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ABSTRACT

What is the impact of regulatory reforms that enhance credit market efficiency on children's human capital? Using a parent-child panel dataset, we find that such reforms reduced children's academic performance in low-income families. Consistent with the view that financial development entices low-income parents to substitute out of childrearing and into employment with adverse effects on children's education, we find that among low-income families, regulatory reforms: increased mother's employment hours, reduced parental supervision and parent-child discussions about school and college, and had bigger adverse effects when mothers were not already working full-time and grandparents were not living with the child.

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1. Introduction

What is the impact of credit conditions on children's human capital accumulation? An influential line of research explains that relaxing credit constraints can facilitate investments in human capital, where those investments can include spending directly on education, purchasing homes in communities conducive to academic success, addressing health conditions, and mitigating the impact of adverse family income shocks on children's education (e.g., Schultz 1960, 1961; Becker 1962, 1964, 1981; Leibowitz 1974; Jacoby and Skoufias 1997; Card 1999; Carneiro and Heckman 2002; Heckman 2006; Cunha and Heckman 2007; Agarwal and Qian 2014; Chetty et al. 2014, 2016; Popov 2014; Favara and Imbs 2015; Sun and Yannelis 2016). Research also indicates how financial policies that boost family income can increase expenditures on children's human capital development (e.g., Blau 1999; Currie 2009; Dahl and Lochner 2012; Bharadwaj et al. 2013; Aizer and Currie 2014; Aizer et al. 2016a; Popov 2018).

Research, however, also suggests that there might be a dark side to the finance-education nexus: improvements in credit conditions might exert an adverse effect on children's academic performance by harming the quantity and quality of parenting. In particular, the relaxation of credit constraints tends to increase firms' demand for workers, boosting employment hours (e.g., Beck et al. 2010; Popov and Rocholl 2018). If the boost in labor demand entices parents to substitute out of childrearing and into paid employment, this could harm children's human capital development (e.g., Becker 1964, 1965; Aizer 2004; Carneiro et al. 2015; Juhn et al. 2015, 2018). Furthermore, if additional employment hours deplete parental energy and patience, financial system improvements that increase parental employment could harm the quality of parent-child interactions, with adverse ramifications on children's educational performance. There are, however, several countervailing influences. Even if financial development decreases the amount of time that parents allocate to children, there (a) might be sound alternatives, such as grandparents and childcare (e.g., Havnes and Mogstad 2011a,b, 2015) and (b) the quality of parent-child interactions might increase, perhaps due to diminishing returns to parenting time or

reduced parental anxiety about family income (e.g., Becker 1964, 1965, 1981; Aizer et al. 2016b). Thus, the impact of credit conditions on human capital accumulation is an empirical question.

In this paper, we (1) evaluate the impact of bank regulatory reforms that enhanced credit conditions on children's academic performance and (2) explore whether these reforms influenced children's academic performance by altering the amount and quality of time that parents spend on childrearing. We do not evaluate whether this "parent time allocation channel" is the only mechanism linking finance and school performance. Rather, we assess whether the parent time allocation channel can help explain the connection between finance and children's academic performance. As we will explain, our work is novel in that we have (1) a panel-child dataset with information on the allocation of parent's and children's time and (2) an exogenous source of variation in credit conditions.

To explore the connections between credit conditions and children's human capital development, we construct a parent-child panel dataset running from 1986 through 2005. We begin with the National Longitudinal Survey of Youth (NLSY79), which is a representative survey of 12,686 individuals who were between the ages of 14 and 22 when the survey started in 1979. We combine the NLSY79 with the NLSY79 Child dataset, which contains information on the descendants of female respondents in the NLSY79 survey. This yields time-series information on (1) children's test scores, (2) the total employment hours of parents and when they work those hours, (3) the number of hours that children spend watching television, playing video games, and doing homework—both on school days and over weekends, (4) parental monitoring of children's activities, (5) parent-child communications about school, and (6) other family details.

As an exogenous shock to credit conditions, we exploit interstate bank branch deregulation. Although the Riegle-Neal Act eliminated regulatory prohibitions on interstate banking through the establishment of subsidiaries in other states in 1995, U.S. states were permitted to regulate out-of-state branch expansion. Starting in 1995 and continuing through 2005, individual states implemented and eased—to differing degrees and in different years—

regulatory restrictions on out-of-state banks establishing branches within their borders (Johnson and Rice 2008). Since the costs of branching are lower than the costs of establishing subsidiaries, regulatory restrictions on branching limited competition between banks in different states and made banking markets less efficient. Rice and Strahan (2010) construct an interstate bank branch deregulation index for each state in each year that measures the ease with which banks headquartered in other states can establish branches within the state and show that deregulation improved local credit conditions. We use cross-state, cross-time variation in the deregulation of impediments to interstate bank branching as an exogenous source of variation in local credit conditions and examine the impact on children's academic performance, parental employment, parental monitoring of children, and the amount of time that children spend watching television, playing video games, and doing homework.

In particular, we use a generalized difference-in-differences estimation strategy. In our examination of academic achievement, the dependent variable is an indicator of how child *i* from state *s* in year *t* performed on Peabody Individual Achievement Tests relative to others in the same birth cohort. The main explanatory variables are based on the Rice and Strahan (2010) interstate bank branch deregulation index, which varies at the state-year level. We differentiate children by whether they are from families with incomes above (high-income) or below (low-income) the sample median. We differentiate by family income because past research shows that bank deregulation had a big, positive impact on employment among low-income households but not among high-income families (e.g., Beck, et al. 2010). Therefore, to the extent that bank deregulation influences the academic achievement of children through its effects on parental employment, we expect that bank branch deregulation will have a larger effect on children from low-income households. Based on this argument, our two main explanatory variables are the deregulation index interacted with (a) the high-income dummy variable and (b) the low-income dummy variable. We separately report the coefficient on the deregulation index for children from high- and low-income families and test whether those estimated coefficients differ significantly.

The regressions control for individual and year fixed effects, birth cohort linear time trends, and time-varying indicators of state economic activity and population.

We discover that academic achievement falls among children from low-income families but not among children from high-income families following interstate bank branch deregulation. This finding is robust to controlling for many factors, including the child's time-invariant characteristics, trends in the tests scores of the child's birth cohort, year fixed effects, time-varying features of the state in which the child lives, and whether the parents are divorced. Furthermore, and consistent with the generalized difference-in-differences methodology, we find no evidence of pre-trends. The estimated impact of interstate branch deregulation on the test scores of children from low-income families is material. The estimates suggest that if a state changes its regulations from prohibiting out-of-state banks from establishing branches within its borders to allowing unrestricted interstate branching, children's age-adjusted test scores fall by 8% of the low-income sample mean.

