender differences are taken into accounted.

6.3 Alternative Mechanisms and Categorizations

We conduct robustness analyses intended to evaluate: (1) potential alternative mechanisms driving our main results for the effects of banking deregulation on gender pay gaps across sectors, and (2) results based on an alternative categorization of sectors.

Alternative Mechanisms. We analyze whether bank deregulation differentially affected labor participation and sorting across sectors for women versus men through household lending. In particular, we examine whether bank deregulation differentially affected labor market participation of a particular gender group by improving its (1) housing outcomes (residential choices allow workers to move to a location of more opportunity), (2) transportation outcomes (an easier commute improves better job prospects), and (3) self-employment opportunities.

In Appendix Tables (F.5) and (F.6), we evaluate the differential effects of intrastate and interstate deregulation, respectively, on housing and transportation outcomes using the CPS and Census data. In columns (1), (2), and (3), we evaluate the effect of deregulation on homeownership, likelihood of moving into a different residence, and likelihood of holding a mortgage, respectively. Panels A, B, and C report the results for workers in all industries, low-pay-gap sectors, and high-pay-gap sectors, respectively. The coefficient of interest is $Deregulation \times Female$. For all three housing outcome measures across all three panels, estimates are economically small and statistically indistinguishable from zero, showing that female workers' residential choices are not differentially affected by bank deregulation. In columns (4) and (5), we conduct a similar analysis focusing on car ownership and transportation time to work (in minutes) as measures of work commute. Across all three panels, estimates of the coefficient of interest are economically small and statistically insignificant, indicating that transportation outcomes were not affected in a gendered way by deregulation. These two sets of results suggest it is unlikely that differential access to credit for men versus women drives our main results.

In Appendix Table (F.7), we show results for the effects of deregulation on self-employment incorporated rates (columns 1 through 3), self-employment unincoporated rates (columns 4 through

6), and incorporation rates conditional on self-employment (columns 7–9). Panel A reports the estimates from intrastate deregulation, and Panel B shows those from interstate deregulation. The coefficient of interest is again $Deregulation \times Female$. In Panel A, we find that the effects of intrastate bank deregulation on self-employment measures by gender are not statistically significant or economically meaningful for any of the measures of self-employment. However, in Panel B, we see that the effects of interstate bank deregulation are statistically significant and larger for workers in low-pay-gap sectors (an increase of about 1 percent increase). Nevertheless, we do not think that the effects of interstate deregulation on self-employed incorporated rates by gender contribute to our main results in Table (5) for two reasons. First, the estimates in Table (5) are nearly identical for intrastate and interstate deregulation. If differential self-employment incorporated were a first-order driver of the main results, the effects on self-employment incorporated of intrastate and interstate deregulation should be similar, but they are not. Moreover, the effects of deregulation on self-employment incorporated are close to zero for intrastate deregulation. Second, the difference in the estimates of interstate bank deregulation on self-employment incorporated by gender between the low-pay-gap and high-pay-gap sectors is small in magnitude. If differential self-employment incorporated were a main driver of the main results, then self-employment incorporated must affect the main results differently in low-pay-gap than in high-pay-gap sectors.

While our results control for gender differences in education and experience, gender differences in unobservable skills might propel changes in sorting after bank deregulation. Prima facie, indirect evidence challenges part of this conjecture: The initial changes in sorting patterns and relative wages in low-pay-gap sectors were sharp (Figures 6, 7, and 8), so gender differences in retooling following deregulation are an unlikely driver of this sorting, since investments in skills tend to occur with a time lag. We control for this factor directly by adding skill content $\times$ gender controls to our main specifications, whereby the skill content of a job follows the routine/nonroutine, cognitive/manual classification used in Autor, Levy, and Murnane (2003). The results for both gender sorting and wages remain largely unchanged when we add controls for gender differences in the skill content of a worker's occupation (see columns 4 and 9 of Tables 5 and 6, and columns 5 and 10 of Table 7).

Alternative categorizations. In Section 5, we show a close relationship between the gender pay gap and a sector's level of asset tangibility. Since we aim to study the transformation of gender inequities, we focus conceptually focus on divergent sectoral responses to deregulation along their preexisting gender pay gap levels. Nevertheless, it is reasonable to wonder if results would, to some extent, be robust to categorizing industries by their preexisting levels of asset tangibility. To that end, we categorize industries into low- and high-asset tangibility sectors based on the difference in the mean asset tangibility share in each industry during the pre-period of 1976 through 1980. High-asset-tangibility sectors contain industries that belong to the top 25 percent of the asset tangibility distribution, and low-asset-tangibility sectors contain those industries in the bottom 25 percent of the distribution. In Appendix Table (G.8), we show that our main results hold if we categorize industries by asset tangibility.

In addition, we show robustness to categorizing industries by using 1968 through 1972 as the categorization period instead of 1976 through 1980. One reason the main analysis in the text starts in 1976 is that states in the CPS data cannot be identified separately until the 1977 survey. Less precise state identifiers exist, however, for earlier years. Using these imprecise identifiers, we repeat Table (5) with data starting in 1968, which is the earliest year workers can be classified into full-time full-year status. The results are presented in Table (G.9) and show no meaningful deviations from our main results.

7 Downstream Effects: Shaping Gender Norms

Previous research documents that gender norms may reduce women's wages and their labor market participation (Bertrand, Kamenica, and Pan 2015; Charles, Guryan, and Pan 2018) and affect women's career choices (Crawford and MacLeod 1990; Ceci, Williams, and Barnett 2009; Bottia, Stearns, Mickelson, Moller, and Valentino 2015; Mertz, Ronchi, and Salvestrini 2024). Integration of men and women in traditionally male environments can make men's attitudes about women more egalitarian (Dahl et al. 2021), but only while integration lasts. By contrast, differences in sorting and opportunity cost, real and perceived, could have the opposite effect, creating ripe conditions for the establishment and reinforcement of gender norms. Workers, spouses, and observers may interpret the gender differences in pay and sorting – that we document in this paper – through gendered lens and assume biased views (or confirm prior biases) about women and their role in the workplace. For example, they may regard women as less suitable for some jobs, or as having a comparative advantage for staying at home, or they may think that a woman's career should be subordinated to her husband's. We test for such changes in views using data from the GSS.

7.1 Empirical Specification and Variable Measures

Uneven competitive pressure should accentuate gender norms more in locations with a strong presence of both low-pay-gap and high-pay-gap sectors, compared with locations where only one type of sector exists. That is, the gendered dynamics we document should be more pronounced in locations with a bimodal sectoral structure, since such a structure offers more opportunities to switch between low-pay-gap and high-pay-gap sectors.

To test for this conjecture, we estimate the following specification using the GSS:

$$Sexism_{irt} = \alpha + \beta_1 Spread_r \times DP_{rt} + \beta_2 DP_{rt} + \delta_r + \gamma_t + \varepsilon_{irt}, \tag{9}$$

where $Sexism$ is a measure of workplace sexism, $Spread$ is a measure of the spread (or the degree of polarization) of available sectoral choices for workers, DP measures the degree of bank deregulation in the region adapted for the geographic design of the GSS, and δ_r and γ_t denote year and region fixed effects, respectively. The coefficient of interest is β_1. We explain each of these measures below.

Measure of Workplace Sexism. Our measure of workplace sexism follows that of Charles, Guryan, and Pan (2018). The GSS asks its respondents about their attitudes toward women's roles in the workplace, family, and society. We focus on responses to the three questions pertaining to beliefs about the role of women in the workplace: "Should women work?" "Wife should help husbands career first." "Better for men to work, women tend home." Respondents either approve/agree or disapprove/disagree with a given statement. For each question, we assign a value of 1 when the response reflects biased views against women and 0 otherwise. To generate a standardized measure of sexism in the workplace, we then subtract, from individual responses to each question, the average response of the entire population in 1977, a pre-treatment period, and divide this difference by the standard deviation of the initial response of the entire population in 1977, following Charles, Guryan, and Pan (2018). The standardized measure reflects each individual's belief in the spectrum of workplace sexism relative to the pre-treatment average.

Measure of Sectoral Spread. As we argue in our theoretical framework, uneven changes in competitive pressure can reinforce gender norms through the gendered labor market dynamics we document, that is, the gendered sorting across high- and low-pay-gap sectors they induce. Through this mechanism, the public's views on gender roles should be affected more acutely in areas where the gendered sectoral composition is more pronounced and sorting is most likely to occur. When sectoral composition in an area is characterized by a 50-50 split between jobs in low-pay-gap and high-pay-gap sectors, the opportunity to move from one sector to another is at its zenith. By comparison, in areas with only one of these two sectors, the differential opportunity cost is zero, as there is no de facto choice to be made. In short, greater sectoral spread accentuates the dynamics of sorting, and smaller sectoral spread mitigates them. We proceed to formalize this notion in a measure that quantifies the degree of sectoral spread within a geographic area.

To construct our sectoral spread, we measure sectoral distance of each industry to the median-pay-gap sector as follows. If an industry belongs to the high-pay-gap sectors, it is assigned a value of 1. If an industry belongs to the low-pay-gap sectors, it is assigned a value of –1. Industries in the median-pay-gap sectors, are assigned a value of 0. Because the discrete value assigned to each industry represents its sectoral distance to the median-pay-gap sector, we can express the spread between industries as a composite of distances between any two industries. For any two industries, the longest possible sectoral distance is 2 (that is, if one industry belongs the low-pay-gap sector and the other to the high-pay-gap sector). The spread is the expected value over all pairwise combinations of workers.

Formally, for every worker in a region, the overall sectoral spread is the average pairwise sectoral distance between the industries of every two workers (i and i') in a given region r:

$$Spread_r = \frac{1}{N^2} * \sum_{\forall i,i' \in r}^{N} |x_i - x_{i'}|, \tag{10}$$

where $x_i \in \{-1, 0, 1\}$ is the value of the industry in which worker i belongs, and N is the number of workers in region r.

As the spread increases, the margin for gendered dynamics to occur increases, which would lead to an environment more susceptible to the creation and reinforcement of gender norms.

Measure of Deregulation Penetration. The GSS public data report the geographic affiliation of the interviewees at only the region level, with the United States divided into nine different regions. Since bank deregulation changes occur at the state level, we construct a penetration measure for each region-year to capture the proportion of the population affected by the new regulatory framework. That is, our measure of penetration refers to the proportion of individuals in region r affected by bank deregulation in each year t. Deregulation Penetration (DP) is defined as follows:

$$DP_{rt} = \sum_{s \in r} D_{st} * \frac{pop_{st}}{pop_{rt}}, \tag{11}$$

where pop_{st} denotes the population count living in state s in year t, pop_{rt} denotes the total population living in region r in year t, and, as before, D_{st} is a dummy variable indicating whether deregulation has taken place in year t.

7.2 Effects of Deregulation on Gender Norms

We report the results based on Equation (9) in Table (8). Following bank deregulation, (1) gender bias increases in areas with a higher degree of sectoral spread between high- and low-pay-gap sectors, and (2) this increase is driven mostly by men and households with children. In column (1), we find that workplace sexism in areas with a sectoral spread of 1, or a fully polarized geographical area, increased by 2.71 standard deviations relative to an area with a sectoral spread of 0, or no polarization, based on our index of workplace sexism. For households with children, workplace sexism increased by 3.27 standard deviations for areas with sectoral spread of 1 (column 2). Both estimates are large and statistically significant. For reference, the average sectoral spread in our sample is 0.75. One explanation for the stronger effects among people with children involves differential opportunity costs. As we documented previously, the differences in earnings between high-pay-gap and low-pay-gap sectors are larger for men than for women, and they increase following deregulation. This means that the opportunity cost of staying at home also increases for men in places with the highest sectoral spread, making households with children more likely to support gendered views about the workplace.

We also run our analysis separately for men and women in columns (3) through (6) and (7) through (10), respectively. In particular, we focus on the responses to individual questions on workplace sexism in the survey in columns (4) through (6) and (8) through (10). We find that responses by men drive the overall effect. Following bank deregulation, men are more likely to hold the view that women should not work, should prioritize their husband's careers, or should stay at home. The coefficients of interest across the three questions about workplace sexism are all large, statistically significant, and similar in magnitude. For women, the results across the three questions are more varied, revealing more complex views about the role of women in the workplace. Based on the results on the overall index of workplace sexism, we find that women's views on gender norms did not exhibit a statistically significant change following deregulation (albeit the coefficient is still positive).

8 Conclusion

This paper explores the self-reinforcing mechanism through which reductions in the gender gap in lower-paying sectors amplify other gender inequities. We show, both theoretically and empirically, that labor markets restructure through workers' responses to the relative degree of discrimination across sectors in ways that lead to increasing gaps in sectoral representation, typically in the form of lower female representation in higher-paying sectors. Moreover, we show that labor market responses to the narrowing of the pay gap can reinforce gender stereotypes against women. Because the same forces that reduce discrimination at the bottom of the pay distribution contribute to its persistence at the top of the earnings distribution, this process forces the closing of the gender gap to occur through women "swimming upstream" while gender norms reinforce the glass ceiling. These findings are consistent with historical findings documenting convergence in pay at the bottom and center of the wage distribution rather than at the top (Blau and Kahn 1997, 2017).

Our results indicate that the scope of a policy intervention that targets gender inequality in the labor market might be as important as the policy intervention itself. Compared with narrow interventions, broadly mandated and effectively implemented policies would leave less margin for self-reinforcing mechanisms to emerge. The same is true of reductions in discrimination that derive from increases in competition—broad, multi-sectoral competition is critical for achieving unmitigated gains in closing the gender gap. When broad interventions are unavailable or difficult to implement, an alternative approach is to ensure they target higher-paying sectors. While men could still sort into other less-targeted, high paying sectors that confer a gendered wage premium—thereby limiting the intervention's effectiveness—targeting high-paying sectors would avoid triggering the self-reinforcing mechanisms we document in this paper.

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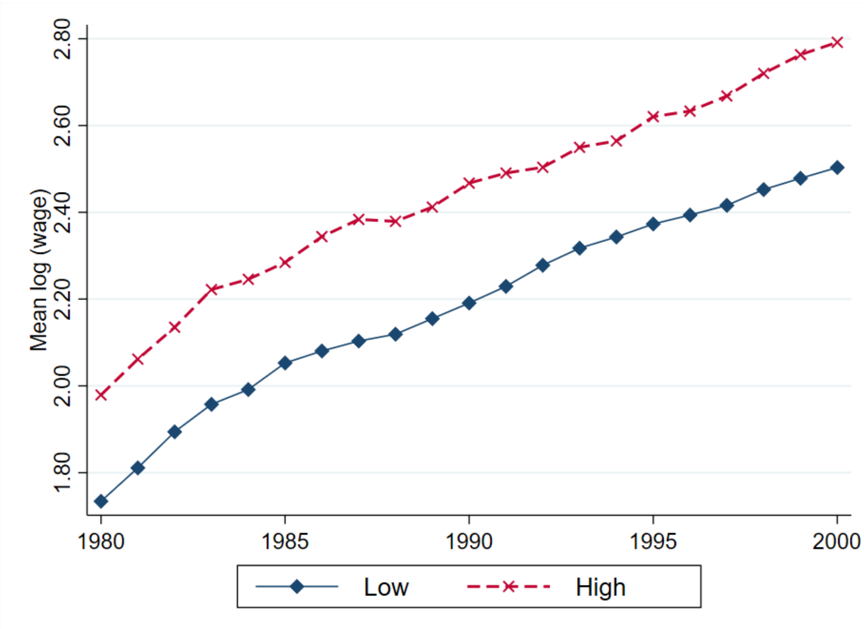
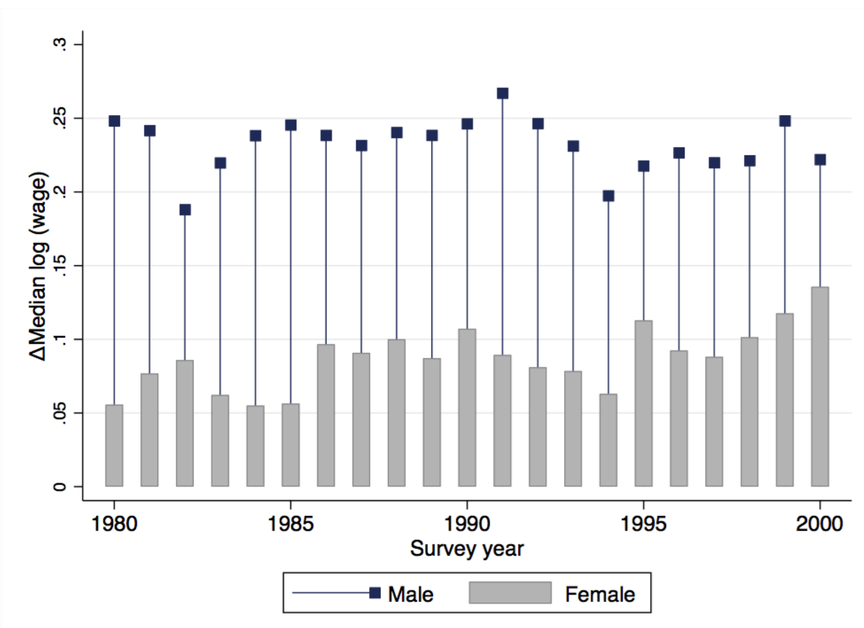
Figure 3. Industry Wage by Pay Gap

Panel A: Average Industry Wage for Low- and High-Pay-Gap Sectors



Panel B: Differences in Median Wage between High- and Low-Pay-Gap Sectors by Gender

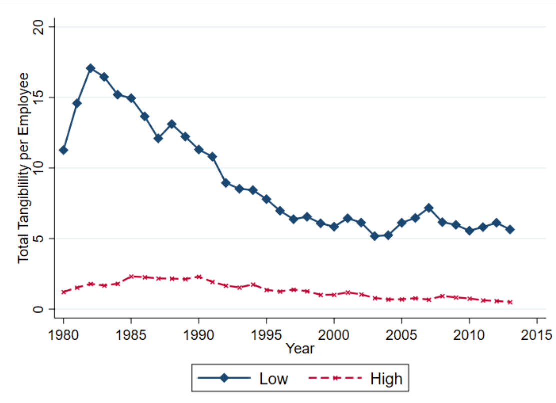


Notes:

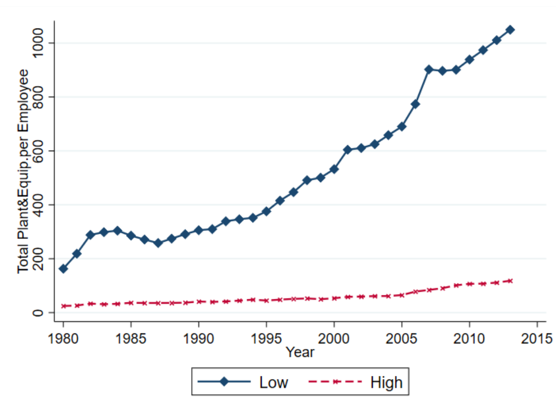
Panel A plots the average industry wage for the high- and low-pay-gap sectors. Panel B plots the difference in median log wage between the high-pay-gap and low-pay-gap sectors by gender. This difference is computed by subtracting the median log wage of each gender in low-pay-gap sectors from that of the same gender in high-pay-gap sectors. Industries are categorized into low-pay-gap and high-pay-gap sectors based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. Data source: CPS.

