Financial Liberalization and Income Inequality: On the Heterogenous Effects of Different Reforms*

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Abstract

This paper estimates the effects of financial market deregulation on income inequality in the US. We find that different financial reforms had different implications for income inequality. Reforms in the 1970s through the 1980s, namely the removal of restrictions on intra- and inter-state banking and the elimination of ceilings on interest rates, decreased inequality by increasing incomes at the bottom of the income distribution, mainly of younger workers. In contrast, the 1999 repeal of the Glass-Steagal act increased inequality by increasing incomes at the top of the income distribution. We also document strong indirect effects of all three reforms on sectors other than Finance and Insurance (FI). Direct effects on workers in FI are mainly strong for the repeal of the Glass-Steagal act. Our findings suggest that for a better understanding of trends in inequality one should carefully distinguish between different types of financial market reforms, both empirically and theoretically.

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1 Introduction

Over the past decades the share of the financial sector in the economy has increased substantially. Profits in the US financial sector as a share of total profits of the US economy have increased quite steadily from about 10% in the 1950s to almost 30% today.[1] Given the size of the sector, it is important to understand its relationship to the rest of the economy, in particular its role for household incomes.

In this paper we focus on the causal effects of financial deregulation on income inequality, on which the existing literature documents mixed findings. Some researchers find that financial deregulation decreased inequality (cf., e.g. Beck, Levine, and Levkov (2010)), others find that it apparently increased it (cf., e.g., Philippon and Reshef (2012) and Jerzmanowski and Nabar (2013)). We argue that it is key to distinguish between different types of deregulation and that carefully doing so explains these mixed findings.

Our empirical analyses focuses on three types of events in the recent history of the U.S. economy. First, in the 1970s U.S. states began removing restrictions on both intra- and inter-state bank branching. Strahan (2003) details these deregulations which varied from allowing intra-state bank branching via mergers and acquisitions to unrestricted branching across states. Importantly, different states enacted these policies at different times, which allows us to identify the causal impact of this form of deregulation on various measures of inequality.

Second, in the 1980s a federal law was introduced, which reformed usury rates across states. Usury rates specify the maximum interest rate that can be charged by lenders. Prior to 1980 these were determined at the state level. Rising interest rates during the 1970s led to interest rate ceilings in many states to start binding. In 1980, this prompted a federal policy which preempted state interest rate ceilings by federal ceilings.[2] The federal policy effectively removed interest rate ceilings for most types of both consumer and commercial loans after 1980. Although this deregulation took place in all states at the same time, different states imposed different interest rate ceilings prior to the reform which were not always binding. We focus on usury rate ceilings on mortgage loans in 1980 as reported in Vandenbrink (1985) and compare these with the 30-year mortgage rate to determine whether an interest rate ceiling was binding. Following the removal of interest rate ceilings in 1980, no state had binding rates. By exploiting this state-year variation on occasionally binding interest rate ceilings, we can causally identify the impact of removing the binding interest rate ceilings on the income distribution.

[1] Cf., e.g., de la Grandville (2017).

[2] For a summary on the impact of usury ceilings, see Vandenbrink (1982) and the references therein.

Third, in 1999, the Gramm-Leach-Bliley Act, repealed the Glass-Steagall Banking Act of 1933. The Glass-Steagall Act mandated the separation of commercial banks, insurance companies and investment banks. The repeal permitted commercial banks to undertake investment and insurance activities. Since the repeal took place in the same year across all states, it is not possible to separately identify its impact with year effects. To proxy for the extent to which this reform might impact a state, we consider state-level variation in the level of employment in the finance and insurance sector in 1999 (prior to the reform). Intuitively, a reform in the financial sector will have a larger impact in those states that have a larger share of their economy in the financial sector. We exploit the variation in the employment share of finance and insurance prior to the repeal of Glass- Steagall to establish a causal link between deregulation and the income distribution.

For all three types of reforms we conduct panel regressions of measures of inequality on reform dummy variables—or, in case of the repeal of the Glass-Steagall act, on interactions between reform dummies and employment shares—and various control variables. Our identification of the causal effects of the respective reforms on inequality relies on the assumption that the indicators of financial deregulation are unaffected by income inequality in a state, an assumption we also test and verify to hold. Our data on incomes and control variables is taken from the U.S. Current Population Survey (CPS). As a measure of income we use the total pre-tax annual earnings from all income sources. As measures of overall income inequality we take the Gini index, the Theil index, and the logs of the ratio of incomes at the top 90^{th} to incomes at the bottom 10^{th} percentile. We also measure bottom and top income inequality by the log ratio of incomes at the 90^{th} to incomes at the 75^{th} percentile for top and by the ratio of incomes at the 25^{th} to incomes at the 10^{th} percentile for bottom inequality.

We find that bank branching deregulation significantly reduced income inequality by increasing incomes in the lower percentiles of the distribution. This confirms earlier findings by Beck, Levine, and Levkov (2010). The removal of interest rate ceilings led to an increase in incomes across the income distribution, but the effects decrease in income. This decreased inequality but the effects are not significant. Finally, the repeal of the Glass-Steagal act has increased income inequality by increasing incomes in the upper percentiles of the income distribution. Quantitatively, bank branching deregulation decreased the Theil index by 3.7% and non-binding usury rates decrease it by 3%. The repeal of the Glass-Steagal act increased the Theil index by 7.5% and thus the effect is about twice as large as for the other two reforms. Therefore, the first main message of our paper is that different types of financial market deregulation have different effects.

We next investigate whether these trends are mainly driven by changes in incomes of

employees in the sector Finance and Insurance (FI). We call this the direct effect. To assess the magnitude of the direct effect we decompose the Theil index for each year and state into between and within group components. We consider two groups, which are exhaustive of our sample; those employed in Finance and Insurance sectors and all others. For all reforms most of the reduction in inequality is due to within group effects. This suggests an indirect mechanism such as the possibility of expanding access to finance for low income earners, consistent with the evidence reported in Beck, Levine, and Levkov (2010).

Indeed, the between group effects are small for bank branching deregulation and for the removal of interest rate ceilings. In contrast, 22% of the total increase in inequality caused by the removal of the Glass-Steagall act is due to between-group effects. This suggests that this reform increased earnings of employees in FI, respectively decreased earnings of employees not employed in FI.

We also investigate the heterogeneity of the reforms' impact by age of workers. By looking at the medium run impact of the reforms fives years after implementation, we find that branching deregulation increased incomes mainly of workers aged 25-35, whereas the repeal of the Glass-Steagal act decreased incomes of that group.

Taken together, the second main message of our paper is therefore that different types of financial market deregulation have different effects through different mechanisms. Overall, our findings suggest that predictions on future trends in inequality must be based on models that carefully distinguish between the heterogeneous effects of different types of reforms.

Related Literature This paper relates to the literature on the economic effects of financial deregulation, e.g., on the impact of banking deregulation on economic growth (Jayaratne and Strahan 1996; Huang 2008; Freeman 2002) entrepreneurship (Black and Strahan 2002; Kerr and Nanda 2011; Wall 2003), economic volatility and insurance (Morgan, Rime, and Strahan 2004; Demyanyk, Ostergaard, and Sørensen 2007), the wage gap between men and women bank executives (Black and Strahan 2001), CEO behavior and turnover (Hayes, Tian, and Wang 2015) and the banking industry more generally (Granato 2017). Strahan (2003) is an excellent summary article regarding the implications of banking deregulation. In contrast, Kroszner and Strahan (1999) study the political determinants of bank branching deregulation, while Keller and Kelly (2015) focus more broadly on the political determinants of financial regulation.

More closely related is the literature on the relationship between banking deregulation and measures of income inequality. For instance, Philippon and Reshef (2012) document that the level of education as well as relative wages and educational premia in the financial sector correlate strongly with measures of financial deregulation and follow a U-shape over

the course of the 20th century.[3] Our perspective is broader in the sense that we focus on inequality measures in the whole economy. This is most similar to Beck, Levine, and Levkov (2010) who analyze the causal relationship between bank branching deregulation and income inequality by exploiting the state-level variation in changes in intra-state bank branching regulation.[4] Our empirical strategy follows Beck, Levine, and Levkov (2010) and extends their analysis to not only consider the impact of branching regulation but also removal of usury rate ceilings and the repeal of the Glass-Steagall Act. These two reforms have been emphasized by Philippon and Reshef (2012) but their causal impact of income inequality has not previously been studied. We find, consistent with Beck, Levine, and Levkov (2010), that bank branching reform reduces income inequality as does the removal of usury rate ceilings. However, we show that the repeal of Glass-Steagall led to an increase in income inequality that is greater in magnitude than the decline due to either of the other two reforms. This increase in inequality is led by an increase in incomes at the right tail of the income distribution.