To explore one potential channel—the parent time allocation channel—through which financial development may harm children's academic performance, we examine a series of four questions. First, following interstate bank branch deregulations, do parents work more hours? We examine both the total number of hours that parents work and the amount of hours that they work during non-school times, which are the hours when children are available to interact with parents. Second, among families in which bank branch deregulation induces parents to work more hours, does deregulation reduce parental supervision of their children and the amount of time that children spend on academically productive endeavors, such as homework, and academically less productive activities, such as television and video games (e.g., Gentzkow and Shapiro 2008)? Third, among families most impacted by branch deregulation, is there a reduction in parent-child communications about school (e.g., classes, grades, standardized tests, college)? Fourth, does the impact of an improvement in the financial system on children's academic achievement vary across families in ways that are consistent with the parent time allocation channel? For example, if parents are already working full time, then the impact of

branch deregulation on children's education through the parent time allocation channel should be minimal. Similarly, if grandparents live with a family and can readily substitute for working parents, then deregulation should have a smaller effect on children's education via the parent time allocation channel.

We find evidence consistent with the parent time allocation view of how improving the financial system can hurt children's academic performance. First, interstate bank branch deregulation induced mothers from low-income families to work more hours and work more hours during non-school times, while there was no effect on either mothers in high-income families or fathers in either low- or high-income families. This suggests that the parent time allocation channel operates primarily on low-income families. Indeed, as noted above, we find that bank branch deregulation only lowers children's test scores among low-income families. Furthermore, the finding that bank branch deregulation only increases the number of hours that mothers work in paid employment suggests that the parent time allocation channel operates through mothers.

Second, we find that among families in which bank branch deregulation increases the employment hours of mothers, i.e., in low-income families, there is a reduction in parental monitoring of children, a reduction in hours spent on homework during non-school hours (but no effect on homework during school), and an increase in hours spent on television and video games on school days (but not over weekends). These findings are consistent with the view that financial development increases the demand for labor and induces mother's from low-income families to work more in paid employment, and this reallocation of parental time allows children to substitute out of homework and into less academically productive endeavors.

Third, we find that interstate bank branching reforms reduced parent-child discussions about school and going to college among families most impacted by the reforms, i.e., low-income families. Bank deregulation was not associated with a significant change in such parent-child discussions among high-income families. This is consistent with the parent time allocation

channel since bank branch deregulation increased the employment of mothers from low-income families but had no effect on parental employment in high-income families.

Finally, we discover that the impact of interstate bank branch deregulation on mothers' employment and children's test scores differs across families in a manner that is consistent with the parent time allocation view. We consider two pre-treatment differences in families that might influence the impact of interstate bank branch deregulation on mother's employment and children's test score: whether the mother was already employed full time before bank branch deregulation and whether grandparents live with the mother-child. Consistent with the parent time allocation view, we find that when mothers were not already working full time, the earlier results hold: bank branch deregulation induces mothers to work more hours and children's test scores fall; however, when mothers were already working full-time, bank branch deregulation has none of these effects. Also consistent with the parent time allocation channel, we find that when grandparents live with the mother-child pair, bank branch deregulation does not reduce children's academic achievement. This is also consistent with the findings in Havnes and Mogstad (2011a,b, 2015): when there is a reasonable substitute for mothers' supervision of children, an increase in the amount of time that mothers spend in paid employment does not harm children's academic performance.

It is worth stressing that we do not examine the welfare effects of parents self-selecting into working more. Parents choosing to work more hours make that decision while considering many factors. We examine the impact of a regulatory reform that improved credit conditions on children's academic achievement and explore whether the parent time allocation channel helps explain the connections between credit conditions and children's human capital accumulation.

The remainder of the paper is organized as follows. Section 2 describes the interstate bank branch deregulation index, and Section 3 discusses the parent-child panel database. Section 4 provides the analyses of the relationship between interstate bank branch deregulation on children's academic performance, while Section 5 explores whether credit conditions influence children's academic performance through the parent time allocation channel. Section 6 concludes.

2. Bank Branch Deregulation

In 1994, the Riegle-Neal Interstate Banking and Branching Act (IBBEA) effectively removed state-specific restrictions on banks expanding across state lines through the establishment of separately capitalized bank subsidiaries. The Act, however, permitted states to restrict bank expansion across state lines through the establishment of bank branches. Interstate branching can occur by an out-of-state bank (a) acquiring an in-state bank and converting that bank into its branch(es), (b) establishing new branches within a state ("de novo" branching), or (c) purchasing the branches of an in-state bank.

States used four types of restrictions on interstate branching. First, some states imposed minimum age restrictions with respect to how long a target bank has been in existence before it can be acquired and consolidated into branches. These minimum age restrictions, with a federally set maximum of five years, make interstate banking more costly because they required banks to either purchase an entire older bank, which is more costly than opening a branch, or open a new subsidiary and then wait until the minimum age to convert it into a branch. Second, some states prohibited de novo interstate branching. Third, some states prohibited the acquisition of a single branch or portions of an institution, which represents an additional barrier to cross-state branching. Fourth, some states imposed limits on the percentage of insured deposits (deposit-cap) in a state that a single bank could hold, which could limit large interstate bank mergers.

We use the Rice and Strahan (2010) index of regulatory restrictions on interstate branching. Specifically, *IBBEA Index* takes a value between zero and four, where we add one point to the index if the state (1) does not impose a minimum age restriction for acquisition, (2) allows de novo interstate branching, (3) permits interstate branching by acquiring a single branch; (4) sets the deposit-cap at 30% or greater. Thus, larger values of *IBBEA Index* indicate a more deregulated interstate branching environment. We set the *IBBEA Index* to zero for the years

before the Riegle-Neal Act. There is considerable cross-state, cross-time variation in the *IBBEA Index*.

3. Data and Variables

3.1 Data

To construct a panel dataset on parenting behavior, child activities, child attitudes, and child performance in school, we begin with and the National Longitudinal Survey of Youth 1979 (NLSY79), which is administered by the U.S. Bureau of Labor Statistics (BLS). The NLSY79 is a national representative household survey consisting of 12,686 American youth born between 1957 and 1964 and aged 14 to 22 in the initial survey round 1979. It was an annual survey until 1994 and then became a biennial survey. With the 1986 survey, when female interviewees were between the ages of 21 and 29, the NLSY79 Child started collecting additional information on their children. NLSY79 Child survey is also conducted every two years and collects information on children under 15 years old.

We restrict the sample as follows. We start with all respondents in the 50 states plus the District of Columbia; however, we limit the sample to the years from the first survey year in 1986 through 2005 to match these parent-child data with data on interstate bank branch deregulation. We drop respondents in the military and economically disadvantaged white subsamples since these subsamples were discontinued in 1985 and 1990 respectively. Furthermore, we exclude children who enter the survey ("entry year") after the effective year of interstate branching regulation, as defined by Rice & Strahan (2010), so that we have pre-treatment observations. Finally, we drop children from the sample when we cannot identify where they live from the mother's location or they change their state of residence during the sample period.

