Credit Market Competition and the Gender Gap: Evidence from Local Labor Markets

Abstract

We exploit the exogenous variation in regional credit market contestability brought on by banking deregulation in the United States to study the narrowing of the gender gap in local labor markets. We find that deregulation reduced the gender gap in labor force participation, as the subsequent increase in the demand for labor induced non-working women to enter the labor force. Deregulation also reduced wage inequality as women became more likely to work in the private sector, to enter high-paid "male" jobs, and to acquire higher education. Tests of contiguous MSAs sharing a state border corroborate a genuine deregulation effect.

JEL classification: G28, J16, J22.

Keywords: Bank deregulation, gender gap, labor force participation, wage inequality.

1 Introduction

Between 1970 and 1995, in what was arguably the most significant change in labor markets at the time, the labor force participation rate for working-age women in the United States increased by 26 percentage points, from 50 percent to 76 percent (see Goldin, 2006). This development represents a substantial closing of the gender gap in employment, with male labor force participation at around 90 percent during this period. Wage inequality declined considerably, too, with the ratio of female-to-male wage and salary income increasing from about 0.60 in 1970 to 0.73 in 1995 (see Blau and Kahn, 2000). Prominent conventional explanations for the unprecedented convergence in labor market outcomes between men and women during this period focus on the waning social stigma surrounding married women's work outside the home (Fernandez, Fogli, and Olivetti, 2004; Goldin, 2006), on the the adoption of time-saving technologies due to technological progress in the home-durable-goods sector (Greenwood, Seshadri, and Yorukoglu, 2005), and on the introduction of oral contraception which facilitated women's investment in their career (Goldin and Katz, 2002).

In this paper, we demonstrate the powerful contribution of a neglected factor in explaining the narrowing of the gender gap in local U.S. labor markets: the significant improvement in access to finance induced by the deregulation of the U.S. banking industry during the 1970s, 1980s, and early 1990s. Over this period, U.S. states gradually lifted restrictions on bank branching within the state and eliminated entry barriers to out-of-state banks. We hypothesize that by reducing the cost of bank credit, intensified competition among financial intermediaries increased firms' demand for labor, as well as women's demand for schooling in general and for career-oriented subjects in particular, with a material effect on female labor force participation rates and labor income. We use the state-level variation in deregulation dates as a way to measure the impact of changing credit conditions on the gender gap. Furthermore, to alleviate concerns about omitted variable bias at the state level, we compare the effect of deregulation on male and female labor market outcomes between narrowly defined adjacent geographic regions across state borders.

Using data on 1.5 million individuals between 1977 and 1994 from the Current Population Survey (CPS), we find that more vigorous banking competition—that is, looser restrictions on the geographic expansion of banks—is associated with a lower gender gap in labor force participation and in wage income. Our difference-in-differences estimates suggest that the removal of restrictions

on intra-state bank branching increased the number of weeks worked per year by up to one more for women than for men. It also increased income from weekly wages by up to $40 more for employed females than for employed males. Banking deregulation thus reduced the gender gap in labor force participation by up to 29 percent, and gender inequality in wages by up to 18 percent. This result is robust to controlling for a wide host of background characteristics that can determine labor market outcomes, such as age, race, education, and marital status. Our main results are also robust to including in the regressions state×year fixed effects which control for any unobservable state-specific time-varying factors that affect all economic agents in a state equally. It also controls for US-wide trends, such as the propensity of women with higher unobserved skills to enter the US labor market during the 1970s and 1980s (Mulligan and Rubinstein, 2008).

Some developments, however, have an uneven effect across genders. Changes in social norms and cultural identities—both of which were rapidly evolving during this period—benefit women disproportionately and can have a significant impact on the gender gap over time (Akerlof and Kranton, 2000; Fernandez, Fogli, and Olivetti, 2004; Bertrand, Kamenica, and Pan, 2015). The gradual decline in gender bias leads, for example, to the democratization of hiring procedures (Goldin and Rouse, 2000). While we do not claim that progress in financial markets is a more powerful determinant of the narrowing of the gender gap than progress in social norms, we need to take into account the possibility that our results are contaminated by changes in the relative power of women in society or within the family. In principle, this would be the case if changes in social norms coincide with the relaxation of entry barriers to intra-state banking. We tackle this concern by constructing three empirical proxies. The first one is a proxy for cultural norms which we construct from survey responses on questions about the "proper" place of women in society. The specific statement respondents are asked to evaluate is: "*It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family.*" We use the time-varying regional share of those who answered "*Strongly agree*" or "*Agree*" as a proxy for cultural norms that are averse to gender equality in labor markets. The second empirical proxy is the time-varying share of women in each state that have at least some college education. The third proxy is the time-varying share of women in each state who are active in the labor market. We claim that all of these proxies capture cultural and social norms related to gender inequality. The measured contribution of improved access to finance to the narrowing of the gender gap in

labor markets is robust to controlling for such state-specific time-varying gender norms that can have a different impact on men and on women.

We base our main analysis on an arguably exogenous shock to the cost of credit, in combination with an empirical specification that accounts for an exhaustive set of potential confounding factors at the individual and at the state level. Even so, comparing individuals across states—with respect to bank deregulation events—can be open to a number of econometric problems. Pro-competitive banking reform can be induced by an expectation of future growth opportunities (unobservable to the econometrician) that can benefit women disproportionately, e.g., the expansion of sectors rich in jobs requiring female-specific skills. This could create a spurious correlation between bank branching deregulation and future changes in the gender gap. To address this issue, we modify the empirical strategy used by Card and Krueger (1994), Holmes (1998), Black (1999), and Huang (2008) and compare individual labor market outcomes for men and women across 28 contiguous Metropolitan State Areas (MSAs) separated by state borders, in cases in which one state deregulated intrastate branching earlier than the other. Because these MSAs are immediately adjacent neighbors, we expect them to be similar in both observable, and more importantly, unobservable conditions, and to follow similar economic paths in the absence of changes in bank entry barriers. Our main results still obtain even in this considerably more restrictive specification, suggesting that we capture a genuine bank deregulation effect uncontaminated by concurrent unobservable adjustments—at the level of the state—in economic or labor market conditions that affect men and women differently.

We next turn our attention to the mechanisms explaining the pattern which we uncover in the data. We identify four channels responsible for the narrowing of the gender gap in labor market outcomes in the wake of bank branching deregulation. The first is the extensive margin of the labor supply. The literature has already found that by intensifying competition among financial intermediaries, banking deregulation increased the rate of new business creation. This, in turn, resulted in the creation of more private sector jobs (Black and Strahan, 2002; Cetorelli and Strahan, 2006; Kerr and Nanda, 2009). We find that in deregulated states, and ceteris paribus, females are relatively less likely to be classified as "Not in the labor force". Our findings are supported by prior literature which has found that the expansion of the service sector with its accompanying white-collar jobs has greatly facilitated the transformation in female labor force participation (Goldin, 1990). In addition, this channel is particularly potent during a period when female labor supply

was more elastic than male labor supply (Goldin, 2006).

Second, we also find that in deregulated states, women are relatively more likely to be classified as "private sector employees". This helps explain the narrowing of the gender gap in wages as those working in the private sector have on average higher wage income than those working in the public sector, as well as self-employed individuals.

Third, we find that in deregulated states, female private sector employees are relatively more likely to work in high-income jobs, and in particular in high-income jobs in sectors previously dominated by male employees. This suggests that the shift in labor demand induced by credit market competition was associated with the creation of jobs characterized by a relatively higher pecuniary benefit to female employees. This evidence is consistent with the fact that currently, the majority of the observed earnings gap comes from within-occupation differences in earnings, while the between-occupation gender gap has largely dissipated over time (Goldin, 2014). It is also consistent with the observation that between 1970 and 2000, women's marginal returns to experience increased substantially more than men's (Olivetti, 2006).

The fourth channel is the acquisition of formal education. We find that following bank branching deregulation, working-age females are markedly less likely to be high-school drop-outs and considerably more likely to have enrolled in, and even more likely to have graduated from, college. This is possibly because changes in local labor demand induced by credit market competition raised the return to skilled labor, affecting simultaneously fertility, education, and labor choices (Galor and Weil, 1996). Such changes in local labor demand may be related to skilled-based technological change (Goldin, 1990), which in itself can intensify with the development of deeper financial markets (Saint-Paul, 1992). We conclude that higher rates of schooling—likely in career-oriented subjects—and labor market shifts explain much of the narrowing of the gender gap in labor income in the wake of bank branching deregulation.

By now there exists a vast body of evidence on the impact of banking deregulation on various economic outcomes, such as state business cycles (Morgan, Rime, and Strahan, 2004; Demyanyk, Ostergaard, and Sorensen, 2007), personal bankruptcy (Dick and Lehnert, 2010), efficient reallocation (Acharya, Imbs, and Sturgess, 2011), trade (Michalski and Ors, 2012), education choices (Levine and Rubinstein, 2013), income distribution (Beck, Levine, and Levkov, 2010), and racial inequality (Levine, Levkov, and Rubinstein, 2014). In particular, the latter two papers also use

detailed individual level-data from the CPS, and they also consider labor market effects, showing that banking deregulation resulted in more inclusive labor markets and increased labor income relatively more for unskilled and for Black workers. We contribute to this literature by demonstrating the significant impact of bank branching deregulation on female labor market outcomes during the 1970s, 1980s, and 1990s. To our knowledge, ours is the first paper to establish a causal link between credit market competition and the narrowing of the gender gap in U.S. labor markets.

Also related to our paper is a large empirical literature that has studied extensively the impact of improved access to finance across U.S. states on the channels we identify. Researchers have shown that, following bank branching deregulation, competition in non-financial markets intensified as the rate of new business creation picked up, increasing materially the total number of firms in the economy (Cetorelli and Strahan, 2006). Recent evidence also points to the fact that the demand for higher education increased in deregulated states as private student loans from banks to students became cheaper and more readily available (Sun and Yannelis, 2016). Our paper complements this literature by providing evidence that the twin increase in business activity and in the demand for higher education had a disproportionately larger effect on women, helping close the gender gap in both labor force participation and in labor income.

Our paper is also related to the literature on the effect of financial market conditions on employment. One strand of research has studying the effect of firm debt on firm-level employment and wages (Lichtenberg and Siegel, 1990; Hanka, 1998; Falato and Liang, 2016). Another, more recent line of research has attempted to gauge the effect of access to external finance on employment, broadly demonstrating that positive (negative) shocks to the cost of external finance increase (decrease) labor demand, with material effect on equilibrium employment and wages (Benmelech, Bergman, and Seru, 2011; Campello, Graham, and Harvey, 2010; Pagano and Pica, 2012; Bentolila, Jansen, Jimenez, and Ruano, 2013; Chodorow-Reich, 2014; Duygan-Bump, Levkov, and Montoriol-Garriga, 2015; Popov and Rocholl, 2015). More closely related to our paper is the study by Brown and Matsa (2016) who show that firms' worsening access to finance results in a decline in the supply of mostly skilled labor, and the study by Hochfellner, Montes, Schmalz, and Sosyura (2016) who document that the lowest-paid workers are more likely to leave the firm when credit constraints tighten. Our paper contributes to this literature by demonstrating the heterogeneous impact that (positive) shocks to the cost of external finance have across genders in labor markets.

We also contribute to the literature which has sought to identify and quantify the gender gap in labor market outcomes, such as the gap in labor force participation (Greenwood, Seshadri, and Yorukoglu, 2005), the gap in wage income (Bayard, Hellerstein, Neumark, and Troske, 2003), and the gap in hiring (Neumark, Bank, and Van Nort, 1996). While some analysts have argued that this gap is primarily driven by male-female differences in productivity and in work experience (O'Neill and Polachek, 1993; Mulligan and Rubinstein, 2008), a more wide-ranging view is that equally productive men and women face different job prospects and strike different wage bargains with their employees (Card, Cardoso, and Klein, 2016). Altonji and Blank (1999) find that after controlling for education, experience, personal characteristics, city of residence, occupation, industry, government employment, and part-time status, only about 27 percent of the gender wage gap is explained by differences in observable characteristics. Our paper is even more closely related to studies that map changes in credit market competition into market outcomes, by gender. For example, Cavalluzzo, Cavalluzzo, and Wolken (2002) and Hertz (2011) find that female-owned firms are less likely to apply for and/or to obtain bank credit than male-owned firms, both in the US and in an international context. Belluci, Borisov, and Zazzaro (2010) find that female firm owners in Italy face tighter credit constraints when dealing with one individual bank. Alesina, Lotti, and Mistrulli (2013) find that after controlling for entrepreneurial risk, female borrowers pay higher rates, especially when their guarantor is a female, too. Muravyev, Schäfer, and Talavera (2012) find that female firm owners are more likely to be denied bank credit and that they tend to pay higher rates on bank loans. Fortin (2005) finds that the gender gap in employment and pay is higher in countries with anti-egalitarian views. Ongena and Popov (2016) find that in countries with higher gender bias, and after controlling for credit risk differences between female- and male-owned firms, female entrepreneurs are more frequently discouraged from applying for bank credit and more likely to rely on informal finance, even though banks do not appear to discriminate against female loan applicants.