The inclusion of reforms beyond bank branching deregulation confirms the findings of Philippon and Reshef (2012), who find significant effects of deregulation on the upper tail of the income distribution. Philippon and Reshef (2012) construct an index of the different reforms we look at in this paper. This index correlates strongly with inequality trends. However, constructing an index requires translating events into a cardinal measure. We circumvent this by directly looking at different reforms, taken as dummy variables in our formal regression analyses. Our main contribution is to emphasize that the impact of these different reforms is very heterogenous across the population. In contrast, analyzing the co-movement of an index of liberalization with measures of inequality leads to misleading conclusions.

This paper also relates to a large and growing literature on the general trends in income inequality and its sources. Recently, Autor and Dorn (2013) emphasize job and wage polarization, i.e., increases of employment shares and hourly wages at both ends of the distribution relative to the middle from the 1980s to 2005. One hypothesis explaining polarization is specialization of labor markets caused by automation, which led to an increase of low-skill service occupations. A related literature exclusively focusses on the rise in top income inequality (the share of income going to the top 10%, 1%, 0.1% of the workforce) since the 1980s, cf., Piketty and Saez (2003) and Atkinson, Piketty, and Saez (2011). Most of

[3]Boustanifar, Grant, and Reshef (2017) provide similar evidence for other countries. Boustanifar (2014), in contrast, argues that wages in the finance industry did not rise in response to bank branching deregulation, but started rising across U.S. states in the 1980s, irrespective of the particular state's deregulation date.

[4]Darcillon (2016) analyzes the relationship between financial regulation and inequality for a sample of 18 OECD countries. Tanndal and Waldenström (2016) provide a similar analysis for the Great Britain and Japan and Luo and Zhu (2014) for China.

this increase in total income inequality is due to labour income inequality.[5] Explanations include the so-called superstar phenomenon (Scheuer and Werning 2017), and entrepreneurial activities (Jones and Kim 2015). Our contribution to both these strands of literature is to emphasize the role of financial market liberalization for these developments. In particular, we show that the 1999 repeal of the Glass-Steagal act is an important quantitative driver of top income inequality, whereas the reforms of the 1970s and 1980s contributed to an increase of incomes in the lower tail of the distribution.

The remainder of this paper proceeds as follows. Section 2 describes our data and Section 3 our empirical strategy. Our main results are presented in Section 4 and Section 5 concludes the paper. A separate appendix contains additional analyses.

2 Data

2.1 Income Distribution

Our analysis is based primarily on the March Supplement of the Current Population Survey (CPS). This data includes survey responses from households surveyed annually in March and records information on demographics, labor force status, income, occupation and industry. Our measure of income is total pre-tax annual earnings. We restrict the sample to include employees between the ages of 25 and 54 who report positive earnings and are not in the armed forces. The top and bottom percentile of income earners in each year are dropped along with those having negative sample weights. With these restrictions our final sample includes 2.43 million observations covering information between 1961 and 2017. State of residence information for all 51 states is only consistently available after the 1977 survey. So, our empirical analyses focus on the years 1977 through 2017.[6] Consistent with the literature, see, for example, Black and Strahan (2001), we exclude South Dakota and Delaware from our analysis as the financial sector in these states was heavily influenced by the presence of a large credit card industry.[7] We compute several measures of income inequality including the Gini coefficient, Theil index and ratios of percentiles of income earners. Figure 1 plots

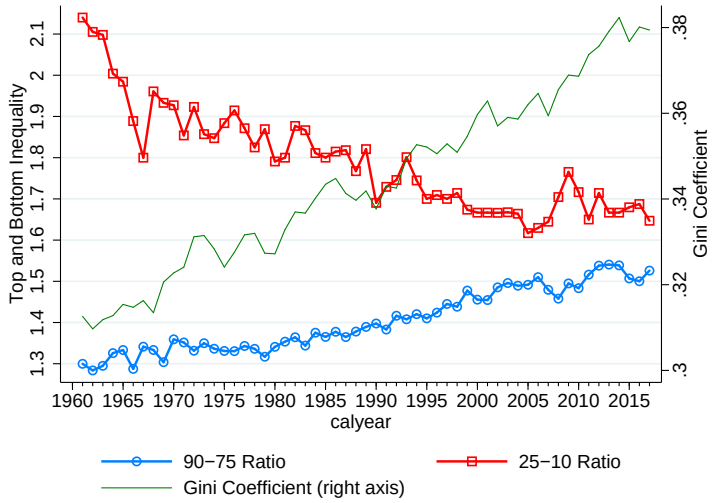
[5] See the Top Income and Wealth Database at http://wid.world/.

[6] CPS data is retrieved from the Integrated Public Use Microdata Series (IPUMS) and the IPUMS variable `inctot` is our preferred measure of income. Data for 11 states; California, Connecticut, District of Columbia, Florida, Illinois, Indiana, New Jersey, New York, Ohio, Pennsylvania and Texas is consistently available starting 1962. We repeat our empirical analysis on this subsample of states for the longer time period, 1962 to 2017, in the appendix.

[7] South Dakota and Delaware are notable for removing interest rate ceilings following the 1978 Supreme Court decision, *Marquette vs. First of Omaha*. This ruling preceded the 1980 federal removal of usury rates, discussed below, and attracted the credit card industry to set up headquarters in these two states.

the evolution of income inequality in our sample. Top inequality is measured as the ratio of incomes at the top 90^{th} to top 75^{th} percentile, whereas bottom inequality by the ratio of incomes at the bottom 25^{th} to the bottom 10^{th} percentile. While top income inequality has increased since the mid-1980s, bottom income inequality declined sharply in the 1960s declined more steadily to reach a similar level as top income inequality by the late 2000s. The scale on the right axis shows the evolution of the Gini coefficient which has steadily increased in our sample. Table 1 includes summary statistics of the measures of inequality in our sample.

Figure 1: Evolution of Income Inequality



Note: The figure reports top and bottom income inequality in the U.S. between 1961 and 2017 as measured in the CPS. Top income inequality is defined as the ratio of earnings at the 90^{th} percentile to earnings at the 75^{th} percentile in the income distribution. Bottom income inequality is defined as the ratio of earnings at the 25^{th} percentile to earnings at the 10^{th} percentile. The Gini coefficient is plotted on the right axis.

2.2 Financial Deregulation

While there have been a number of reforms to financial market regulation in the last few decades, we focus on three.[8] These reforms have been emphasized previously in the literature, most notably by Philippon and Reshef (2012). We briefly describe the nature of each reform as well as the relevant data used to identify them below:

1. *Bank Branching Deregulation*: In the 1970s, U.S. states began removing restrictions on both intra and inter-state bank branching. Our data is based on Strahan (2003) details

[8]See Komai and Richardson (2011) for a review of the history financial market regulation in the U.S. since the late 18th century.

Table 1: Summary Statistics of Inequality Measures

	Obs.	Mean	Min	Max	Standard Deviation			
					No Controls	State Controls	Year Controls	State-Year Controls
Log Gini Coefficient	2,058	-1.055	-1.250	-0.888	0.056	0.043	0.050	0.035
Log Theil Index	2,058	-1.607	-2.000	-1.267	0.115	0.085	0.105	0.071
Log 90-10 Ratio	2,058	1.796	1.409	2.278	0.119	0.114	0.103	0.097
Log 25-10 Ratio	2,058	0.550	0.324	0.964	0.085	0.070	0.080	0.064
Log 90-75 Ratio	2,058	0.346	0.148	0.549	0.057	0.041	0.053	0.036

Notes: The table reports summary statistics for five measures of inequality. The standard deviations reported are those from the residuals of regression which controls for state, year, and both state and year fixed effects.

these deregulations which varied from allowing intra-state bank branching via mergers and acquisitions to unrestricted branching across states. Importantly, different states enacted these policies at different times allowing researchers to identify a causal impact of this form of deregulation on various measures of interest. Consistent with Beck, Levine, and Levkov (2010), we consider the date of deregulation to be the year in which a state removes restrictions on intra-state bank branching. [9] Panel (a) of figure 2.2 shows the distribution of years of deregulation across states.