Figure 4. Asset Characteristics for the Low- and High-Pay-Gap Sectors

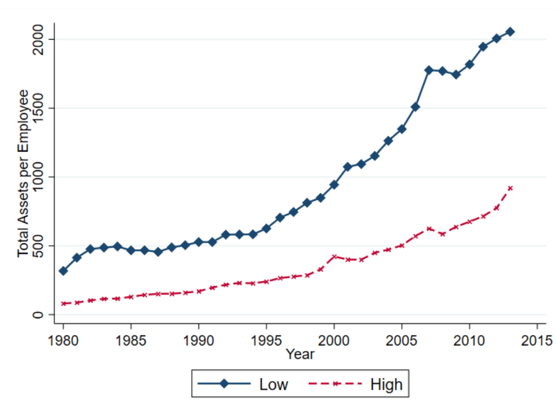
Panel A: Asset Tangibility per Employee



Panel B: Total Plant and Equipment per Employee



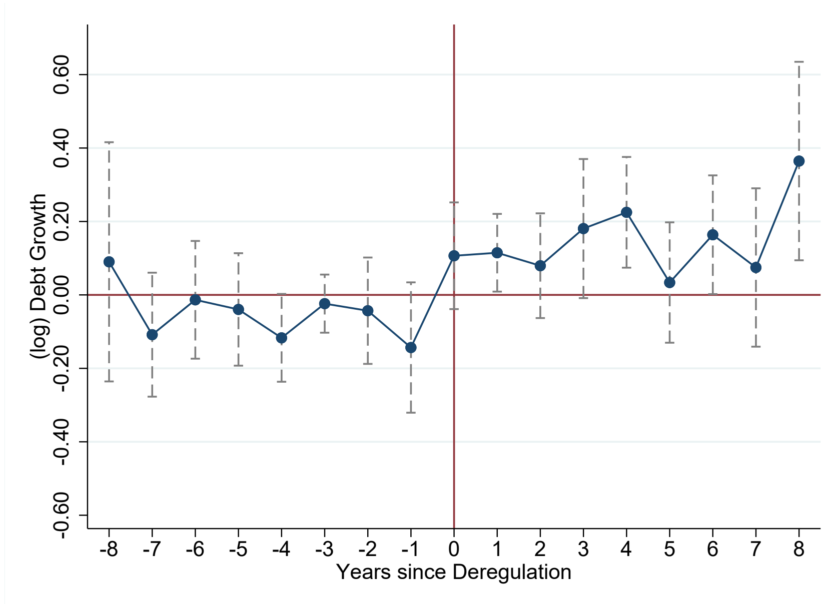
Panel C: Total Assets per Employee



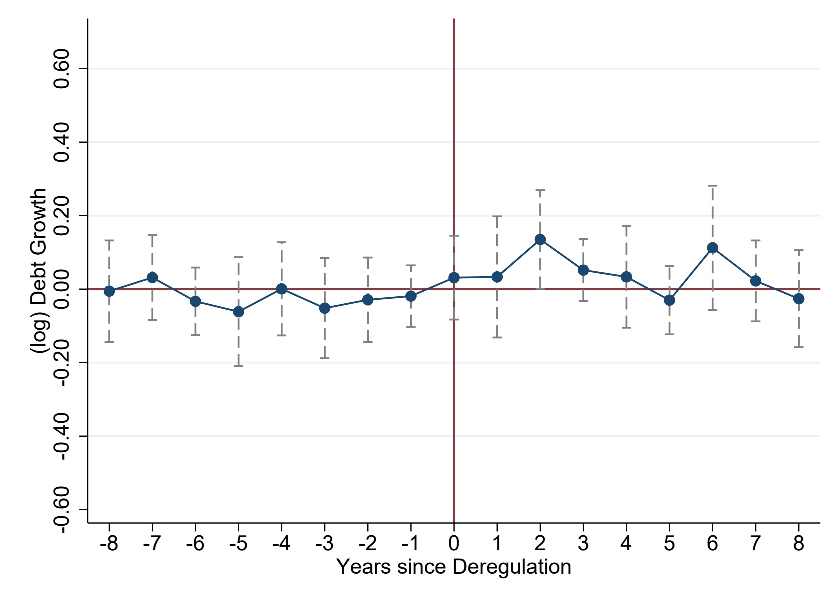
Notes: This figure plots three measures of assets for the low-pay-gap and high-pay-gap sectors between 1980 and 2014 using Compustat. Panel A shows total asset tangibility per employee; Panel B shows total plant and equipment per employee; and Panel C shows total assets per employee. Industries are categorized into low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution.

Figure 5. Debt Growth in Low- and High-Pay-Gap Sectors

Panel A: Debt Growth: Low-Pay-Gap Sectors



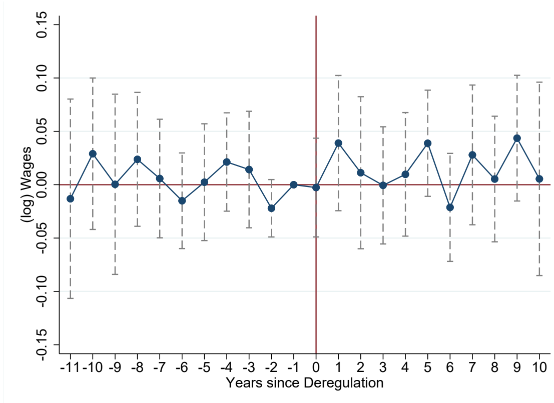
Panel B: Debt Growth: High-Pay-Gap Sectors



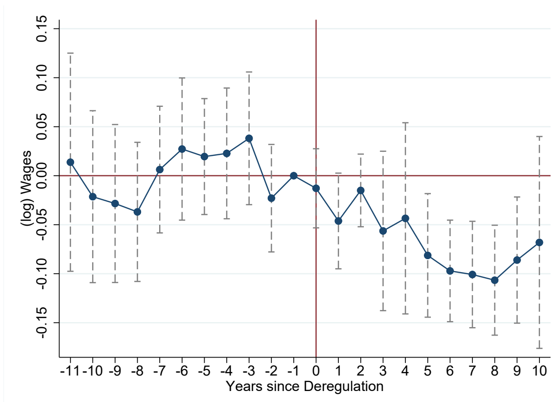
Notes: This figure plots coefficients from an event study version of Equation (8) following Callaway and Sant'Anna (2021). Both panels show changes in firm debt growth following deregulation. Panel A shows changes within low-pay-gap sector. Panel B shows changes within high-pay-gap sectors. Industries are categorized into low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution.

Figure 6. Gender Pay Gap in Low-Pay-Gap Sectors

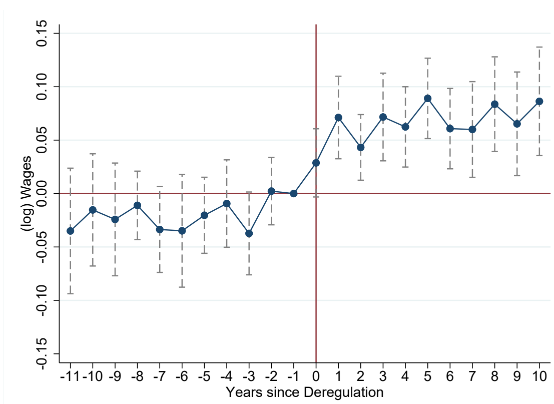
Panel A: Absolute Wages: Women



Panel B: Absolute Wages: Men

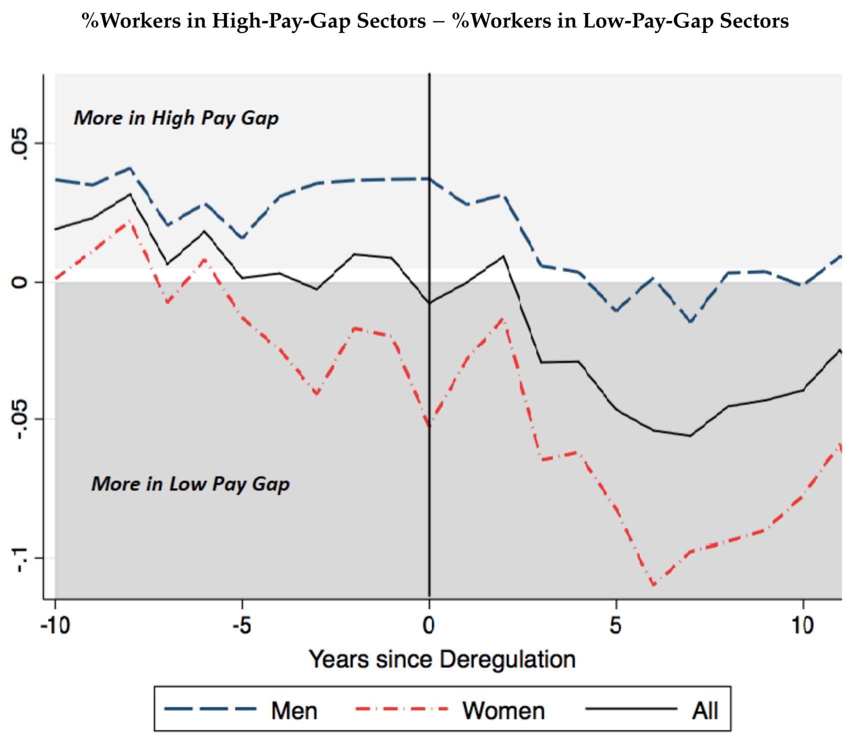


Panel C: Relative Wages for Women



Notes: This figure plots coefficients from an event study version of Equation (8) following Callaway and Sant'Anna (2021). Panels A and B show changes in the absolute wages of women and men, respectively, within low-pay-gap sectors. Panel C estimates the change in the gap under the null of no changes in women wages. All panels follow Callaway and Sant'Anna (2021). Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution.

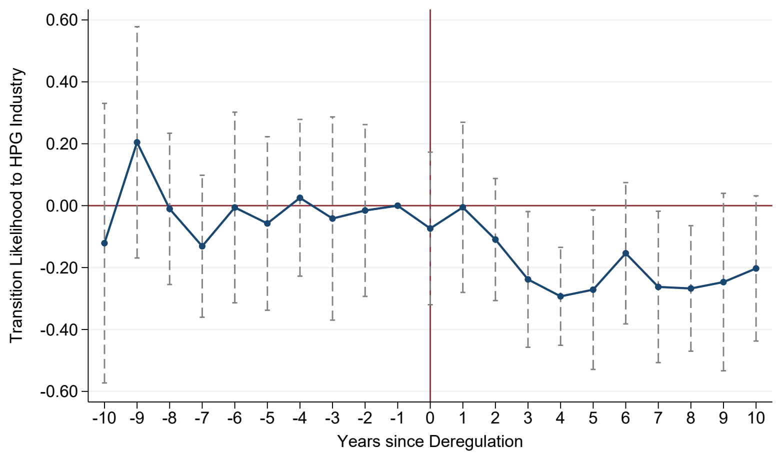
Figure 7. Changes in Labor Force Participation in Low and High-Pay-Gap Sectors



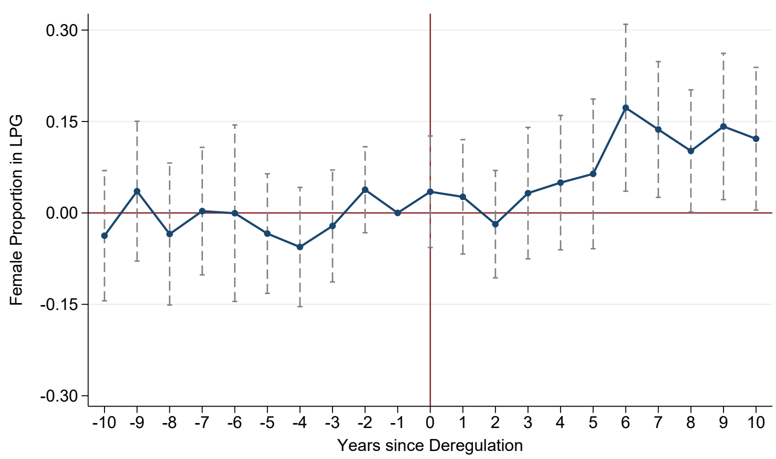
Notes: This figure plots the likelihood of working in the high- and low-pay-gap sectors 10 years before and 10 years after intrastate banking deregulation (deregulation corresponds to $t = 0$), for all workers (black line) and by gender (women in red and men in blue), using raw CPS data. Workers in low-pay-gap sectors are assigned a value of −1; workers in high-pay-gap sectors are assigned a value of 1; and workers in all other industries are assigned a value of 0. The likelihood of working in a particular industry is calculated as the average of the indicators in each period. Values greater than 0 mean higher likelihood of working in high-pay-gap sectors, and values less than 0 mean higher likelihood of working in low-pay-gap sectors. Industries are categorized into low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution.

Figure 8. Changes in Female Participation in Low-Pay-Gap Sectors

Panel A: Female minus Male Worker Transitions out of Low-Pay-Gap into High-Pay-Gap Sectors



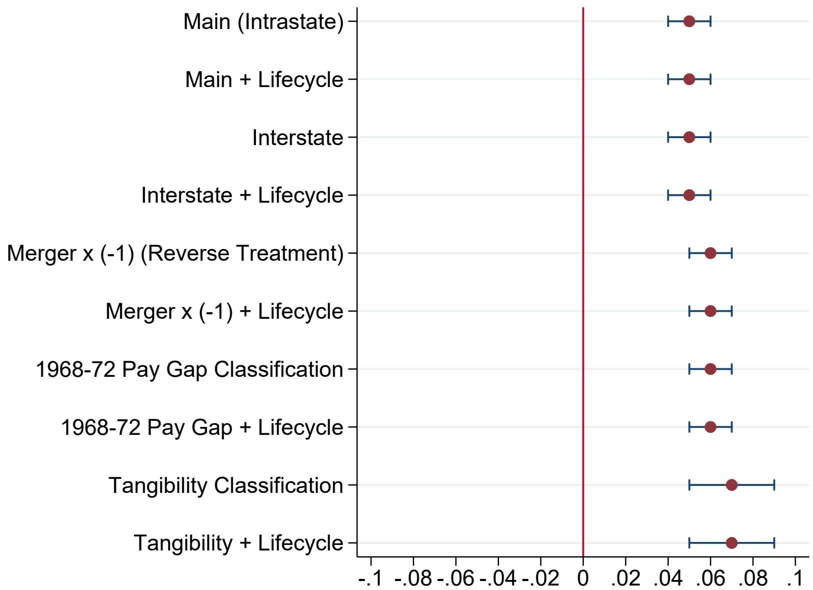
Panel B: Women in Low-Pay-Gap Sectors as % of Total Female Labor Participation



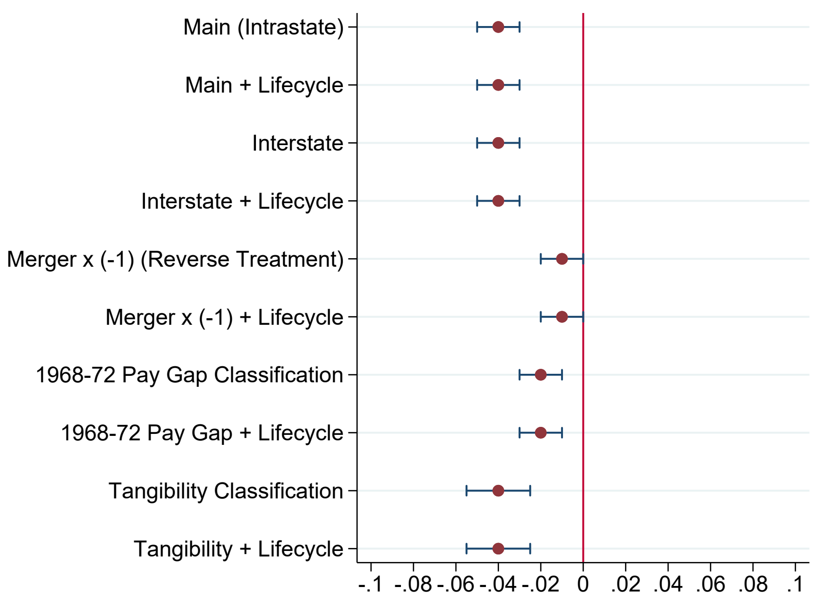
Notes: This figure plots coefficients from an event study version of Equation (8) following Callaway and Sant'Anna (2021). Panel A estimates the female − male gap in transitions out of low-pay-gap sectors into high-pay-gap-industries, with negative coefficients indicating women are less likely to transition than men. Panel B shows changes in the percentage of women who work in low-pay-gap sectors *vis-à-vis* all other industries. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution.

Figure 9. Wage Changes in Low-Pay-Gap Sectors: Robustness to Multiple Specifications

Panel A: Effect of Treatment on Relative Wage for Women in Low-Pay-Gap Sectors



Panel B: Effect of Treatment on Absolute Wages in Low-Pay-Gap Sectors



Notes: This figure summarizes coefficients from various versions of Equation (8) using different treatments and classifications. All specifications use (log) wage as the dependent variable and includes state fixed effects, year fixed effects, and Mincerian controls. Coefficients shown in Panel A are the interaction of female × treatment in low-pay-gap sectors. Coefficients shown in Panel B are the sum of the coefficient of treatment and treatment × low-pay-gap. Full estimation results for coefficients Main, Main + Lifecycle, Interstate, and Interstate + Lifecycle can be found in columns (1), (2), (6), and (7) of Table 5, respectively. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. For coefficients Merger and Merger + Lifecycle, which present estimates using bank mergers as a reverse treatment, we multiply coefficient estimates by −1 for presentation purposes; full estimation is shown in Table D.2. For coefficients 1968–72 Pay Gap and 1968–72 Pay Gap + Lifecycle, which present estimates using classifying industries at an earlier period, full estimation is shown in Table G.9. For coefficients Tangibility and Tangibility + Lifecycle, which present estimates using classifying industries by the tangibility of their assets rather than by their pay gap, full estimation is shown in Table G.8.