The paper is organized as follows. Section 2 provides some background on banking deregulation and discusses the validity of using this policy innovation to study labor market outcomes. Section 3 describes our data set. Section 4 explains our research design and discusses identification. Section 5 presents and discusses the main results of the paper. Section 6 discusses the implications of our findings and concludes.

2 Institutional background

2.1 Bank deregulation: Institutional background

Banking became a highly regulated industry in the wake of the Great Depression. Most states either prohibited branching altogether or limited it severely until the 1970s, when only 12 states plus the District of Columbia allowed unrestricted state-wide branching. By 1994, however, another 35 states deregulated their restrictions on branching. In addition, in the early 1980s many states began to enter regional or national reciprocal arrangements whereby their banks could be bought by any state in the arrangement. Subsequently, in 1993 Montana became the last state to deregulate interstate banking. Finally, in 1994, the Riegle-Neal Interstate Banking and Branching Efficiency Act removed all branching restrictions in states that had not deregulated their banking markets up to that point. Similar to Jayaratne and Strahan (1996), we focus on the removal of branch restrictions within states (by means of mergers and acquisitions), because states usually deregulated intra-state banking and only then moved to deregulate inter-state banking.

Table I reports deregulation events, by state and year. The extensive literature on the effects of banking deregulation finds that deregulation was generally a positive development, leading to greater bank efficiency and competition, lower prices and higher quality, new business formation, and higher economic growth (Jayaratne and Strahan, 1996; Black and Strahan, 2002). The fact that most states chose to remove these barriers at different times provides us with variation in the competitive environment facing lenders that is potentially exogenous with respect to individual labor market outcomes. We capture the effect of intra-state branching deregulation by constructing an indicator variable equal to 1 in the years after a state permits branching by means of merger and acquisition within its borders.

Our binary measures by definition are unable to capture how much the lifting of branching restrictions affected the size of the banking sector. For that reason, in robustness tests we also use data on total in-state and out-of-state assets held by holding companies operating in each state in each year, divided by total banking sector assets in each state-year. This is an attractive measure as it provides us with a continuous variable capturing the magnitude of the flows in banking capital.

2.2 Bank deregulation: Endogeneity

One question that has often been raised is whether banking deregulation was really an exogenous event. Jayaratne and Strahan (1996) argue that states did not deregulate their local banking markets in anticipation of future growth prospects. Kroszner and Strahan (1999) show that it is mostly economic and political factors (such as the relative strength of large banks and of small bank-dependent firms) that explain the timing of branching deregulation across states. Still, the exogeneity of banking deregulation to how friendly local labor market conditions are to females can be put into question. For example, states with a lot of educated females or with a lot of already working females, as well as states with a narrower cultural gender gap, might relax bank branching restrictions sooner in anticipation of gains to both banks and females of improved credit conditions.

To address this potential issue, we construct three state-level measures of the relative economic and cultural position of women in a state prior to deregulation. The first is the share of working-age females who have some college education (i.e., college drop-outs, college graduates, or individuals with a graduate or a professional degree). The second is the share of females out of all those in the labor force (i.e., self-employed, privately employed, or employed by the government). The third is the regional share of respondents in the General Social Survey (GSS) who answer "Strongly disagree" or "Disagree" when confronted with the following statement: "It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family." We define the measures as of 1977, that is, in the first year when staggered banking deregulation started. Figures 1–3 show the relationship between these variables and the number of years it took the state to deregulate its local banking market after 1977. As can be seen, states with a higher proportion of educated women, with a higher share of working women, and with social norms that are more accepting of working women do not appear to be deregulating earlier.[1]

3 Data

Our empirical analysis uses individual-level data on demographic characteristics, employment, education, labor market participation, and income from the Integrated Public Use Microdata Series

[1] The respective correlations are 0.11, 0.11, and -0.22.

(IPUMS) (Flood et al., 2015). We are interested in yearly observations, which are available in the March Annual Demographic Supplements from the U.S. Current Population Survey (IPUMS-CPS). Our sample is restricted to the survey years 1977–1994, which coincide with the period when most banking deregulations took place. We exclude the population that is not part of the labor force by dropping individuals younger than 21 and older than 65 years. For the 18-year period considered in our analysis, this yields a total of 1,554,571 households across the 50 states and the District of Columbia.

We measure labor force participation by the number of weeks of work during the preceding calendar year reported by the respondents. This proxy is consistent with other studies of the supply of labor (e.g., Acemoglu, Autor, and Lyle, 2004). We are also interested in weekly labor income, which we define as the respondents' total pre-tax wage and salary income in the preceding calendar year, divided by the number of weeks worked. Only respondents with strictly positive wage income are considered in the regressions where the logarithm of wage income is the dependent variable, which reduces our sample by 425,223 observations. In terms of employment, we construct five occupational categories: Self-employed, Employed in the private sector, Employed in the public sector (including Armed forces), Unemployed, and Not in the labor force. Furthermore, the respondents are classified into three educational categories: High-school or less (includes all persons with 0 to 12 years of schooling), College drop-outs (includes all respondents who have less than four years of college education), and College or more (includes all respondents with at least a college degree). In terms of demographics, we use data on gender, age, race, and marital status.

Table II reports summary statistics of all individual characteristics of interest. The table shows that the average respondent from our sample is female, white, married, and around 40 years old. 50% of the respondents are employed in the private sector, 13% in the public sector, 8% are self-employed, and 24% are not in the labor force. The remaining 5% are unemployed. In terms of educational attainment, the average respondent has a high-school degree or less. This is an average for all 18 years in our sample, and varies strongly over time. In terms of employment, the average respondent works in the private sector. The summary statistics also reveal that the respondents work, on average, 36 weeks per year. The mean wage amounts to $17,351.

Figures 4–7 use the IPUMS data to illustrate the substantial narrowing in the female labor gap over the sample period. While in 1977, in the majority of the U.S. states women were working on

average between 60% and 65% of the number of weeks per year that men worked (Figure 4), in 1994 they were working on average between 75% and 80% of the number of weeks per year that men worked (Figure 5). Turning to the gender gap in wages, Figure 6 demonstrates that in most states in 1977, female labor income was on average between 0.45 and 0.50 of male labor income. This picture strongly contrasts with 1994 when in most states, working females' labor income was more than 60 percent—and in 8 states it was more than 70 percent—of male labor income (Figure 7).

4 Empirical model

Our goal is to explore how competition in local banking markets affects the gender gap in labor markets. To that end, we study the relationship between intrastate branching deregulation at the state level and two aspects of the gender gap, relative labor force participation and relative pay. The exogenous increase in local credit market contestability allows us to explore the question of how access to finance and labor market outcomes are related. To analyze the two effects, we specify the following two linear probability models:

$$\begin{aligned} WeeksWorkedLastYear_{i,s,t} = \; & \beta_1 Female_{i,s,t} + \beta_2 Female_{i,s,t} \times Deregulation_{s,t-1} \\ & + \beta_3 X_{i,s,t} + \beta_4 \Psi_{s,t} + \varepsilon_{i,s,t} \end{aligned} \tag{1}$$

and

$$\begin{aligned} LogWeeklyWageIncome_{i,s,t} = \; & \beta_1 Female_{i,s,t} + \beta_2 Female_{i,s,t} \times Deregulation_{s,t-1} \\ & + \beta_3 X_{i,s,t} + \beta_4 \Psi_{s,t} + \varepsilon_{i,s,t} \end{aligned} \tag{2}$$

The two main variables of interest are $WeeksWorkedLastYear_{i,s,t}$ and $LogWeeklyWageIncome_{i,s,t}$. The former is equal to the number of weeks worked by individual i in state s in year $t-1$. The latter is equal to the logarithm of total wage income divided by the number of weeks worked, for individual i in state s in year $t-1$. $Female_{i,s,t}$ is an indicator variable equal to one if individual i

in state s in year t is a woman. $Deregulation_{s,t}$ is an indicator variable equal to one for states that have removed barriers to intra-state branching, and zero otherwise; we drop all observations in a state during the year of deregulation. This indicators captures changes in credit supply induced by the intensification of competition in the banking sector. $X_{i,s,t}$ is a vector of individual-level covariates including age, race, education, marital status, income, and occupation. We also include $\Psi_{s,t}$, a matrix of state×year fixed effects. These control for (observable and unobservable) state-wide temporal shocks that are common to all agents in a state×year. This is enormously important as any variation at the state level in labor market conditions, labor demand, or growth opportunities can affect the estimates. We do not include the variable *Deregulation* on its own because its effect on the gender gap in labor markets is subsumed in $\Psi_{s,t}$. Similar to Cetorelli and Strahan (2006), the sample period is 1977–1994.[2] *Deregulation* equals one throughout the sample period for the 15 states plus the District of Columbia, which removed bank branching restrictions earlier. We employ models with robust standard errors clustered at the MSA level. Finally, all estimates are weighted using sampling weights provided by the CPS.

Our hypothesis is that cross-state patterns of the reduction of the gender gap during the 1970s, 1980s, and 1990s reflect the effect of competition among financial intermediaries on female labor supply and skill acquisition. Our main coefficient of interest is β_2 which captures the narrowing in the gender gap in employment and wage income stemming from increasing access to credit via lifting intra-state branching restrictions. For example, a positive coefficient β_2 will imply that *ceteris paribus*, and compared to an otherwise similar male, a female in a deregulated state is employed for more weeks per year than a female in a state that has not yet lifted branching restrictions (Model (1)) and has a higher weekly wage income than a female in a state that has not yet lifted branching restrictions (Model (2)).

We perform our main tests by comparing populations of males and females to each other and across state borders. While intuitive, this empirical strategy can result in biased estimates in the presence of unobservable trends that differ across states at each point in time. For example, if banking deregulation takes place in Virginia and subsequently the narrowing of the gender gap in labor markets is faster than the national average, the econometrician will conclude that the

[2] 1977 marks the beginning of the period of dramatic state-level deregulation. We end the sample in 1994, when deregulation of restrictions on the ability of banks to expand across local markets was completed with the passage of the Riegle–Neal Interstate Banking and Branching Efficiency Act.

policy reform has produced a positive effect. However, this may not be a good comparison: when comparing Virginia (an early deregulator) to Arkansas (a late deregulator), it may be easy to find difference in labor market outcomes for males and for females simply because the labor markets of the two states do not necessarily move in the same direction or at the same speed. While in Models (1) and (2) we control for observable individual factors that determine labor outcomes, there may still be unobservable ones at work that differ across the two states, such as innate preference for consumption over leisure time. In the absence of good controls for those, it can be fallacious to interpret the narrowing of the gender gap in Virginia as the effect of a policy adopted in Virginia but not in Arkansas.

To address this issue, we follow closely the approach in Huang (2008) and we compare individuals across border areas of two neighboring U.S. states where banking deregulation is different across state borders. In such areas, factors that are difficult for the econometrician to control for, such as individual preferences, social norms, climate conditions, or the technological demands of the local economy, are very similar. Therefore, the effect of a certain policy change—bank branching deregulation, in this case—should be more precisely identified by comparing differential labor market outcomes across state borders.

As the individuals in the annual CPS samples do not report their county of residence, we perform this exercise at the level of the MSA. We determine MSAs that lie across state borders, that are of approximately equal size, and that experienced deregulation events separated by at least 3 years, and we re-estimate Models (1) and (2) in these samples. Using state borders, 14 events of state-level branching deregulation throughout the United States spanning our sample period can be evaluated. Table III lists all such "treatment" and "control" MSAs.

5 Empirical evidence

In this Section, we present the results of our empirical tests. In Section 5.1, we present the main results from tests where we study the effect of bank branching deregulation on the labor gender gap across U.S. states. In Section 5.2, we provide additional evidence from robustness tests where we adopt different proxies for bank competition, we control for the effects of evolving culture, and we estimate the effect of deregulation on narrowly defined economic zones across state borders.

Finally, in Section 5.3 we present evidence on the economic mechanisms which banking deregulation activated and which accelerated the narrowing of the labor gender gap.

5.1 Main result

5.1.1 Labor force participation

Table IV shows result from our basic Model (1) where we estimate the differential effect on labor force participation of banking deregulation across genders. We start with a specification without individual controls and fixed effects (column (1)), and then we gradually add individual characteristics (column (2)), state and year fixed effects (column (3)), and state×year fixed effects (column (4)). In all regressions, the standard errors are adjusted to allow for heteroskedasticity of the within-state shock.

In all variants of Model (1), the coefficient on the interaction term between the *Deregulation* dummy and the *Female* dummy is positive and significantly different from zero at the .01 statistical level. The point estimate is remarkably stable across specifications. The point estimate in our preferred specification that controls for individual characteristics and for state-specific trends that affect both genders equally (column (4)) implies that removing intra-state branching restrictions increased female labor force participation by 0.62 weeks more than it did for men. This effect is economically meaningful as well. In our sample, individuals work on average 35.8 weeks, so the increase in female labor force participation corresponds to 1.7 percent increase relative to male labor force participation. Alternatively put, and controlling for demographics, women in our sample work on average 3 weeks per year less than men, and so bank branching deregulation thus narrows this gap by about 21 percent.