2. *Removal of Interest Rate Ceilings*: Usury rates specify the maximum interest rate that can be charged by lenders and prior to 1980 they were determined by each state. Rising interest rates during the 1970s led to interest rate ceilings in many states to start binding. In 1980, this prompted a federal policy which preempted the state interest rate ceilings by federal ceilings.[10] The federal policy effectively removed interest rate ceilings for most types of both consumer and commercial loans after 1980. Although this deregulation took place in all states at the same time, different states imposed different rate ceilings which were not always binding. We focus on usury rate ceilings on mortgage loans in 1980 as reported in Vandenbrink (1985) and compare these with the 30-year mortgage rate to determine whether a rate ceiling was binding. Panel (b) of figure 2.2 plots the number of states that have a binding interest rate between 1976 and 1990. Notice that following the removal of rate ceilings in 1980, no state had biding

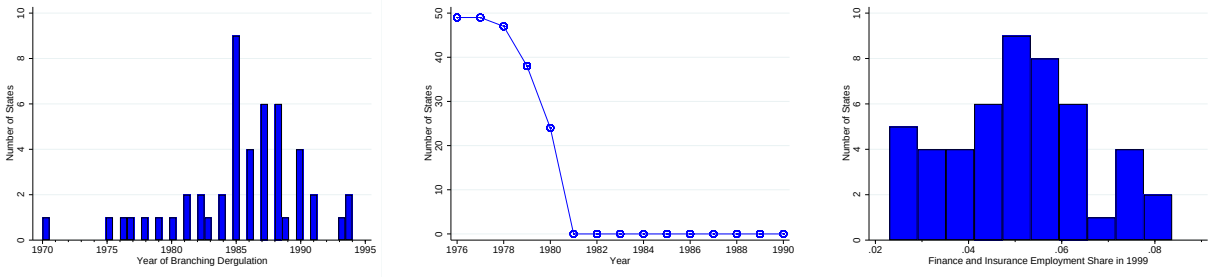
[9]Iowa did not pass any laws removing restrictions on intra-state bank branching so we take 1994, the year in which the Riegle-Neal Interstate Banking and Branching Efficiency Act was passed, as the year in which Iowa's bank branching restrictions were removed. This federal act aimed to equalize the benefits of a bank's state relative to a federal charter.

[10]For a summary on the impact of usury ceilings, see Vandenbrink (1982) and the references therein.

rates. By exploiting this state-year variation in whether a usury rates were binding, we can causally identify the relationship between the slack or removing interest rate ceilings and the income distribution.[11]

3. *Repeal of the Glass-Steagall Act:* The Banking Act of 1933, more commonly known as the Glass-Steagall Act, mandated the separation of commercial banks, and insurance companies and investment banks. In 1999, the Gramm-Leach-Bliley Act, repealed the Banking Act and permitted commercial banks to undertake investment and insurance activities. Since the repeal took place in the same year across all states, it is not possible to separately identify it's impact with year effects. To proxy for the extent to which this reform might impact a state, we consider state-level variation in the level of employment in the finance and insurance sector in 1999. Panel (c) of Figure 2.2 shows the distribution of the employment shares in the finance and insurance sector across U.S. states in 1999. We thus postulate that a reform in the financial sector has a larger impact in those states that have a larger share of their economy in the financial sector. We exploit the variation in the employment share of finance and insurance prior to the repeal of Glass-Steagall to establish a causal link between deregulation and the income distribution.

Figure 2: Measures of Financial Deregulation



(a) Year of Permitting Bank Branching

(b) States with Binding Usury Rates

(c) Finance and Insurance Employment Share in 1999

Note: Panel(a) shows the number of states that had removed restrictions on bank branching for a given year. Panel (b) shows the number of states that have a usury rate on home mortgage loans that is lower than the market 30 year mortgage rate. Panel (c) shows the distribution of the employment share in Finance and Insurance, across states, in 1999.

[11]Several states still maintain maximum usury rates for some forms of consumer debt, notably credit cards.

3 Empirical Strategy

3.1 Approach

To quantify the impact of the financial deregulation reforms on inequality, we follow Beck, Levine, and Levkov (2010) and use a difference in differences approach which exploits the variation in either timing or extent of deregulation across states for identification. In particular, the analysis is based on regressions of the form

$$\ln(y_{st}) = \alpha + \Sigma_i \beta^i D^i_{st} + \delta X_{st} + \mathbf{A_s} + \mathbf{B_t} + \epsilon_{st}, \tag{1}$$

where y_{st} is the respective measure of inequality in state s in year t, $\mathbf{A_s}$ and $\mathbf{B_t}$ capture state and year fixed effects respectively, X_{st} includes control variables that vary across states and over time while ϵ_{st} is the error term.[12] The term D^i_{st} captures one of the three deregulations being considered; bank branching (BB), interest rate ceilings (IC), and repeal of Glass-Steagall (GS) so that $i \in \{BB, IC, GS\}$.

More precisely, these three types of variables are encoded as follows:

- D^{BB}_{st} is a dummy and equal to 1 when a state removes restrictions on bank branching, 0 otherwise.
- The variable D^{IC}_{st} is equal to 1 whenever a state's interest rate is non-binding and 0 when it is. Notice that D^{IC}_{st} is equal to 0 following the removal of interest rate ceilings. For those states that never had a maximum interest rate ceiling, there is no change in D^{IC}_{st} and it is accordingly set to 1 in all periods.
- Finally, D^{GS}_{st} is equal to 0 prior to the 1999 repeal of Glass-Steagall and in all years after 1999 it is equal to the employment share of finance and insurance sectors in 1999. Thus, the variable is given by:

$$D^{GS}_{st} = (EmploymentShare^{FI}_{s1999}) \cdot \mathbb{I}(t > 1999),$$

where $\mathbb{I}(t > 1999)$ is equal to 1 after 1999 and 0 otherwise.

3.2 Identification

Our empirical strategy relies on the assumption that our indicators of financial deregulation are unaffected by income inequality in a state. In this section, we test this assumption and

[12] The control variables include the share of females, blacks, high school dropouts, the unemployment rate and the log level of state GDP per capita in state s in year y.

show that it holds.

The exogeneity of the timing of bank branching deregulation and the income distribution has been previously discussed in Beck, Levine, and Levkov (2010) and Kroszner and Strahan (1999). Since we consider a slightly different timing of branching deregulation and are also interested in top and bottom inequality we reconfirm their findings with our measures. Following Beck, Levine, and Levkov (2010), we regress the year of deregulation on i) the average level and ii) the growth in income inequality prior to deregulation. We find no relationship between either the level or growth of inequality in any of our measures of inequality. The first row of table 2 reports the t-statistic from these regressions and indicates no statistically significant relationship between the year of branching deregulation and any measure of inequality.

Since the removal of interest rate ceilings and repeal of Glass-Steagall took place in a single year, we are not concerned about endogeneity between the timing of deregulation and inequality. Instead, we test whether our measure of each policy is correlated with the level or growth of inequality prior to deregulation. Since our measure of interest rate ceilings depends on whether a ceiling is binding, we test whether lagged inequality is predictive in determining whether a state's rate ceiling is binding. In particular, we consider all states from the start of our sample in 1976 to 1980 and perform a probit regression on whether state's usury rate is binding and the previous year's level or growth of income inequality. We control for year fixed effects in each estimation. The second row of table 2 shows the t-statistics from these regressions and indicates that inequality was unrelated to whether or not a state's usury rate was binding.

Next, we test whether the employment share in Finance and Insurance in 1999, our measure of the extent of impact of the repeal of Glass-Steagall, is correlated with the average level or growth of inequality in the three years prior to 1999. The third row of table 2 reports the t-statistics on each measure of inequality and finds no statistically significant relationship between the employment share in FI and inequality levels or growth.

These results are robust to fitting quantile regressions or a logit model for the indicators of financial deregulation. Taken together, they validate our identifying assumption and support an interpretation of the coefficient β^i in equation (1) as capturing the impact of deregulation on income inequality.