Table 1: Summary Statistics

Panel A: Summary Statistics for Individuals (CPS)

	All Industries		Low Pay Gap Sector		High Pay Gap Sector	
	Men	Women	Men	Women	Men	Women
Wage (hourly)	$13.65	$10.65	$11.61	$10.62	$16.54	$11.11
	($1.97)	($1.97)	($1.98)	($1.96)	($2.54)	($2.04)
Education (years)	13.1	13.3	12.6	13.4	14.0	13.4
	(2.9)	(2.6)	(3.2)	(2.5)	(2.7)	(2.6)
– HS Grad &Equiv(%)	21.7	22.4	22.6	22.6	15.1	20.0
	(41.3)	(41.7)	(41.8)	(41.8)	(35.8)	(40.0)
– College(%)	16.6	18.2	13.7	18.0	24.8	19.4
	(37.2)	(38.6)	(34.4)	(38.5)	(43.2)	(39.5)
– Post-College(%)	4.5	5.0	4.2	4.6	7.0	4.4
	(20.7)	(21.8)	(20.1)	(21.0)	(25.5)	(20.5)
Age	40.7	40.2	40.1	40.2	40.9	39.7
	(10.3)	(10.2)	(10.4)	(10.3)	(10.2)	(10.1)
Experience	27.6	26.9	27.4	26.8	26.9	26.3
	(10.8)	(10.8)	(11.0)	(10.8)	(10.6)	(10.8)
Participation(%)	65.1	34.9	58.1	41.9	61.7	38.3

Panel B: Summary Statistics for Public Firms

	All Industries	Low Pay Gap Sector	High Pay Gap Sector
Revenue per Employee($)	242.4	418.3	224.8
	(1,055.8)	(1,666.7)	(852.4)
Net Income per Employee($)	-31.7	-14.0	-45.7
	(873.8)	(652.7)	(925.5)
Net Income + Operating Expense per Employee($)	195.7	278.3	194.3
	(910.0)	(1,344.4)	(737.2)
Employees	6.0	5.5	4.5
	(20.2)	(15.0)	(17.9)
Total Assets($)	1,325.8	1,367.3	1,326.4
	(10,427.3)	(6,376.7)	(12,935.6)
Tobin's Q	1.02	0.92	1.09
	(0.45)	(0.37)	(0.49)
Book Leverage	0.51	0.55	0.47
	(0.68)	(1.43)	(0.30)
Tangibility	0.29	0.55	0.20
	(0.24)	(0.26)	(0.17)
Firms	10,089	1,612	5,981

Notes: This table reports summary statistics for the main analysis sample using the Current Population Survey (CPS) (Panel A) and Compustat (Panel B) from 1976–2014. The CPS main sample is restricted to working-age full-time full-year workers in the private sector, excluding finance, insurance, and real estate (FIRE) industries. Hourly wages are derived from annual wage income, usual weekly hours worked, and number of weeks worked. Tobin's Q, book leverage, and tangibility are defined as follows: Tobin's Q is the ratio of total assets + shares outstanding × share price − common equity to total assets; book leverage is the ratio of short-term debt + long-term debt to short-term debt + long-term debt + stockholders equity; tangibility is the ratio of Property, Plant, and Equipment to total assets. For additional details, see Section 3.

Table 2: Reliance on External Financing by Industries

	All Industries		Low Pay Gap Sector		High Pay Gap Sector	
	Mean	sd	Mean	sd	Mean	sd
	Panel A: All					
Debt-to-Asset – Secured	0.085	0.144	0.125	0.174	0.061	0.119
Debt-to-Asset – Notes	0.066	0.120	0.106	0.152	0.045	0.096
Debt-to-Asset – Long-term	0.163	0.192	0.236	0.211	0.123	0.171
Leverage	0.496	0.270	0.533	0.266	0.459	0.270
	Panel B: Pre-Deregulation					
Debt-to-Asset – Secured	0.106	0.152	0.128	0.174	0.085	0.127
Debt-to-Asset – Notes	0.085	0.127	0.105	0.148	0.065	0.105
Debt-to-Asset – Long-term	0.179	0.179	0.206	0.201	0.147	0.155
Leverage	0.507	0.252	0.510	0.282	0.482	0.238
	Panel C: Post-Deregulation					
Debt-to-Asset – Secured	0.082	0.143	0.124	0.174	0.059	0.118
Debt-to-Asset – Notes	0.064	0.119	0.106	0.153	0.043	0.095
Debt-to-Asset – Long-term	0.161	0.193	0.242	0.213	0.122	0.172
Leverage	0.495	0.272	0.538	0.263	0.457	0.273

Notes: This table reports summary statistics of debt-to-asset ratios and leverage by industry using Compustat data. Panel A reports the average and standard deviation for the entire sample period from 1976 to 2014; Panel B reports those for the period before deregulation; Panel C reports those for the period after deregulation. For details, see Section 3.

Table 3: Effects of Deregulation on Firm Borrowing

	Debt Growth			Long Term Debt Growth		
	TWFE	$State \times Year$		TWFE	$State \times Year$	
	(1)	(2)	(3)	(4)	(5)	(6)
Intrastate – High PG Sector	-0.024	-0.022	-0.020	-0.027	-0.025	-0.025
	(0.019)	(0.019)	(0.018)	(0.019)	(0.019)	(0.018)
Intrastate – Low PG Sector	0.064**	0.053*	0.047*	0.067***	0.053**	0.050**
	(0.027)	(0.028)	(0.025)	(0.024)	(0.024)	(0.022)
Intrastate	0.041**			0.035		
	(0.020)			(0.021)		
N	65,379	65,330	64,283	65,432	65,383	64,317
Interstate – High PG Sector	-0.031**	-0.018	-0.017	-0.040**	-0.025	-0.023
	(0.014)	(0.016)	(0.017)	(0.017)	(0.018)	(0.018)
Interstate – Low PG Sector	0.012	0.015	0.006	0.010	0.004	-0.001
	(0.021)	(0.018)	(0.017)	(0.027)	(0.022)	(0.021)
Interstate	0.053***			0.063**		
	(0.019)			(0.028)		
N	65,379	65,330	64,283	65,432	65,383	64,317
Year FX	Yes	N/A	N/A	Yes	N/A	N/A
State FX	Yes	N/A	N/A	Yes	N/A	N/A
State × Year FX	No	Yes	Yes	No	Yes	Yes
Firm FX	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	No	No	Yes	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the estimates of the effects of bank deregulation on firm debt. The dependent variable is debt growth in columns (1)–(3) and long-term debt growth in columns (4)–(6). Intrastate is a dummy variable that takes the value 1 for the years after intrastate deregulation and 0 otherwise. Interstate is a dummy variable that takes the value 1 for the years after interstate deregulation and 0 otherwise. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors refer to industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. High PG is a dummy variable that takes the value 1 for high-pay-gap sectors and 0 otherwise. Low PG is a dummy variable that takes the value 1 for low-pay-gap sectors and 0 otherwise. All specifications control for firm fixed effects. Columns (1) and (4) control for state and year fixed effects. Columns (2)–(3) and (5)–(6) control for state×year fixed effects. Columns (3) and (6) include firm controls. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 4: Effects of Deregulation on Revenue Per Employee

	Employment			Revenue Per Employee			Net Income+Operating Expense Per Employee			Net Income Per Employee		
	TWFE	$State \times Year$		TWFE	$State \times Year$		TWFE	$State \times Year$		TWFE	$State \times Year$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Intrastate – High PG Sector	-0.045	-0.045	-0.036	0.089***	0.086**	0.122***	0.092***	0.093***	0.124***	0.066	0.050	0.092**
	(0.030)	(0.031)	(0.029)	(0.032)	(0.035)	(0.031)	(0.031)	(0.034)	(0.028)	(0.040)	(0.046)	(0.043)
Intrastate – Low PG Sector	0.108***	0.082**	0.073**	-0.122***	-0.116***	-0.009	-0.132***	-0.125***	-0.019	-0.108	-0.083	0.054
	(0.037)	(0.036)	(0.035)	(0.031)	(0.029)	(0.028)	(0.030)	(0.029)	(0.027)	(0.067)	(0.064)	(0.050)
Intrastate	0.042			-0.047*			-0.032			-0.014		
	(0.027)			(0.024)			(0.022)			(0.037)		
N	70,899	70,842	69,570	70,748	70,690	69,428	69,576	69,517	68,309	52,453	52,369	51,321
Interstate – High PG Sector	-0.064***	-0.052**	-0.038	0.129***	0.116***	0.111***	0.119***	0.111***	0.104***	0.053**	0.040	0.079**
	(0.024)	(0.025)	(0.024)	(0.025)	(0.028)	(0.028)	(0.024)	(0.027)	(0.026)	(0.025)	(0.030)	(0.030)
Interstate – Low PG Sector	0.133***	0.105***	0.099***	-0.127***	-0.109***	-0.114**	-0.158***	-0.140**	-0.134**	-0.150**	-0.109	-0.045
	(0.031)	(0.031)	(0.034)	(0.039)	(0.040)	(0.045)	(0.048)	(0.053)	(0.052)	(0.062)	(0.068)	(0.062)
Interstate	0.010			-0.042*			-0.013			0.026		
	(0.024)			(0.022)			(0.026)			(0.032)		
N	70,899	70,842	69,570	70,748	70,690	69,428	69,576	69,517	68,309	52,453	52,369	51,321
Year FX	Yes	N/A	N/A	Yes	N/A	N/A	Yes	N/A	N/A	Yes	N/A	N/A
State FX	Yes	N/A	N/A	Yes	N/A	N/A	Yes	N/A	N/A	Yes	N/A	N/A
State × Year FX	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Firm FX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Controls	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the estimates of the effects of bank deregulation on employment, revenues per employee, and net income per employee by industry at the state level. The dependent variable is log(number of employees) in columns (1)–(3), log(revenue / number of employees) in columns (4)–(6), log([net income + operating expense] / number of employees) in columns (7)–(9), and log(net income / number of employees) in columns (10)–(12). Interstate is a dummy variable that takes the value 1 for the years after interstate deregulation and 0 otherwise. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors refer to industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. High PG is a dummy variable that takes the value 1 for high-pay-gap sectors and 0 otherwise. Low PG is a dummy variable that takes the value 1 for low-pay-gap sectors and 0 otherwise. All specifications control for firms, state, and year fixed effects. Columns (2), (5), (8), and (11) additionally control for state×year fixed effects. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 5: Effects of Bank Deregulation on Gender Pay Gap

	Intrastate Deregulation					Interstate Deregulation				
	TWFE	*State × Year × Gender*				TWFE	*State × Year × Gender*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Deregulation × Female – Low PG Sector	0.050***	0.049***	0.049***	0.031***	0.043***	0.046***	0.046***	0.046***	0.034***	0.040***
	(0.011)	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)
Deregulation × Female – High PG Sector	0.007	0.007	0.007	0.006	0.009	0.011	0.011	0.010	0.010	0.013
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)
Deregulation × Female	-0.017					-0.021**				
	(0.011)					(0.009)				
Deregulation – Low PG Sector	-0.000	0.000	0.000	0.002	0.007	0.013*	0.014**	0.013*	0.010	0.018***
	(0.012)	(0.011)	(0.011)	(0.010)	(0.011)	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)
Deregulation – High PG Sector	0.083***	0.082***	0.081***	0.063***	0.078***	0.103***	0.102***	0.101***	0.083***	0.097***
	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.009)	(0.009)	(0.009)	(0.008)	(0.009)
Deregulation	-0.038***					-0.050***				
	(0.011)					(0.010)				
Female – Low PG Sector	0.124***	0.125***	0.125***	0.092***	0.119***	0.129***	0.129***	0.128***	0.090***	0.122***
	(0.011)	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.008)	(0.009)
Female – High PG Sector	-0.021*	-0.021*	-0.021*	-0.012	-0.023**	-0.027***	-0.026***	-0.025***	-0.018**	-0.028***
	(0.011)	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.009)	(0.009)	(0.008)	(0.009)
Low PG Sector	-0.185***	-0.185***	-0.184***	-0.185***	-0.177***	-0.195***	-0.195***	-0.194***	-0.191***	-0.185***
	(0.014)	(0.013)	(0.013)	(0.012)	(0.012)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)
High PG Sector	0.026***	0.027***	0.027***	0.015**	0.027***	0.018**	0.018**	0.018***	0.005	0.018***
	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)
N	815,650	815,650	815,650	812,716	815,650	815,650	815,650	815,650	812,716	815,650
State × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Year × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
State × Year × Gender	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Age × Gender	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Skills × Gender	No	No	No	Yes	No	No	No	No	Yes	No
Marital Status × Gender	No	No	No	No	Yes	No	No	No	No	Yes
Race × Gender	No	No	No	No	Yes	No	No	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of bank deregulation on (log) wages. Columns (1)–(5) report the effects of intrastate deregulation as the treatment, and columns (6)–(10) report the effects of interstate deregulation as the treatment. Deregulation is a dummy variable that takes the value 1 for the years after deregulation and 0 otherwise. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors refer to industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. High PG is a dummy variable that takes the value 1 for high-pay-gap sectors and 0 otherwise. Low PG is a dummy variable that takes the value 1 for low-pay-gap sectors and 0 otherwise. All specifications control for Mincerian traits × gender. Columns (1) and (6) include state × gender and year × gender fixed effects. Columns (2)–(5) and (7)–(10) include state × year × gender fixed effects. Columns (3) and (8) control for age-gender fixed effects. Columns (4) and (9) account for gender differences in the skill content of jobs. The skill content of a job follows the routine/nonroutine, cognitive/manual classification used in Autor et al. (2003). Columns (5) and (10) add demographic controls × gender. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 6: Effects of Bank Deregulation on Weekly Hours Worked

	Intrastate Deregulation					Interstate Deregulation				
	TWFE	*State × Year × Gender*				TWFE	*State × Year × Gender*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Deregulation × Female – Low PG Sector	1.000***	0.958***	0.959***	0.941***	0.917***	1.081***	1.059***	1.061***	1.043***	1.025***
	(0.140)	(0.143)	(0.144)	(0.138)	(0.141)	(0.118)	(0.122)	(0.123)	(0.119)	(0.125)
Deregulation × Female – High PG Sector	0.004	0.028	0.034	0.053	0.058	0.013	0.024	0.026	0.065	0.052
	(0.133)	(0.133)	(0.134)	(0.125)	(0.138)	(0.103)	(0.108)	(0.109)	(0.104)	(0.111)
Deregulation × Female	-0.288***					-0.303**				
	(0.093)					(0.130)				
Deregulation – Low PG Sector	-1.071***	-1.037***	-1.037***	-0.970***	-0.991***	-1.304***	-1.285***	-1.287***	-1.225***	-1.249***
	(0.117)	(0.118)	(0.118)	(0.111)	(0.114)	(0.104)	(0.102)	(0.103)	(0.100)	(0.100)
Deregulation – High PG Sector	0.084	0.055	0.047	-0.004	0.024	0.095	0.069	0.062	-0.013	0.034
	(0.113)	(0.113)	(0.113)	(0.106)	(0.121)	(0.113)	(0.115)	(0.115)	(0.106)	(0.114)
Deregulation	0.193**					0.329***				
	(0.091)					(0.108)				
Female – Low PG Sector	-2.277***	-2.233***	-2.240***	-1.810***	-2.290***	-2.271***	-2.246***	-2.254***	-1.825***	-2.311***
	(0.129)	(0.134)	(0.134)	(0.124)	(0.130)	(0.116)	(0.122)	(0.123)	(0.117)	(0.120)
Female – High PG Sector	-0.071	-0.090	-0.091	-0.037	-0.083	-0.080	-0.087	-0.086	-0.043	-0.076
	(0.142)	(0.141)	(0.142)	(0.130)	(0.140)	(0.114)	(0.113)	(0.115)	(0.110)	(0.114)
Low PG Sector	1.938***	1.908***	1.915***	1.577***	1.967***	2.060***	2.043***	2.052***	1.721***	2.112***
	(0.111)	(0.111)	(0.110)	(0.105)	(0.107)	(0.097)	(0.096)	(0.095)	(0.094)	(0.092)
High PG Sector	-0.154	-0.122	-0.121	-0.140*	-0.127	-0.155	-0.127	-0.127	-0.134	-0.131
	(0.095)	(0.094)	(0.095)	(0.082)	(0.094)	(0.105)	(0.103)	(0.104)	(0.097)	(0.103)
N	815,650	815,650	815,650	812,716	815,650	815,650	815,650	815,650	812,716	815,650
State × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Year × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
State × Year × Gender	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Skills × Gender	No	No	No	Yes	No	No	No	No	Yes	No
Marital Status × Gender	No	No	No	No	Yes	No	No	No	No	Yes
Race × Gender	No	No	No	No	Yes	No	No	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

NOTES: This table reports the difference-in-differences estimates of the effects of bank deregulation on hours worked. Columns (1)–(5) report the effects of intrastate deregulation as the treatment, and columns (6)–(10) report the effects of interstate deregulation as the treatment. Deregulation is a dummy variable that takes the value 1 for the years after deregulation and 0 otherwise. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors refer to industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. High PG is a dummy variable that takes the value 1 for high-pay-gap sectors and 0 otherwise. Low PG is a dummy variable that takes the value 1 for low-pay-gap sectors and 0 otherwise. All specifications control for Mincerian traits × gender. Columns (1) and (6) include state × gender and year × gender fixed effects. Columns (2)–(5) and (7)–(10) include state × year × gender fixed effects. Columns (3) and (8) control for age-gender fixed effects. Columns (4) and (9) account for gender differences in the skill content of jobs. The skill content of a job follows the routine/nonroutine, cognitive/manual classification used in Autor et al. (2003). Columns (5) and (10) add demographic controls × gender. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 7: Effects of Deregulation on Transitions