Using sampling weights provided by the BLS, our data offer a representative longitudinal sample of mothers from the 1957-1964 cohorts and their offspring. As we will explain in detail, these mother-child panel data offer unique information on parenting behavior, the attitudes of

both mother and child about their relationship, school performance, as well as information on family background, structure, and employment. Table 1 presents summary statistics on the variables described in the remainder of this section.

3.2 Variables

3.2.1 Children's Education

To measure academic performance in each year, the NLSY79 Child survey provides longitudinal data on each child's Peabody Individual Achievement Tests (PIAT) test scores and rank in the areas of math, reading recognition, and reading comprehension. The math part of the PIAT assesses the child's basic knowledge and application of math concepts (i.e., geometry and trigonometry) and skills (i.e., numerals and sequence recognition). The reading recognition part measures the child's effective recognition of letters and pronunciation/communication ability. The reading comprehension part evaluates a child's ability to extract the meaning of sentences.

We construct and analyze two age-normalized measures of academic performance for each child in each year. *Average Score* is the normalized age-adjusted value of the average math, reading recognition, and reading comprehension test scores. *Average Rank* is the rank of the average score on the math, reading recognition, and reading comprehension parts of the PIAT test. For the normalizations, we compute each child's age-adjusted score (or rank) in each year, so that the normalized value has a mean of zero and a standard deviation of one.

3.2.2 Parental Employment

We employ five measures of the amount of time that each parent works and the degree to which employment hours occur when the child is not in school. *Mom (Dad)-FT* is a dummy variable that equals one if mother (father) works full-time or not, as defined as (1) working at least 50 weeks, and (2) working at least 2000 hours in a given year, and zero otherwise. *Mom (Dad)-Work Hours* equals the total number of hours that the mother/father works in a given year. *Mom (Dad)-Works Non-School Times* is a dummy variable that equals one if mother's (father's)

working time begins before 7am or after 5pm, and zero otherwise. *Mom (Dad)-Work Hours Non-School Times* equals the total number of hours that the mother (father) works during non-school hours—between 5p.m. and 7a.m.—during a typical workday. *Mom (Dad)-Work Hours HW Times* equals the total number of hours that the mother (father) works typical homework hours—between 6p.m. and 10p.m.—during a typical workday.

3.2.3 Parental Monitoring

We use seven indicators of parental oversight of each child's allocation of time, e.g., parental limitations on television and games, the amount of time spent watching television during the week and over weekends, time spent on homework—both home and at school, and general monitoring of the child's whereabouts and wellbeing. *Limit TV & Games* is the child's rating of the statement "How often parents limit the amount of time watching TV/video games" and the answer ranges from 0 (never) to 3 (often). *TV Hours in Weekdays* and *TV Hours on Weekends* are the number of hours a child watches TV on typical weekday or weekend day, respectively, where the answers range from 1 (almost none) to 6 (highly frequently). *HW Hours in School* and *HW Hours after School* equal the number of hours per week that child spends on homework during and after school, respectively, where the answers range from 1 (almost none) to 5 (highly frequently). *Mom Knows* is the mother's rating of the statement "How often mom knows who child is with when not home" and the answer ranges from 1 (only rarely) to 4 (all the time). *Tell Parents* is the child's rating of the statement "How much child tells parents about where child is when not home" and the answer ranges from 1 (not at all) to 3 (a lot).

3.2.4 Parental Involvement with Child's Education

We also assess the frequency with which the child discusses school related issues with parents and parental participation in parent-teacher conferences. From the school survey part of the NLSY79 Child, we use five measures based on the child choosing from 0 (never) to 3 (often) in response to the following statements: (1) How often discuss things studied in class (*Discuss*

Class); (2) How often discuss grades or report card (*Discuss Grades*); (3) How often discuss standardized test scores, i.e., district/state/national exams/tests, (*Discuss Standardized Tests*); (4) How often discuss selecting courses or programs (*Discuss Courses*); and (5) How often discuss going to college (*Discuss College*). We also use two measures based on questions posed to the mother. *Mom Lectures* is the answer to the mother's rating of the statement "Mom would lecture child if (s)he got low grades," ranging from 1 (not at all likely) to 5 (very likely). *Parent-Teacher Conference* is a dummy variable that equals one if mother attends parent-teacher conference, and zero otherwise.

4. Empirical Results: Bank Deregulation and Academic Performance

In this section, we examine the relationship between bank regulatory reforms that spurred economic activity and employment on children's academic performance. To do this, we exploit (a) the cross-state, cross-time lowering of regulatory barriers to interstate bank branching that boosted local economic activity and employment and (2) longitudinal data from the NSLY79 Child on math and reading test scores to evaluate the impact of bank deregulation on children's academic achievement. We differentiate by high- and low- income households since past research shows that bank deregulation had a big, positive impact on employment and income among low-income households but not on high-income families (e.g., Beck et al. 2010). Thus, to the extent that bank deregulation influences the academic achievement of children through its effects on economic activity and parental employment, we expect that bank branch deregulation will have a larger effect on children from low-income households.

We employ a generalized difference-in-difference estimation strategy using the following empirical model:

$$Y_{i,s,t} = \alpha + \beta \cdot IBBEA\ Index_{s,t} + \theta \cdot Controls_{s,t} + \delta_b \cdot t + \delta_i + \delta_t + \varepsilon_{i,s,t}, \qquad (1)$$

where $Y_{i,s,t}$ is one of the two age-normalized measures of academic performance for child *i*, in state *s*, in year *t* (i.e., *Average Score* or *Average Rank*). $IBBEA\ Index_{s,t}$ is the interstate bank

branching deregulation index for state *s* at time *t*, which ranges from 0 to 4, where higher values indicate fewer regulatory impediments to interstate branch banking. β is our key coefficient of interest, gauging the impact of interstate bank branching deregulation on academic performance. $Controls_{s,t}$ include basic state-level, time-varying variables, the log of state-level GSP per capital in 2010 dollars (*Log (GSP per Capita)* and log of total population in the state (*Log (Population)*). We condition on individual and year fixed effects (δ_i and δ_t), as well as birth cohort linear time trends ($\delta_b \cdot t$) to control for time-invariant individual characteristics, common shocks to all individuals in each period, and the possibility that test scores trend over time differentially by birth cohort. We cluster standard errors at the state level.

Furthermore, we differentiate children by family income. Specifically, for each child, we first calculate the family's total income (in 2010 dollars) in the "entry year," which is the first year that the mother-child pair enters the NLSY79 Child dataset. We then define a family as "high-income" if family income is above state median family income in the entry year and otherwise classify the family as low-income. We separately report the coefficient on *IBBEA Index* for children from high- and low-income families and report the p-value for the test of whether those estimated coefficients are equal. Formally, we estimate the following regression:

$$Y_{i,s,t} = \alpha + \beta^H \cdot IBBEA\ Index_{s,t}(High\ Income) + \beta^L \cdot IBBEA\ Index_{s,t}(Low\ Income) + \\ + \theta \cdot Controls_{s,t} + \delta_b \cdot t + \delta_i + \delta_t + \varepsilon_{i,s,t}, \quad (1')$$

where $IBBEA\ Index_{s,t}(High\ Income)$ is the *IBBEA Index* interacted with a dummy variable that equals one for high-income families and zero otherwise, and $IBBEA\ Index_{s,t}(Low\ Income)$ is defined analogously.