Table 2: Testing the Exogeneity of Measures of Financial Deregulation

	Levels					Growth				
	Gini	Theil	90/10	90/75	25/10	Gini	Theil	90/10	90/75	25/10
Branching Deregulation	-0.26	-0.27	-0.13	0.99	-0.43	-0.94	-0.84	-0.64	0.57	-1.21
Interest Rate Ceilings	0.90	0.89	0.42	-0.10	0.02	1.23	1.35	0.67	0.33	-0.44
Repeal of Glass-Steagall	-1.61	-1.68*	-1.50	-0.25	0.38	0.14	-0.12	0.44	0.34	-0.21

Notes: The table reports the t-statistic from regressions on the measures of financial deregulation and both levels and growth of income inequality prior to deregulation. The regressions are on the natural logarithm of the level of each measure of income inequality. The first row shows the t-statistics from a regression on the year of bank branching deregulation in a given state and the average level and growth of inequality prior to deregulation. The second row reports the t-statistics from a probit regression on whether a state's usury rate is binding and the previous year's level and growth of inequality while controlling for year fixed effects. The third row reports the t-statistic from a regression on the employment share in finance and insurance in each state in 1999 and the average level and growth of inequality in the prior three years.
*the associated p-value is 0.1004.

4 Results

4.1 Impact on Inequality

Table 3 reports the results from estimating equation (1) on various measures of income inequality. Panel A reports the results when excluding the state-year controls X_{st} while panel B includes five such controls; share of high school dropouts, share of black population, share of females, the unemployment rate, and growth in real gross state product. Year and state fixed effects are included in all specifications, and the standard errors are obtained by clustering at the state level. The first three columns of table 3 show the impact of deregulation on overall inequality, measured by the natural logs of the Gini coefficient, Theil index, and the 90-10 ratio. We find that bank branching deregulation *reduces* overall income inequality. For example, in our specification with control variables, the Theil index declines by 3.7% following bank branching deregulation. Comparing this measure to the standard deviation of the Gini coefficient when controlling for state and year fixed effects alone, cf. Table 1, shows that branching reform led to a 57% decline in the variation of income inequality. We also document a statistically significant decline in *bottom* income inequality following branching deregulation with no significant change in top income inequality. Indeed, the 25-

10 ratio declined by around 3.0% after this reform which accounts for a 47% reduction in the variation in bottom inequality not accounted for by state and year effects.

These results on bank branching are both qualitatively and quantitatively consistent with those of Beck, Levine, and Levkov (2010). However, as we show in the subsequent analysis by applying the same methodology, other types of reforms of the financial sector had a very different impact on the economy than branching deregulation. To deliver this message in a consistent manner, our preceding replication of Beck, Levine, and Levkov (2010) thus forms a natural starting point.

Consider next the impact of removing interest rate ceilings on inequality. Note, that the indicator for this deregulation is equal to 1 whenever a state's rate ceiling is *not* binding and 0 otherwise. Then, from table 3, non-binding interest rate ceilings generally result in lower overall income inequality with no statistically significant impact on either top or bottom inequality. For example, the Theil index declines by 3% when interest rates are not binding. This accounts for a 37% reduction in the variation in income inequality beyond state and year effects. The effects are thus quantitatively smaller than those found for branching deregulation and are also statistically weaker in significance.

The repeal of the Glass-Steagall Act, however, led to an *increase* in income inequality. Recall that the state specific employment share in Finance and Insurance in 1999, the year of the repeal, is our proxy for the extent to which this repeal might affect a state. Then, the coefficients in table 3 reports the average impact on inequality from increasing a state's 1999 FI employment share by one unit. To compare the impact of this reform with branching and usury rate reform, we consider the product of the reported coefficient and the national employment share in FI in 1999.[13] With this transformation, the impact of repealing the Glass-Steagall Act is a 3.8, 7.5, and 8.2% *increase* in the Gini coefficient, Theil index and 90-10 ratio respectively. Including time varying state characteristics makes this impact statistically weaker but of a similar magnitude. There is no statistically significant relationship between either top or bottom inequality and the repeal of Glass-Steagall. Taken together, this most recent reform had an impact on inequality that was opposite in direction and twice as large as that from bank branching deregulation and almost three times the size of the removal of usury rate ceilings.

We perform a number of robustness checks. Our main results hold and are stronger when we restrict the sample to from 1977 to 2006, the same period as in Beck, Levine, and Levkov (2010), the inclusion of the level of real Gross State Product (GSP) per capita, lagged unemployment, and lagged measure of inequality. We also check for robustness by including time varying state employment shares in all industries, as well as controlling for the age

[13]The U.S. employment share in the Finance and Insurance sectors in 1999 is 5.4%.

composition of a state. Importantly, these results hold when considering conditional income inequality which controls for education, gender and race. This suggests that the impact of financial deregulation is not explained by demographic characteristics or education alone. Table A.1 in the appendix reports these results on conditional inequality.

4.2 Impact on Income Groups

Having established the impact of financial deregulation on overall measures of inequality, we move to identify which parts of the income distribution gained or lost with each reform. To do so, we follow (Beck, Levine, and Levkov 2010) and regress our indicator of financial reform on the level of income $y(j)_{st}$ earned by each percentile j of the income distribution in state s in year t. We estimate the following specification:

$$y(j)_{st} = \alpha + \Sigma_i(\beta^i D^i_{st}) + \mathbf{A_s} + \mathbf{B_t} + \epsilon_{st}, \tag{2}$$

where $\mathbf{A_s}$ and $\mathbf{B_t}$ are state and year fixed effects respectively and the above is performed for each percentile j and the financial reforms are indexed by i.

Figure 3 reports the coefficient β^i for each reform and indicates whether it is significant at the 5% level.[14] Panel (a) shows that branching deregulation increased incomes for those in the bottom quartile of the income distribution and lowered them for workers in the top quartile. As before, these results are consistent with Beck, Levine, and Levkov (2010), however, we find a statistically significant decline in incomes at the top quartile while they do not.

The removal of interest rate ceilings, shown in panel (b), led to a (significant) increase in incomes in the bottom quartile of the income distribution. This is consistent with empirical evidence finding that binding usury rates results restricted credit provision to low income, high risk borrowers.[15] Hence, the removal of such ceilings should largely benefit low income individuals. While not statistically significant, the gains from nonbinding interest rate ceilings appear to be positive for all but the highest percentile earners. This results in higher incomes across the income distribution but not necessarily a change in income inequality as evidenced in table 3.

The repeal of Glass-Steagall, as shown in panel (c), did not change incomes for those at the bottom tercile of the income distribution. However, it did lead to higher incomes for the top two terciles, with higher gains for higher income earners. In other words, the

[14] For the repeal of Glass-Steagall, the product of the coefficient β^{GS} and the national employment share in FI in 1999 is shown.

[15] See for example, Phaup and Hinton (1981) and Shay (1972).

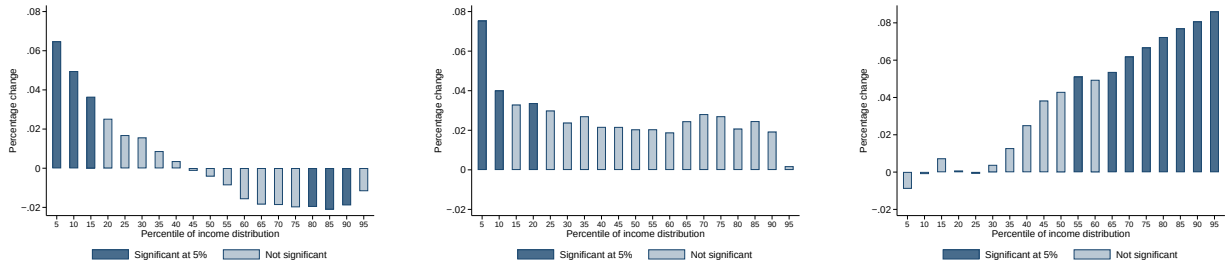
Table 3: Impact of Financial Deregulation on Income Inequality