	Intrastate Deregulation					Interstate Deregulation				
	TWFE	*State × Year × Gender*				TWFE	*State × Year × Gender*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Deregulation × Female – Low PG Sector	-0.077***	-0.075***	-0.075***	-0.078***	-0.078***	-0.094***	-0.093***	-0.093***	-0.098***	-0.098***
	(0.026)	(0.026)	(0.025)	(0.027)	(0.027)	(0.021)	(0.020)	(0.020)	(0.022)	(0.022)
Deregulation × Female – High PG Sector	0.001	0.006	0.006	0.005	0.005	0.027	0.031	0.031	0.029	0.029
	(0.030)	(0.031)	(0.031)	(0.031)	(0.031)	(0.020)	(0.021)	(0.021)	(0.021)	(0.021)
Deregulation × Female	0.010					0.046**				
	(0.007)					(0.019)				
Deregulation – Low PG Sector	0.033**	0.031**	0.031**	0.032**	0.032**	0.035**	0.032**	0.031**	0.033**	0.033**
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Deregulation – High PG Sector	-0.007	-0.008	-0.008	-0.008	-0.008	0.023	0.024	0.024	0.025*	0.025*
	(0.018)	(0.017)	(0.017)	(0.016)	(0.016)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Deregulation	-0.012**					-0.022**				
	(0.005)					(0.009)				
Female – Low PG Sector	0.135***	0.132***	0.132***	0.127***	0.127***	0.150***	0.149***	0.149***	0.146***	0.146***
	(0.024)	(0.024)	(0.024)	(0.026)	(0.026)	(0.018)	(0.018)	(0.018)	(0.020)	(0.020)
Female – High PG Sector	0.032	0.028	0.027	0.032	0.032	0.007	0.003	0.004	0.010	0.010
	(0.026)	(0.028)	(0.028)	(0.028)	(0.028)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)
Low PG Sector	0.185***	0.187***	0.187***	0.187***	0.187***	0.183***	0.187***	0.187***	0.187***	0.187***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.012)	(0.013)	(0.013)
High PG Sector	0.205***	0.206***	0.207***	0.198***	0.198***	0.178***	0.177***	0.178***	0.169***	0.169***
	(0.017)	(0.017)	(0.017)	(0.016)	(0.016)	(0.014)	(0.014)	(0.014)	(0.013)	(0.013)
N	102,724	102,675	102,675	102,154	102,154	102,724	102,675	102,675	102,154	102,154
State × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Year × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
State × Year × Gender	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Age × Gender	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Mincerian × Gender	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Skills × Gender	No	No	No	No	Yes	No	No	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of bank deregulation on workers' transitions between low- and high-pay-gap sectors. The dependent variable is a dummy that takes the value 1 for workers who transition from low-pay-gap to high-pay-gap sectors or vice versa. Columns (1)–(5) report the effects of intrastate deregulation as the treatment, and columns (6)–(10) report the effects of interstate deregulation as the treatment. Deregulation is a dummy variable that takes the value 1 for the years after deregulation and 0 otherwise. Industries are categorized into low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors refer to industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. High PG is a dummy variable that takes the value 1 for high-pay-gap sectors and 0 otherwise. Low PG is a dummy variable that takes the value 1 for low-pay-gap sectors and 0 otherwise. Columns (1) and (6) include state × gender and year × gender fixed effects. Columns (2)–(5) and (7)–(10) include state × year × gender fixed effects. Columns (3) and (8) control for age-gender fixed effects. Columns (4) and (9) control for Mincerian traits × gender. Columns (5) and (10) account for gender differences in the skill content of jobs. The skill content of a job follows the routine/nonroutine, cognitive/manual classification used in Autor et al. (2003). Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table 8: Effects of Deregulation on Gender Norms

	All	With Children	Men				Women			
	Workplace Sexism	Workplace Sexism	Workplace Sexism	Women Should Not Work	Husband Career First	Women Stay Home	Workplace Sexism	Women Should Not Work	Husband Career First	Women Stay Home
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Intrastate Deregulation										
Intrastate × Sectoral Spread	2.71***	3.27***	4.36***	4.75**	4.78**	4.45*	1.52	3.25***	-0.16	-2.72
	(0.91)	(0.90)	(1.63)	(2.18)	(1.83)	(2.37)	(1.13)	(1.22)	(2.05)	(2.04)
Intrastate Penetration	-0.12***	-0.08**	-0.12**	-0.09	-0.10	-0.12*	-0.12***	-0.13***	-0.11*	-0.20***
	(0.03)	(0.03)	(0.05)	(0.06)	(0.07)	(0.06)	(0.04)	(0.05)	(0.07)	(0.06)
N	33,786	24,484	14,745	8,574	6,604	12,495	19,041	11,339	8,707	16,035
Panel B: Interstate Deregulation										
Interstate × Sectoral Spread	2.73**	2.92***	3.72**	3.19*	5.58***	6.10**	2.02**	2.28*	1.22	1.04
	(1.09)	(0.99)	(1.61)	(1.80)	(1.81)	(2.63)	(0.98)	(1.19)	(2.68)	(2.71)
Interstate Penetration	-0.06	-0.01	-0.05	-0.17**	-0.07	-0.10	-0.07	-0.16**	-0.13	-0.05
	(0.04)	(0.05)	(0.05)	(0.08)	(0.09)	(0.07)	(0.05)	(0.07)	(0.08)	(0.10)
N	33,786	24,484	14,745	8,574	6,604	12,495	19,041	11,339	8,707	16,035
Year FX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports estimates of the effects of bank deregulation on gender norms at the regional level using the General Social Survey (GSS) data. The dependent variables are standardized measures of workplace sexism based on responses to three questions on beliefs about the role of women in the workplace: "Should women work?"; "Wife should help husbands career first."; "Better for men to work, women tend home." For each question, we assign a value of 1 when the response reflects biased views against women and 0 otherwise. We then standardize the values by subtracting individual responses to each question by the average response of the entire population in 1977, a pre-treatment period, and dividing it by the standard deviation of the initial response of the entire population in 1977. For sectoral spread, we classify each industry by the sectoral distance of its pay gap to the median-pay-gap sector. If it belongs to the top 25th percentile of the pay gap, that is, high-pay-gap sectors, it is assigned a value of 1. If it belongs to the bottom 25th percentile, it is assigned a value of 1. Industries between the 25th and 75th percentiles, those in the median-pay-gap sectors, are given a value of 0. Sectoral spread is the expected value over pairwise combinations of workers based on Equation 10. Deregulation penetration is a measure of the proportion of individuals in each region-year affected by bank deregulation, calculated based on Equation 11. See Section 7.1 for more detailed descriptions of variable construction. All specifications control for year fixed effects and region fixed effects. Bootstrapped errors are reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Appendix

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A Proofs and Extensions

A.1 Proof of Proposition 1

We prove Proposition 1 in two steps. In Step 1, we prove equilibrium existence. In Step Two, we prove the comparative statics results.

Step 1: Equilibrium existence

Preliminaries. We conjecture (and later verify) that there are always enough blue workers in each sector for biased firms to hire only blue workers. Under this conjecture, firms' optimal production choices are as described in Equation (3). We can then write the aggregate output in sector s as

$$\int_0^1 q^*_{js} dj = (1 - \chi_s) \max\left\{\frac{1}{2\kappa_s}[p_s - w_s], 0\right\} + \chi_s \max\left\{\frac{1}{2\kappa_s}[p_s - w_s(1+\alpha)], 0\right\}, \tag{12}$$

since a fraction χ_s of the firms is biased ($\iota_{js} = 1$) and pays higher wages.

If both blue and red workers are working in s, $w_s \geq \overline{u}$ is required to ensure red workers' participation: Since they never get any wage premium, their wage is always w_s, which must be greater than their outside option $\overline{u}$. If only blue workers work in s, since $q^*_{ns} > q^*_{bs}$, some of them will have to work for non-biased firms and receive the unbiased wage w_s. So, their participation also requires $w_s \geq \overline{u}$. Hence, the unbiased wages w_h and w_ℓ must both be at least $\overline{u}$ in equilibrium.

Let $\overline{p}$ denote the lowest price for which product market demand is zero, that is, $\overline{p}$ is such that $D(\overline{p}) = 0$ and $D(\overline{p})' < 0$. Since the demand function $D(\cdot)$ is the same across sectors, $\overline{p}$ is the same value for h and ℓ. If $\overline{p} \leq \overline{u}$, all firms in both sectors produce 0 in equilibrium, and all workers take their outside option, since the highest possible price at which firms can sell their product is not enough to pay workers their outside option.

If $\overline{p} > \overline{u}$, firms can produce and hire workers in equilibrium. So, we focus on this case in what follows. Since $\overline{u} \geq 0$, and firms can only produce if $p_s > \overline{u}$, the sum of the aggregate production in the two sectors must be smaller than $2D(0)$. Given that $D(0) < \frac{m}{2}$, which implies $2D(0) < m$, there are then always more workers than jobs in equilibrium. This also means that, in equilibrium, the unbiased wage in the ℓ sector must be $w_\ell = \overline{u}$, since entering that sector is costless for workers, so each individual firm can always hire enough workers at that wage.

Market-clearing conditions. The product market clears in ℓ if

$$D(p_\ell) - \int_0^1 q^*_{j\ell} dj = 0, \tag{13}$$

where

$$\int_0^1 q^*_{j\ell} dj = (1 - \chi_\ell) \max\left\{\frac{1}{2\kappa_\ell}[p_\ell - \overline{u}], 0\right\} + \chi_\ell \max\left\{\frac{1}{2\kappa_\ell}[p_\ell - \overline{u}(1+\alpha)], 0\right\}. \tag{14}$$

The left-hand side of Equation (13) is continuous and decreasing in p_ℓ, since $D(p_\ell)$ decreases and $\int_0^1 q^*_{j\ell} dj$ increases when p_ℓ increases. Since here $\overline{p} > \overline{u}$, we have $D(p_\ell) > 0$ and $\int_0^1 q^*_{j\ell} dj = 0$ for all $p_\ell \leq \overline{u}$. So, the left-hand side of Equation (13) is positive for $p_\ell \leq \overline{u}$. Lastly, it is negative for all $p_\ell \geq \overline{p}$, where we have have $D(p_\ell) = 0$ and $\int_0^1 q^*_{j\ell} dj > 0$. By the Intermediate Value Theorem (IVT henceforth), a value of $p_\ell \in (\overline{u}, \overline{p})$ that satisfies market clearing in ℓ always exists and is unique.

Having described the equilibrium in ℓ, we can now focus on h. Since workers suffer a cost from working in h, here we have $w_h \geq \overline{u}$ in equilibrium. Fixing w_h, h's product market clears if

$$D(p_h) - \int_0^1 q^*_{jh} dj = 0, \tag{15}$$

where

$$\int_0^1 q^*_{jh} dj = (1 - \chi_h) \max\left\{\frac{1}{2\kappa_h}[p_h - w_h], 0\right\} - \chi_h \max\left\{\frac{1}{2\kappa_h}[p_h - w_h(1+\alpha)], 0\right\}. \tag{16}$$

If $w_h \geq \overline{p}$, demand $D(p_h)$ and supply $\int_0^1 q^*_{jh} dj$ only meet when they are both zero, which occurs iff $p_h \in (\overline{p}, w_h)$ (since $D(p_h)$ is equal to 0 for all $p_h \geq \overline{p}$, and is positive otherwise, while $\int_0^1 q^*_{jh} dj$ is equal to 0 for all $p_h \leq w_h$, and is positive otherwise). This would lead to an imbalance in the labor market: since $\overline{p} > \overline{u}$, $w_h > \overline{p}$ would imply that at least some workers (e.g., those with c_i low enough that $w_h - c_i > \overline{u} = w_\ell$) would want to work for h, even though firms do not produce and so there are no jobs being offered in h. It follows that we must have $w_h < \overline{p}$ in equilibrium.

If $w_h < \overline{p}$, a similar logic as for the market clearing in ℓ applies. The left-hand side of Equation (15) is continuous and decreasing in p_h, since $D(p_h)$ decreases and $\int_0^1 q^*_{jh} dj$ increases when p_h increases. We have $D(p_h) > 0$ and $\int_0^1 q^*_{jh} dj = 0$ for all $p_h \leq w_h$. So, the left-hand side of Equation (13) is positive for $p_h \leq w_h$. Lastly, it is negative for all $p_h \geq \overline{p}$, where we have have $D(p_h) = 0$ and $\int_0^1 q^*_{jh} dj > 0$. By the IVT, a value of $p_h \in (w_h, \overline{p})$ that satisfies market clearing in h always exists and is unique for any $w_h < \overline{p}$.

The next step is to show that $w_h < \overline{p}$ holds at the value of w_h such that the labor market also clears. The mass of workers that seek jobs in sector h is $\beta_h + \rho_h$, where $\beta_h = mF(c_B)$ and $\rho_h = mF(c_R)$, and the marginal types are $c_R = w_h - \overline{u}$ and

$$c_B = c_R + w_h \alpha \min\left\{\frac{\chi_h q^*_{bh}}{\beta_h}, 1\right\} - \overline{u}\alpha \min\left\{\frac{\chi_\ell q^*_{b\ell}}{m - \beta_h}, 1\right\}. \tag{17}$$

The factors multiplying w_h and $\overline{u}$ in Equation (17) are the probabilities that a blue worker lands a job in a biased firm in each sector.

Fixing w_h, an equilibrium value of ρ_h (that is, ρ_h such that $\rho_h = mF(w_h - \overline{u})$) always exists, it increases with w_h, and it is 0 when $w_h = \overline{u}$. An equilibrium value of β_h solves

$$\beta_h - mF(c_B) = 0. \tag{18}$$

The left-hand side of Equation (18) is continuous in β_h. At $\beta_h = 0$, we have $c_B = c_R + w_h\alpha - \overline{u}\alpha \min\left\{\frac{\chi_\ell q^*_{b\ell}}{m}, 1\right\} > 0$, since $c_R \geq 0$, $w_h \geq \overline{u}$, and $\frac{\chi_\ell q^*_{b\ell}}{m} < 1$ (the assumption $D(0) < \frac{m}{2}$ implies that the total supply in each sector and, thus, the aggregate supply of biased firms in ℓ, $\chi_\ell q^*_{b\ell}$, must be lower than m in equilibrium). Since c_i is a continuous and positive random variable, we have $F(c_B) > 0$ for any $c_B > 0$, which implies $\beta_h - mF(c_B) < 0$ at $\beta_h = 0$.

The largest possible value of β_h is m (the total mass of agents is $2m$, and only half are blue). At $\beta_h = m$, we have $c_B = w_h\left(1 + \alpha \min\left\{\frac{\chi_h q^*_{bh}}{m}, 1\right\}\right) - (1+\alpha)\overline{u} \equiv c_B(m)$. If $c_B(m)$ is larger than the largest possible realization of c_i, we have $F(c_B) = 1$ and, thus, $\beta_h - mF(c_B) = 0$ at $\beta_h = m$. So, $\beta_h = m$ is an equilibrium value for β_h in this case. Otherwise, we have $F(c_B) < 1$ and $\beta_h - mF(c_B) > 0$ at $\beta_h = m$. In this case, an equilibrium value $\beta_h \in (0, m)$ such that $\beta_h - mF(c_B) = 0$ exists by the IVT, since $\beta_h - mF(c_B)$ is continuous in β_h, negative at $\beta_h = 0$, and positive at $\beta_h = m$.

Now, let p^*_h, β^*_h, and ρ^*_h denote the values of, respectively, p_h, β_h, and ρ_h, that jointly satisfy the product-market clearing condition $D(p_h) - \int_0^1 q^*_{jh}dj = 0$ and the entry conditions $\beta_h = mF(c_B)$ and $\rho_h = mF(c_R)$, for a given value of w_h, and the equilibrium values of p_ℓ and w_ℓ.

The labor market clearing condition for sector h then writes as

$$\int_0^1 q^*_{jh}dj - (\beta^*_h + \rho^*_h) \leq 0. \tag{19}$$

The left-hand side of Equation (19) is continuous in w_h for all $w_h \in [\overline{u}, \overline{p}]$ (q^*_{bj}, p^*_h, β^*_h, and ρ^*_h are all continuous in w_h).

At $w_h = \overline{u}$, we have $c_R = 0$, which implies $\rho_h = 0$ (since c_i is positive and continuous, we have $F(x) = 0$ for any $x \leq 0$). Some blue workers may prefer to enter h even at $w_h = \overline{u}$, if the probability of landing a job in a biased firm is larger there (that is, if $\frac{\chi_h q^*_{bh}}{\beta_h} > \frac{\chi_\ell q^*_{b\ell}}{m-\beta_h}$, so that $c_B > 0$). If $\int_0^1 q^*_{jh}dj \leq \beta^*_h$ at $w_h = \overline{u}$, this wage satisfies the market-clearing condition in Equation (19). Otherwise, $\int_0^1 q^*_{jh}dj - \beta^*_h > 0$ at $w_h = \overline{u}$, so w_h increases to attract enough workers in h.

At $w_h = \overline{p}$, $\int_0^1 q^*_{jh}dj$ is equal to 0, while $\beta^*_h + \rho^*_h$ is bounded away from 0, since $\overline{p} > \overline{u}$ implies $c_R > 0$ and, thus, $\rho^*_h > 0$ at $w_h = \overline{p}$. So, for w_h close to $\overline{p}$, we have $\beta^*_h + \rho^*_h > \int_0^1 q^*_{jh}dj$, which satisfies Equation (19). The left-hand side of Equation (19) is thus (i) either already negative at $w_h = \overline{u}$, or (ii) is positive at $w_h = \overline{u}$ but negative as $w_h = \overline{p}$. It follows from the IVT that a value $w_h \in [\overline{u}, \overline{p})$ such that Equation (19) holds always exists.

Notice also that, in equilibrium, the inequality in Equation (19) cannot hold strict if $w_h > \overline{u}$. Otherwise, there would be more workers than jobs also in h, which means that firms would be able to offer a lower w_h until Equation (19) holds strict. Therefore, we have either $\int_0^1 q^*_{jh}dj - (\beta^*_h + \rho^*_h) = 0$ and $w_h > \overline{u}$, which implies $\rho^*_h > 0$, or $\int_0^1 q^*_{jh}dj - \beta^*_h \leq 0$ and $w_h = \overline{u}$, with $\rho^*_h = 0$.

We have shown above that there always exists a collection of prices and wages $\{(p_h, p_\ell), (w_h, w_\ell)\}$ such that the market clearing conditions hold in both sectors when firms' production decisions and workers' choices of which sector to enter are evaluated at their optimal values. Therefore, an equilibrium of the game always exists. In equilibrium, since $w_\ell = \overline{u}$, while $w_h \in [\overline{u}, \overline{p})$, the unbiased wage is always larger in h, at least weakly.

Verifying the initial conjectures. The last step is to check that the conjecture $\chi_s q^*_{bs} \leq \beta_s$ always holds in equilibrium.

We begin with the conjecture $\chi_\ell q^*_{b\ell} \leq \beta_\ell$, which corresponds to $\chi_\ell q^*_{b\ell} \leq m - \beta_h$. Suppose, by contradiction, that $\chi_\ell q^*_{b\ell} > m - \beta_h$ holds in equilibrium. First, consider equilibria where $w_h > \overline{u}$, which implies $D(p_h) = \beta_h + \rho_h$. In this case, $D(0) < \frac{m}{2}$ implies $\beta_h < \frac{m}{2}$. By a similar logic, $\chi_\ell q^*_{b\ell}$ must be lower than $\frac{m}{2}$, since $\int_0^1 q^*_{j\ell} dj < \frac{m}{2}$. It follows that the inequality $\chi_\ell q^*_{b\ell} > m - \beta_h$ cannot hold in equilibrium in this case, since the right-hand side is always larger than $\frac{m}{2}$, while the left-hand side is always smaller than $\frac{m}{2}$. Next, consider the case $w_h = \overline{u}$, which implies $D(p_h) \leq \beta_h$. If $\chi_\ell q^*_{b\ell} > m - \beta_h$, the marginal type c_B writes as $c_B = \overline{u}\alpha \left(\min\left\{ \frac{\chi_h q^*_{bh}}{\beta_h}, 1 \right\} - 1 \right) < 0$, since $\chi_\ell q^*_{b\ell} > m - \beta_h$ implies $\min\left\{ \frac{\chi_\ell q^*_{b\ell}}{m - \beta_h}, 1 \right\} = 1$. However, $c_B < 0$ implies $\beta_h = 0$, which contradicts the initial conjectures that $\chi_\ell q^*_{b\ell} > m - \beta_h$ and $D(p_h) \leq \beta_h$. So, we must have $\chi_\ell q^*_{b\ell} \leq m - \beta_h$ in equilibrium.