As shown in Table 2, academic achievement falls among children from low-income families following interstate bank branch deregulation, but not among children from high-income families. The coefficient estimate on the *IBBEA Index* for children from low-income families is significantly lower than that for children from high-income families for both the *Average Rank* and *Average Score* measures of academic achievement. As emphasized above, most states

lowered barriers to interstate branching in several years and these reforms happened in different years across the different states. As also emphasized, the results in Table 2 hold when conditioning on individual, year, and cohort linear trends, as well as state economic activity and the population of states. These controls help in isolating the relationship between bank deregulation and educational achievement.

The estimated relationship is large. For example, consider *Average Rank* (column 3). The estimated coefficient suggests that if the state liberalizes restrictions on interstate bank branching from fully closed to fully open (i.e., *IBBEA Index* jumps from 0 to 4), *Average Rank* among children in the low-income families falls by 3.4 (-0.848*4). Considering that the average value of *Average Rank* among children from low-income families is 42, the estimated coefficients suggest that full interstate bank branch deregulation is associated with an 8% (=3.4/42) drop in *Average Rank*, when evaluated for the average child from a low-income family. Put differently, since the standard deviation of *Average Rank* for children from low-income families is 13, the estimates indicate that full branch deregulation is associated with a 26% reduction in *Average Rank* relative to the sample standard deviation.

In Table 3, we provide robustness tests and check for pre-trends. Column (1) and (2) show that the estimates are seldom affected by the sample weights. Column (3) and (4) show that the findings are robust to controlling for whether the parents are divorced or separated. Furthermore, to alleviate the pre-trends concern, we employ the same method as Krishnan, Nandy and Puri (2015) and explicitly examine this possibility in column (5) and (6). Results show that our findings are not driven by potential trends.

These results establish that following interstate branch deregulation, academic test scores fell among children from lower income families. Past research shows that bank deregulation exerts a disproportionately large, positive effect on employment and income among low-income individuals. These two findings combine to motivate an exploration of whether the channel connecting bank deregulation and children's academic performance runs through the changing labor market conditions facing low-income families.

5. Empirical Results: The Parent Time Allocation Channel

This section examines one potential channel—the parent time allocation channel—through which interstate bank branch deregulation might shape the academic performance of children. To the extent that bank deregulation induces parents to work more for pay and therefore have less time to monitor, supervise and participate in children's homework and other activities, this could adversely affect children's academic performance. Our goal is to shed empirical light on whether the parent time allocation channel helps account for some of the impact of regulatory reforms that enhance financial system efficiency on children's academic performance.

We examine a series of four questions. First, following interstate bank branch deregulations, do parents—and if so which parents—work more hours in paid employment? We examine both the total number of hours that parents work and the amount of hours that they work during non-school times, i.e., when those employment hours are mostly likely to conflict with times that children are available to interact with parents. We continue to differentiate between children from low- and high-income families to assess whether deregulation had an especially pronounced effect on the employment hours of low-income parents as suggested by Beck, Levine, and Levkov (2010). Moreover, we differentiate between mothers and fathers. We assess whether regulatory reforms that spur economic activity have disproportionately large effects on employment by mothers or fathers. If bank branch deregulation only boosts the employment hours of, for example, mothers, then the parent time allocation channel is most likely to operate through mothers.

Second, among families in which bank branch deregulation induces parents to work more hours, does this reduce parental supervision of children and the amount of time children spend on academically productive endeavors? We examine changes in the degree to which parents know about their children's whereabouts and activities, the amount of time that children spend on homework both in school and at home, and the amount of time they spend on television and video games during times when parents are working and not directly supervising their kids. In

this way, we examine whether financial development changes key inputs associated with academic success in ways that are consistent with the parental time allocation channel.

Third, is there a reduction in parent-child communications about school among families most impacted by branch deregulation? We evaluate changes in the extent to which parents and children talk about classes, grades, standardized tests, college, etc. One possibility is that when parents increase employment hours, they maintain—or even increase—discussion of academics. Another possibility is that the time, pressures, and energy associated with additional employment hours crowd out parent-child interactions about children's educational experiences and ambitions.

Fourth, does the impact of an improvement in the financial system on children's academic achievement vary across families in ways suggested by the parent time allocation channel? For example, if parents are already working full time before interstate bank branch deregulation triggers an increase in labor demand, then the impact of this deregulation on children's education through the parent time allocation channel should be minimal. Similarly, if grandparents live with a family, then this increases the likelihood that when parents devote a few more hours to a job, there are readily available substitute caregivers. Such a family situation would reduce the adverse impact of branch deregulation on children's academic performance via the parent time allocation channel. We test both of these predictions.

5.1 Channel Exploration: Parents' Employment Participation and Hours

The starting point of the patent time allocation view is that banking reforms that eased credit conditions disproportionately boosted the demand for lower-income workers (e.g., Beck, Levine, and Levkov 2010) and disproportionately pulled women into the workforce, reducing the gender gap in labor force participation (e.g., Popov and Zaharia 2019). We begin by assessing the impact bank deregulation on labor market participation by the mothers and fathers of the children in our sample while also differentiating between high- and low-income families. Thus, we begin by merging the analyses of Beck, Levine, and Levkov (2010) and Popov and Zaharia

(2019) and testing whether banking reforms that improved credit conditions disproportionately increased the employment hours of women from lower-income households.

We use the same regression specification as above, except that the dependent variable is now one of five measures of the employment status of either the mother or father. In particular, we examine *Mom (Dad)-FT*, *Mom (Dad)-Work Hours*, *Mom (Dad)-Works Non-School Times*, *Mom (Dad)-Work Hours Non-School Times*, and *Mom (Dad)-Work Hours HW Times*. We conduct these analyses for mothers and report the results in Panel A of Table 4 and provide the results for fathers in Panel B of Table 4.

We find that interstate bank branch deregulation induced mothers from low-income families to work more hours, work more hours during non-school and homework times, while there was no effect on either mothers in high-income families or fathers in either low- or high-income families. Consider the results on mothers in Panel A. Following bank deregulation, there is a significant increase in *Mom-FT*, *Mom-Work Hours*, *Mom-Works Non-School Times*, *Mom-Work Hours Non-School Times*, and *Mom-Work Hours HW Times* among mothers from low-income households but not for mothers from high-income households, where the estimated results on low- and high-income mothers are significantly different from each other. As shown in Panel B, we do not find any effect of bank deregulation on employment by fathers.