	(1) log(Gini)	(2) log(Theil)	(3) log(90/10)	(4) log(25/10)	(5) log(90/75)
	Panel A: No Controls				
Branching Deregulation	-0.020***	-0.038***	-0.068***	-0.033***	0.001
	(0.005)	(0.010)	(0.015)	(0.008)	(0.005)
Interest Rate Ceilings	-0.012	-0.026*	-0.021	-0.010	-0.008
	(0.008)	(0.015)	(0.017)	(0.013)	(0.010)
Repeal of Glass-Steagall	0.716**	1.390**	1.521*	0.003	0.260
	(0.315)	(0.602)	(0.796)	(0.271)	(0.204)
Year Fixed Effects	Y	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y	Y
Observations	2,058	2,058	2,058	2,058	2,058
R^2	0.517	0.558	0.153	0.371	0.553
	Panel B: With Controls				
Branching Deregulation	-0.020***	-0.037***	-0.064***	-0.029***	-0.001
	(0.004)	(0.008)	(0.013)	(0.008)	(0.005)
Interest Rate Ceilings	-0.014*	-0.030*	-0.025	-0.010	-0.009
	(0.008)	(0.015)	(0.018)	(0.014)	(0.009)
Repeal of Glass-Steagall	0.626*	1.206*	1.369*	-0.026	0.201
	(0.315)	(0.607)	(0.789)	(0.256)	(0.202)
Share High School Dropouts	0.365***	0.661***	0.534**	-0.108	0.306***
	(0.099)	(0.188)	(0.242)	(0.096)	(0.080)
Share of Black Population	-0.083	-0.123	-0.430	-0.147	0.084
	(0.063)	(0.099)	(0.409)	(0.261)	(0.104)
Share of Female Population	-0.077	-0.075	-0.343	-0.059	0.159
	(0.155)	(0.312)	(0.483)	(0.261)	(0.156)
Unemployment Rate	0.336***	0.692***	1.037***	0.422***	-0.008
	(0.075)	(0.144)	(0.227)	(0.134)	(0.081)
Growth in GSP per capita	0.030	0.050	-0.159	-0.191*	0.103**
	(0.060)	(0.117)	(0.174)	(0.102)	(0.043)
Year Fixed Effects	Y	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y	Y
Observations	2,058	2,058	2,058	2,058	2,058
R^2	0.551	0.585	0.192	0.381	0.571

Notes: The table shows the results from the regression in equation 1. State and year fixed effects are not reported. Information on 49 states is used from 1976 to 2017. Data on Gross State Product (GSP) is from the Bureau of Economic Analysis (BEA). Standard errors are clustered at the state level and are reported in the parentheses; *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

repeal of Glass-Steagall led to a stretching of the right tail of the income distribution with relatively little change in the left tail. This is in direct contrast with both branching and usury rate reforms, potentially supporting the view that the repeal of Glass-Steagall had not only a direct effect by increasing wages of high skilled workers in the financial sector, as emphasized by Philippon and Reshef (2012), but also increased the wages of other high skilled workers in other sectors, as we investigate below.

Figure 3: Impact of Financial Deregulation by Income Group



(a) Bank Branching Deregulation (b) Interest Rate Ceilings (c) Repeal of Glass-Steagall

Notes: The figure reports the coefficients β^i for percentiles of the income distribution from specification 2. Panel (c) reports the product of the coefficient and the national employment share of Finance and Insurance sectors in 1999. Darker bars indicate that the coefficient is statistically significant at the 5% confidence level.

In Appendix A.3 we repeat the previous analyses by estimating the effects of the respective reforms on inequality and income percentiles in the medium run, i.e., 5 years after the reforms. Our findings confirm that bank branching deregulation led to reduction of inequality by increasing incomes in the lower tail of the distribution, and that the repeal of the Glass-Steagall act increased inequality by increasing incomes in the top of the distribution. The removal of interest rate ceilings, however, has no effect in the medium run.

4.3 Mechanisms

As established above, the removal of usury rates and branching restrictions *lowered* income inequality by increasing incomes at the left end of the income distribution. On the other hand, the repeal of Glass-Steagall *increased* income inequality by increasing income levels at the right tail of the income distribution. In this section, we provide additional empirical results that point to the economic mechanisms driving these findings.

4.3.1 Direct and Indirect Effects

We interpret each of the three financial market reforms as either alleviating financial frictions and/or improving the productivity of the financial sector. So, deregulation not only impacts

the financial sector itself—a direct effect—but also the demand for labor in other sectors and areas of the income distribution—an indirect effect.[16] The direct impact of deregulation on the levels of incomes of employees in FI is emphasized in Philippon and Reshef (2012) who argue that deregulation increased the incomes of workers in FI faster than those outside FI. This in turn may lead to an indirect or spill-over effect as it drives up wages for workers that are well suited to employment in FI sectors due to their relative scarcity. A more general indirect effect might take place due to the increase in capital demand in response to a lower cost of capital following deregulation. This will increase the capital stock employed in production and, if capital and high skilled workers are complements in production, high skilled workers will disproportionately benefit from the expansion of the capital stock.

To test the extent to which financial deregulation's impact on the income distribution is driven directly by changes in incomes of workers in finance and insurance (FI) sectors we analyze the deregulation's impact on employees of different sectors by decomposing the *level* of the Theil index for each year and state into between and within group components. We consider two groups, those employed in Finance and Insurance sectors and all others. These within and between group components are then regressed on our indicators of financial deregulation along with state and year fixed effects. Thus, we take total income inequality as measured by the Theil index in levels, y^t_{st}, and decompose it into it's within and between group components, y^w_{st} and y^b_{st}. Then we perform the regression

$$y^k_{st} = \alpha + \Sigma_i(\beta^i D^i_{st}) + \mathbf{A_s} + \mathbf{B_t} + \epsilon_{st},$$

where k indexes total, within and between group inequality and i indexes each form of deregulation. As above, state and year fixed effects are $\mathbf{A_s}, \mathbf{B_t}$, respectively. The coefficients β^i capture the impact of deregulation on inequality. We also perform this regression for total inequality within each group.

Table 4 reports the results from this exercise when partitioning workers into those employed in Finance and Insurance sectors and those that are not. The first column reports the total change in inequality resulting from each of the three reforms. The second and third columns report the impact on between and within group inequality while the last two columns report the total impact of deregulation on inequality within the two groups ("Not in FI" and "FI"). For a strong direct effect, we expect that the impact of deregulation is

[16]Improved access to financial services can also benefit poorer workers disproportionately as it allows them to obtain more education and pursue entrepreneurship. However, our sample excludes the self-employed and, as shown in table A.1, the impact of deregulation on conditional income inequality is consistent with that of unconditional inequality. Further, regarding branching deregulation, Beck, Levine, and Levkov (2010) only find evidence supporting a labor demand channel. This motivates our consideration of a labor demand effects alone.

largely due to changes in between group inequality. However, the table shows that for all reforms, the majority of the total impact on inequality is driven by changes in within group inequality. Further, these changes are concentrated among workers that are not employed in FI. This suggests that deregulation uniformly impacted the income distribution of workers in FI and had a heterogeneous impact on workers not employed in FI. However, 22% ($= 0.0032/0.0147 \cdot 100\%$) of the total impact following the repeal of Glass-Steagall since is due to an increase in between group inequality, suggesting a strong direct effect following the repeal. Taken together, the decomposition exercise suggests that the branching and usury rate reforms' impact on inequality is not due to direct effects of higher incomes for employees in FI whereas the repeal of Glass-Stegall provides stronger support for a direct effect.