Turning to the remaining individual characteristics, the data predictably suggest that age has an inverse U-shaped effect on working hours, with weeks worked per year peaking at around 45 years of age and then decreasing again. Married and single individuals tend to work less than those who are divorced, separated, or widowed. Black individuals work about a week per year less than everyone else. Those with some college education work about three weeks more, and high-school drop-outs about three and a half weeks less, than high school graduates. Finally, self-employed, privately employed, and publicly employed individuals work on average between 38 and 40 more

weeks that those not in the labor force. Relative to the latter, unemployed individuals worked on average 20 more weeks last year, suggesting that their current unemployment status can date from last year already. Overall, the model with individual controls and state×year fixed effects explains a substantial 66 percent of the variation in labor force participation.

Interestingly, in the specification with individual controls and with state and year fixed effects, but without state×year fixed effects, we find that banking deregulation reduces the average labor force participation in the sample by about a third of a week. However, both the sign and magnitude of this effect are questionable as there are many potential confounding state-specific trends taking place at the same time.

5.1.2 Wage gap

Table V shows the estimates of Model (2). We estimate the model for the sub-sample of individuals in the CPS who are in the labor market, i.e., we do not want the estimated differences in labor income to be contaminated by the proportion of agents with zero labor income. Similar to Table IV, we report estimates from regressions that are increasingly saturated with demographic controls and with various combinations of fixed effects, and we adjust the standard errors to allow for heteroskedasticity of the within-state shock.

Once again, in all specifications the coefficient on the interaction term between the *Deregulation* dummy and the *Female* dummy is positive and significantly different from zero at the .01 statistical level. The point estimate is very similar across all specifications that control for individual-specific factors that can affect wage income, such as age, race, education, marital status, and types of occupation. The point estimates in columns (2)–(4) imply that removing intra-state branching restrictions increased female wage income by around 11 percent more than male wage income. Given average weekly income in our sample of $367.33, this relative increase in female wage income corresponds to around $40.4 per week worked. Given that average male weekly wages are higher by about $230, the evidence thus implies that controlling for demographics and for state-specific trends, over the period 1977–1994 bank branching deregulation narrowed the wage income gap between men and women by about 18 percent.

The individual controls have a similar effect as in Table IV. Once again, age has an inverse U-shaped effect on wage income, peaking at around 46 years of age. Married individuals have

a significantly higher, and single individuals significantly lower wage income than those who are divorced, separated, or widowed. Black individuals' weekly wage income is on average about 13 percent lower than everyone else's. Those with college education have a weekly wage income higher by 30 percent, and those with at most a high school dimploma have a weekly wage income lower by 26 percent, than college drop-outs. Finally, private sector employees and public sector employes have a substantially higher wage income than those not in the labor force. Self-employed individuals, whose main income is from their business rather than from wages, have a lower wage income than both private and public sector employees. Overall, the model with individual controls and state×year fixed effects explains 32 percent of the variation in weekly wage compensation.

5.2 Robustness

5.2.1 Alternative measures of deregulation

In Table VI, we test for whether our main results are robust to measuring the intensification of competition in local banking markets differently. For a start, our dummy variable classifies a state as deregulated if it has lifted bank branching restrictions in a particular year. As such, it captures the average change in labor market outcomes after deregulation, but it does not allow us to tease out the timing of these changes. In columns (1) and (4) of Table VI, we replace the bank deregulation dummy with the distance to deregulation event, in years. This variable ranges from -17 (the state will deregulate 17 years from now) to 19 (the state deregulated 19 years ago).[3] The point estimate reported in column (1) implies that the number of weeks worked per year increase by about 1 more for females, relative to males, per every eight years after deregulation. In terms of labor income effect, column (4) implies that in every post-deregulation year, the wage gap between female and male workers declines by about 1.1 percent.

Second, competition was introduced in local banking markets in two different ways: by allowing in-state banks to branch out within the state, by means of mergers, acquisitions, or *de novo* branches (intra-state deregulation), and by allowing out-of-state banks to enter the local market via bank holding companies (intra-state deregulation). While the second policy is more relevant for questions related to financial and economic integration (see, e.g., Morgan, Rine, and Strahan, 2004; Michalski

[3] In this exercise, we exclude the 13 states that lifted bank branching restrictions before 1977.

and Ors, 2012), it has been studied alongside intra-state branching deregulation in the context of local economic outcomes, such as new business creation (Black and Strahan, 2002; Cetorelli and Strahan, 2006). Both policy reforms represent a shift in the level of local contestability of the market, by immediately increasing the threat of potential entry and reducing the market power of local incumbents. In columns (2) and (5) of Table VI, we replace the *Deregulation* dummy with a dummy equal to 1 in states that have already opened their local banking market to entry by out-of-state banks. We find a positive effect of this type of bank deregulation on both relative female labor force participation and relative female labor income. The magnitude of the measured effects are somewhat larger than in the case of intra-state banking deregulation (Table IV, column (4) and Table V, column (4)), possibly because inter-state deregulation usually follows intra-state deregulation, hence, its competitive effect is augmented immediately by an already existing pro-competitive force.

Finally, and similar to Morgan, Rine, and Strahan (2004), we replace the deregulation dummy with the ratio of in-state banking assets held by out-of-state banks. This is a *de facto* rather than a *de jure* variable, and it captures the degree of actual competition in local banking markets. Once again, we find that more intense competition in local banking markets led to an increase in the number of weeks per year that women work, relative to men (column (3)). We also find evidence that competition led to a narrowing in the gender wage gap (column (6)), although this effect is marginally insignificant (p-value of 0.12).

5.2.2 Contiguous counties

In our main tests so far, we have been comparing females' labor market outcomes—relative to males' labor market outcomes—in a deregulated state (the treatment group) relative to a regulated state (the control group). As we already argued, this empirical strategy can produce biased estimates in there are existing unobservable trends which differ across states. Economic conditions can be different in deregulated states at the time of deregulation, and labor markets in those can already be becoming friendlier to females for reasons unrelated to deregulation. Models (1) and (2) allow us to estimate the average effect of deregulation net of the impact of individual characteristics that can determine propensity to work and/or equilibrium wages. However, our results can still be contaminated by a host of unobservable factors that make the population of a regulated state a

poor control group.

To assuage such concerns, we proceed to adopt the approach in Huang (2008) and we compare individuals in adjacent MSAs across neighboring U.S. states, one of which is deregulated while the other is still regulated.[4] The assumption is that two neighboring MSAs are really one economic area when it comes to observable factors such as growth and to unobservable factors such as growth opportunities or labor market conditions. Hence, any discernible differences in how fast the labor gender gap narrows can be attributed to changes in banking market conditions in one MSA but not in the other.[5]

We report the estimates from these modified versions of Model (1) and (2) in Table VII. As we are only using individuals from the 14 treatment MSAs and the 14 control MSAs listed in Table III, the number of observations is reduced to 35,749 in the regression where the dependent variable is the number of weeks worked last year, and to 26,493 in the regression where the dependent variable is labor compensation. Our main results obtain in this reduced sample, too. In particular, we find that removing intra-state branching restrictions increased female labor force participation by 1.1 weeks more than it did for men, in MSAs lying on the deregulated side of a state border relative to MSAs lying on the regulated side (column (1)). The effect is significant at the 1 percent statistical level, and its magnitude is numerically larger than in the full sample (Table IV, column (4)), suggesting that unobservable factors unrelated to deregulation that reduce the gender gap do not lead to an upward bias in our estimates. Numerically, the point estimate implies that bank branching deregulation narrows the gender gap in labor force participation by 29 percent.

We also continue to find that banking deregulation contributed to the reduction of gender inequality in wage income (column (2)). The effect is significant at the 5 percent statistical level, but this time the magnitude is smaller than in the full sample (Table V, column (4)), amounting to a 8 percent reduction in the gender gap. This suggests that there may be unobservable factors at play that reduce the gender gap independently of deregulation, but these are mostly subsumed in the deregulation effect at the state level.

[4] The approach in Huang (2008) relies on comparing contiguous counties. However, the MSA represents the lowest level of geographical disaggregation in the IPUMS-CPS samples.

[5] Arguably, this argument rests on the assumption that the cost of migration across geographic localities is non-negligible, preventing labor markets from clearing immediately. Empirical evidence suggests that cross-state labor migration in the United States is indeed limited, with around 1 percent of the population "moving for a job" from one state to another annually, even during an economic peak (Demyanyk, Hryshko, Luengo-Prado, and Sorensen, 2016).

5.2.3 Social norms

Another way in which our main results can be biased is if states which deregulated earlier also had market conditions and social norms more friendly to women. For example, it is possible that states with a larger share of educated women, a larger share of working females, and a culture that is more accepting of working women removed bank branching restrictions first. This would put into question the main identifying assumption in the paper, i.e., that the intensification of local competition among financial intermediaries following bank branching deregulation was unrelated to changes in local labor market that can affect women more than men. While Figures 1–3 suggest that labor market properties and social norms are not correlated with the timing of deregulation, these can nevertheless have an effect on the gender gap that can bias the empirical estimates. For example, states where social norms and labor markets are more friendly to working women may have experienced larger progress in labor markets independent of deregulation.

To account for this possibility, we now construct three additional variables. The first one is a proxy capturing attitudes towards working women. To construct it, we take survey answers from the GSS over the period 1977–1994.[6] The data set contains a range of demographic and income characteristics. Importantly, it contains the variable "FEFAM" which is defined by the answer to following question: "*It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family.*" The answers are given on a scale from 1 to 4. From these answers, we construct a variable which we denote as "Gender bias". The variable is equal to 1 if the respondent answered "Strongly agree" or "Agree", and equal to 0 if the respondent answered "Disagree" or "Strongly disagree". We next estimate the following regression model:

$$GenderBias_{i,r,t} = \beta_1 X_{i,r,t} + \beta_2 \Psi_{r,t} + \varepsilon_{i,r,t} \tag{3}$$

where $X_{i,r}$ is a vector of individual-specific characteristics for individual i living in region r at time t,[7] and it includes age, education, gender, religion, employment status, and income. $\Psi_{r,t}$ is a matrix of year dummies and of 8 region dummies equal to 1 if the individual lives in one of the

[6] See Ongena and Popov (2016) for a similar approach.

[7] Because respondents in GSS do not report their state of residence, but only 1 of 9 regions of residence, there is arguably limited geographic heterogeneity in this variable.

following 8 regions: Mid-Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific. Then we take the point estimates on each regional dummy from Model (3) to represent a region-specific time-varying estimate of local gender bias, controlling for income and demographics, and we call this variable *Social Norms*. We assign a value of 0 to all individuals living in states in New England (the reference region).

The second empirical proxy for social and market norms is the time-varying share of working-age females who have some college education (i.e., college drop-puts, college degree, or a graduate or professional degree), in each state-year. The third one is the time-varying share of females who are in the labor force (i.e., self-employed, privately employed, or employed by the government), in each state-year. We believe that all three empirical proxies signal social norms and labor market attitudes that are more accepting of career-oriented women. Finally, we interact all three proxies with the *Female* dummy, and include the three interaction variables in Models (1) and (2), one by one.[8] We expect that these proxies for more inclusive social norms and labor markets will have a positive effect on female labor market participation, and a negative effect on the gender gap in wage income.

Table VIII presents the results from regressions that include these additional controls. We find that in states with a lower gender bias, women work more weeks per year (column (1)). We also find that in states with a higher share of working women, relative to men, women work more weeks per year (column (2)) and receive higher wage income (column (5)). Finally, we find that in states with a higher share of women with at least some college education, women on average work more weeks per year (column (3)) and have higher wage income (column (6)). Crucially, we still find that banking deregulation is associated with both higher labor force participation (columns (1)–(3)) and with higher weekly wage income (columns (4)–(6)), for women relative to men. In all cases, the effect is significant at least at the 5 percent statistical level, and is of similar magnitude to previous estimates. Our results thus confirm that the improvement in access to finance brought about by bank branching deregulation has an impact on the labor gender gap that is independent of social norms and labor market properties that affect women and men differently.

[8] The results of these tests are robust to fixing the values of all three proxies as of 1977, preceding the main wave of deregulation events.