The condition $\chi_h q^*_{bh} > \beta_h$, leads to a similar type of contradiction. If $\chi_h q^*_{bh} > \beta_h$, all blue workers in h land jobs in a biased firm. In this case, we have $c_B = c_R + \alpha \left(w_h - \overline{u} \min\left\{ \frac{\chi_\ell q^*_{b\ell}}{m - \beta_h}, 1 \right\} \right)$, which implies $\beta_h > \rho_h$, since $w_h \geq \overline{u}$ and $\frac{\chi_\ell q^*_{b\ell}}{m - \beta_h} < 1$ (which we have shown must hold in equilibrium) imply $c_B > c_R \geq 0$ here. In equilibrium, we have $\beta_h + \rho_h = D(p_h)$ if $w_h > \overline{u}$, and $\beta_h \geq D(p_h)$ if $w_h = \overline{u}$. Together with $\beta_h > \rho_h$, these imply $\beta_h > \frac{D(p_h)}{2}$. It follows that we must have $\chi_h q^*_{bh} > \beta_h > \frac{D(p_h)}{2}$. Since $\chi_h \leq \frac{1}{2}$, this would imply $q^*_{bh} > q^*_{nh}$, which is not possible in equilibrium, since non-biased firms are more efficient and, thus, always produce more than biased ones. So, we must have $\chi_h q^*_{bh} \leq \beta_h$ in equilibrium. □

Step 2: Comparative statics

Part 1 of Proposition 1. We begin by showing that production is reallocated away from biased firms when κ_ℓ goes down, which means that $\frac{\chi_\ell q^*_{b\ell}}{D(p_\ell)}$ increases with κ_ℓ.

As we discussed above, firms never produce when $\overline{p} \leq \overline{u}$, for any value of κ_ℓ. So, we can focus on the case $\overline{p} > \overline{u}$ in what follows. In this case, we always have $p_\ell > \overline{u}$ in equilibrium (see Step One of this proof), which implies $q^*_{n\ell} > 0$, and $q^*_{b\ell} \geq 0$.

First, consider the case where $q^*_{b\ell}$ is strictly positive before and after the change in κ_ℓ. Plugging the equilibrium wage $w_\ell = \overline{u}$ into the optimal production choices in Equation (3), we have $q^*_{n\ell} = \frac{1}{2\kappa_\ell}[p_\ell - \overline{u}]$ and $q^*_{b\ell} = \frac{1}{2\kappa_\ell}[p_\ell - (1+\alpha)\overline{u}]$. Plugging in these expressions in $\frac{\chi_\ell q^*_{b\ell}}{D(p_\ell)}$ yields

$$\frac{\chi_\ell q^*_{b\ell}}{D(p_\ell)} = \frac{\chi_\ell q^*_{b\ell}}{\chi_\ell q^*_{b\ell} + (1-\chi_\ell) q^*_{n\ell}} = \chi_\ell \frac{p_\ell - \overline{u}(1+\alpha)}{p_\ell - \overline{u}(1+\chi_\ell \alpha)}. \tag{20}$$

Next, we show that p_ℓ increases with κ_ℓ, which implies that the expression in Equation (20) increases with κ_ℓ, since

$$\frac{d\left(\frac{p_\ell-\overline{u}(1+\alpha)}{p_\ell-\overline{u}(1+\chi_\ell\alpha)}\right)}{d\kappa_\ell}=\frac{\overline{u}\alpha(1-\chi_\ell)}{[p_\ell-\overline{u}(1+\chi_\ell\alpha)]^2}\frac{dp_\ell}{d\kappa_\ell} \tag{21}$$

When $q^*_{b\ell}$ is positive, the equilibrium value for p_ℓ solves

$$D(p_\ell)-\frac{1}{2\kappa_\ell}[p_\ell-\overline{u}(1+\alpha\chi_\ell)]=0. \tag{22}$$

Applying the Implicit Function Theorem on Equation (22), we can write

$$\frac{dp_\ell}{d\kappa_\ell}=-\frac{\frac{1}{2\kappa_\ell^2}[p_\ell-(1+\alpha\chi_\ell)\overline{u}]}{D'(p_\ell)-\frac{1}{2\kappa_\ell}}>0, \tag{23}$$

since $D'(p_\ell)\leq 0$, and $q^*_{b\ell}>0$ is equivalent to $p_\ell-(1+\alpha)\overline{u}>0$, which implies $p_\ell-(1+\alpha\chi_\ell)\overline{u}>0$. So, when $q^*_{b\ell}>0$ holds both before and after the change in κ_ℓ, $\frac{\chi_\ell q^*_{b\ell}}{D(p_\ell)}$ decreases when κ_ℓ goes down.

Next, consider the case where $q^*_{b\ell}>0$ holds before the shock, that is, at $\kappa_\ell=\kappa'$, but we have $q^*_{b\ell}=0$ after κ_ℓ goes down, that is, at $\kappa_\ell=\kappa''$, where $\kappa''<\kappa'$. In this case, $\frac{\chi_\ell q^*_{b\ell}}{D(p_\ell)}$ goes from a positive value to 0. So, also in this case, $\frac{\chi_\ell q^*_{b\ell}}{D(p_\ell)}$ decreases when κ_ℓ goes down.

Lastly, we show that, in equilibrium, $q^*_{b\ell}$ cannot go from 0 to a positive value when κ_ℓ decreases. Since $q^*_{b\ell}=\max\left\{\frac{1}{2\kappa_\ell}[p_\ell-\overline{u}(1+\alpha)],0\right\}$, for this to be the case, we must have that p_ℓ increases when κ_ℓ decreases. If p_ℓ increases, $q^*_{n\ell}$ and, thus, the aggregate supply $\int_0^1 q^*_{j\ell}dj$ also increase when κ_ℓ goes down. However, since $D(p_\ell)$ decreases with p_ℓ, and $D(p_\ell)=\int_0^1 q^*_{j\ell}dj$ in equilibrium, p_ℓ must decrease when aggregate supply increases, which contradicts the initial conjecture. □

Part 2 of Proposition 1. Only biased firms pay the wage premium α. By the product market clearing condition, and the firm's production function (where there is a one-to-one ratio between labor and output), the total mass of agents working in ℓ is $D(p_\ell)$. The fraction of the workforce that receives a wage premium is then $\frac{\chi_\ell q^*_{b\ell}}{D(p_\ell)}$, which, as we have shown before, decreases when κ_ℓ decreases. □

Part 3 of Proposition 1. Consider two different values of κ_ℓ, κ' and κ'', with $\kappa''<\kappa'$. We use the notation $y(\kappa')$ and $y(\kappa'')$ to denote the equilibrium values of y when $\kappa_\ell=\kappa'$ and $\kappa_\ell=\kappa''$, respectively, where y represent a given outcome of the model (e.g., q^*_{jh}, ρ_h, etc.). The product market in ℓ must clear, that is, $\int_0^1 q^*_{jh}dj=D(p_\ell)$ must hold, at both κ' and κ''. So, we can write

$$\int_0^1 q^*_{j\ell}(\kappa')dj-\int_0^1 q^*_{j\ell}(\kappa'')dj=D(p_\ell(\kappa'))-D(p_\ell(\kappa'')). \tag{24}$$

Consider the limit where the product demand becomes inelastic, that is, the limit where, for any product prices x and y, with $x>y$, the difference $D(x)-D(y)$ approaches 0. In this case, we have $\int_0^1 q^*_{j\ell}(\kappa')dj=\int_0^1 q^*_{j\ell}(\kappa'')dj$, which implies

$$\chi_\ell q^*_{b\ell}(\kappa')+(1-\chi_\ell)q^*_{n\ell}(\kappa')=\chi_\ell q^*_{b\ell}(\kappa'')+(1-\chi_\ell)q^*_{n\ell}(\kappa''). \tag{25}$$

We can rewrite Equation (25) as

$$\chi_\ell[q^*_{b\ell}(\kappa') - q^*_{b\ell}(\kappa'')] = (1 - \chi_\ell)[q^*_{n\ell}(\kappa'') - q^*_{n\ell}(\kappa')]. \tag{26}$$

Intuitively, if the product demand is inelastic, changes in the parameters will lead to a reallocation of supply from biased to non-biased firms, but no change in total supply. In what follows, we show that b firms reduce their production after the shock.

If $q^*_{b\ell} = 0$ both before and after the change in κ_ℓ, there is no supply reallocation, and the change in κ_ℓ only affects p_ℓ. So, we focus on the other cases in what follows.

First, consider the case where $q^*_{b\ell}$ is strictly positive before and after the change in κ_ℓ. In this case, we have $q_{n\ell} - q_{b\ell} = \frac{\overline{u}\alpha}{2\kappa_\ell}$, which implies

$$\frac{d(q_{n\ell} - q_{b\ell})}{d\kappa_\ell} = -\frac{\overline{u}\alpha}{2\kappa_\ell^2} < 0. \tag{27}$$

It follows from $\frac{d(q_{n\ell}-q_{b\ell})}{d\kappa_\ell} < 0$ that $q_{n\ell} - q_{b\ell}$ increases when κ_ℓ decreases. So, we must have $q^*_{b\ell}(\kappa') - q^*_{b\ell}(\kappa'') > 0$ and $q^*_{n\ell}(\kappa'') - q^*_{n\ell}(\kappa') > 0$ in Equation (25), since b firms produce less and n firms produce more after κ_ℓ goes down.

If $q^*_{b\ell}(\kappa') > 0$ and $q^*_{b\ell}(\kappa'') = 0$, we also have $q^*_{b\ell}(\kappa') - q^*_{b\ell}(\kappa'') > 0$. Lastly, we have shown in the proof of Part 1 of Proposition 1 that, in equilibrium, $q^*_{b\ell}$ cannot go from 0 to a positive value when κ_ℓ decreases. So, overall, we must have that $q^*_{b\ell}$ decreases (at least weakly) after the decrease in κ_ℓ.

Having characterized the effects of a change in κ_ℓ on the productions of biased and non-biased firms, we can now sign the relative effects on β_h and ρ_h. In equilibrium, the marginal red type to enter h is $c_R = w_h - \overline{u}$. The marginal blue type is

$$c_B = c_R + \alpha\left\{w_h\frac{\chi_h q^*_{bh}}{\beta_h} - \overline{u}\frac{\chi_\ell q^*_{b\ell}}{m - \beta_h}\right\}. \tag{28}$$

The change in c_B following the change in κ_h is then

$$\begin{aligned} c_B(\kappa') - c_B(\kappa'') = c_R(\kappa') - c_R(\kappa'') &+ \alpha\left\{w_h(\kappa')\frac{\chi_h q^*_{bh}(\kappa')}{\beta_h(\kappa')} - \overline{u}\frac{\chi_\ell q^*_{b\ell}(\kappa')}{m - \beta_h(\kappa')}\right\} \\ &- \alpha\left\{w_h(\kappa'')\frac{\chi_h q^*_{bh}(\kappa'')}{\beta_h(\kappa'')} - \overline{u}\frac{\chi_\ell q^*_{b\ell}(\kappa'')}{m - \beta_h(\kappa'')}\right\} \end{aligned} \tag{29}$$

The only direct effect of a decrease in κ_ℓ on the market-clearing conditions for h is through c_B. Since $q^*_{b\ell}(\kappa') > q^*_{b\ell}(\kappa'')$, holding all the other equilibrium outcomes in Equation (29) fixed, we must have $c_B(\kappa') - c_B(\kappa'') < 0$. Since $\beta_h = mF(c_B)$ must hold for all κ_ℓ, $c_B(\kappa'') > c_B(\kappa')$ implies $\beta_h(\kappa'') > \beta_h(\kappa')$, since β_h increases when c_B becomes larger.

Since labor supply in h increases, equilibrium wages may have to adjust after the shock. If $w_h(\kappa') = \overline{u}$, wages cannot decrease when κ_ℓ goes from κ' to κ'', since w_h cannot be lower than $\overline{u}$ in equilibrium. So, if $w_h(\kappa') = \overline{u}$, only $q^*_{b\ell}$ and β_h change when we go from κ' to κ'', and we have $\beta_h(\kappa'') > \beta_h(\kappa')$ in equilibrium. Since $w_h = \overline{u}$ implies $\rho_h = 0$, we also have $\rho_h(\kappa') = \rho_h(\kappa'') = 0$ in this case.

If $w_h(\kappa') > \overline{u}$, wages can go down, so we have $w_h(\kappa') > w_h(\kappa'')$, which implies $c_R(\kappa') > c_R(\kappa'')$ and, thus, $\rho_h(\kappa') > \rho_h(\kappa'')$. The new equilibrium outcomes for h, that is, the tuple $\beta_h(\kappa'')$, $\rho_h(\kappa'')$, $w_h(\kappa'')$, and $p_h(\kappa'')$, are such that the market clearing conditions hold. That means $D(p_h(\kappa'')) = \int_0^1 q^*_{jh}(\kappa'')dj \leq \beta_h(\kappa'') + \rho_h(\kappa'')$, where the last inequality holds strict if $w_h(\kappa'') = \overline{u}$, and with equality if $w_h(\kappa'') > \overline{u}$. Since an equilibrium always exists, one such tuple always exists. □

A.2 Proof of Proposition 2

Consider the limit where the product demand becomes inelastic, that is, the limit where, for any product prices x and y, with $x > y$, the difference $D(x) - D(y)$ approaches 0. In this case, the market-clearing condition for the product market in sector s writes as $\int_0^1 q^*_{js}dj = D$, where D is the inelastic demand for the product. For a given wage w_s, if both biased and non-biased firms produce positive quantities, the equilibrium price is

$$p_s = 2D\kappa_s + w_s(1 + \alpha\chi_s) \tag{30}$$

The optimal production of a biased firm is

$$q^*_{bs} = \max\left\{\frac{1}{2\kappa_s}[p_s - w_s(1 + \alpha)], 0\right\}. \tag{31}$$

Plugging the expression for p_s from Equation (30) into the expression for q^*_{bs} in Equation (31) yields

$$q^*_{bs} = \max\left\{D - \frac{w_s}{2\kappa_s}\alpha(1 - \chi_s), 0\right\}, \tag{32}$$

which implies $q^*_{bs} > 0$ iff $\kappa_s > \frac{w_s}{2D}\alpha(1 - \chi_s)$, and $\lim_{\kappa_s \to \frac{w_s}{2D}\alpha(1-\chi_s)} q^*_{bs} = 0$.

The equilibrium wage in sector ℓ is $w_\ell = \overline{u}$, so we have $q^*_{b\ell} > 0$ iff $\kappa_\ell > \overline{\kappa}_\ell$, where $\overline{\kappa}_\ell \equiv \frac{\overline{u}}{2D}\alpha(1 - \chi_\ell)$. First, consider the case where biased firms produce a positive quantity in sector h in equilibrium ($q^*_{bh} > 0$), so that the fraction of the workforce who receive a wage premium in h is $\frac{\chi_h q^*_{bh}}{D} > 0$. If $\kappa_h > \overline{\kappa}_\ell$, we can always find $\kappa_\ell \in (\overline{\kappa}_\ell, \kappa_h)$, but sufficiently close to $\overline{\kappa}_\ell$, such that $\frac{\chi_\ell q_{b\ell}}{D} > 0$ and $\frac{\chi_\ell q_{b\ell}}{D} < \frac{\chi_h q_{bh}}{D}$. If $\kappa_h < \overline{\kappa}_\ell$, we can set $\kappa_\ell < \kappa_h$, which implies $\frac{\chi_\ell q_{b\ell}}{D} = 0$ and, thus, $\frac{\chi_\ell q_{b\ell}}{D} < \frac{\chi_h q_{bh}}{D}$. Next, consider the case where $q^*_{bh} = 0$, which implies that workers do not receive wage premia in h in equilibrium. In this case, we can set $\kappa_\ell < \min\{\overline{\kappa}_\ell, \kappa_h\}$, so that workers do not receive wage premia in ℓ either and we have $\frac{\chi_\ell q_{b\ell}}{D} = \frac{\chi_h q_{bh}}{D}$. It follows that there always exists κ_ℓ sufficiently smaller than κ_h such that $\frac{\chi_\ell q_{b\ell}}{D}$ is smaller than $\frac{\chi_h q_{bh}}{D}$ (at least weakly) in equilibrium. □

A.3 Proof of Proposition 3

Consider two different values of κ_h, κ' and κ'', with $\kappa'' < \kappa'$. We use the notation $y(\kappa')$ and $y(\kappa'')$ to denote the equilibrium values of y when $\kappa_h = \kappa'$ and $\kappa_h = \kappa''$, respectively, where y represent a given outcome of the model (e.g., q^*_{jh}, ρ_h, etc.). We conjecture (and later verify) that w_h increases after the decrease in κ_h, that is, $w_h(\kappa'') \geq w_h(\kappa')$. The rest of the proof of Proposition 3 follows a similar logic to that of Part 3 of Proposition 1. We first prove that, under this conjecture, b firms reduce their production after the shock. We then prove the implications for the sectoral gap.

Consider the limit where the product demand becomes inelastic, that is, the limit where, for any product prices x and y, with $x > y$, the difference $D(x) - D(y)$ approaches 0. In this case, we have $\int_0^1 q^*_{jh}(\kappa')dj = \int_0^1 q^*_{jh}(\kappa'')dj$, which implies

$$\chi_h q^*_{bh}(\kappa') + (1-\chi_h)q^*_{nh}(\kappa') = \chi_h q^*_{bh}(\kappa'') + (1-\chi_h)q^*_{nh}(\kappa''). \tag{33}$$

We can rewrite Equation (33) as

$$\chi_h[q^*_{bh}(\kappa') - q^*_{bh}(\kappa'')] = (1-\chi_h)[q^*_{nh}(\kappa'') - q^*_{nh}(\kappa')]. \tag{34}$$

Intuitively, if the product demand is inelastic, changes in the parameters will lead to a reallocation of supply from biased to non-biased firms, but no change in total supply. If $q^*_{bh} = 0$ both before and after the change in κ_h, there is no supply reallocation, and the change in κ_h only affects p_h. So, we focus on the other cases in what follows.