Table 4: Decomposition of Impact of Financial Deregulation on Income Inequality Within and Between Groups

				Sector Groups	
	Total	Between Group	Within Group	Not in FI	FI
Branching Deregulation	-0.0074***	-0.0005	-0.0069***	-0.0073***	-0.0009
	(0.0021)	(0.0003)	(0.0019)	(0.0019)	(0.0051)
Interest Rate Ceilings	-0.0049	0.0001	-0.0049*	-0.0050*	-0.0007
	(0.0029)	(0.0003)	(0.0029)	(0.0029)	(0.0075)
Repeal of Glass-Steagall	0.0147**	0.0032***	0.0115*	0.0130*	-0.0045
	(0.0068)	(0.0007)	(0.0064)	(0.0068)	(0.0056)

Notes: The table reports the impact of financial deregulation on components of inequality. Workers are grouped into those employed in Finance and Insurance (FI) and those not employed in FI. The total, between and within group inequality are regressed on indicators of financial deregulation, year and state fixed effects. The resulting coefficients and standard errors for the repeal of Glass-Steagall is multiplied by the national employment share of FI in 1999. Standard errors are reported in parentheses; *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

In Section A.4 of the Appendix, we repeat the analysis of the sectoral decomposition of the Theil index of Table 4 by estimating the effects five years after the respective reforms. This confirms that also in the medium run, most of the effects are indirect effects within groups. We also confirm that about 22% ($= 0.0557/0.2508 \cdot 100\%$) of the effect of the removal of the Glass-Steagal act is due to a direct effect on between groups inequality. However, in the medium run, we also identify a strong direct effect of bank branching deregulation: about 11% ($= 0.0007/0.0061 \cdot 100\%$) of the total effect of the reduction of inequality caused by this reform is due to a reduction of between group inequality.

Next, we test for evidence for an indirect or spillover effect following financial deregulation. In particular, we ask whether changes in incomes in response to deregulation are concentrated among workers that are most suited to employment in FI sectors. Intuitively, the increased demand for FI workers, following a reform, would decrease the relative supply

of non-FI workers, raising their incomes as well. If this was the case, then we should observe that the incomes of workers that are most suitable for employment in FI rise faster than those workers that are not as suitable. First, we require a measure of suitability of employment in FI among workers. We do this by running a probit regression on the probability of being employed in FI on a number of controls which include education bins, a quartic in years of experience, gender and race dummies and interactions between gender, race and occupation dummies, census region dummies and year dummies. The predicted values from this regression form our measure of suitability of employment in FI among non-FI employees. This is akin to constructing a propensity score with higher values indicating high suitability.[17]

Then, we group states into terciles based on their average predicted probability of non-FI employees for being employed in FI. Figure 4 plots the impact of each reform by suitability scores and income percentiles. Panel (a) shows that branching deregulation led to an increase in incomes at the left tail of the distribution mostly in states whose workers are highly suited for employment in FI. This suggests an indirect effect of labor demand with increases in demand being concentrated among low skilled workers as also found in Beck, Levine, and Levkov (2010). Further support for this interpretation is provided by Philippon and Reshef (2012), who show that skills required by workers in FI were relatively low when the bank branching reforms took place.

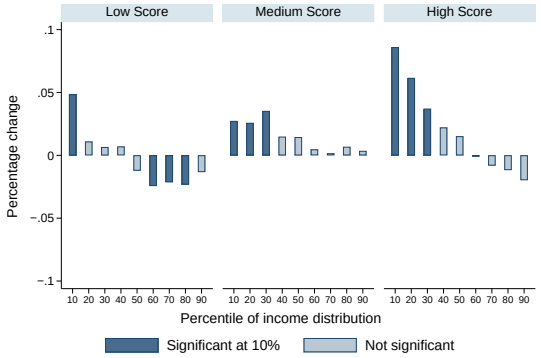
The impact of usury rates on the income distribution, reported in panel (b), show that the income gains are indeed concentrated among states that have a high predicted probability of employment in FI, however, these gains are uniform across the entire distribution and hence do not increase inequality. The lowest income workers in states with low predicted scores of employment in FI also experience significant increases in their income. This is likely due to gains from the increased access to finance for previously credit rationed employees following the removal of rate ceilings.

Finally, panel (c) shows that the removal of Glass-Steagall leads to large, uniform gains in states with intermediate suitability for employment in FI, with declines in incomes for low income workers in states with low suitability scores and little to no change of incomes in states with higher scores. There does no appear to be evidence of an indirect effect following the repeal.

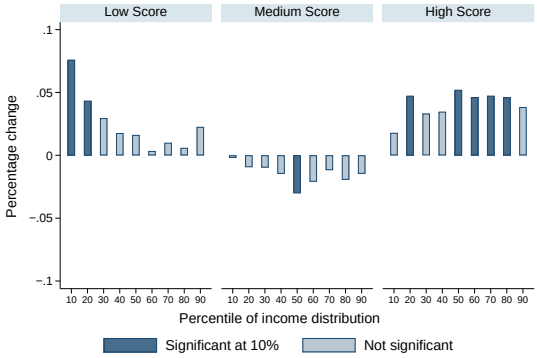
Taken together, the results from this section suggest that the repeal of Glass-Stegall led to an increase in inequality largely due to an increase in the incomes of workers employed in FI whereas bank branching and usury rate reforms led to a decline in inequality due to an indirect labor demand channel.

[17]Figure A.1 plots the distribution of this suitability score over the entire sample period for both FI and non-FI employees.

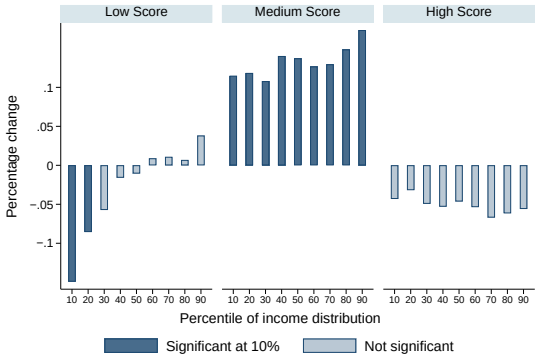
Figure 4: Impact of Financial Deregulation by Income Group and State's Suitability of Employment in Finance and Insurance



(a) Bank Branching Deregulation



(b) Interest Rate Ceilings



(c) Repeal of Glass-Steagall

Notes: The figure reports the coefficients β^i for percentiles of the income distribution from specification 2. States are grouped into terciles of propensity scores indicating suitability for workers outside finance and insurance to be employed in finance and insurance. Darker bars indicate that the coefficient is statistically significant at the 10% confidence level.

4.3.2 Heterogeneous Effects in Age

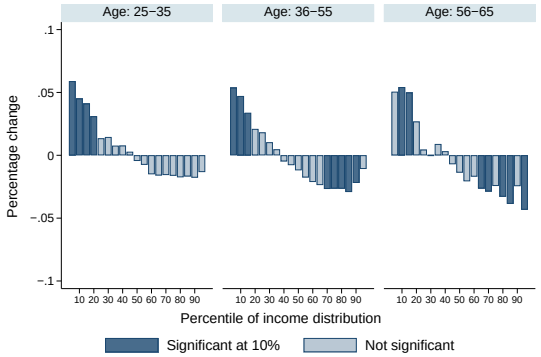
This section investigates whether financial deregulation had a differential impact on the incomes of young versus old workers. First, we test the immediate impact of financial deregulation on the earnings of workers of difference ages. On the one hand, as documented in Figure 5, branching deregulation has a homogeneous impact on the earnings of workers of all ages, which is consistent with Beck, Levine, and Levkov (2010). On the other hand, the removal of usury rate ceilings tends to benefit younger workers the most. This accords with the intuition that rate ceilings ration credit away from riskier consumers, who are early in their careers. Finally, the immediate impact of the repeal of Glass-Steagall appears to

benefit older, richer workers more than the younger workers.

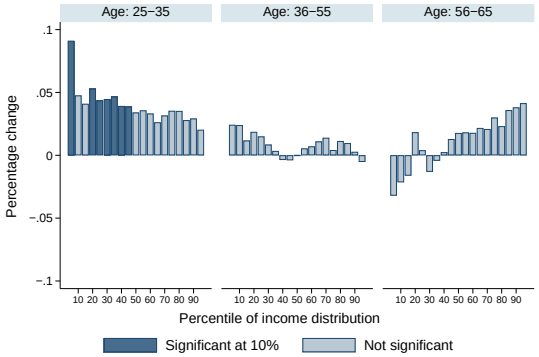
While instructive, this analysis ignores the potential dynamic impact of financial deregulation.[18] It may be the case that gains from deregulation are realized in the future if, for example, young workers become more selective in their job search in response to greater access to credit or higher wages earned in the financial sector. To test for the dynamic impact across age groups, we estimate the impact of deregulation on the 5-year lead earnings distribution, which we refer to as the medium run. Figure 6 shows that branching deregulation has a strong positive impact on incomes for the youngest workers in the medium run, much stronger than on incomes of older workers. In contrast, the removal of interest rate ceilings does not appear to have any strong, significant impact on the earnings of workers of different age groups in this medium run. Finally, the repeal of Glass-Steagall appears to be harmful to low income and young workers, while not having a significant impact on the income distribution of older workers in the medium run; yet, the effects are still positive throughout the income distribution for this oldest age group.