The estimated effects are economically large. For example, consider the extent to which mothers work during non-school time (*Mom-Work Hours Non-School Times*). This might be an especially relevant metric since it means that the mother is less available to monitor, supervise and participate in their children's activities. Also, consider a large bank regulatory reform, moving from the most severe barriers to interstate branching to no regulatory prohibitions on branching, so that the change in the *IBBEA Index* equals four. The estimated coefficients in column (4) of Panel A of Table 4 suggest that this reform would induce the average low-income mother to work 0.43 (= 0.108*4) additional hours (26 minutes) during non-school times on a typical workday.

These findings are consistent with the first step of the parent time allocation explanation of why test scores fall among children from low-income families after interstate bank branch deregulation: bank deregulation triggers an especially pronounced increase in the demand for low-income workers and this disproportionately induces mothers from low-income families to work more in paid employment. To the extent that mothers devote more time to employment, they may have less time for direct childcare, with potentially large ramifications on academic achievement.

5.2 Channel Exploration: Parents' Monitoring, Television, and Homework

The next step in the parent time allocation explanation stresses that when bank deregulation increases the employment hours of mothers, this reduces their monitoring of children. To evaluate this view, we examine the extent to which parents limit television and video games (*Limit TV & Games*), the number of hours children watch television during the week (*TV Hours in Weekdays*) and weekends (*TV Hours on Weekends*), and the number of hours spent on homework, both in school (*HW Hours in School*) and outside of school (*HW Hours out of School*). We use *TV Hours on Weekends* and *HW Hours in School* as placebo-like tests, since the parent time allocation view focuses on periods when newly employed mothers face greater constraints on monitoring, supervising, and participating in children's activities, e.g., during the work week and non-school hours. Furthermore, to assess mother's supervision, we examine the degree to which mothers have information on their children's whereabouts (*Mom Knows*) and the degree to which children tell parents about their whereabouts (*Tell Parents*).

As shown in Table 5, we discover that following interstate bank branch deregulation: (1) parents reduced limitations on television watching and video games playing by their children, (2) children watched more television during the typical weekday, (3) children did not watch more television on weekends, (4) children did not alter the amount of time spent on homework during school hours, and (5) children devoted less time to homework outside of school hours. Consistent with the findings reported in Tables 2 to 4, these results on television and homework hold among

low-income families but not among high-income families. Thus, among families in which mothers were more likely to be induced to work more hours in paid employment following bank deregulation—low-income families, we find that children watch more television and do less homework when the increase in mothers' employment is likely to interfere most with overseeing their kids—during non-school hours and weekdays. Furthermore, the Table 5 results on *Mom Knows* and *Tells Parents* show that mothers and parents more generally from low-income families tend to have less information about their children after bank deregulation. The findings are consistent with the view that bank deregulation attracts mothers into the workforce and this reallocation of parental time leads to a reallocation of children's time toward less academically productive activities, with adverse implications on children's performance on academic achievement tests.

5.3 Channel Exploration: Communication about School

Besides influencing the number of hours that children allocate to homework and watching television, the parent time allocation channel also stresses that pulling mothers into the workforce could hinder parent-child discussions about a range of school topics that shape their children's academic performance. To assess this view, we examine seven measures of the extent to which parents communicate with their children about classes, grades, standardized tests, courses, and college, and whether the mother attends parent-teacher conferences.

As shown in Table 6, bank deregulation triggered a significant reduction in parent-child communications about academics among children from low-income families. In no case, however, was bank deregulation associated with a significant change in these parent-child communication indicators among high-income families, though the estimated coefficient on *IBBEA Index (High Income)* is not always significantly different from *IBBEA Index (Low Income)*. These findings are broadly consistent with the parent time allocation channel view of how interstate bank branch deregulation lowered test scores: By inducing mothers from low-

income families to work more, deregulation reduces the amount of time that mothers have for discussing school with their children or attending parent-teacher conferences.

5.4 Time Allocation Channel: Heterogeneous Effects

We next evaluate whether the impact of interstate bank branch deregulation on mothers' employment and children's test scores differs by family conditions We examine two pre-treatment conditions. First, we differentiate families by whether the mother was already employed full time before the deregulation. If the mother was already fully employed, then the impact of deregulation on mother's employment is likely to be minimal and hence the impact of deregulation through the time allocation channel on children's test scores is also likely to be minimal. Second, we differentiate families by whether grandparents can easily boost the supervision of their grandchildren when mothers increase employment hours. If, for example, grandparents live in the same house, then bank deregulations that induce mothers to work more hours in paid employment may have less of an adverse impact on the quality of the supervision of children and hence have less of an adverse impact on children's academic performance.

To conduct these tests, we differentiate families as follows. First, we differentiate families by whether the mother was working full time or not when the mother-child pair enters the sample, i.e., whether the mother was working full time in the entry year (*Mom-FT-Entry Year*). Second, we differentiate families by whether grandparents live in the same house as the mother and child in the entry year (*Grandparents-Entry Year*). Using the same regression specification as above, we then evaluate the impact of bank branch deregulation on children's academic achievement when (1) differentiating the sample by whether *Mom-FT-Entry Year* equals one or zero and (2) differentiating by whether *Grandparents-Entry Year* equals one or zero. The parent time allocation channel view predicts that the impact of bank branch deregulation on academic achievement will be greater when *Mom-FT-Entry Year* and/or *Grandparents-Entry Year* equal zero. Furthermore, we also test whether mothers who were working FT increase the number of hours that they work after deregulation, especially

employment hours during non-school times. In this way, we can focus attention on the reallocation of parental time and not on some other feature of bank deregulation.

As shown in Tables 7 and 8, the results of these heterogeneous tests are consistent with the parent time allocation view. In the sample where the mother is not working full-time prior to bank deregulation (*Mom-FT-Entry Year* = 0), the earlier results hold: bank branch deregulation induces (1) mothers to work more hours in paid employment (Table 8, column 1), (2) mothers to work more hours during non-school hours (Table 8 column 2), and (3) reduces children's academic achievement. Critically, however, when the mother was already working full-time, bank branch deregulation has none of these effects. The results from the analyses that differentiate by whether grandparents live with the mother-child pair also support the time allocation view. When grandparents live in the same house as the mother and child in the entry year (*Grandparents-Entry Year* = 1), we find that bank branch deregulation does not reduce children's academic achievement. This is consistent with the view that when there is a reasonable substitute for mothers' supervision of children, factors that entice mothers to work more hours in paid employment do not harm children's academic performance as measured by standardized test score.