5.3 Economic mechanisms

5.3.1 Extensive margin of labor supply

We now turn to the economic mechanisms that underline the effect of higher contestability in credit markets on the labor gender gap. We start by noting that the positive effect of bank branching deregulation on labor force participation is not unexpected, given what we already know from the literature. In particular, two ingredients are necessary and sufficient to explain this result. The first is a general increase in labor demand driven by expanding real activity. Jayaratne and Strahan (1996) argue that banking deregulation increased efficiency in the US banking sector, leading to reduced corporate lending rates and a general increase in bank lending.[9] Black and Strahan (2002), Cetorelli and Strahan (2006), and Kerr and Nanda (2009) show that as a result, banking deregulation intensified new business creation in the non-financial sector, resulting in an increase in the total number of business firms—and in particular, of micro, small, and medium-sized firms—in the economy. As the number of enterprises in the economy increases, the demand for labor increases, too, driving equilibrium wages up.[10] The second necessary ingredient is that women's labor supply is more wage-elastic than men's. There is direct or indirect evidence to that in the literature, too. For example, Goldin (2006) and Bredemeier and Juessen (2013) claim that as a result of technological advancements and of decreasing fertility, female labor supply at the time when banking deregulation took place was more elastic with respect to wages than male labor supply. Hence, an increase in the demand for labor following banking deregulation, and in the presence of a relatively more elastic female labor supply, is sufficient to explain the relatively higher increase in female labor force participation.[11]

We would like to understand, though, to what extent the increase in female labor force participation is due to action on the extensive margin (i.e., non-working women joining the labor market).[12] In Table IX, we test for the differential effect of banking deregulation on labor market

[9] Black and Strahan (2001) show that as a result of reduced monopoly rents, profits and wages in the banking industry declined in the wake of banking deregulation.

[10] Goldin (1990) and Smith and Ward (1985) attribute approximately half of the rise in labor force participation of married women to increases in women's market wages.

[11] An alternative mechanism which we do not explore, but which is plausibly at work, too, operates thorough an increase in the female labor supply as cheaper consumer credit facilitates the adoption of home appliances, such as washing machines, laundry machines, freezers, etc. For a conceptual argument, see Becker (1981).

[12] Because IPUMS does not report the individual's past activity in labor markets, we cannot test for the intensive margin (i.e., women already in the labor force now working more weeks per year).

status, across genders. Column (1) reports that in deregulated states, and relative to men, women are substantially less likely to be classified as "Not in labor force". The effect is significant at the 1 percent statistical level, and the magnitude is substantial, suggesting that *ceteris paribus*, deregulation reduces the probability that a female's work status will be classified as "Not in labor force, house work" by 4.5 percentage points. Our results thus confirm that to some extent, the change in female identity over the past decades, from housewives to career-oriented professionals (Goldin, 2006; Juhn and Potter, 2006) has—in the United States at least— been aided by dramatic changes in the demand for labor brought about by increased competition in credit markets in the wake of banking deregulation.

5.3.2 Type of labor market activity

We next turn to investigating the mechanisms underpinning the narrowing of the gender pay gap. Recall that our main tests of the effect of banking deregulation on wage income are performed on the sub-sample of working individuals only, so the narrowing of the gender pay gap we uncover cannot be attributed to the transition from unpaid non-marketplace activity to paid marketplace activity. The rest of Table IX tests for the type of labor market activity that women choose in the wake of deregulation. We focus on three types of broadly defined labor market activities: working in the private sector (column (2)), working as a federal, state, or local government employee (column (3)), and being self-employed (column (4)). We find that in the wake of banking deregulation, women are substantially more likely—relative to men—to join the private sector. This effect is significant at the 1 percent statistical level, and economically important, too: deregulation increases the probability that a woman will be employed in the private sector by 5.3 percentage points, relative to an otherwise identical man. Given that women are about 19 percentage points less likely to work in the privat sector, this represents a 28 percent reduction in the gender gap in private sector employment. The rest of the table demonstrates that following deregulation, women are not more likely than men to work for the government or to become self-employed. The increased propensity to join the labor market found in column (1) is thus confined to private sector activity.

Recall that the evidence in Table V suggests that those employed in the private sector have a substantially higher wage income than self-employed individuals. This is partly because the main source of income for the self-employed is "business income" and not "wage income", but also because

income from entrepreneurship is on average lower than income from wage employment, suggesting that self-employment has mostly non-pecuniary benefits (see, e.g., Hamilton, 2000; Moskowitz and Vissing-Jorgensen, 2002; Hurst and Lusardi, 2004).[13] Our evidence suggests that the higher proclivity of women to work in the private sector—possibly driven by an increase in the supply of private sector jobs—and not to start their own business, is one mechanism that explains the narrowing of the gender pay gap.

5.3.3 Choice of employment

We next analyze the choice of employment in a more narrow sense. The narrowing of the gender pay gap can come not only from a higher proclivity to work in the private sector, where jobs are on average better paid, but also from a higher propensity to enter better-paid jobs within the private sector. With a less dynamic private sector, characterized by few large firms and little job creation and destruction, the availability of highly-paid jobs may be limited to entrenched males. Because banking deregulation increased the rates of new business creation (Black and Strahan, 2002) and the business churn in the private sector (Kerr and Nanda, 2009), the supply of highly-paid jobs previously off-limits for most females possibly increased. Orazem and Mattila (1998) show that much of the gender gap in pay is related to different rates of employment in male-dominated versus female-dominated jobs.

In Table X, we put this hypothesis to the test. For a wide range of industrial occupations reported in the IPUMS, we calculate the share of males and the average labor income in a particular occupation in 1977. Then we create a dummy variable "Male job" equal to 1 if a particular occupation falls in the top half of occupations in terms of share of males employed. We also create a dummy variable "Well-paid job" equal to 1 if a particular occupation falls in the top half of occupations in terms of average wage income. Finally, we create a dummy variable "Well-paid male job" equal to 1 if a particular occupation falls in the top half of occupations both in terms of share of males employed and in terms of average wage income.

The evidence suggests that on average during the period 1977–1994, women across the United States were on average less likely than men to work in jobs which in 1977 were predominantly male

[13] In unreported regressions, we show that *total* income is also significantly lower for the self-employed than for those employed in the private sector (results available upon request).

(column (1)), better-paid (column (2)), and predominantly male and better-paid (column (3)). At the same time, women become substantially more likely than men to enter such occupations in states that deregulated their banking markets. We also notice that traditionally-male jobs are more likely to be populated by high-school dropouts (column (1)), suggesting that such jobs are not education-intensive and therefore, probably not that well-paid. However, well-paid jobs are considerably more likely to be populated by individuals with some college education (column (2)), and so are well-paid male jobs (column (3)). The magnitude of the latter result is particularly striking: in deregulated states, and relative to men, women are 6.8 percentage points more likely to enter well-paid, traditionally male occupations. We conclude that a substantial portion of the narrowing of the gender pay gap in the wake of banking deregulation derives from the propensity of women to enter better-paid jobs that were in the past occupied mostly by men.

5.3.4 Educational attainment

Goldin (2006) notes that one of the main channels through which the gender pay gap has narrowed in the United States in recent decades is the increasing number of women who choose to acquire higher education,[14] ultimately restoring the situation from before the Great Depression when most college graduates were women. Obviously, higher education is a powerful factor in explaining changes in individual-level productivity and employability.[15] This is particularly true in modern industrialized countries such as the United States, characterized by a gradual shift from low-skilled manufacturing-dominated to high-skilled service-oriented economies, as well as by skill-biased technical change (Acemoglu, 1998).

There is already evidence in the literature that the demand for higher education increased during the post-banking-deregulation period. Recently, Sun and Yannelis (2016) have shown that household credit in general and student loans in particular increased after states deregulated their banking industry. They also find that lifting banking restrictions raises college enrollment by about 2.6 percentage points. Levine and Rubinstein (2013) show that banking deregulation boosted college enrollment rates among able students from middle class families, and they argue that the functioning

[14] The substantial increase in the share of female university students in the US sharply contrasts with the trend in France—a country where tertiary education is generally free—where the share of female university students has increased by only four percentage points, from around 50 to around 54 percent, between 1980 and 2010 (see Eurostat).

[15] Laeven and Popov (2016) provide empirical evidence that young individuals with college degree or more were on average less likely to be unemployed during the U.S. housing bust of the late 2000s.

of the financial system plays a powerful role in shaping the degree to which a child's educational choices—and hence economic opportunities—are defined by parental income. However, both papers are silent about whether women's demand for higher education increased relatively more. This is necessary if one is to conclude that higher education is one of the channels via which credit market competition narrowed the gender pay gap.

In Table XI, we present the estimates from a series of tests that allow us to address this question. We start by constructing three dummy variables equal to 1 if an individual has at most a high-school diploma, if an individual has some college education, and if an individual has at least a college degree. We then regress these variables one by one on the full set of individual co-variates—excluding the education dummies—as well as on the interaction between the *Female* dummy and the *Deregulation* dummy. We find that, all else equal, individuals who are relatively young or relatively old, black, divorced, or unemployed are more likely to have at most high school education (column (1)). At the same time, individuals who are middle-aged, married or single, non-Black, privately or publicly employed, or self-employed are more likely to have at least a college degree (column (3)). We also find that females are on average more likely to have at most a high school degree (column (1)) and less likely to have started but not finished college (column (2)) and especially to have at least a college degree (column (3)).

Crucially, we find that in deregulated states and relative to men, women are less likely on average to have stopped pursuing their education beyond the high-school level (column (1)). The effect is significant at the 1 percent statistical level and it amounts to a 2.6 percentage points decline in the proportion of females with at most high-school education. At the same time, we find that the rates of college enrollment increased substantially among females, and relative to males, in deregulated states (columns (2) and (3)). Importantly, women in such states became about 1.9 percentage points more likely to obtain a college degree (column (3)). The latter effect is particularly important in light of the theoretical arguments discussed above. It is also numerically large, given a 10 percent average college graduation rate in the sample.

We conclude that higher college enrollment rates, and the subsequent increase in productivity and employability, are among the root causes for the narrowing of the gender pay gap in the wake of banking deregulation. This result is also consistent with the evidence in Franz (1985) who shows that German women during the period in question were acquiring more higher education

and supplying more labor at later stages of their lives, even though the author does not relate this effect to changes in credit market conditions.

6 Conclusion

The relatively equal opportunities that women nowadays enjoy in labor markets across Europe and North America—compared with most of the rest of the world and with most of history—is one of the principal achievements of modern western civilization. While a gender gap still persists in labor force participation and in wage income in the United States, this gap closed rapidly over the course of the 1970s, 1980s, and 1990s. In this paper, we show that the banking deregulations of that period, which opened local credit markets to competition from other in-state and out-of-state banks, has played a substantial and previously undocumented role in narrowing the gender gap in labor markets. Our results suggest that banking deregulation reduced the gender gap in labor force participation by up to 29 percent, and gender inequality in wages by up to 18 percent. This result is robust to employing alternative proxies for local credit market competition, and it is robust to controlling for a wide range of observable individual-specific factors that can affect labor market outcomes, for state-specific trends that affect all agents equally, and for shocks to labor markets and to social norms that disproportionately benefit females. Importantly, it also obtains when we compare individuals across contiguous MSAs sharing a state border where unobservable confounding factors tend to be similar. We argue that taken together, our tests corroborate a genuine deregulation effect on the gender gap in labor markets.

We next turn to investigating the mechanisms at play. Banking deregulation increased the efficiency of credit markets and made credit more widely available and more affordable, both to consumers and to corporates. We argue that the increase in business activity and in the demand for labor, with female labor supply at the time being more wage-elastic than male labor supply (Goldin, 1990), explains the rise in female employment. In particular, we find that after deregulation, women are substantially less likely to be classified as "Not in the labor force", suggesting that banking deregulation affected female labor force participation on the extensive margin. Regarding the gender pay gap, we identify three forces that have contributed to its reduction. Namely, we find that women in deregulated states are substantially more likely to work in the private sector, to

enter well-paid traditionally male jobs, and to acquire more formal education.

We stop short of a number of important questions. For example, did a decline in taste-based discrimination play a role in the narrowing of the gender gap? Levine, Levkov, and Rubinstein (2014) have recently argued that banking deregulation boosted black workers' relative wages by facilitating the entry of new firms (labor demand effect) and by reducing the manifestation of racial prejudices (discrimination effect). While we focus on mechanisms related to labor demand and to the demand for schooling, it is possible that taste-based discrimination against women declined with banking-sector reforms. We leave this and other important questions for future research.