[18] Beck, Levine, and Levkov (2010) show that the impact of branching deregulation is strongest immediately following deregulation (see their figure 3). However, since the other two reforms took place in the same year across states, we cannot identify their dynamic impact of the reforms by using the number of years from the reform as an explanatory variable.

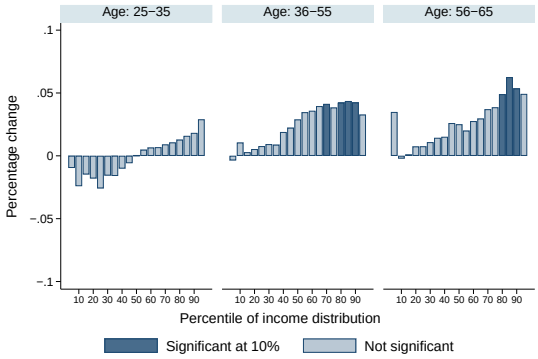
Figure 5: Immediate Impact of Financial Deregulation by Income and Age Groups



(a) Bank Branching Deregulation



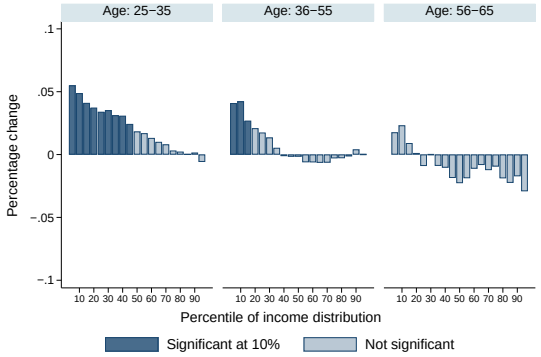
(b) Interest Rate Ceilings



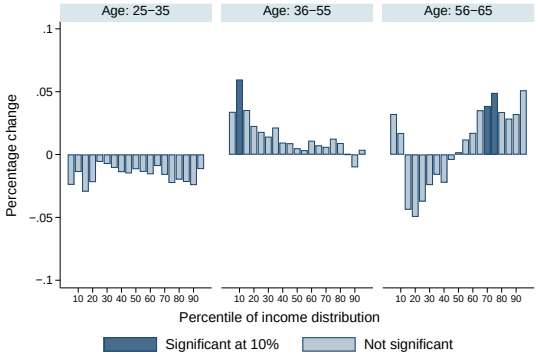
(c) Repeal of Glass-Steagall

Notes: The figure reports the coefficients β^i for percentiles of the income distribution from specification 2. Panel (c) reports the product of the coefficient and the national employment share of Finance and Insurance sectors in 1999. Darker bars indicate that the coefficient is statistically significant at the 5% confidence level.

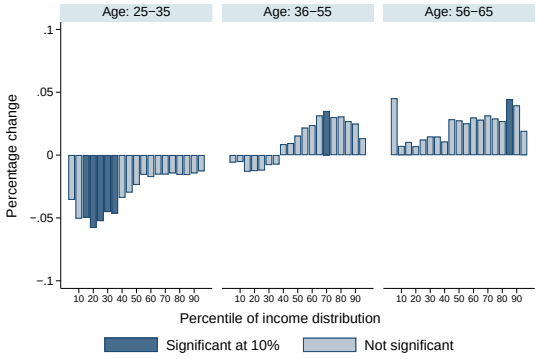
Figure 6: Impact of Financial Deregulation by Age Groups and 5 Years Lead Income



(a) Bank Branching Deregulation



(b) Interest Rate Ceilings



(c) Repeal of Glass-Steagall

Notes: The figure reports the coefficients β^i for percentiles of the income distribution 5 years into the future from specification 2. Panel (c) reports the product of the coefficient and the national employment share of Finance and Insurance sectors in 1999. Darker bars indicate that the coefficient is statistically significant at the 5% confidence level.

5 Conclusion

In this paper we investigate the role of financial deregulation on income inequality in the U.S. economy across time and states. We find that reforms to the financial sector in the 1970s and 1980s, namely bank branching deregulation and the removal of interest rate ceilings, have led to reductions of income inequality by increasing incomes mainly in the bottom of the distribution. In contrast, the 1999 repeal of the Glass-Steagall act has increased income inequality by increasing incomes in the top of the distribution. Most of these changes in inequality are due to indirect effects, i.e., not caused by affecting incomes of employees in the Finance and Insurance (FI) sector. Yet, 22% of the increase of income inequality caused by the repeal of the Glass-Steagal act can be attributed to increasing incomes of workers employed in FI.

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A Appendix

A.1 Conditional Income Inequality

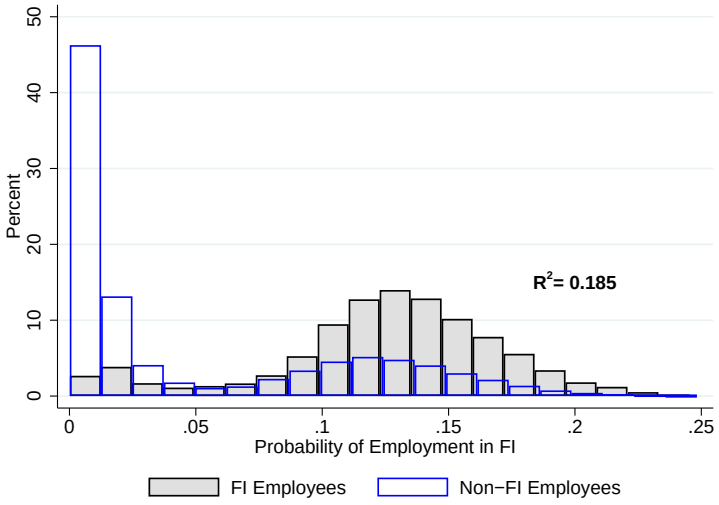
Table A.1: Impact of Financial Deregulation on Conditional Income Inequality

	(1) log(Gini)	(2) log(Theil)	(3) log(90/10)	(4) log(25/10)	(5) log(90/75)
	Panel A: No Controls				
Branching Deregulation	-0.033***	-0.062***	-0.003***	-0.002***	-0.000**
	(0.007)	(0.012)	(0.001)	(0.000)	(0.000)
Interest Rate Ceilings	-0.019**	-0.038*	-0.002**	-0.001*	-0.000
	(0.009)	(0.020)	(0.001)	(0.001)	(0.000)
Repeal of Glass-Steagall	0.619*	0.893	0.064*	0.004	0.016**
	(0.368)	(0.659)	(0.032)	(0.011)	(0.007)
Year Fixed Effects	Y	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y	Y
Observations	2,058	2,058	2,058	2,058	2,058
R^2	0.224	0.234	0.187	0.318	0.520
	Panel B: With Controls				
Branching Deregulation	-0.029***	-0.055***	-0.003***	-0.002***	-0.000**
	(0.006)	(0.011)	(0.001)	(0.000)	(0.000)
Interest Rate Ceilings	-0.019*	-0.037*	-0.002**	-0.001*	-0.000
	(0.010)	(0.021)	(0.001)	(0.001)	(0.000)
Repeal of Glass-Steagall	0.502	0.668	0.055*	-0.000	0.016**
	(0.366)	(0.658)	(0.031)	(0.010)	(0.008)
Share High School Dropouts	0.071	0.116	0.010	0.000	0.006***
	(0.094)	(0.168)	(0.009)	(0.004)	(0.002)
Share of Black Population	-0.094	-0.204	-0.011	-0.004	-0.004
	(0.133)	(0.259)	(0.012)	(0.005)	(0.003)
Share of Female Population	-0.316	-0.626	-0.025	-0.010	0.005
	(0.236)	(0.449)	(0.023)	(0.013)	(0.005)
Unemployment Rate	0.686***	1.366***	0.054***	0.022***	0.005
	(0.104)	(0.208)	(0.010)	(0.006)	(0.003)
Growth in GSP per capita	-0.008	-0.043	-0.009	-0.013**	0.003
	(0.082)	(0.159)	(0.009)	(0.005)	(0.002)
Year Fixed Effects	Y	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y	Y
Observations	2,058	2,058	2,058	2,058	2,058
R^2	0.260	0.268	0.217	0.332	0.528

Notes: The table shows the results from the regression in equation 1 with measures of conditional income inequality. To measure conditional income inequality, we first retrieve the residuals from a regression on log income which controls for four categories of years of schooling, race and gender. Measures of inequality are constructed using these residuals. State and year fixed effects are not reported. Information on 49 states is used from 1976 to 2017. Data on Gross State Product (GSP) is from the Bureau of Economic Analysis (BEA). Standard errors are clustered at the state level and are reported in the parentheses; *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

A.2 Propensity Scores

Figure A.1: Distribution of Predicted Probability of Employment in Finance and Insurance



Notes: The figure reports predicted probability of being employed in Finance and Insurance following a probit regression where the dependent variable is indicator for employment in FI and the independent variables include four education bins, a quartic in years of experience, gender,race dummies, interactions between gender and race, occupation, census region, and year. The R^2 statistic from the regression is shown in the figure.