6. Conclusion

In this paper, we first evaluated the effect of bank regulatory reforms that improved the efficient functioning of local credit markets on children's academic performance. We exploit cross-state, cross-time variation in the deregulation of barriers to interstate bank branching as a source of exogenous variation in local credit conditions. Using a panel data on parent-child pairs from 1986 through 2005, we assess the impact these regulatory reforms on children's academic performance. We differentiate children by whether they are from high-income or low-income families because research shows that bank deregulation spurred employment among low-income families but not among high-income families. Thus, if bank branch deregulation shapes

children's human capital accumulation by altering parental employment, then deregulation should have a larger effect on children from low-income families.

We find that following regulatory reforms that improved local banking system efficiency, academic performance falls among children from low-income families but not those from high-income families. This finding is robust to controlling for child and year fixed effects, cohort linear time trends, and time-varying characteristics of the state where the child resides. While influential research how financial development can enhance human capital accumulation, we discover that U.S. bank regulatory reforms that improved the functioning of local credit markets were followed by declines in academic performance, which may have long-run effects on children's well-being as adults (e.g., Agarwal and Mazumder 2013).

The second part of our analyses explored one channel through which financial development might harm children's academic performance: The parent time allocation channel. When applied to finance and children's education, the parent time allocation channel posits that if more competitive, efficient financial systems increase firms' demand for workers, this could induce parents to devote less time to childrearing and more time to paid employment with adverse effects on children's human capital development. We examine four implications of this channel. First, we examine whether bank branch deregulations spurs parents—and if so which parents—to work more hours in paid jobs? Second, among families in which bank branch deregulation induces parents to work more hours, we examine whether this reduces parental supervision and the extent to which children spend time on academically productive endeavors. Third, we examine whether parent-child discussions about school and college fall among families most affected by bank regulatory reforms? Fourth, we test whether the impact of regulatory reforms on children's performance varies across families in ways that are consistent with the parent time allocation channel.

Across each of these four dimensions, the evidence is consistent with the parent time allocation view of how improving the financial system impedes children's academic performance. First, branch deregulation pulled mothers from low-income families into the

workforce, but had no effect on either mothers in high-income families or fathers. This suggests that the parent time allocation channel operates through mothers. Second, among low-income families, there is a reduction in parental monitoring of children, a reduction in hours spent on homework during non-school hours, and an increase in hours spent on television and video games on school days following regulatory reforms that improved credit markets. Third, these regulatory reforms that enticed mothers from low-income families to spend more hours in the labor force reduced parent-child discussions about school and college. Fourth, consistent with the parent time allocation view, branch deregulation has less of deleterious impact on children's test scores when (a) mothers were already working full-time before deregulation or (b) grandparents were living with the mother-child pair. This suggests that when there is a reasonable substitute for mothers' supervision of children, an increase in maternal employment does not harm children's academic performance.

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Table 1. Summary Statistics

This table provides summary statistics. The sample period covers the first year of the NLSY79 Child survey (1986) to the last year of the bank branching deregulation index (2005). Variables are defined in Appendix 1.

Variable	N	Mean	S.D.	Min	Median	Max
State-Level Bank Branching Deregulation						
IBBEA Index	1,020	0.915	1.375	0	0	4
Children's Academic Achievement						
Average Rank	22,574	49.605	28.870	0.266	49.401	100
Average Score	22,574	0	0.997	-4.763	0.013	6.230
Parents' Employment Status						
Mom-FT	27,956	0.367	0.482	0	0	1
Mom-Work Hours	27,956	1,317	970	0	1,560	3,380
Mom-Works Non-School Times	28,731	0.128	0.334	0	0	1
Mom-Work Hours Non-School Times	28,710	0.828	1.938	0	0	8.5
Mom-Work Hours HW Times	28,709	3.239	2.315	0	5	5
Dad-FT	18,531	0.738	0.440	0	1	1
Dad-Work Hours	18,531	2,074	781	0	2,080	4,160
Dad-Works Non-School Times	19,352	0.219	0.414	0	0	1
Dad-Work Hours Non-School Times	19,318	1.197	2.200	0	0	9
Dad-Work Hours HW Times	19,318	3.513	2.175	0	5	5
Parents' Effective Monitoring						
Limit TV & Games	9,442	1.609	1.038	0	2	3
TV Hours in Weekdays	27,080	2.325	1.024	1	2	6
TV Hours on Weekends	27,149	2.356	0.907	1	2	6
HW Hours in School	9,431	0.876	0.880	0	1	5
HW Hours out of School	9,436	1.201	0.869	0	1	5
Mom Knows	14,070	3.776	0.490	1	4	4
Tell Parents	4,630	2.528	0.804	0	3	3
Parents' Involvement in Children's Education						
Discuss Class	9,377	2.119	0.855	0	2	3
Discuss Grades	9,370	2.368	0.848	0	3	3
Mom Lectures	11,253	3.793	1.399	1	4	5
Discuss Standardized Tests	9,202	1.135	1.132	0	1	3
Discuss Courses	5,390	1.522	1.104	0	2	3
Discuss College	5,427	1.551	1.089	0	2	3
Parent-Teacher Conference	10,608	0.903	0.296	0	1	1
State-Level Controls						
Log (GSP per Capita)	1,020	10.595	0.256	10.076	10.567	12.041
Log (Population)	1,020	14.974	1.029	13.025	15.077	17.403

Table 2. Bank Branching Deregulation and Children's Academic Achievement

This table reports OLS regression results of children's academic achievement on interstate branching deregulation and other controls. For the dependent variables, *Average Rank* denotes the child's age-adjusted rank of the average of PIAT Mathematics and Reading score, and *Average Score* denotes the child's age-adjusted standardized average score of PIAT Mathematics and Reading score with a mean of zero and a standard deviation. The key independent variables are based on the interstate branching measure, *IBBEA Index*, which ranges from 0 (most restrictive) to 4 (most deregulated). State controls include log of GSP per capita and log of total population. We include *IBBEA Index (High Income)*, which equals the *IBBEA* Index interacted with a dummy variable that equals one if the child is in a household with above the median income and *IBBEA Index (Low Income)*, which equals the *IBBEA Index* interacted with a dummy variable that equals one if the child is in a household with below the median income. We include individual and year fixed effects in column (1) and (2), and further control for birth cohort linear time trends in column (3) and (4). All regressions use the sample weights provided by NLSY79 Child. Heteroskedasticity-robust standard errors clustered at the state level are in parentheses. We test whether the estimated coefficient *IBBEA Index (High Income)* is significantly different from the estimated coefficient on *IBBEA Index (Low Income)* and report the p-value of this test in the last row. For coefficient estimates, *, **, and *** indicate significance at 10%, 5%, and 1%.