First, consider the case where q^*_{bh} is strictly positive before and after the change in κ_h. In this case, we have $q_{nh} - q_{bh} = \frac{w_h\alpha}{2\kappa_h}$, which implies

$$q_{nh}(\kappa') - q_{bh}(k') - [q_{nh}(\kappa'') - q_{bh}(k'')] = \alpha\left(\frac{w_h(\kappa')}{2\kappa'} - \frac{w_h(\kappa'')}{2\kappa''}\right). \tag{35}$$

Under the conjecture $w_h(\kappa'') \geq w_h(\kappa')$, the difference in Equation (35) is negative, which implies that the difference $q_{nh} - q_{bh}$ increases when κ_h decreases. So, we must have $q^*_{bh}(\kappa') - q^*_{bh}(\kappa'') > 0$ and $q^*_{nh}(\kappa'') - q^*_{n\ell}(\kappa') > 0$ in Equation (25), since b firms produce less and n firms produce more after κ_h goes down. If $q^*_{bh}(\kappa') > 0$ and $q^*_{bh}(\kappa'') = 0$, we also have $q^*_{bh}(\kappa') - q^*_{bh}(\kappa'') > 0$. Lastly, q^*_{bh} cannot go from 0 to a positive value when κ_h decreases. Since $q^*_{bh} = \max\left\{\frac{1}{2\kappa_h}[p_h - w_h(1+\alpha)], 0\right\}$ and $w_h(\kappa'') \geq w_h(\kappa')$, for this to be the case, we must have that p_h increases when κ_h decreases. If p_h increases, q^*_{nh} and, thus, the aggregate supply $\int_0^1 q^*_{jh}dj$ also increase when κ_h goes down. However, since $D(p_h)$ decreases (at least weakly) with p_h, and $D(p_h) = \int_0^1 q^*_{jh}dj$ in equilibrium, p_h must decrease when aggregate supply increases, which contradicts the initial conjecture.

Having characterized the effects of a change in κ_h on the productions of biased and non-biased firms, we can now sign the relative effects on β_h and ρ_h. In equilibrium, the marginal red type to enter h is $c_R = w_h - \overline{u}$. The marginal blue type is

$$c_B = c_R + \alpha\left\{w_h \frac{\chi_h q^*_{bh}}{\beta_h} - \overline{u}\frac{\chi_\ell q^*_{b\ell}}{m - \beta_h}\right\}. \tag{36}$$

The change in c_B following the change in κ_h is then

$$\begin{aligned} c_B(\kappa') - c_B(\kappa'') = c_R(\kappa') - c_R(\kappa'') &+ \alpha\left\{w_h(\kappa')\frac{\chi_h q^*_{bh}(\kappa')}{\beta_h(\kappa')} - \overline{u}\frac{\chi_\ell q^*_{b\ell}(\kappa')}{m - \beta_h(\kappa')}\right\} \\ &- \alpha\left\{w_h(\kappa'')\frac{\chi_h q^*_{bh}(\kappa'')}{\beta_h(\kappa'')} - \overline{u}\frac{\chi_\ell q^*_{b\ell}(\kappa'')}{m - \beta_h(\kappa'')}\right\}. \end{aligned} \tag{37}$$

Notice that $q^*_{n\ell}$ and $q^*_{b\ell}$ do not depend on κ_h or w_h, so κ_h does not affect production in the ℓ sector. Hence, we have $q^*_{b\ell}(\kappa') = q^*_{b\ell}(\kappa'')$. The only direct effect of a decrease in κ_h on the market-clearing conditions for h is through c_B. Since $q^*_{bh}(\kappa') > q^*_{bh}(\kappa'')$, holding all the other equilibrium outcomes in Equation (37) fixed, we must have $c_B(\kappa') - c_B(\kappa'') > 0$. Since $\beta_h = mF(c_B)$ must hold for all κ_h, $c_B(\kappa') > c_B(\kappa'')$ implies $\beta_h(\kappa') > \beta_h(\kappa'')$, since β_h decreases when c_B becomes smaller.

Since labor supply in h decreases, equilibrium wages may have to adjust after the shock. Recall that the equilibrium conditions imply $D(p_h(\kappa')) = \int_0^1 q^*_{jh}(\kappa')dj \leq \beta_h(\kappa') + \rho_h(\kappa')$, where the last inequality holds strict if $w_h(\kappa') = \overline{u}$, and with equality if $w_h(\kappa') > \overline{u}$.

If $w_h(\kappa') > \overline{u}$, wages increase when κ_h goes from κ' to κ'', as if they didn't there wouldn't be enough workers in h to satisfy $D(p_h(\kappa'')) \leq \beta_h(\kappa'') + \rho_h(\kappa'')$. Since $c_R = w_h - \overline{u}$, $w_h(\kappa'') > w_h(\kappa')$ implies $c_R(\kappa'') > c_R(\kappa')$ and, thus, $\rho_h(\kappa'') > \rho_h(\kappa')$. So, in this case, we have $\beta_h(\kappa') > \beta_h(\kappa'')$ and $\rho_h(\kappa'') > \rho_h(\kappa')$ in equilibrium.

If $w_h(\kappa') = \overline{u}$, we need to distinguish between two different cases. First, suppose that, holding all the other equilibrium outcomes fixed (that is, $w_h(\kappa') = w_h(\kappa'')$ and $c_R(\kappa') = c_R(\kappa'')$), the value $\beta_h(\kappa'')$ that solves the entry condition $c_B = c_R + \alpha \left\{ w_h \frac{\chi_h q^*_{bh}}{\beta_h} - \overline{u} \frac{\chi_\ell q^*_{b\ell}}{m-\beta_h} \right\}$ at $\kappa_h = \kappa''$ is such that we still have $D(p_h(\kappa'')) < \beta_h(\kappa'') + \rho_h(\kappa'')$. In this case, w_h does not need to increase after the drop in κ_h, so we have $\beta_h(\kappa') > \beta_h(\kappa'')$ and $\rho_h(\kappa') = \rho_h(\kappa'') = 0$.

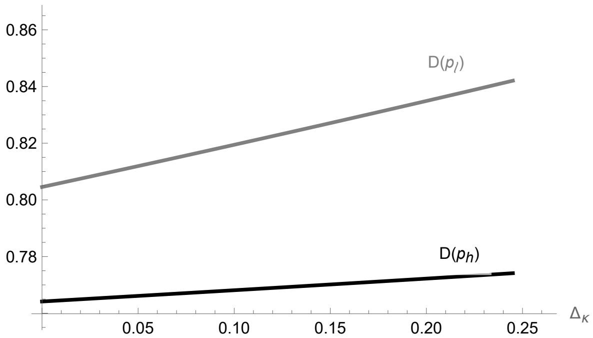
Second, suppose the opposite, meaning that, holding all the other equilibrium outcomes fixed (that is, $w_h(\kappa') = w_h(\kappa'')$ and $c_R(\kappa') = c_R(\kappa'')$), the value $\beta_h(\kappa'')$ that solves the entry condition $c_B = c_R + \alpha \left\{ w_h \frac{\chi_h q^*_{bh}}{\beta_h} - \overline{u} \frac{\chi_\ell q^*_{b\ell}}{m-\beta_h} \right\}$ at $\kappa_h = \kappa''$ is such that we have $D(p_h(\kappa'')) > \beta_h(\kappa'') + \rho_h(\kappa'')$. In this case, w_h needs to increase to reestablish market clearing. So, like before, we have $w_h(\kappa'') > w_h(\kappa')$, which implies $c_R(\kappa'') > c_R(\kappa')$ and, thus, $\rho_h(\kappa'') > \rho_h(\kappa')$. So, in this case, we have $\beta_h(\kappa') > \beta_h(\kappa'')$ and $\rho_h(\kappa'') > \rho_h(\kappa')$ in equilibrium.

In all the cases described above, our initial conjecture $w_h(\kappa'') \geq w_h(\kappa')$ is satisfied in equilibrium. The new equilibrium outcomes for h, that is, the tuple $\beta_h(\kappa'')$, $\rho_h(\kappa'')$, $w_h(\kappa'')$, and $p_h(\kappa'')$, are such that the market clearing conditions hold. That means $D(p_h(\kappa'')) = \int_0^1 q^*_{j\ell}(\kappa'')dj \leq \beta_h(\kappa'') + \rho_h(\kappa'')$, where the last inequality holds strict if $w_h(\kappa'') = \overline{u}$, and with equality if $w_h(\kappa'') > \overline{u}$. Since an equilibrium always exists, one such tuple always exists. $\square$

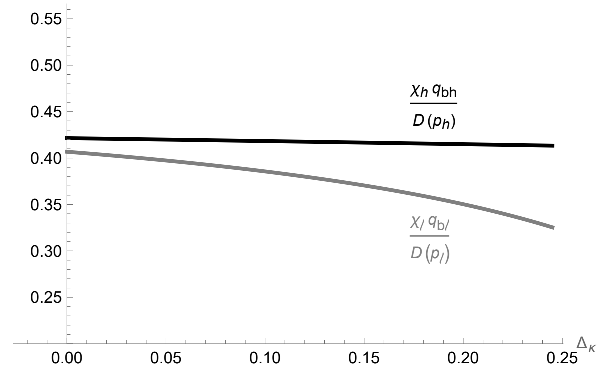
A.4 Uneven Competitive Pressure

In this section, we briefly discuss the robustness of our main qualitative results in Proposition 1 to the case in which the cost of capital decreases in *both* sectors, but the decline is more pronounced in the ℓ sector. To illustrate our results, we use the same numerical simulation of the model we described in Figure 1, but now consider the case in which both κ_h and κ_ℓ decrease. Figure IA1 plots the equilibrium outcomes against Δ_κ, which parametrizes the drop in κ_ℓ, while the drop in κ_h is $0.3 \times \Delta_k$. To simplify the exposition, we describe the first-period outcomes only.

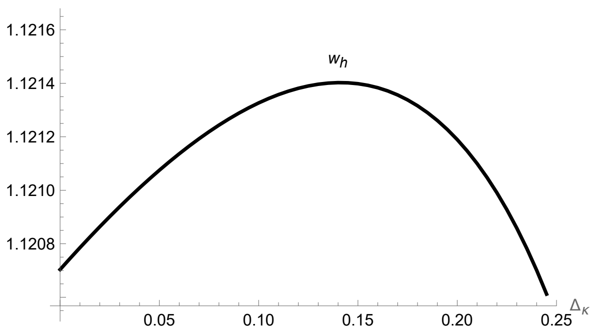
As Δ_κ increases, production increases and competition intensifies in both sectors, but relatively more in sector ℓ, since the reduction in κ_ℓ is larger than that in κ_h. The aggregate production of biased firms then shrinks significantly more in ℓ. The effects on total production and the relative



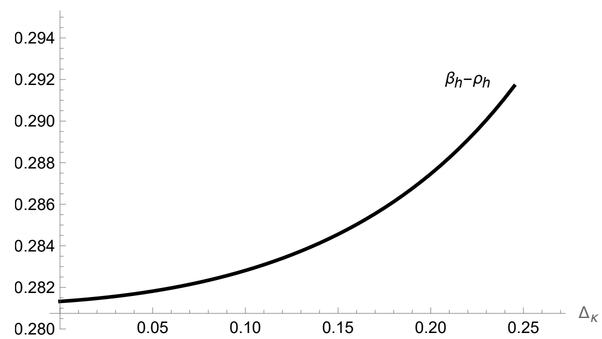
(a) Aggregate productions



(b) Share of biased firms



(c) Equilibrium wage in h



(d) Group differences in participation in h (sectoral gap)

Figure IA1. This figure plots some of the equilibrium outcomes against Δ_κ, where $\kappa_\ell = 0.5 - \Delta_\kappa$ and $\kappa_h = 0.7 - 0.3\Delta_\kappa$. In Panels (a) and (b), black lines correspond to sector h, and gray lines to sector ℓ. The other parameter values are the same as in Figure 1.

share of biased firms are described in Panels (a) and (b) respectively.

Panels (c) and (d) describe the effects on the equilibrium wage w_h and the sectoral gap, which is captured by the difference $\beta_h - \rho_h$ (the difference in the masses of blue and red workers that enter h). Since securing a job at a biased firm in ℓ becomes relatively more difficult, blue workers become increasingly more likely to seek employment in sector h. However, unlike the case in which only κ_ℓ decreases, the inflow of blue workers into h here does not necessarily crowd out the marginal red workers in that sector. The reason is that, for small values of Δ_κ, the inflow of blue workers alone is not enough to satisfy the increased labor demand in h that follows the reduction in κ_h. The equilibrium wage w_h then goes up so that some red workers are motivated to enter h (recall that all the red workers with $c_i \leq w_h - \overline{u}$ enter h in equilibrium, so that ρ_h always increases with w_h). The sectoral gap, however, still increases, since blue workers are still relatively more eager to enter h, because they respond to both the increase in w_h and in the relative chances to land a job at a biased firm in h versus in ℓ. Thus, β_h increases more than ρ_h when Δ_κ increases.

For larger values of Δ_κ, the comparative statics are the same as in Figure 1, with w_h decreasing and $\beta_h - \rho_h$ increasing with Δ_κ, where the sectoral gap here widens because β_h increases and ρ_h decreases when Δ_κ increases.

It is worth emphasizing that, for small values of Δ_κ, the effects of an increase in Δ_κ on equilibrium wages and gender sorting closely match our empirical results on the effects of the banking deregulation. After the deregulation (which here is captured by an increase in Δ_κ, which reduces κ_ℓ and, to a lesser extent, κ_h) we see that (a) relative wages for women and men converge in low-pay-gap sectors, mostly driven by a reduction in men's wages, (b) overall wages in high-pay-gap sectors increase, and (c) men become relatively more represented in high-pay-gap sectors.

B Additional Industry Characteristics

Table (B.1) lists industries exhibiting the highest and lowest pay gaps. Overall, service-oriented industries exhibit the highest pay gaps, which include Legal services, Advertising, Accounting services, Physicians, and Dentists. Agricultural and care industries exhibit more equitable pay. Pay gaps in Physicians and Dentists offices are mostly driven by high levels of occupational segregation, where women dominate care-taking activities like nursing. High-pay-gap sectors on average pay more than low-pay-gap sectors throughout the sample period (Figure 3.A). Compared with low-pay-gap sectors, average pay is about 21 percent higher in high-pay-gap sectors. This difference is driven almost exclusively by higher wages for men (Figure 3.B).

C Balance

C.1 Balance in Covariates

Figure (C.3) presents differences in covariates (pertaining to both firms and workers) between states that have not been deregulated and states that will be deregulated within the next year. Differences are shown for both intrastate deregulation events and interstate deregulation events.

C.2 Balance in Covariates' Trends

Figure (C.4) presents differences in the trend of covariates (pertaining to both firms and workers, and presented in Figure (C.3)) between states that have not been deregulated and states that will be deregulated within the next year. Differences are shown for both intrastate deregulation events and interstate deregulation events.

D Symmetry, Generalizability across Periods, and Vulnerability

We have shown that banking deregulation increases relative wages for women in low-paying low-pay-gap sectors. A natural ensuing question is whether these gains are permanent. More specifically, if an easing of credit access reduces the pay gap for women in some industries, do credit contractions have the opposite effect—that is, are women's wages more vulnerable to credit contractions?

Additional data sources. For our analysis of credit contractions, we use bank mergers that led to branch closings as our treatment. We use two alternative methods to pinpoint mergers that work as credit supply shocks. For both methods we restrict to mergers occurring during the 2000s but prior to the Great Recession to avoid capturing many of the mergers that occurred *because* of the recession. We use the FDIC Call Reports and Summary of Deposits to identify business combinations and branch closings.

In our first method, we select mergers with the largest transfer of branches. This is important since the credit shock should be strong enough to affect labor markets—which are typically larger than census tracts. For this reason, we restrict to mergers with more than 1000 branches acquired. This leaves us with two specific mergers: the merger of Firstar Corporation with US Bancorp in 2001, and the merger of Bank of America and FleetBoston Financial in 2004. In our second method, as a form of robustness, we run our analysis using mergers that conform exactly to Nguyen (2019). We choose mergers in which both Buyer and Target held at least $10 billion in premerger assets, and the branch network of each bank overlaps in at least one census tract.

Empirical specification. Nguyen (2019) shows that post-merger branch consolidation reduces local small business lending. In contrast to bank deregulation which occurred at the state level, bank mergers led to credit contraction at county levels mostly by limiting access to local branches. Since the effects stemming from bank mergers are more localized, we focus on the effects of credit contractions at the county rather than state level.

We assess whether a reduction in credit increases the gender pay gap in low-pay-gap sectors. Let $\Omega = \{High, Medium, Low\}$ denote the classifications of industries into low-, medium-, and high- (pre-period) pay-gap sectors, and I_j^k a dummy indicating whether industry j falls into classification $k \in \Omega$. We now have the following specification:

$$\begin{aligned} Y_{ijct} \quad = \quad & \alpha + \sum_{k \in \Omega} \beta_k D_{ct} \times I_j^k + \sum_{k \in \Omega} \gamma_k D_{ct} \times I_j^k \times F_i + \sum_{k \in \Omega} \delta_k I_j^k \times F_i \\ & + \sum_{k \in \Omega} \zeta_k I_j^k + \pi X_{ijst} + \tau_{t,female} + \mu_{s,female} + \epsilon_{ijst} \end{aligned} \tag{38}$$

for

$$D_{ct} = Post_{mt} \times Close_{cm},$$

where i denotes individual, c denotes county, m denotes merger deal and t denotes time. $Post_{mt}$ equals 1 if merger m precedes year t, and $Close_{cm}$ is a dummy equal to 1 if a branch has closed in county c after merger m.

Effects of bank mergers on gender pay gaps. We test whether, following weakened credit conditions and absent better job prospects for workers at high-paying high-pay-gap sectors, credit-induced relative wage gains for women in low-pay-gap sectors disappears, that is, whether relative wages for women would decline. We find that is the case. Table (D.2) reports the effects of bank mergers on wages. While high- and median-pay gap sectors are largely unaffected by bank mergers, low-pay-gap sectors show a reduction in women's wages of about 3 to 4 percent, while wages for men increase by about 2 percent. Overall, the pay gap increases by about 6 percent. Importantly, workers in high-pay-gap sectors are unaffected. The results are robust to the inclusion of controls, including age, race, and marital status.

Jointly, our results so far show that credit expansions alter workers' calculus of industry choice in a gendered way. Our bank merger analysis highlights that this effect is not permanent. Credit contractions can erase the gains women had obtained in low-pay-gap sectors while not affecting the gains men enjoyed in high-pay-gap sectors. Consequently, the emergence of labor dynamics leaves women more vulnerable to the deterioration of economic conditions.

The vulnerability of women's wages goes hand in hand with changes in the cyclicality of women's employment. Since the 1991 recession, female employment cyclicality has resembled that of male employment (Albanesi 2019). Moreover, female labor participation has been associated with increases in total factor productivity, while reduced growth in female participation (which would follow declines in female wages) is connected with jobless recoveries, affecting overall economic performance (Albanesi 2019).