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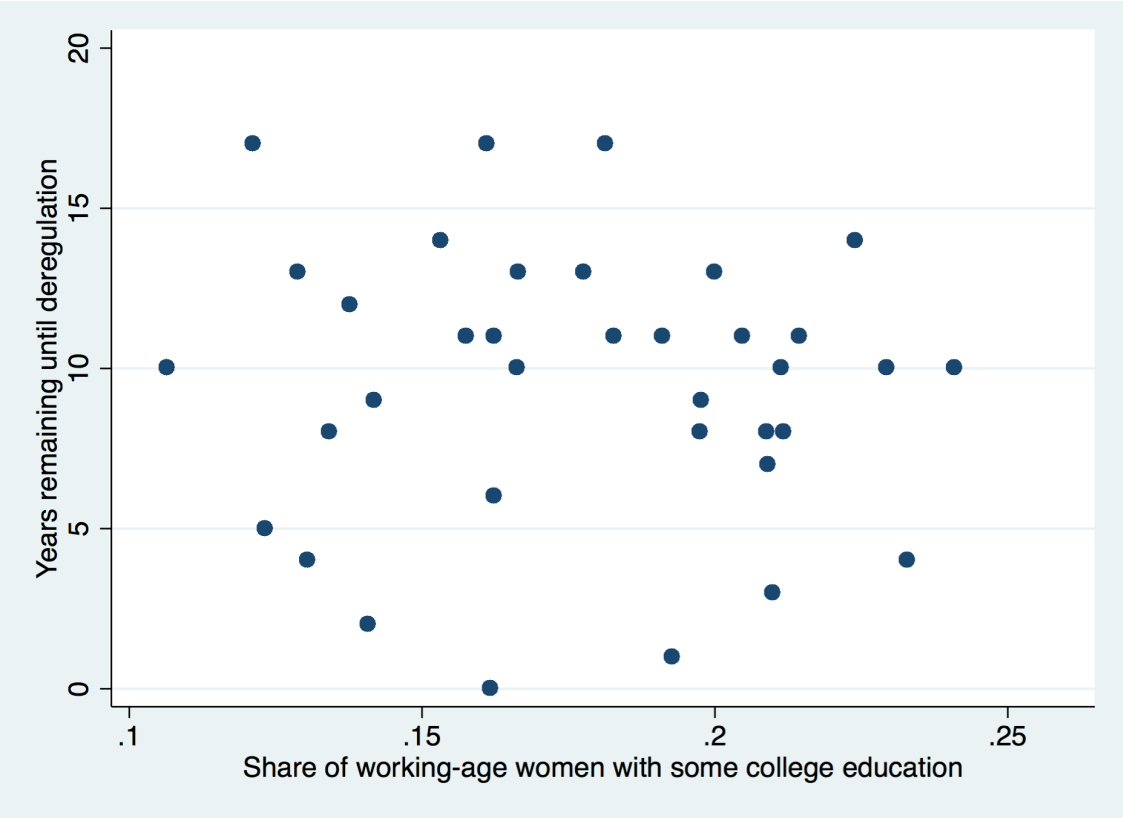
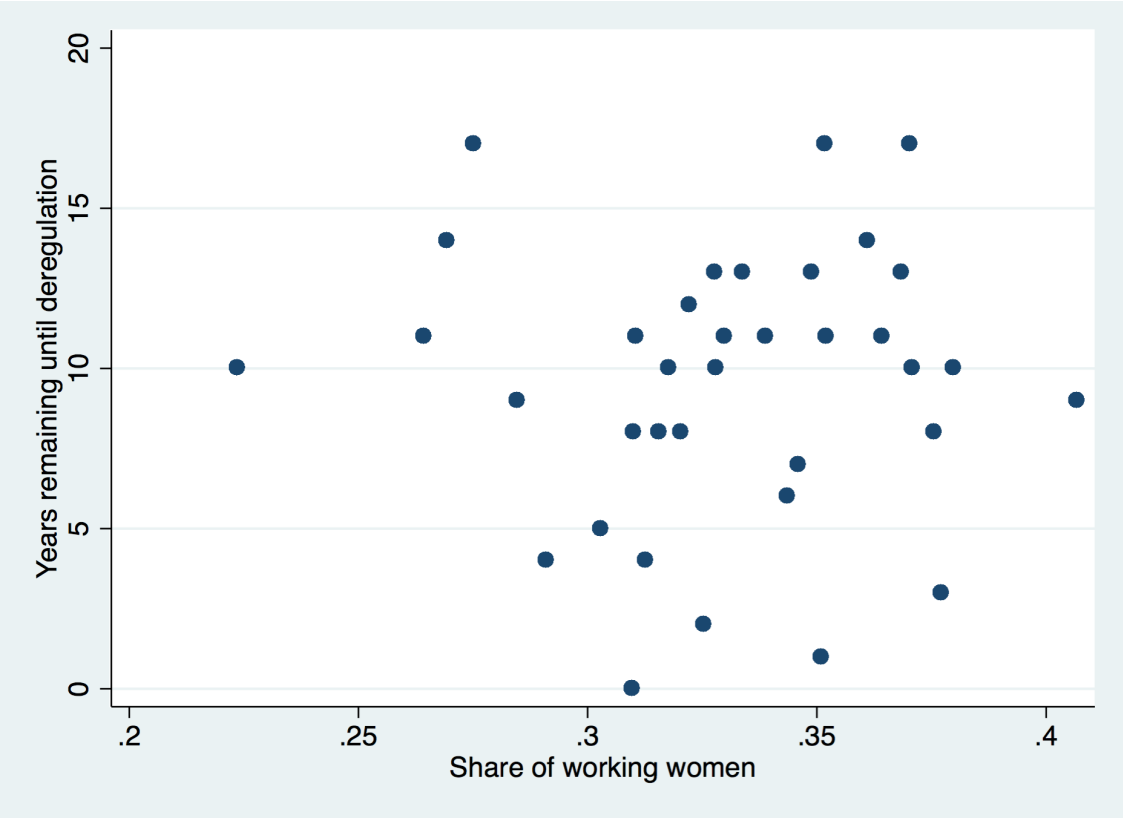
Figure 1: Share of educated women and years to deregulation in 1977



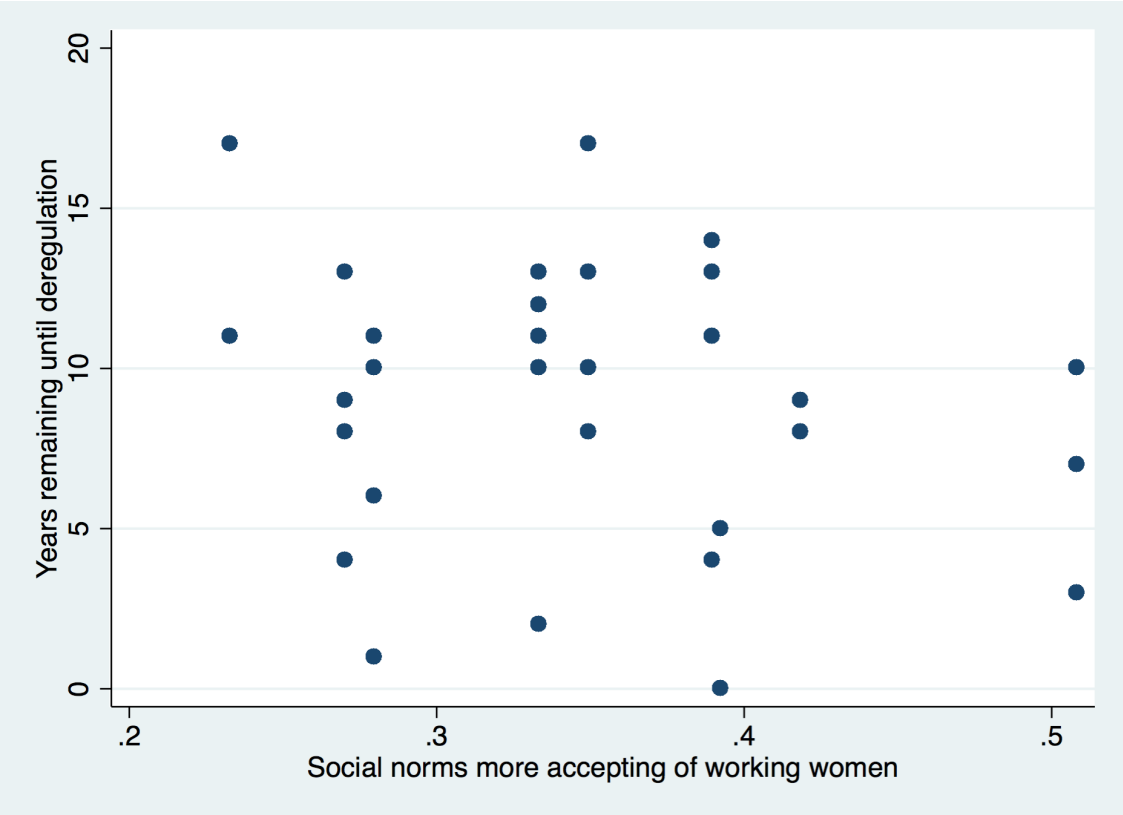
Note: This figure shows the years remaining until intra-state banking deregulation and the share of working-age women who have some college education (i.e. at least one year of college), calculated from averages at the state level in 1977.

Figure 2: Share of working women and years to deregulation in 1977



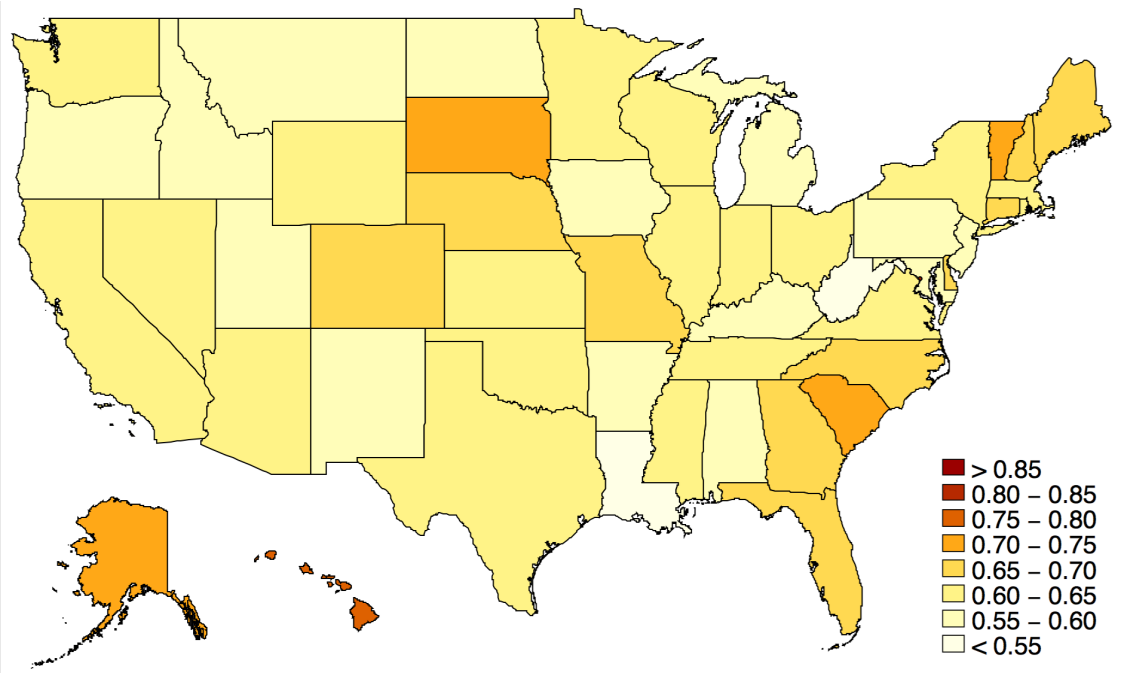
Note: This figure shows the years remaining until intra-state banking deregulation and the share of women who are in the labor force (i.e. self-employed, employed in the private sector, or employed by the government), calculated from averages at the state level in 1977.

Figure 3: Social norms and years to deregulation in 1977



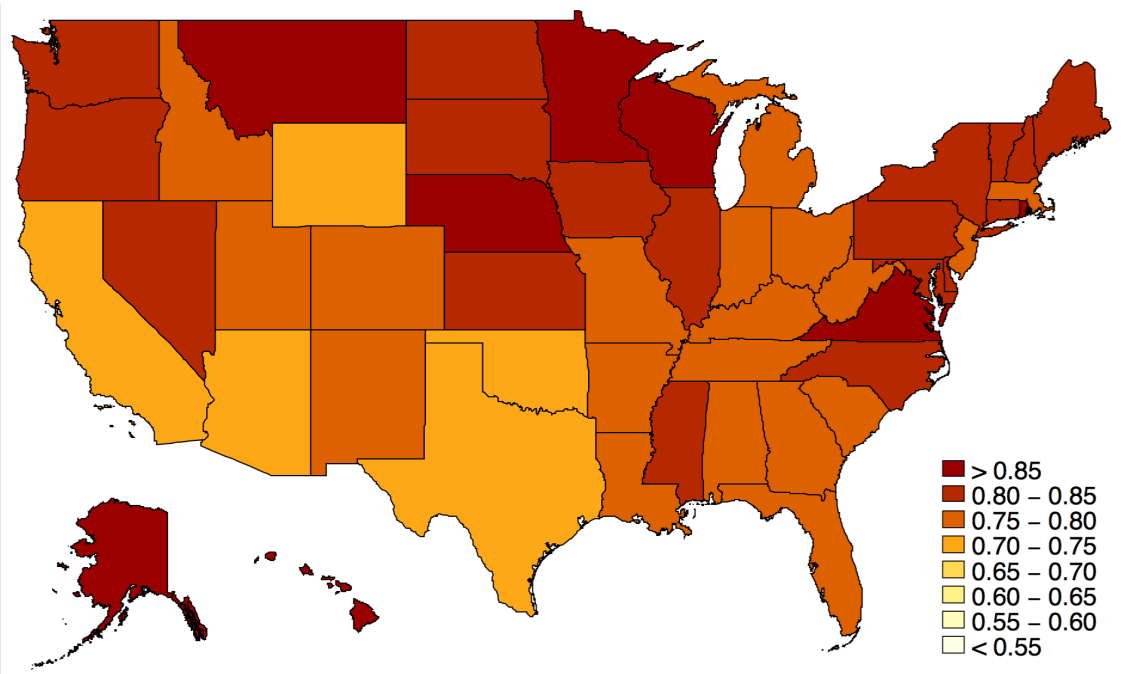
Note: This figure shows the years remaining until intra-state banking deregulation and the share of respondents in the General Social Survey who answer "Strongly disagree" or "Disagree" when confronted with the following statement: "It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family." The share is calculated in 1977 at the regional level.