	Average Rank	Average Score	Average Rank	Average Score
	(1)	(2)	(3)	(4)
IBBEA Index (High Income)	0.053	0.003	0.031	0.002
	(0.307)	(0.010)	(0.300)	(0.010)
IBBEA Index (Low Income)	-0.838**	-0.020*	-0.848**	-0.021*
	(0.301)	(0.011)	(0.302)	(0.011)
Log (GSP per Capita)	21.090**	0.720**	20.827**	0.716**
	(9.798)	(0.274)	(9.903)	(0.274)
Log (Population)	-18.648	-0.702	-19.192	-0.725
	(17.443)	(0.546)	(17.552)	(0.546)
Individual FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cohort Linear Trends	No	No	Yes	Yes
Observation	22574	22574	22574	22574
R-Squared	0.721	0.727	0.722	0.727
P-Value	0.002	0.002	0.002	0.003

Table 3. Bank Branching Deregulation and Children's Academic Achievement: Pre-Trends and Other Robustness Checks

This table reports robustness checks on OLS regression results of children's academic achievement on interstate branching deregulation and other controls. Column (1) and (2) present baseline results without sample weights. Column (3) and (4) further control for the dynamics of family composition. Column (5) and (6) explicitly examine the potential pre-trends. *Pre(4,1)* is a dummy variable that equals one if the year falls within four years before the interstate branching deregulation year, and zero otherwise. For the dependent variables, *Average Rank* denotes the child's age-adjusted rank of the average of PIAT Mathematics and Reading score, and *Average Score* denotes the child's age-adjusted standardized average score of PIAT Mathematics and Reading score with a mean of zero and a standard deviation. The key independent variables are based on the interstate branching measure, *IBBEA Index*, which ranges from 0 (most restrictive) to 4 (most deregulated). *D-Separate/Divorce* is a dummy variable that equals one if mother's marital status is separated or divorced, and zero otherwise. State controls include log of GSP per capita and log of total population. We include *IBBEA Index (High Income)*, which equals the *IBBEA* Index interacted with a dummy variable that equals one if the child is in a household with above the median income and *IBBEA Index (Low Income)*, which equals the *IBBEA Index* interacted with a dummy variable that equals one if the child is in a household with below the median income. We include individual and year fixed effects, as well as birth cohort linear time trends, in all columns. Heteroskedasticity-robust standard errors clustered at the state level are in parentheses. We test whether the estimated coefficient *IBBEA Index (High Income)* is significantly different from the estimated coefficient on *IBBEA Index (Low Income)* and report the p-value of this test in the last row. For coefficient estimates, *, **, and *** indicate significance at 10%, 5%, and 1%.

	Unweighted Regression		Control for Family Composition		Pre-Trends	
	Average Rank	Average Score	Average Rank	Average Score	Average Rank	Average Score
	(1)	(2)	(3)	(4)	(5)	(6)
IBBEA Index (High Income)	0.135	0.004	0.029	0.002	0.203	0.006
	-0.303	-0.011	-0.301	-0.01	(0.322)	(0.011)
IBBEA Index (Low Income)	-0.784**	-0.022**	-0.848**	-0.021*	-1.071**	-0.025*
	-0.287	-0.01	-0.302	-0.011	(0.396)	(0.014)
D-Separate/Divorce			0.307	0.016		
			-0.811	-0.025		
Pre(4,1) (High Income)					0.697	0.015
					(0.768)	(0.025)
Pre(4,1) (Low Income)					-0.878	-0.017
					(1.074)	(0.035)
Log (GSP per Capita)	15.947	0.628**	20.809**	0.715**	20.819**	0.716**
	-9.709	-0.295	-9.907	-0.275	(9.966)	(0.277)
Log (Population)	-6.381	-0.283	-19.222	-0.726	-19.104	-0.722
	-20.686	-0.665	-17.568	-0.546	(17.513)	(0.546)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cohort Linear Trends	Yes	Yes	Yes	Yes	Yes	Yes
Observation	22574	22574	22574	22574	22574	22574
R-Squared	0.718	0.724	0.722	0.727	0.722	0.727
P-Value	0.000	0.001	0.002	0.003	0.000	0.007

Table 4. Bank Branching Deregulation and Parents' Employment Status

This table reports OLS regression results parents' employment status on interstate branching deregulation and other controls. Panel A presents the responses of mother's employment status, while Panel B presents the responses of father's employment status. For the dependent variables, *Mom (Dad)-FT* is a dummy variable that equals one if mother (father) (1) works at least 50 weeks, and (2) works at least 2000 hours in a given year, and zero otherwise. *Mom (Dad)-Work Hours* denotes the mother's (father's) total working hours in a given year. *Mom (Dad)-Works Non-School Times* is a dummy variable that equals one if the mother (father) works during the child's activity time based on mother's (father's) reported job beginning time (before 7am or after 5pm), and zero otherwise. *Mom (Dad)-Work Hours Non-School Times* denotes the mother's (father's) total working hours that are within the child's activity time. *Mom (Dad)-Work Hours HW Times* denotes the mother's (father's) total working hours that are within the child's typical homework time (6pm to 10pm). The key independent variables are based on the interstate branching measure, *IBBEA Index,* which ranges from 0 (most restrictive) to 4 (most deregulated). State controls include log of GSP per capita and log of total population. We include *IBBEA Index (High Income),* which equals the *IBBEA* Index interacted with a dummy variable that equals one if the mother (father) is in a household with above the median income and *IBBEA Index (Low Income,)* which equals the *IBBEA Index* interacted with a dummy variable that equals one if the mother (father) is in a household with below the median income. We include individual and year fixed effects, as well as birth cohort linear time trends, in all columns. All regressions use the sample weights provided by NLSY79. Heteroskedasticity-robust standard errors clustered at the state level are in parentheses. We test whether the estimated coefficient *IBBEA Index (High Income)* is significantly different from the estimated coefficient on *IBBEA Index (Low Income)* and report the p-value of this test in the last row. For coefficient estimates, *, **, and *** indicate significance at 10%, 5%, and 1%.

Panel A. Mother's Labor Participation

	Mom-FT	Mom-Work Hours	Mom-Works Non-School Times	Mom-Work Hours Non-School Times	Mom-Work Hours HW Times
	(1)	(2)	(3)	(4)	(5)
IBBEA Index (High Income)	-0.005	-19.985	0.002	0.007	0.012
	(0.006)	(14.240)	(0.004)	(0.020)	(0.028)
IBBEA Index (Low Income)	0.021***	48.351**	0.019***	0.108**	0.083*
	(0.006)	(18.520)	(0.005)	(0.033)	(0.046)
Log (GSP per Capita)	0.172	457.417*	0.133	0.560	0.418
	(0.132)	(245.881)	(0.089)	(0.441)	(0.569)
Log (Population)	-0.101	-717.587**	-0.144	-0.250	-1.949**
	(0.149)	(306.228)	(0.107)	(0.462)	(0.693)
Individual FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Cohort Linear Trends	Yes	Yes	Yes	Yes	Yes
Observation	27956	27956	28731	28710	28709
R-Squared	0.416	0.531	0.272	0.279	0.371
P-Value	0.001	0.000	0.001	0.003	0.052