E Robustness of Industry Equitability Categorization

A potential concern is that the low-pay-gap or high-pay-gap classifications are endogenous outcomes, and thus we cannot include the always-treated states in our analysis. For our main categorization, whereby industries are categorized during the 5-year window spanning 1976 to 1980, there are 17 always-treated states for intrastate deregulation and one always-treated state for interstate deregulation (Maine).[1]

To mitigate this concern, we show that excluding all 17 always-treated states does not change industry categorization. Table (E.3) shows that all high-pay-gap sectors remain classified as high-pay-gap after excluding always-treated states. Only one industry classified as low-pay-gap was reclassified after excluding the always-treated states: lumber and building material retailing (CPS ind1990 = 580) moved from the low-pay-gap category to the medium-pay-gap category. Overall, only two industries changed classification – the other being electric light and power (CPS ind1990 = 450), which moved from the medium-pay-gap category to the high-pay-gap category.

To further mitigate any concerns, we provide three additional sets of robustness analyses: (1) estimates from both the interstate deregulation and the intrastate deregulation for comparison; (2) estimates using a categorization whereby industries are categorized during the 5 year window spanning 1968 to 1972 (Appendix Table G.9), which reduces always-treated states to 13; and (3) categorization using industry measures of asset tangibility (Table G.8). All estimates are similar in direction, magnitude, and statistical significance.

[1]Interstate deregulation estimates, excluding Maine, are presented in Table (E.4).

F Effects on Direct Lending to Workers

F.1 Effects of Bank Deregulation on Gender Differences in Housing and Transportation

One potential concern is that financial deregulation operates by *directly* affecting workers instead of firms. To mitigate these concerns, we estimate Equation (8) using household outcomes that would directly benefit from increased access to credit: homeownership, holding a mortgage, car ownership, moving into a new dwelling (potentially triggered by relocating for a better job), and transportation time (potentially triggered by commuting to a better job). All these dimensions are potentially affected by financial constraints.

We report estimates in Tables (F.5) and (F.6). While it is not clear whether relaxing financial constraints for any of these dimensions would lead to the cross-sectoral dynamics we document in the paper, it is reassuring to find no economic or statistically meaningful gender differences following deregulation along any of these dimensions for both intrastate and interstate deregulation.

F.2 Effects of Bank Deregulation on Gender Differences in Self-employment

Another potential concern is that financial deregulation may affect self-employment opportunities for women. We test this directly by estimating Equation (8) using self-employment as an outcome. Self-employment can become easier, if financial constraints are relaxed, or harder, if relaxing the financial constraints of bigger firms makes it harder for individuals to compete.

We report estimates in Table (F.7) by type of self-employment for: (1) all sectors, (2) low-pay-gap sectors only, and (3) high-pay-gap sectors only. Panel A shows estimates for intrastate deregulation, while Panel B shows effects for interstate deregulation. Intrastate deregulation does not affect gender differences in self-employment for any of the three industry categories and any type of self-employment. Interstate deregulation does not have economically meaningful effects on gender differences in unincorporated self-employment. By contrast, for incorporated self-employment, there are small but statistically significant gender differences in incorporated self-employment of between 0.69 and 1.04 percent. These effects are mostly driven by lower rates of incorporated self-employment among men than increases among women. Despite this, it is unlikely that these gender differences in incorporated self-employment for interstate deregulation are driving our core results, which hold for both intrastate and interstate deregulation.

G Alternative Categorizations

We repeat the main estimates of the paper (Table 5) using alternative categorizations of workers. In particular, we categorize industries by (i) using 1968–1972 as the categorization period instead of 1976–1980 (Table G.9), and (ii) by asset tangibility (Table G.8). Our main results do not change meaningfully if we follow an alternative categorization procedure. Further analysis of this robustness exercise is contained in Section 6.3.

Appendix Figures and Tables

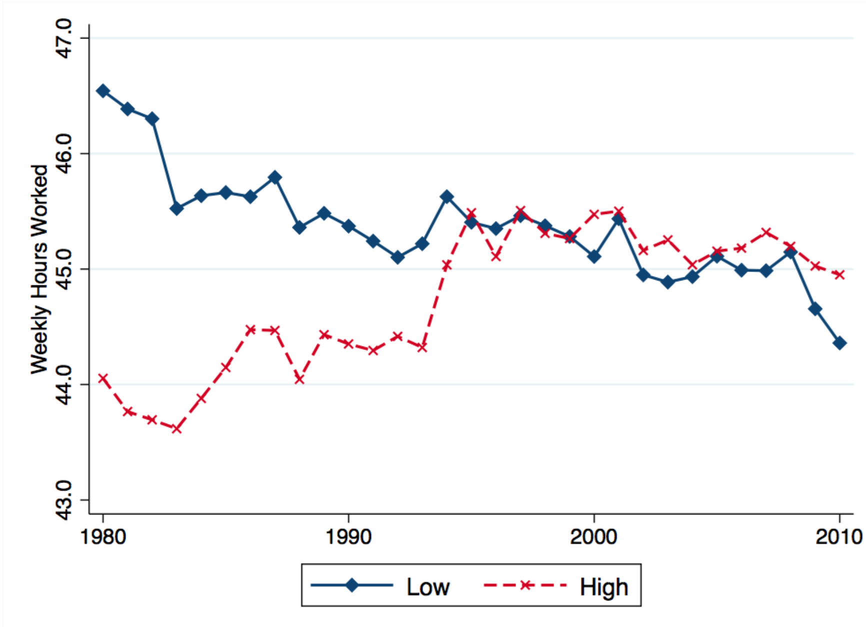
Table B.1: Highest and Lowest Pay Gap Sectors

Top 10 Industries	Bottom 10 Industries
Offices and Clinics of Dentists	Agricultural Production, Crops
Offices and Clinics of Physicians	Gasoline Service Stations
Legal Services	Grain Mill Products
Drug Stores	Religious Organizations
Computer and Data Processing Services	Nursing and Personal Care Facilities
Advertising	Social Services
Miscellaneous Fabricated Textile Products	Household Appliance Stores
Management and Public Relations Services	Beverage Industries
Miscellaneous Professional and Related Services	Oil and Gas Extraction
Accounting, Auditing, and Bookkeeping Services	Residential Care Facilities, without nursing

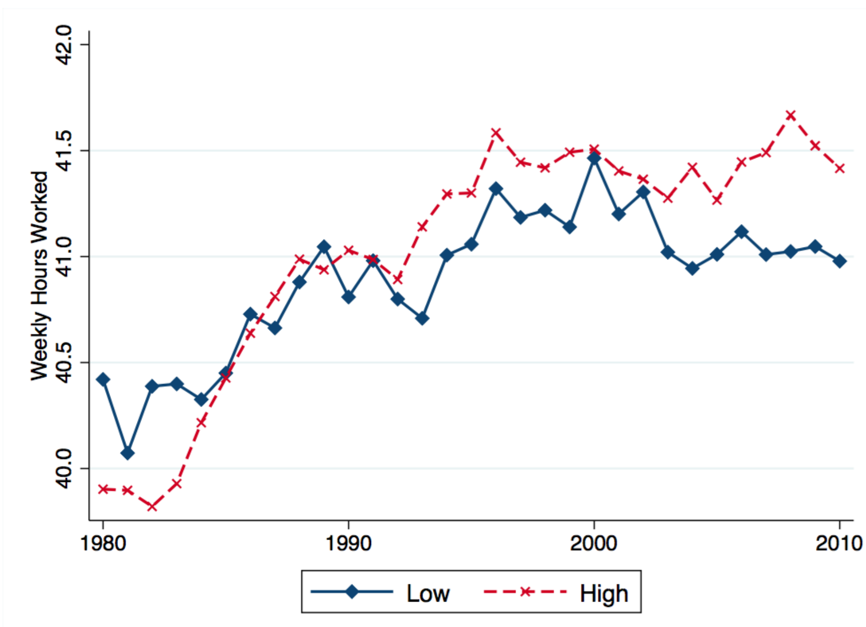
Notes: This table lists the top 10 and bottom 10 industries by pay gap. Pay gap is the difference between the mean log wage of male and female employees by industry during the years before and after bank deregulation using CPS data. The sample is restricted to industries that hired at least 100 female and 100 male employees during the sample period, which encompasses 105 industries (out of 189 total industries) in the CPS 1990 industry classification codes.

Figure B.1 Working Hours by Gender

Panel A: Average Working Hours by Male Workers

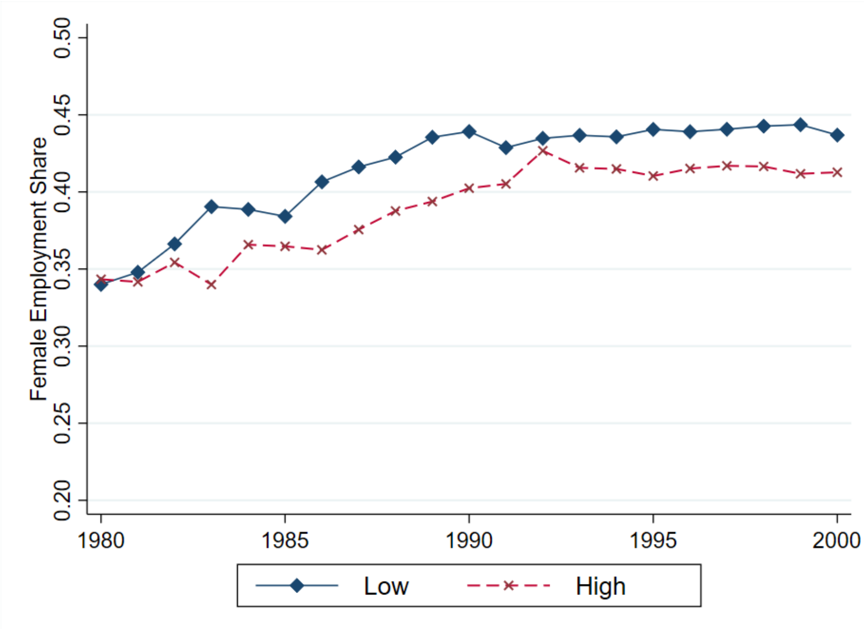


Panel B: Average Working Hours by Female Workers



Notes: This figure plots the average weekly hours worked by gender and industry during 1980–2010 using the CPS data. The top panel plots the average weekly hours worked for full time working-age male employees in industries excluding FIRE industries. The bottom panel plots the average weekly hours worked for female employees. Industries are categorized into low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution.

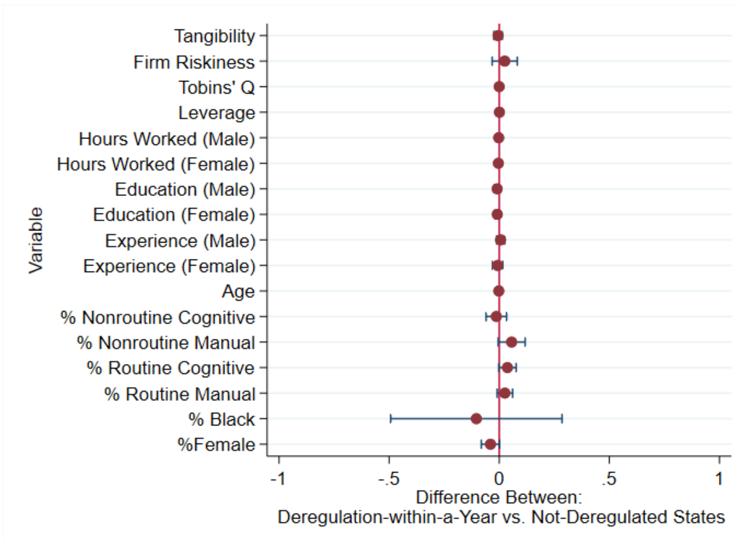
Figure B.2 Female Share in Low and High-Pay-Gap Sectors



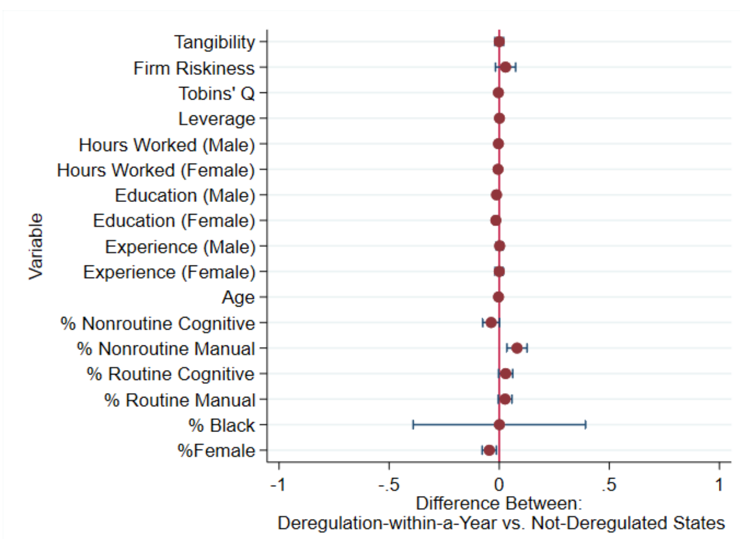
Notes: This figure plots the share of women in low- and high-pay-gap sectors using the CPS data from 1976-2014. The sample includes full time working-age adults. The sample excludes individuals working in the FIRE industries. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution.

Figure C.3 Balance in Covariates between Nonderegulated and Deregulated (within a year) States

Panel A: Intrastate Deregulation



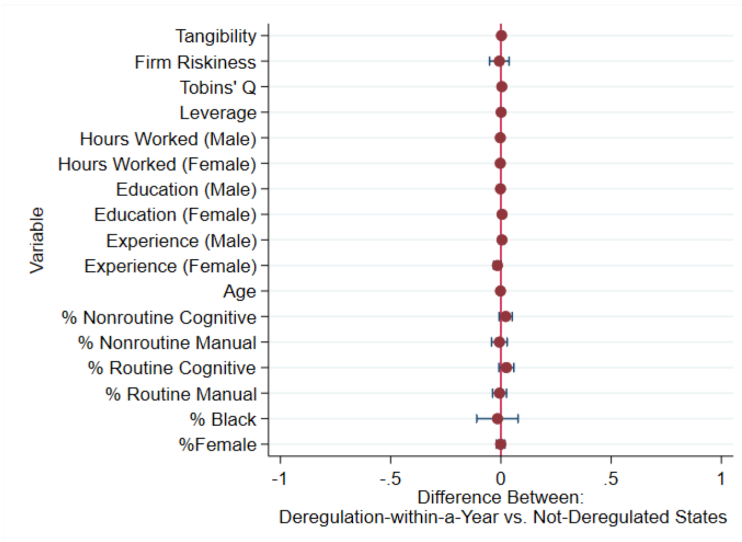
Panel B: Interstate Deregulation



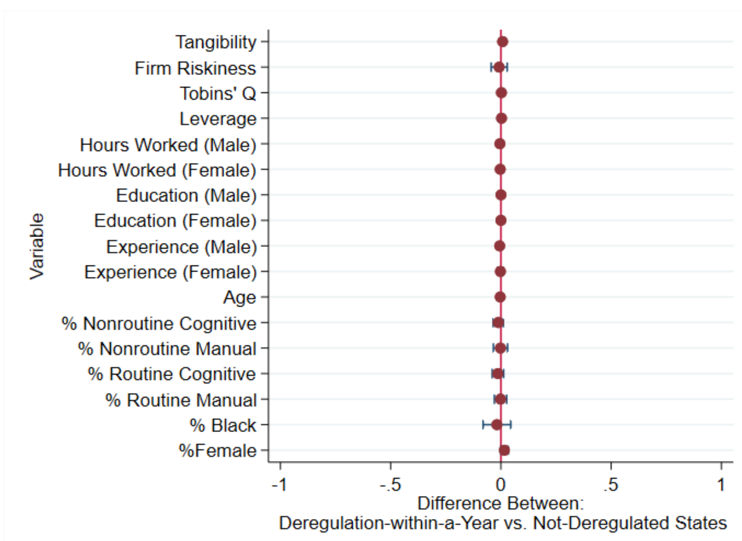
Notes: This figure shows the balance in covariates between states that have been deregulated (just before the passage of deregulation) and states that have not been deregulated. Normalized differences are computed by subtracting the average of each characteristic by deregulation status and then combining the averages. Panel A illustrates the differences in the case of intrastate deregulation, and Panel B illustrates those for interstate deregulation. Tangibility, firm riskiness (volatility of firm earnings), Tobin's Q, and leverage are obtained from Compustat at the industry level and averaged by worker. Thus, they should be interpreted as workers' exposure to those industry characteristics. Data on hours worked, education, age, experience, % Black, and % female are from the CPS. Occupation classifications by routine/nonroutine and cognitive/manual are based on the *Dictionary of Occupational Titles* (DOT). Data cover the years 1976–2014.

Figure C.4 Balance in Covariates' Trends between Nonderegulated and Deregulated (within a year) States

Panel A: Intrastate Deregulation



Panel B: Interstate Deregulation



Notes: This figure shows the balance in covariates between states that have been deregulated (just before the passage of deregulation) and states that have not been deregulated. Normalized differences are computed by subtracting the average of each characteristic by deregulation status and then combining the averages. Tangibility, firm riskiness (volatility of firm earnings), Tobin's Q, and leverage are obtained from Compustat at the industry level and averaged by worker. Thus, they should be interpreted as workers' exposure to those industry characteristics. Data on hours worked, education, age, experience, % Black, and % female are from the CPS. Occupation classifications by routine/nonroutine and cognitive/manual are based on the *Dictionary of Occupational Titles* (DOT). Data cover the years 1976–2014.