Figure 4: Weeks worked, women as share of men, in 1977



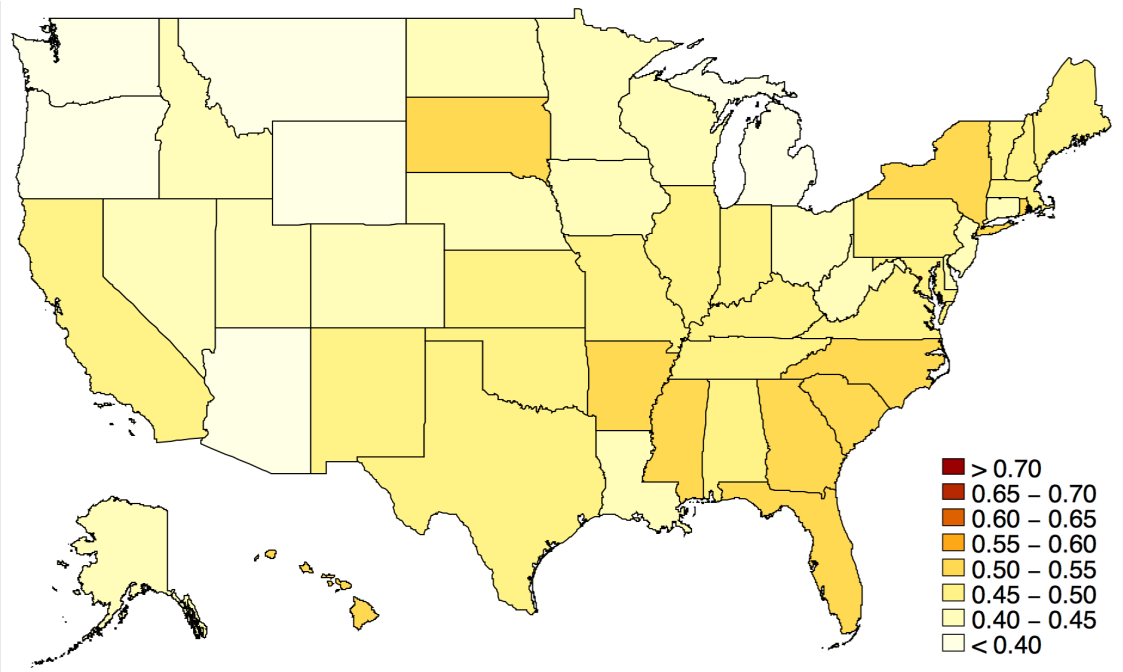
Note: This figure shows the state by state ratio of the average number of weeks worked by women to the average number of weeks worked by men in 1977. The number of weeks worked is the total number of weeks worked by the respondent in the year preceding the survey year.

Figure 5: Weeks worked, women as share of men, in 1994



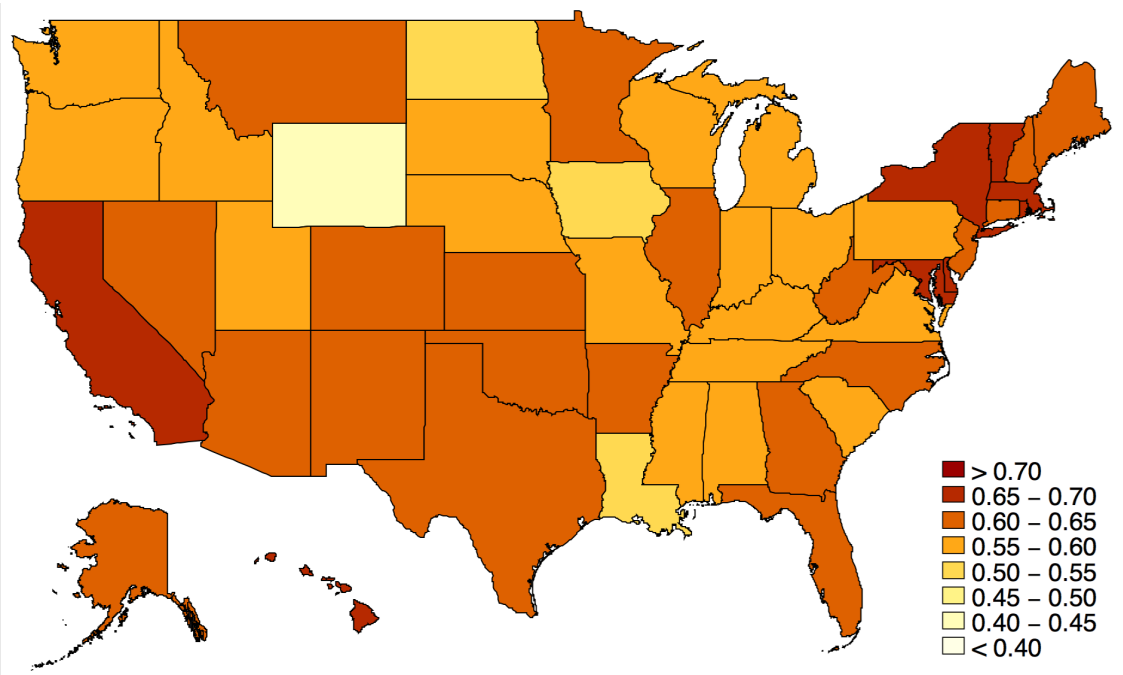
Note: This figure shows the state by state ratio of the average number of weeks worked by women to the average number of weeks worked by men in 1994. The number of weeks worked is the total number of weeks worked by the respondent in the year preceding the survey year.

Figure 6: Wage income, women as share of men, in 1977



Note: This figure shows the state by state ratio of womens' average wage income to mens' average wage income in 1977. Wage income is respondent's total pre-tax wage and salary income in the calendar year preceding the survey.

Figure 7: Wage income, women as share of men, in 1994



Note: This figure shows the state by state ratio of womens' average wage income to mens' average wage income in 1994. Wage income is respondent's total pre-tax wage and salary income in the calendar year preceding the survey.

Table I: Deregulation years by state

States that deregulated by 1972	
Alaska	
Arizona	
California	
Delaware	
District of Columbia	
Idaho	
Maryland	
Nevada	
North Carolina	
Rhode Island	
South Carolina	
South Dakota	
Vermont	
States deregulated after 1972	**Year of deregulation**
Alabama	1981
Arkansas	1994
Colorado	1991
Connecticut	1980
Florida	1988
Georgia	1983
Hawaii	1986
Illinois	1988
Indiana	1989
Iowa	1994
Kansas	1987
Kentucky	1990
Louisiana	1988
Maine	1975
Massachusetts	1984
Michigan	1987
Minnesota	1994
Mississippi	1986
Missouri	1990
Montana	1990
Nebraska	1985
New Hampshire	1987
New Jersey	1977
New Mexico	1991
New York	1976
North Dakota	1987
Ohio	1979
Oklahoma	1988
Oregon	1985
Pennsylvania	1982
Tennessee	1985
Texas	1988
Utah	1981
Virginia	1978
Washington	1985
West Virginia	1987
Wisconsin	1990
Wyoming	1988

Table II: Summary statistics

	Observations	Mean	Median	St. dev.	Min	Max
Weeks worked last year	1,614,187	35.76	52.00	21.71	0	52
Weekly wage income	1,172,870	367.33	288.46	346.03	0	54,000
Self employed	1,614,187	0.08	0.00	0.27	0	1
Employed (private sector)	1,614,187	0.50	1.00	0.50	0	1
Employed (public sector)	1,614,187	0.13	0.00	0.33	0	1
Unemployed	1,614,187	0.05	0.00	0.21	0	1
Not in the labor force	1,614,187	0.24	0.00	0.43	0	1
High-school or less	1,614,187	0.60	1.00	0.49	0	1
College drop-out	1,614,187	0.30	0.00	0.46	0	1
College or more	1,614,187	0.10	0.00	0.30	0	1
Female	1,614,187	0.52	1.00	0.50	0	1
Age	1,614,187	39.87	38.00	12.65	21	65
White	1,614,187	0.87	1.00	0.33	0	1
Black	1,614,187	0.09	0.00	0.29	0	1
Other race	1,614,187	0.04	0.00	0.18	0	1
Single	1,614,187	0.18	0.00	0.38	0	1
Married	1,614,187	0.68	1.00	0.47	0	1
Divorced or widowed	1,614,187	0.14	0.00	0.35	0	1
Male job (1977)	1,198,463	0.63	1.00	0.48	0	1
Well-paid job (1977)	1,198,463	0.46	0.00	0.50	0	1
Well-paid male job (1977)	1,198,463	0.37	0.00	0.48	0	1
Social norms	1,614,187	0.08	0.07	0.07	–0.05	0.25
Share of working women	1,614,187	0.39	0.39	0.04	0.24	0.50
Share of educated women	1,614,187	0.24	0.25	0.05	0.11	0.39

Note: This table presents summary statistics for the main variables used in the empirical tests. 'Weeks worked last year' is the total number of weeks worked by the respondent in the year preceding the survey year. 'Weekly wage income' is the respondent's total pre-tax wage and salary income in the preceding calendar year divided by 'weeks worked last year'. Only respondents with strictly positive wage income are considered. The employment variables 'Self employed', 'Employed (private sector)', 'Employed (public sector)', 'Unemployed' and 'Not in the labor force' classify the respondents according to their employment status and, if they are in the labor force, the occupation in which they worked the most hours. 'Self employed' is a dummy equal to 1 if the respondent is self-employed. 'Employed (private sector)' is a dummy equal to 1 if the respondent is an employee in private industry. 'Employed (public sector)' is a dummy equal to 1 if the respondent is an employee in public sector. 'Unemployed' is a dummy equal to 1 if the respondent declared himself as 'unemployed'. 'Not in the labor force' is a dummy equal to 1 if the respondent is not in the labor force (e.g doing housework, or being unable to work, or going to school, etc.). The education categories reveal the respondent's highest grade of school or year of college completed. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College drop-out' is a dummy equal to 1 if the respondent has between 1 and 4 years of college but no degree. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. 'Female' is a dummy equal to 1 if the respondent is a female. 'White', 'Black', and 'Other race' are dummies equal to 1 if the respondent is white, black, or other race, respectively. 'Single' is a dummy equal to 1 if the respondent is single. 'Married' is a dummy equal to 1 if the respondent is married. 'Divorced or widowed' is a dummy equal to 1 if the respondent is divorced or widowed. 'Male job (1977)' is a dummy equal to 1 if a particular occupation falls in the top half of occupations in terms of share of males employed. 'Well-paid job (1977)' is a dummy equal to 1 if a particular occupation falls in the top half of occupations in terms of average wage income. 'Well-paid male job (1977)' is a dummy equal to 1 if a particular occupation falls in the top half of occupations both in terms of share of males employed and in terms of average wage income. 'Male job (1977)', 'Well-paid job (1977)', and 'Well-paid male job (1977)' are based on job classifications from 1977. 'Social norms' is constructed as described in Model (3). 'Share of working women' is the share of women who are in the labor force (i.e. self-employed, employed in the private sector, or employed by the government). 'Share of educated women' is the share of working-age women who have some college education (i.e. at least one year of college). Both shares of working and educated women are calculated from averages at the state level for 4 periods (1977-1981, 1982-1985, 1986-1990, 1991-1994). We use yearly individual-level data from IPUMS-CPS for the period 1977-1994.