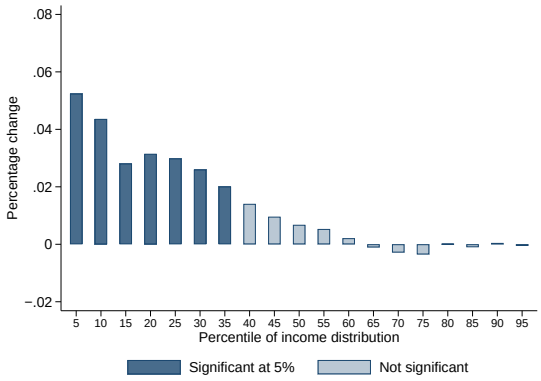
A.3 Medium Run Impact

Here we consider the of impact on these reforms on income earned five year following the reforms. In particular, we change specification (1) to be as follows:

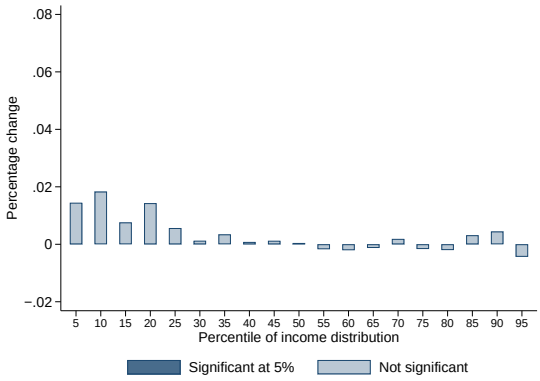
$$\ln\left(y_{s(t+5)}\right) = \alpha + \Sigma_i \beta^i D^i_{st} + \delta X_{st} + \mathbf{A_s} + \mathbf{B_t} + \epsilon_{st}, \tag{3}$$

Table A.2 shows the results on inequality measures and Figure A.2 the corresponding effects by income percentiles.

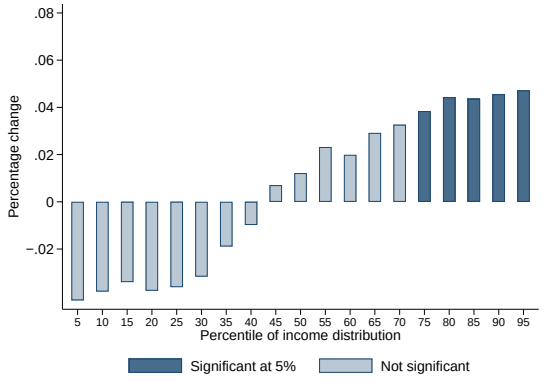
Figure A.2: Impact of Financial Deregulation on 5 Years Lead Income



(a) Bank Branching Deregulation



(b) Interest Rate Ceilings



(c) Repeal of Glass-Steagall

Notes: The figure reports the coefficients β^i for percentiles of the income distribution 5 years into the future from specification 2. Panel (c) reports the product of the coefficient and the national employment share of Finance and Insurance sectors in 1999. Darker bars indicate that the coefficient is statistically significant at the 5% confidence level.

Table A.2: Impact of Financial Deregulation on Income Inequality

	(1) log(Gini)	(2) log(Theil)	(3) log(90/10)	(4) log(25/10)	(5) log(90/75)
	Panel A: No Controls				
Branching Deregulation	-0.016**	-0.031***	-0.043***	-0.014*	0.004
	(0.006)	(0.012)	(0.015)	(0.007)	(0.005)
Interest Rate Ceilings	-0.002	-0.002	-0.014	-0.013	0.006
	(0.010)	(0.019)	(0.026)	(0.014)	(0.011)
Repeal of Glass-Steagall	0.665**	1.241**	1.557**	0.034	0.133
	(0.251)	(0.473)	(0.702)	(0.291)	(0.172)
Year Fixed Effects	Y	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y	Y
Observations	1,813	1,813	1,813	1,813	1,813
R^2	0.464	0.511	0.161	0.318	0.498
	Panel B: With Controls				
Branching Deregulation	-0.016***	-0.032***	-0.042***	-0.012	0.004
	(0.005)	(0.010)	(0.015)	(0.008)	(0.005)
Interest Rate Ceilings	-0.004	-0.006	-0.017	-0.012	0.005
	(0.009)	(0.018)	(0.027)	(0.014)	(0.011)
Repeal of Glass-Steagall	0.564**	1.050**	1.381**	-0.003	0.059
	(0.225)	(0.421)	(0.665)	(0.282)	(0.158)
Share of High Shool Dropouts	0.333***	0.610***	0.439**	-0.157	0.232***
	(0.071)	(0.142)	(0.190)	(0.107)	(0.072)
Share of Black Population	-0.016	-0.032	-0.159	-0.047	0.042
	(0.081)	(0.131)	(0.452)	(0.242)	(0.105)
Share of Female Population	-0.374**	-0.679**	-1.085**	-0.569**	-0.154
	(0.164)	(0.328)	(0.448)	(0.261)	(0.134)
Unemployment Rate	0.021	0.055	0.230	0.157	0.030
	(0.063)	(0.131)	(0.182)	(0.133)	(0.069)
Growth in GSP per capita	-0.202***	-0.412***	-0.396***	-0.127**	-0.062
	(0.040)	(0.083)	(0.121)	(0.059)	(0.051)
Year Fixed Effects	Y	Y	Y	Y	Y
State Fixed Effects	Y	Y	Y	Y	Y
Observations	1,813	1,813	1,813	1,813	1,813
R^2	0.494	0.535	0.184	0.326	0.509

Notes: The table shows the results from the regression in equation 3. State and year fixed effects are not reported. Information on 49 states is used from 1984 to 2017. Data on Gross State Product (GSP) is from the Bureau of Economic Analysis (BEA). Standard errors are clustered at the state level and are reported in the parentheses; *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

A.4 Decomposition: Medium-run Perspective

Table A.3: Decomposition of Impact of Financial Deregulation on Income Inequality Within and Between Groups in the Medium Run

				Sector Groups	
	Total	Between Group	Within Group	Not in FI	FI
Branching Deregulation	-0.0061**	-0.0007**	-0.0054**	-0.0057**	0.0009
	(0.0024)	(0.0003)	(0.0021)	(0.0022)	(0.0053)
Interest Rate Ceilings	-0.0007	0.0007*	-0.0014	-0.0013	0.0042
	(0.0040)	(0.0004)	(0.0040)	(0.0042)	(0.0094)
Repeal of Glass-Steagall	0.2508**	0.0557***	0.1952**	0.2305**	-0.1451
	(0.1011)	(0.0131)	(0.0953)	(0.1051)	(0.1751)

Notes: The table reports the impact of financial deregulation on components of inequality 5 years after the respective reform (medium run perspective). Workers are grouped into those employed in Finance and Insurance (FI) and those not employed in FI. The total, between and within group inequality are regressed on indicators of financial deregulation, year and state fixed effects. The resulting coefficients and standard errors for the repeal of Glass-Steagall is multiplied by the national employment share of FI in 1999. Standard errors are reported in parentheses; *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.