Table D.2: Effects of Bank Mergers on Gender Pay Gap

	TWFE	*County × Year × Gender*			
	(1)	(2)	(3)	(4)	(5)
Merger × Female – Low PG Sector	-0.039***	-0.040***	-0.039***	-0.028***	-0.034***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Merger × Female – High PG Sector	0.006	0.009	0.010	0.022**	0.009
	(0.012)	(0.011)	(0.011)	(0.009)	(0.011)
Merger × Female	0.015				
	(0.013)				
Merger – Low PG Sector	0.009	0.010	0.010	0.003	0.009
	(0.010)	(0.010)	(0.010)	(0.010)	(0.009)
Merger – High PG Sector	0.014	0.012	0.012		0.015
	(0.010)	(0.011)	(0.011)	(0.011)	(0.010)
Merger	-0.002				
	(0.012)				
Female – High PG Sector	-0.050***	-0.051***	-0.051***	-0.060***	-0.044***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)
Female – Low PG Sector	0.131***	0.130***	0.129***	0.107***	0.127***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Low PG Sector	-0.040***	-0.040***	-0.039***	-0.071***	-0.041***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
High PG Sector	0.132***	0.132***	0.131***	0.091***	0.118***
	(0.006)	(0.006)	(0.006)	(0.004)	(0.005)
N	477,550	477,346	477,346	474,489	477,346
County × Gender	Yes	N/A	N/A	N/A	N/A
Year × Gender	Yes	N/A	N/A	N/A	N/A
County × Year × Gender	No	Yes	Yes	Yes	Yes
Age × Gender	No	No	Yes	Yes	Yes
Skills × Gender	No	No	No	Yes	No
Marital Status × Gender	No	No	No	No	Yes
Race × Gender	No	No	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of bank merger on log hourly wages. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. All specifications control for Mincerian traits × gender. Column (1) includes county × gender and year × gender fixed effects. Columns (2)–(5) include county × year × gender fixed effects. Column (3) controls for age-gender fixed effects. Column (4) accounts for gender differences in the skill content of jobs. The skill content of a job follows the routine/nonroutine, cognitive/manual classification used in Autor et al. (2003). Columns (5) adds demographic controls × gender. Errors are clustered at the county level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table E.3: Comparison of Industry Categorization using Alternative Sample, Excluding States Always-Treated for Intrastate Bank Deregulation

# Industries in Subsample Original Categorization (1)	# Industries Unchanged After Recategorization Excluding Always Treated (2)	Match Rate(%) (3)
Panel A: All Industries		
189	187	99%
Panel B: Low Pay Gap Sector		
46	45	98%
Panel C: High Pay Gap Sector		
51	51	100%

Notes: The table reports the number of low and high-pay-gap sectors within a subsample excluding the 17 states that deregulated prior to 1980. Column (1) shows the number of total, low-, and high-pay-gap sectors categorized using the full sample. Column (2) shows the number of industries whose categories remain unchanged after they are recategorized as low-, medium-, and high-pay-gap sectors using the subsample. Column (3) reports the match rate between the main and sub-sample. Two industries changed categories after re-categorization: *Electric light and power* (CPS ind1990 = 450) moved from the medium-pay-gap to the high-pay-gap category, while *Lumber and building material retailing* (CPS ind1990 = 580) moved from the low-pay-gap to the medium-pay-gap category.

Table E.4: Effects of Interstate Bank Deregulation on Gender Pay Gap, Excluding States Always-Treated for Intrastate Bank Deregulation

	(1)	(2)	(3)	(4)
Deregulation × Female	-0.02**	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)
Deregulation × Female – Low PG Sector	0.05***	0.05***	0.04***	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Deregulation × Female – High PG Sector	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Deregulation	-0.05***	-0.05***	-0.05***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
Deregulation – Low PG Sector	0.01*	0.01*	0.02**	0.01*
	(0.01)	(0.01)	(0.01)	(0.01)
Deregulation – High PG Sector	0.10***	0.10***	0.10***	0.10***
	(0.01)	(0.01)	(0.01)	(0.01)
Female – Low PG Sector	0.13***	0.13***	0.13***	0.13***
	(0.01)	(0.01)	(0.01)	(0.01)
Female – High PG Sector	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(.01)	(.01)	(.01)
Low PG Sector	-0.19***	-.19***	-.19***	-.19***
	(0.01)	(.01)	(.01)	(.01)
High PG Sector	0.02**	0.02**	0.02***	0.02**
	(0.01)	(0.01)	(0.01)	(0.01)
N	804,878	804,878	804,878	804,878
State × Gender	Yes	Yes	Yes	Yes
Year × Gender	Yes	Yes	Yes	Yes
Age × Gender	No	Yes	Yes	Yes
Marital Status × Gender	No	No	Yes	No
Race × Gender	No	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of bank deregulation on log hourly wages, excluding states that deregulated prior to 1980. Columns (1)–(4) report the effects of intrastate deregulation, excluding the 17 states that deregulated prior to 1980. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. All specifications control for Mincerian traits×gender, and state×gender and year×gender fixed effects. Columns (3)–(4) additionally control for age×gender fixed effects. For more details, see Section 4.2. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table F.5: Effects of Intrastate Bank Deregulation on Gender Differences in Housing and Transportation

	Owns House (1)	Moved House (2)	Mortgage (3)	Owns Car (4)	Transportation Time (5)
Panel A: All Industries					
Deregulation × Female	-0.0024	-0.0006	-0.0014	-0.0015	0.0069
	(0.0068)	(0.0051)	(0.0024)	(0.0032)	(0.0063)
Deregulation	0.0171*	-0.0035	-0.0102	0.0153**	-0.0032
	(0.0092)	(0.0065)	(0.0082)	(0.0067)	(0.0147)
N	815,650	688,547	5,345,055	8,806,388	6,144,008
Panel B: Low Pay Gap Industries					
Deregulation × Female	-0.0088	0.0015	-0.0036	-0.0064	0.0072
	(0.0097)	(0.0093)	(0.0029)	(0.0042)	(0.0078)
Deregulation	0.0181**	-0.0052	-0.0085	0.0150**	-0.0063
	(0.0090)	(0.0085)	(0.0072)	(0.0064)	(0.0119)
N	207,486	179,480	1,139,255	1,972,398	1,412,705
Panel C: High Pay Gap Industries					
Deregulation × Female	0.0051	0.0041	-0.0000	-0.0003	-0.0015
	(0.0100)	(0.0107)	(0.0046)	(0.0027)	(0.0076)
Deregulation	0.0063	-0.0052	-0.0060	0.0152**	0.0099
	(0.0107)	(0.0084)	(0.0092)	(0.0063)	(0.0148)
N	205,400	172,006	1,279,888	2,058,252	1,421,266
County × Gender	Yes	Yes	Yes	Yes	Yes
Year × Gender	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Data	CPS	CPS	Census	Census	Census

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of intrastate bank deregulation on differences in housing and transportation by gender using the CPS data from 1976–2014 and the census data from 1980–2000. Both samples are restricted to working-age full-time full-year workers in the private sectors, excluding the FIRE industries. The dependent variables are ownership of dwelling for column (1), moving to a different house for column (2), holding a mortgage for column (3), car ownership for column (4), and transportation time for column (5). Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. All specifications control for Mincerian traits×gender, and state×gender and year×gender fixed effects. For more details, see Section 4.2. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table F.6: Effects of Interstate Bank Deregulation on Gender Differences in Housing and Transportation

	Owns House (1)	Moved House (2)	Mortgage (3)	Owns Car (4)	Transportation Time (5)
Panel A: All Industries					
Deregulation × Female	-0.0014	-0.0000	-0.0118	-0.0053	0.0053
	(0.0025)	(0.0030)	(0.0117)	(0.0072)	(0.0075)
Deregulation	-0.0014	0.0014	-0.0135	0.0114*	-0.0022
	(0.0067)	(0.0055)	(0.0139)	(0.0062)	(0.0048)
N	5,345,055	8,806,388	6,144,008	815,650	688,547
Panel B: Low Pay Gap Industries					
Deregulation × Female	-0.0074	-0.0034	-0.0064	-0.0187	-0.0053
	(0.0097)	(0.0049)	(0.0189)	(0.0180)	(0.0114)
Deregulation	-0.0079	-0.0011	-0.0070	0.0238**	-0.0071
	(0.0078)	(0.0072)	(0.0160)	(0.0093)	(0.0118)
N	1,139,255	1,972,398	1,412,705	207,486	179,480
Panel C: High Pay Gap Industries					
Deregulation × Female	-0.0015	-0.0029	-0.0155	-0.0169	0.0093
	(0.0041)	(0.0034)	(0.0112)	(0.0128)	(0.0146)
Deregulation	0.0012	0.0013	-0.0206***	0.0119	-0.0084
	(0.0083)	(0.0035)	(0.0040)	(0.0073)	(0.0063)
N	1,279,888	2,058,252	1,421,266	205,400	172,006
County × Gender	Yes	Yes	Yes	Yes	Yes
Year × Gender	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Data	CPS	CPS	Census	Census	Census

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of interstate bank deregulation on differences in housing and transportation by gender using the CPS data from 1976–2014 and the census data from 1980–2000. Both samples are restricted to working-age full-time full-year workers in the private sectors, excluding the FIRE industries. The dependent variables are ownership of dwelling for column (1), moving to a different house for column (2), holding a mortgage for column (3), car ownership for column (4), and transportation time for column (5). Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. All specifications control for Mincerian traits×gender, and state×gender and year×gender fixed effects. For more details, see Section 4.2. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table F.7: Effects of Bank Deregulation on Gender Differences in Self-Employment

	Self-Employed Incorporated			Self-Employed Unincorporated			Incorporated|Self-Employed		
	All	Low Pay Gap	High Pay Gap	All	Low Pay Gap	High Pay Gap	All	Low Pay Gap	High Pay Gap
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Intrastate Deregulation									
Deregulation × Female	0.0034	0.0029	0.0065	0.0001	0.0005	0.0004	0.0009	0.0091	-0.0096
	(0.0029)	(0.0035)	(0.0039)	(0.0006)	(0.0011)	(0.0012)	(0.0288)	(0.0443)	(0.0391)
Deregulation	-0.0012	-0.0005	-0.0027	-0.0002	-0.0003	-0.0014	-0.0041	-0.0033	-0.0052
	(0.0043)	(0.0042)	(0.0055)	(0.0009)	(0.0009)	(0.0018)	(0.0183)	(0.0223)	(0.0186)
N	1,214,036	290,286	270,618	1,214,036	290,286	270,618	51,643	11,219	17,367
Panel B: Interstate Deregulation									
Deregulation × Female	0.0069^{***}	0.0104^{***}	0.0081^{**}	0.0004	0.0027^{**}	-0.0004	0.0019	-0.0366	0.0315
	(0.0016)	(0.0025)	(0.0031)	(0.0004)	(0.0012)	(0.0010)	(0.0210)	(0.0501)	(0.0574)
Deregulation	-0.0068^{***}	-0.0101^{***}	-0.0056	0.0005	-0.0011	0.0012	-0.0226^{*}	-0.0302	-0.0146
	(0.0024)	(0.0028)	(0.0044)	(0.0005)	(0.0012)	(0.0011)	(0.0125)	(0.0407)	(0.0161)
N	1,214,036	290,286	270,618	1,214,036	290,286	270,618	51,643	11,219	17,367
County × Gender	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year × Gender	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports difference-in-differences estimates of the effects of bank deregulation on the gender differences in self-employment using CPS data. We restrict to working-age full-time full-year workers and self-employed individuals in the private sector excluding FIRE industries. The dependent variable for columns (1)–(3) is an indicator variable for self-employed incorporated status; for columns (4)–(6) is an indicator variable for self-employed unincorporated status; and for columns (7)–(9) is an indicator variable for self-employed incorporated status conditional on self-employment. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1976–1980. High-pay-gap sectors are defined as industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. All specifications control for Mincerian traits×gender, and state×gender and year×gender fixed effects. For additional details, see Section 4.2. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table G.8: Effects of Bank Deregulation on Gender Pay Gap,
— Industries Categorized by Asset Tangibility

	Intrastate Deregulation					Interstate Deregulation				
	TWFE	*State* × *Year* × *Gender*				TWFE	*State* × *Year* × *Gender*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Deregulation × Female – Low PG Sector	0.069***	0.067***	0.068***	0.068***	0.060***	0.034*	0.031*	0.033*	0.039**	0.025
	(0.023)	(0.022)	(0.022)	(0.019)	(0.022)	(0.018)	(0.018)	(0.017)	(0.017)	(0.016)
Deregulation × Female – High PG Sector	0.003	0.001	0.001	0.011	-0.000	0.015	0.017	0.017	0.027**	0.017
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Deregulation × Female	-0.004					-0.002				
	(0.007)					(0.008)				
Deregulation – Low PG Sector	-0.055***	-0.052***	-0.052***	-0.041**	-0.043**	-0.039***	-0.036**	-0.037***	-0.027**	-0.028**
	(0.020)	(0.019)	(0.019)	(0.017)	(0.019)	(0.014)	(0.014)	(0.014)	(0.013)	(0.012)
Deregulation – High PG Sector	0.065***	0.068***	0.068***	0.069***	0.068***	0.054***	0.052***	0.052***	0.056***	0.051***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.008)	(0.008)	(0.008)	(0.006)	(0.007)
Deregulation	-0.015					-0.016*				
	(0.010)					(0.008)				
Female – Low PG Sector	-0.087***	-0.085***	-0.085***	-0.078***	-0.089***	-0.054**	-0.052**	-0.053**	-0.050**	-0.057**
	(0.023)	(0.022)	(0.022)	(0.019)	(0.020)	(0.023)	(0.023)	(0.023)	(0.022)	(0.022)
Female – High PG Sector	0.016	0.017	0.017	0.009	0.010	0.005	0.002	0.003	-0.005	-0.006
	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.009)	(0.010)	(0.010)	(0.010)	(0.011)
Low PG Sector	-0.143***	-0.145***	-0.144***	-0.123***	-0.136***	-0.158***	-0.160***	-0.159***	-0.136***	-0.151***
	(0.021)	(0.020)	(0.020)	(0.019)	(0.019)	(0.021)	(0.021)	(0.020)	(0.019)	(0.020)
High PG Sector	-0.095***	-0.097***	-0.097***	-0.079***	-0.092***	-0.081***	-0.079***	-0.079***	-0.064***	-0.074***
	(0.013)	(0.013)	(0.013)	(0.012)	(0.012)	(0.010)	(0.011)	(0.011)	(0.010)	(0.011)
N	867,993	867,993	867,993	863,476	867,993	867,993	867,993	867,993	863,476	867,993
State × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Year × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
State × Year × Gender	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Age × Gender	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Skills × Gender	No	No	No	Yes	No	No	No	No	Yes	No
Marital Status × Gender	No	No	No	No	Yes	No	No	No	No	Yes
Race × Gender	No	No	No	No	Yes	No	No	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of bank deregulation on log hourly wages, when industries are categorized by their level of asset tangibility. Columns (1)–(5) report the effects of intrastate deregulation as the treatment, and columns (6)–(10) report the effects of interstate deregulation as the treatment. Deregulation is a dummy variable that takes the value 1 for the years after deregulation and 0 otherwise. Industries are categorized as low-asset-tangibility and high-asset-tangibility based on the difference in the mean asset tangibility share in each industry during 1976–1980. The high-asset-tangibility industries refer to industries that belong to the top 25 percent of the asset tangibility distribution, and the low-asset-tangibility industries refer to those in the bottom 25 percent of the asset tangibility distribution. High tangibility is a dummy variable that takes the value 1 for the high-asset-tangibility industries and 0 otherwise. Low tangibility is a dummy variable that takes the value 1 for the low-asset-tangibility industries and 0 otherwise. All specifications control for Mincerian traits × gender. Columns (1) and (6) include state × gender and year × gender fixed effects. Columns (2)–(5) and (7)–(10) include state × year × gender fixed effects. Columns (3) and (8) control for age-gender fixed effects. Columns (4) and (9) account for gender differences in the skill content of jobs. The skill content of a job follows the routine/nonroutine, cognitive/manual classification used in Autor et al. (2003). Columns (5) and (10) add demographic controls × gender. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table G.9: Effects of Bank Deregulation on Gender Pay Gap
— Industries Categorized based on Pay Gaps from 1968 to 1972

	Intrastate Deregulation					Interstate Deregulation				
	TWFE	*State × Year × Gender*				TWFE	*State × Year × Gender*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Deregulation × Female – Low PG Sector	0.057***	0.054***	0.054***	0.051***	0.046***	0.052***	0.050***	0.050***	0.047***	0.041***
	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Deregulation × Female – High PG Sector	0.012	0.012	0.011	0.006	0.011	0.017**	0.016**	0.015**	0.012	0.015*
	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)
Deregulation × Female	-0.019					-0.015				
	(0.013)					(0.009)				
Deregulation – Low PG Sector	-0.043***	-0.040***	-0.040***	-0.040***	-0.035***	-0.032***	-0.030***	-0.030***	-0.034***	-0.024**
	(0.012)	(0.012)	(0.012)	(0.010)	(0.012)	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)
Deregulation – High PG Sector	0.052***	0.052***	0.051***	0.039***	0.048***	0.056***	0.055***	0.055***	0.042***	0.052***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
Deregulation	-0.016					-0.035***				
	(0.014)					(0.008)				
Female – Low PG Sector	0.062***	0.064***	0.064***	0.042***	0.062***	0.068***	0.069***	0.069***	0.048***	0.067***
	(0.010)	(0.010)	(0.010)	(0.008)	(0.010)	(0.008)	(0.008)	(0.008)	(0.007)	(0.008)
Female – High PG Sector	-0.024**	-0.023**	-0.022**	0.007	-0.019**	-0.028***	-0.027***	-0.026***	0.002	-0.023***
	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
Low PG Sector	-0.112***	-0.114***	-0.114***	-0.116***	-0.108***	-0.122***	-0.124***	-0.123***	-0.122***	-0.117***
	(0.017)	(0.016)	(0.016)	(0.015)	(0.016)	(0.012)	(0.012)	(0.012)	(0.011)	(0.012)
High PG Sector	0.068***	0.068***	0.068***	0.051***	0.064***	0.070***	0.069***	0.070***	0.052***	0.065***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
N	774,186	774,186	774,186	772,261	774,186	774,186	774,186	774,186	772,261	774,186
State × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
Year × Gender	Yes	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A
State × Year × Gender	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Age × Gender	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Skills × Gender	No	No	No	Yes	No	No	No	No	Yes	No
Marital Status × Gender	No	No	No	No	Yes	No	No	No	No	Yes
Race × Gender	No	No	No	No	Yes	No	No	No	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the difference-in-differences estimates of the effects of bank deregulation on log hourly wages when industries are categorized based on the gender pay gap during the years 1968–1972 instead of 1976–1980. Columns (1)–(5) report the effects of intrastate deregulation as the treatment, and columns (6)–(10) report the effects of interstate deregulation as the treatment. Deregulation is a dummy variable that takes the value 1 for the years after deregulation and 0 otherwise. Industries are categorized as low-pay-gap and high-pay-gap based on the difference in the mean log wage between male and female employees in each industry during 1968–1972. High-pay-gap sectors refer to industries that belong to the top 25 percent of the pay gap distribution, and low-pay-gap sectors refer to those in the bottom 25 percent of the pay gap distribution. High PG is a dummy variable that takes the value 1 for high-pay-gap sectors and 0 otherwise. Low PG is a dummy variable that takes the value 1 for low-pay-gap sectors and 0 otherwise. All specifications control for Mincerian traits × gender. Columns (1) and (6) include state × gender and year × gender fixed effects. Columns (2)–(5) and (7)–(10) include state × year × gender fixed effects. Columns (3) and (8) control for age-gender fixed effects. Columns (4) and (9) account for gender differences in the skill content of jobs. The skill content of a job follows the routine/nonroutine, cognitive/manual classification used in Autor et al. (2003). Columns (5) and (10) add demographic controls × gender. Errors are clustered at the state level and reported in parentheses. *,**, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.