Table III: MSA pairs

Treatment MSA	**Treatment state**	**Control MSA**	**Control state**	**Deregulation year of control state**
Boston	Massachusetts	Manchester	New Hampshire	1987
Boston	Massachusetts	Portsmouth-Dover-Rochester	New Hampshire	1987
Cincinnati-Hamilton	Ohio	Cincinnati-Hamilton	Kentucky	1990
Davenport-Rock Island-Moline	Illinois	Davenport-Rock Island-Moline	Iowa	1994
Kansas City	Kansas	St. Louis	Missouri	1990
Kansas City	Kansas	Kansas City	Missouri	1990
Lima	Ohio	Fort Wayne	Indiana	1989
Mobile	Alabama	Pensacola	Florida	1988
Mobile	Alabama	Biloxi-Gulfport	Mississippi	1986
Nashville	Tennessee	Cincinnati-Hamilton	Kentucky	1990
Philadelphia	New Jersey	Philadelphia	Pennsylvania	1982
Pittsburg	Pennsylvania	Wheeling	West Virginia	1987
Portland	Maine	Portsmouth-Dover-Rochester	New Hampshire	1987
Toledo	Ohio	Detroit	Michigan	1987
Toledo	Ohio	Ann Arbor	Michigan	1987

Note: The control MSAs St. Louis (Missouri), Biloxi-Gulfport (Mississippi), Cincinnati-Hamilton (Kentucky), Detroit (Michigan), and Ann Arbor (Michigan) are not direct neighbors of their treatment MSA, but directly adjacent to the MSA contiguous to the treated MSA (they correspond to the "hinterland counties" in Huang (2008)).

Table IV: The effect of intra-state banking deregulation on weeks worked

	Weeks worked last year			
	1	2	3	4
Deregulation × female	2.6193***	0.6267***	0.6205***	0.6228***
	(0.2522)	(0.0937)	(0.0938)	(0.0939)
Deregulation	–0.1933	–0.0212	–0.3640***	
	(0.1500)	(0.0927)	(0.0806)	
Female	–13.1687***	–2.9745***	–2.9961***	–2.9996***
	(0.2010)	(0.0780)	(0.0783)	(0.0784)
Age		0.5049***	0.4948***	0.4955***
		(0.0103)	(0.0099)	(0.0099)
Age squared		–0.0056***	–0.0055***	–0.0055***
		(0.0001)	(0.0001)	(0.0001)
Married		0.1778***	0.1653***	0.1652***
		(0.0376)	(0.0379)	(0.0379)
Single		–0.2749***	–0.3497***	–0.3521***
		(0.0560)	(0.0543)	(0.0544)
Black		–1.3033***	–1.3368***	–1.3400***
		(0.0592)	(0.0577)	(0.0579)
High-school or less		–1.4930***	–1.4931***	–1.4899***
		(0.0315)	(0.0327)	(0.0328)
College or more		0.6913***	0.6330***	0.6392***
		(0.0508)	(0.0478)	(0.0478)
Self employed		38.8246***	38.7053***	38.6974***
		(0.0809)	(0.0817)	(0.0819)
Employed (private sector)		39.9962***	39.9109***	39.9022***
		(0.0643)	(0.0659)	(0.0660)
Employed (public sector)		38.6762***	38.6318***	38.6290***
		(0.1331)	(0.1323)	(0.1324)
Unemployed		19.5864***	19.5745***	19.5917***
		(0.1482)	(0.1460)	(0.1457)
State FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
State × year FE	No	No	No	Yes
N	1,554,571	1,554,571	1,554,571	1,554,571
Adj. R^2	0.071	0.661	0.662	0.662

The dependent variable is the total number of weeks worked by the respondent in the year preceding the survey year. 'Deregulation' is a dummy equal to 1 if the respondent is located in a state where within-state bank branching restrictions have been lifted. 'Female' is a dummy equal to 1 if the respondent is a female. 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. The omitted category in education is 'College drop-out'. The variables 'Self employed', 'Employed (private sector)', 'Employed (public sector)', and 'Unemployed' classify the respondents according to their occupational status and, if they are in the labor force, the occupation in which they worked the most hours. 'Self employed' is a dummy equal to 1 if the respondent is self-employed. 'Employed (private sector)' is a dummy equal to 1 if the respondent is an employee in private industry. 'Employed (public sector)' is a dummy equal to 1 if the respondent is an employee in public sector. 'Unemployed' is a dummy equal to 1 if the respondent declared himself as 'unemployed'. The omitted variable in occupational status is 'Not in the labor force'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993). The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table V: The effect of intra-state banking deregulation on log weekly wage income

	Log weekly wage income			
	1	2	3	4
Deregulation × female	0.1368***	0.1068***	0.1112***	0.1096***
	(0.0094)	(0.0081)	(0.0083)	(0.0083)
Deregulation	0.2814***	0.2487***	–0.0775***	
	(0.0198)	(0.0186)	(0.0071)	
Female	–0.6684***	–0.6137***	–0.6282***	–0.6271***
	(0.0069)	(0.0062)	(0.0062)	(0.0062)
Age		0.0732***	0.0641***	0.0643***
		(0.0010)	(0.0008)	(0.0008)
Age squared		–0.0008***	–0.0007***	–0.0007***
		(0.0000)	(0.0000)	(0.0000)
Married		0.0127***	0.0269***	0.0268***
		(0.0031)	(0.0026)	(0.0026)
Single		–0.1345***	–0.1620***	–0.1619***
		(0.0048)	(0.0037)	(0.0037)
Black		–0.1302***	–0.1256***	–0.1262***
		(0.0079)	(0.0054)	(0.0054)
High-school or less		–0.2773***	–0.2576***	–0.2575***
		(0.0048)	(0.0039)	(0.0039)
College or more		0.3513***	0.3025***	0.3014***
		(0.0074)	(0.0045)	(0.0045)
Self employed		–0.0964***	–0.1607***	–0.1623***
		(0.0291)	(0.0300)	(0.0300)
Employed (private sector)		0.5051***	0.4908***	0.4909***
		(0.0059)	(0.0057)	(0.0057)
Employed (public sector)		0.4865***	0.4948***	0.4953***
		(0.0063)	(0.0059)	(0.0059)
Unemployed		0.2867***	0.2646***	0.2644***
		(0.0078)	(0.0071)	(0.0071)
State FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
State × year FE	No	No	No	Yes
N	1,129,348	1,129,348	1,129,348	1,129,348
Adj. R^2	0.128	0.261	0.314	0.315

The dependent variable is the natural logarithm of the weekly wage income of the respondent. The regression sample includes only respondents with non-zero wage income and non-zero weeks worked. 'Deregulation' is a dummy equal to 1 if the respondent is located in a state where within-state bank branching restrictions have been lifted. 'Female' is a dummy equal to 1 if the respondent is a female. 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. The omitted category in education is 'College drop-out'. The variables 'Self employed', 'Employed (private sector)', 'Employed (public sector)', and 'Unemployed' classify the respondents according to their occupational status and, if they are in the labor force, the occupation in which they worked the most hours. 'Self employed' is a dummy equal to 1 if the respondent is self-employed. 'Employed (private sector)' is a dummy equal to 1 if the respondent is an employee in private industry. 'Employed (public sector)' is a dummy equal to 1 if the respondent is an employee in public sector. 'Unemployed' is a dummy equal to 1 if the respondent declared himself as 'unemployed'. The omitted variable in occupational status is 'Not in the labor force'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993). The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table VI: Alternative measures of financial deregulation

	Weeks worked last year			Log weekly wage income		
	1	2	3	4	5	6
Years since deregulation × female	0.0418***			0.0072***		
	(0.0056)			(0.0005)		
Inter-state deregulation × female		0.4518***			0.1033***	
		(0.0901)			(0.0086)	
Other state asset ratio× female			0.0576***			0.0048***
			(0.0102)			(0.0010)
Female	–2.7712***	–2.8043***	–2.6912***	–0.5831***	–0.6046***	–0.5622***
	(0.0494)	(0.0750)	(0.0573)	(0.0045)	(0.0057)	(0.0059)
Age	0.4683***	0.4956***	0.4946***	0.0636***	0.0642***	0.0643***
	(0.0109)	(0.0099)	(0.0099)	(0.0009)	(0.0008)	(0.0008)
Age squared	–0.0052***	–0.0055***	–0.0055***	–0.0007***	–0.0007***	–0.0007***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0000)
Married	0.2002***	0.1639***	0.1646***	0.0268***	0.0264***	0.0272***
	(0.0397)	(0.0379)	(0.0381)	(0.0030)	(0.0026)	(0.0026)
Single	–0.4399***	–0.3532***	–0.3588***	–0.1636***	–0.1620***	–0.1616***
	(0.0605)	(0.0543)	(0.0546)	(0.0045)	(0.0037)	(0.0038)
Black	–1.4518***	–1.3394***	–1.3374***	–0.1269***	–0.1261***	–0.1258***
	(0.0647)	(0.0579)	(0.0581)	(0.0059)	(0.0054)	(0.0054)
High-school or less	–1.4626***	–1.4887***	–1.4936***	–0.2532***	–0.2570***	–0.2583***
	(0.0366)	(0.0330)	(0.0329)	(0.0041)	(0.0039)	(0.0039)
College or more	0.5958***	0.6392***	0.6366***	0.3042***	0.3014***	0.3014***
	(0.0510)	(0.0477)	(0.0480)	(0.0048)	(0.0045)	(0.0045)
Self employed	38.7769***	38.6986***	38.7002***	–0.1751***	–0.1605***	–0.1604***
	(0.0904)	(0.0817)	(0.0823)	(0.0334)	(0.0300)	(0.0301)
Employed (private sector)	40.0070***	39.8997***	39.9158***	0.5003***	0.4903***	0.4928***
	(0.0717)	(0.0658)	(0.0660)	(0.0063)	(0.0057)	(0.0057)
Employed (public sector)	38.9700***	38.6238***	38.6535***	0.4976***	0.4948***	0.4962***
	(0.1284)	(0.1318)	(0.1329)	(0.0065)	(0.0059)	(0.0059)
Unemployed	19.5346***	19.5894***	19.5947***	0.2772***	0.2642***	0.2665***
	(0.1612)	(0.1456)	(0.1462)	(0.0077)	(0.0070)	(0.0071)
State × year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,156,517	1,554,571	1,518,233	837,542	1,129,348	1,103,077
Adj. R^2	0.669	0.662	0.662	0.316	0.315	0.314

The dependent variables 'Weeks worked last year' and 'Log weekly wage income' are the total number of weeks worked by the respondent in the year preceding the survey year, and the natural logarithm of weekly wage income of the respondent, respectively. The 'Log weekly wage income' regression samples include only respondents with non-zero wage income and non-zero weeks worked. 'Years since deregulation' equals the number of years since intra-state bank branching restrictions have been lifted. The regressions using 'Years since deregulation' only include the sample of respondents from states that deregulated in or after 1977 since the dates of deregulations that took place before 1977 are not available. 'Inter-state deregulation' is a dummy equal to 1 if the respondent is located in a state where bank branching restrictions between states have been lifted. 'Other state asset ratio' equals total out-of-state assets held by holding companies operating in each state in each year, divided by total banking sector assets in each state-year. 'Female' is a dummy equal to 1 if the respondent is a female. 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. The omitted category in education is 'College drop-out'. The variables 'Self employed', 'Employed (private sector)', 'Employed (public sector)', and 'Unemployed' classify the respondents according to their occupational status and, if they are in the labor force, the occupation in which they worked the most hours. 'Self employed' is a dummy equal to 1 if the respondent is self-employed. 'Employed (private sector)' is a dummy equal to 1 if the respondent is an employee in private industry. 'Employed (public sector)' is a dummy equal to 1 if the respondent is an employee in public sector. 'Unemployed' is a dummy equal to 1 if the respondent declared himself as 'unemployed'. The omitted variable in occupational status is 'Not in the labor force'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993) and the 'Other state asset ratio' has been provided to us by Philip Strahan. The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table VII: The effect of financial deregulation on weeks worked and weekly wage income using contiguous MSAs

	Weeks worked last year	Log weekly wage income
	1	2
Deregulation × female	1.0880***	0.0482**
	(0.2767)	(0.0231)
Female	–3.6839***	–0.6044***
	(0.2310)	(0.0136)
Age	0.4215***	0.0639***
	(0.0517)	(0.0039)
Age squared	–0.0046***	–0.0007***
	(0.0006)	(0.0000)
Married	0.0524	0.0579***
	(0.2098)	(0.0160)
Single	–0.3710	–0.1552***
	(0.2670)	(0.0228)
Black	–2.3058***	–0.1143***
	(0.3047)	(0.0188)
High-school or less	–1.6744***	–0.2497***
	(0.1871)	(0.0133)
College or more	0.4547*	0.2676***
	(0.2686)	(0.0140)
Self employed	37.1018***	–0.4523***
	(0.3414)	(0.1234)
Employed (private sector)	39.7609***	0.4657***
	(0.2059)	(0.0331)
Employed (public sector)	39.2728***	0.4502***
	(0.3281)	(0.0366)
Unemployed	18.9573***	0.2267***
	(0.8599)	(0.0436)
MSA × year FE	Yes	Yes
Pair FE	Yes	Yes
N	35,749	26,493
Adj. R^2	0.670	0.306

The table reports the results from OLS regressions using a selected sample of 15 pairs of contiguous MSAs derived from data offered by Huang (2008). The dependent variables 'Weeks worked last year' and 'Log weekly wage income' are the total number of weeks worked by the respondent in the year preceding the survey year, and the natural logarithm of weekly wage income of the respondent, respectively. The 'Log weekly wage income' regression samples include only respondents with non-zero wage income and non-zero weeks worked. 'Deregulation' is a dummy equal to 1 if the respondent is located in a state where within-state bank branching restrictions have been lifted. 'Female' is a dummy equal to 1 if the respondent is a female. 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. The omitted category in education is 'College drop-out'. The variables 'Self employed', 'Employed (private sector)', 'Employed (public sector)', and 'Unemployed' classify the respondents according to their occupational status and, if they are in the labor force, the occupation in which they worked the most hours. 'Self employed' is a dummy equal to 1 if the respondent is self-employed. 'Employed (private sector)' is a dummy equal to 1 if the respondent is an employee in private industry. 'Employed (public sector)' is a dummy equal to 1 if the respondent is an employee in public sector. 'Unemployed' is a dummy equal to 1 if the respondent declared himself as 'unemployed'. The omitted variable in occupational status is 'Not in the labor force'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993). The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table VIII: Robustness check: controlling for social norms

	Weeks worked last year			Log weekly wage income		
	1	2	3	4	5	6
Deregulation × female	0.5250***	0.4609***	0.2517**	0.1061***	0.1007***	0.0705***
	(0.1035)	(0.0928)	(0.0992)	(0.0093)	(0.0090)	(0.0083)
Social norms × female	–1.4805**			–0.0532		
	(0.6712)			(0.0592)		
Share of working women × female		6.8878***			0.3855***	
		(0.9755)			(0.0903)	
Share of educated women × female			6.6195***			0.7016***
			(0.8183)			(0.0772)
Female	–2.8130***	–5.5537***	–4.3670***	–0.6204***	–0.7705***	–0.7728***
	(0.1102)	(0.3761)	(0.1872)	(0.0100)	(0.0337)	(0.0166)
Age	0.4957***	0.4964***	0.4964***	0.0643***	0.0643***	0.0643***
	(0.0099)	(0.0099)	(0.0099)	(0.0008)	(0.0008)	(0.0008)
Age squared	–0.0055***	–0.0055***	–0.0055***	–0.0007***	–0.0007***	–0.0007***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0000)
Married	0.1647***	0.1602***	0.1596***	0.0268***	0.0264***	0.0260***
	(0.0379)	(0.0379)	(0.0379)	(0.0026)	(0.0026)	(0.0026)
Single	–0.3519***	–0.3539***	–0.3524***	–0.1620***	–0.1620***	–0.1620***
	(0.0544)	(0.0544)	(0.0544)	(0.0037)	(0.0037)	(0.0037)
Black	–1.3400***	–1.3395***	–1.3386***	–0.1262***	–0.1261***	–0.1259***
	(0.0579)	(0.0579)	(0.0579)	(0.0054)	(0.0054)	(0.0054)
High-school or less	–1.4893***	–1.4861***	–1.4851***	–0.2575***	–0.2573***	–0.2569***
	(0.0328)	(0.0329)	(0.0330)	(0.0039)	(0.0039)	(0.0039)
College or more	0.6400***	0.6442***	0.6456***	0.3015***	0.3017***	0.3019***
	(0.0478)	(0.0477)	(0.0478)	(0.0045)	(0.0045)	(0.0045)
Self employed	38.6946***	38.6874***	38.6888***	–0.1624***	–0.1622***	–0.1614***
	(0.0819)	(0.0818)	(0.0820)	(0.0300)	(0.0300)	(0.0300)
Employed (private sector)	39.8987***	39.8844***	39.8831***	0.4907***	0.4902***	0.4895***
	(0.0662)	(0.0657)	(0.0658)	(0.0057)	(0.0056)	(0.0057)
Employed (public sector)	38.6257***	38.6135***	38.6126***	0.4952***	0.4948***	0.4943***
	(0.1324)	(0.1321)	(0.1322)	(0.0059)	(0.0059)	(0.0059)
Unemployed	19.5912***	19.5753***	19.5783***	0.2644***	0.2638***	0.2635***
	(0.1456)	(0.1455)	(0.1457)	(0.0071)	(0.0070)	(0.0070)
State × year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,554,571	1,554,571	1,554,571	1,129,348	1,129,348	1,129,348
Adj. R^2	0.662	0.662	0.662	0.315	0.315	0.315

The dependent variables 'Weeks worked last year' and 'Log weekly wage income' are the total number of weeks worked by the respondent in the year preceding the survey year, and the natural logarithm of the weekly wage income of the respondent, respectively. The 'Log weekly wage income' regression samples include only respondents with non-zero wage income and non-zero weeks worked. 'Deregulation' is a dummy equal to 1 if the respondent is located in a state where within-state bank branching restrictions have been lifted. 'Female' is a dummy equal to 1 if the respondent is a female. 'Social norms' is constructed as described in Model (3). 'Share of working women' is the share of women who are in the labor force (i.e. self-employed, employed in the private sector, or employed by the government). 'Share of educated women' is the share of working-age women who have some college education (i.e. at least one year of college). Both shares of working and educated women are calculated from averages at the state level for 4 periods (1977-1981, 1982-1985, 1986-1990, 1991-1994). 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. The omitted category in education is 'College drop-out'. The variables 'Self employed', 'Employed (private sector)', 'Employed (public sector)', and 'Unemployed' classify the respondents according to their occupational status and, if they are in the labor force, the occupation in which they worked the most hours. 'Self employed' is a dummy equal to 1 if the respondent is self-employed. 'Employed (private sector)' is a dummy equal to 1 if the respondent is an employee in private industry. 'Employed (public sector)' is a dummy equal to 1 if the respondent is an employee in public sector. 'Unemployed' is a dummy equal to 1 if the respondent declared himself as 'unemployed'. The omitted variable in occupational status is 'Not in the labor force'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993). The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table IX: The effect of intra-state banking deregulation on employment

	Not in the labor force	Employed (private sector)	Employed (public sector)	Self-employed
	1	2	3	4
Deregulation × female	–0.0453***	0.0528***	–0.0019	–0.0007
	(0.0151)	(0.0129)	(0.0092)	(0.0091)
Female	0.2666***	–0.1908***	0.0026**	–0.0487***
	(0.0111)	(0.0105)	(0.0070)	(0.0071)
Age	–0.0359***	0.0186***	0.0140***	0.0107***
	(0.0011)	(0.0008)	(0.0013)	(0.0015)
Age squared	0.0005***	–0.0003***	–0.0002***	–0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Married	0.0489***	–0.0492***	0.0051***	0.0178***
	(0.0066)	(0.0048)	(0.0053)	(0.0067)
Single	0.0574***	–0.0310***	–0.0056***	–0.0040***
	(0.0077)	(0.0065)	(0.0075)	(0.0083)
Black	0.0358***	–0.0928***	0.0647***	–0.0422***
	(0.0081)	(0.0069)	(0.0070)	(0.0105)
High-school or less	0.0692***	–0.0154***	–0.0744***	–0.0086***
	(0.0053)	(0.0044)	(0.0049)	(0.0066)
College or more	–0.0684***	–0.1088***	0.1195***	0.0132***
	(0.0065)	(0.0104)	(0.0104)	(0.0072)
State × year FE	Yes	Yes	Yes	Yes
N	1,554,571	1,554,571	1,554,571	1,554,571
Pseudo R^2	0.155	0.053	0.066	0.070

The table reports estimation results of marginal effects from probit regressions. The dependent variables 'Not in the labor force', 'Employed (private sector)', 'Employed (public sector)', and 'Self employed' classify the respondents according to their employment status and, if they are in the labor force, the occupation in which they worked the most hours. 'Deregulation' is a dummy equal to 1 if the respondent is located in a state where within-state bank branching restrictions have been lifted. 'Female' is a dummy equal to 1 if the respondent is a female. 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. The omitted category in education is 'College drop-out'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993). The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table X: The effect of intra-state banking deregulation on women's participation in male dominated jobs

	Male job	Well-paid job	Well-paid male job
	1	2	3
Deregulation × female	0.0706***	0.0475***	0.0679***
	(0.0130)	(0.0112)	(0.0146)
Female	–0.5504***	–0.3200***	–0.4120***
	(0.0094)	(0.0075)	(0.0105)
Age	0.0078***	0.0289***	0.0206***
	(0.0011)	(0.0010)	(0.0011)
Age squared	–0.0001***	–0.0003***	–0.0002***
	(0.0000)	(0.0000)	(0.0000)
Married	–0.0004	0.0591***	0.0319***
	(0.0049)	(0.0051)	(0.0050)
Single	–0.0378***	–0.0320***	–0.0443***
	(0.0067)	(0.0062)	(0.0064)
Black	–0.0819***	–0.1344***	–0.1407***
	(0.0071)	(0.0073)	(0.0082)
High-school or less	0.0954***	–0.2362***	–0.1086***
	(0.0068)	(0.0056)	(0.0054)
College or more	–0.0582***	0.2711***	0.0478***
	(0.0109)	(0.0078)	(0.0083)
State × year FE	Yes	Yes	Yes
N	1,017,235	1,017,235	1,017,235
Pseudo R^2	0.225	0.155	0.145

The table reports estimation results of marginal effects from probit regressions. The dependent variables 'Male job', 'Well-paid job', and 'Well-paid male job' are based on job classifications from 1977. 'Male job' is a dummy equal to 1 if a particular occupation falls in the top half of occupations in terms of share of males employed. 'Well-paid job' is a dummy equal to 1 if a particular occupation falls in the top half of occupations in terms of average wage income. 'Well-paid male job' is a dummy equal to 1 if a particular occupation falls in the top half of occupations both in terms of share of males employed and in terms of average wage income. 'Deregulation' is a dummy equal to 1 if the respondent is located in a state where within-state bank branching restrictions have been lifted. 'Female' is a dummy equal to 1 if the respondent is a female. 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. The omitted category in education is 'College drop-out'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993). The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table XI: The effect of intra-state banking deregulation on education

	High-school or less	College drop-out	College or more
	1	2	3
Deregulation × female	–0.0262***	0.0196***	0.0188***
	(0.0104)	(0.0098)	(0.0110)
Female	0.0415***	–0.0080***	–0.0404***
	(0.0074)	(0.0069)	(0.0084)
Age	–0.0117***	–0.0039***	0.0157***
	(0.0016)	(0.0014)	(0.0018)
Age squared	0.0002***	–0.0000*	–0.0002***
	(0.0000)	(0.0000)	(0.0000)
Married	–0.0494***	0.0209***	0.0252***
	(0.0052)	(0.0056)	(0.0075)
Single	–0.1431***	0.0779***	0.0639***
	(0.0064)	(0.0088)	(0.0082)
Black	0.1338***	–0.0643***	–0.0545***
	(0.0102)	(0.0108)	(0.0107)
Self employed	–0.1558***	0.0746***	0.0899***
	(0.0119)	(0.0091)	(0.0105)
Employed (private sector)	–0.0934***	0.0653***	0.0309***
	(0.0062)	(0.0051)	(0.0080)
Employed (public sector)	–0.3048***	0.1185***	0.2065***
	(0.0062)	(0.0066)	(0.0071)
Unemployed	0.0657***	–0.0440***	–0.0208***
	(0.0088)	(0.0087)	(0.0123)
State × year FE	Yes	Yes	Yes
N	1,554,571	1,554,571	1,554,571
Pseudo R^2	0.071	0.039	0.130

The table reports estimation results of marginal effects from probit regressions. The dependent variables are education categories that reveal the respondent's highest grade of school or year of college completed. 'High-school or less' is a dummy equal to 1 if the respondent has between 0 and 12 years of school and obtained at most a high-school diploma. 'College drop-out' is a dummy equal to 1 if the respondent has between 1 and 4 years of college but no degree. 'College or more' is a dummy equal to 1 if the respondent has at least a Bachelor's degree. 'Deregulation' is a dummy equal to 1 if the respondent is located in a state where within-state bank branching restrictions have been lifted. 'Female' is a dummy equal to 1 if the respondent is a female. 'Married' is a dummy equal to 1 if the respondent is married. 'Single' is a dummy equal to 1 if the respondent is single. The omitted category in marital status is 'Divorced or widowed'. 'Black' is a dummy equal to 1 if the respondent is black. The variables 'Self employed', 'Employed (private sector)', 'Employed (public sector)', and 'Unemployed' classify the respondents according to their occupational status and, if they are in the labor force, the occupation in which they worked the most hours. 'Self employed' is a dummy equal to 1 if the respondent is self-employed. 'Employed (private sector)' is a dummy equal to 1 if the respondent is an employee in private industry. 'Employed (public sector)' is a dummy equal to 1 if the respondent is an employee in public sector. 'Unemployed' is a dummy equal to 1 if the respondent declared himself as 'unemployed'. The omitted variable in occupational status is 'Not in the labor force'. We use yearly household data from IPUMS-CPS for the period 1977-1994. Banking deregulation dates follow Amel (1993). The year in which each state deregulated is dropped. All estimates are weighted by sampling weights provided by the Current Population Survey. Standard errors clustered by state-year are reported in parentheses, where *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.