Panel B. Father's Labor Participation					
	Dad-FT	Dad-Work Hours	Dad-Works Non-School Times	Dad-Work Hours Non-School Times	Dad-Work Hours HW Times
	(1)	(2)	(3)	(4)	(5)
IBBEA Index (High Income)	-0.001	-17.274**	-0.007	-0.019	-0.034
	(0.007)	(8.344)	(0.005)	(0.024)	(0.026)
IBBEA Index (Low Income)	0.003	-20.703	0.000	-0.044	-0.006
	(0.007)	(12.521)	(0.006)	(0.036)	(0.032)
Log (GSP per Capita)	0.050	-92.993	-0.195	0.199	-0.262
	(0.206)	(248.520)	(0.142)	(0.679)	(0.586)
Log (Population)	-0.174	-111.228	-0.330**	-2.065**	-0.704
	(0.125)	(217.143)	(0.129)	(0.638)	(0.613)
Individual FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Cohort Linear Trends	Yes	Yes	Yes	Yes	Yes
Observation	18531	18531	19352	19318	19318
R-Squared	0.297	0.407	0.337	0.308	0.297
P-Value	0.618	0.817	0.182	0.465	0.440

Table 5. Bank Branching Deregulation and Parents' Effective Monitoring

This table reports OLS regression results of parents' effective monitoring activities on interstate branching deregulation and other controls. For the dependent variables, *Limit TV & Games* is the answer to child's rating of the statement "How often parents limit the amount of time watching TV/video games", ranging from 0 (never) to 3 (often). *TV Hours in Weekdays* is the answer to number of hours child watches TV on typical weekday, ranging from 1 (almost none) to 6 (highly frequently). *TV Hours on Weekends* is the answer to number of hours child watches TV on typical weekend day, ranging from 1 (almost none) to 6 (highly frequently). *HW Hours in School* is the answer to hours per week spent on homework during school, ranging from 1 (almost none) to 5 (highly frequently). *HW Hours after School* is the answer to hours per week spent on homework after school, ranging from 1 (almost none) to 5 (highly frequently). *Mom Knows* is the answer to mother's rating of the statement "How often mom knows who child is with when not home", ranging from 1 (only rarely) to 4 (all the time). *Tell Parents* is the answer to child's rating of the statement "How much child tells parents about where child is when not home", ranging from 1 (not at all) to 3 (a lot). The key independent variables are based on the interstate branching measure, *IBBEA Index*, which ranges from 0 (most restrictive) to 4 (most deregulated). State controls include log of GSP per capita and log of total population. We include *IBBEA Index (High Income),* which equals the *IBBEA* Index interacted with a dummy variable that equals one if the child is in a household with above the median income and *IBBEA Index (Low Income),* which equals the *IBBEA Index* interacted with a dummy variable that equals one if the child is in a household with below the median income. We include individual and year fixed effects, as well as birth cohort linear time trends, in all columns. All regressions use the sample weights provided by NLSY79 Child. Heteroskedasticity-robust standard errors clustered at the state level are in parentheses. We test whether the estimated coefficient *IBBEA Index (High Income)* is significantly different from the estimated coefficient on *IBBEA Index (Low Income)* and report the p-value of this test in the last row. For coefficient estimates, *, **, and *** indicate significance at 10%, 5%, and 1%.

	Limit TV & Games	TV Hours in Weekdays	TV Hours on Weekends	HW Hours in School	HW Hours out of School	Mom Knows	Tell Parents
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
IBBEA Index (High Income)	-0.016	-0.010	0.004	0.020	-0.015	0.003	-0.025
	(0.029)	(0.010)	(0.005)	(0.022)	(0.046)	(0.006)	(0.024)
IBBEA Index (Low Income)	-0.107**	0.029**	0.008	-0.025	-0.082**	-0.025*	-0.116***
	(0.032)	(0.009)	(0.007)	(0.024)	(0.030)	(0.012)	(0.029)
Log (GSP per Capita)	0.728	0.108	-0.269	-0.444	0.390	-0.125	-1.150
	(0.677)	(0.273)	(0.253)	(0.546)	(0.763)	(0.228)	(0.806)
Log (Population)	-0.492	0.536**	0.251	0.529	-0.882	0.501**	1.015
	(0.672)	(0.248)	(0.151)	(1.002)	(0.794)	(0.202)	(1.782)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort Linear Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	9442	27080	27149	9431	9436	14070	4630
R-Squared	0.212	0.297	0.389	0.195	0.191	0.341	0.155
P-Value	0.002	0.000	0.536	0.097	0.007	0.062	0.002

Table 6. Bank Branching Deregulation and Parents' Involvement in Children's Education

This table reports OLS regression results of parents' involvement in children's education on interstate branching deregulation and other controls. Appendix 1 details information on the survey waves and minimum age requirement for each question. For the dependent variables, *Discuss Class* is the child's rating of the statement "How often discuss things studied in class". *Discuss Grades* is the child's rating of the statement "How often discuss grades or report card". *Mom Lectures* is the answer to mother's rating of the statement "Mom would lecture child if (s)he got low grades", ranging from 1 (not at all likely) to 5 (very likely). *Discuss Standardized Tests* is the child's rating of the statement "How often discuss district/state/national exams/tests". *Discuss Courses* is the child's rating of the statement "How often discuss selecting courses or programs". *Discuss College* is the child's rating of the statement "How often discuss going to college". Answers for above questions range from 0 (never) to 3 (often). *Parent-Teacher Conference* is a dummy variable that equals one if mother attends parent-teacher conference, and zero otherwise. The key independent variables are based on the interstate branching measure, *IBBEA Index*, which ranges from 0 (most restrictive) to 4 (most deregulated). State controls include log of GSP per capita and log of total population. We include *IBBEA Index (High Income)* which equals the *IBBEA* Index interacted with a dummy variable that equals one if the child is in a household with above the median income and *IBBEA Index (Low Income)* which equals the *IBBEA Index* interacted with a dummy variable that equals one if the child is in a household with below the median income. We include individual and year fixed effects, as well as birth cohort linear time trends, in all columns. All regressions use the sample weights provided by NLSY79 Child. Heteroskedasticity-robust standard errors clustered at the state level are in parentheses. We test whether the estimated coefficient *IBBEA Index (High Income)* is significantly different from the estimated coefficient on *IBBEA Index (Low Income)* and report the p-value of this test in the last row. For coefficient estimates, *, **, and *** indicate significance at 10%, 5%, and 1%.

	Discuss Class	Discuss Grades	Mom Lectures	Discuss Standardized Tests	Discuss Courses	Discuss College	Parent-Teacher Conference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
IBBEA Index (High Income)	-0.027	-0.036	0.005	-0.045	0.035	0.005	-0.000
	(0.024)	(0.029)	(0.020)	(0.028)	(0.034)	(0.034)	(0.007)
IBBEA Index (Low Income)	-0.049*	-0.059**	-0.049**	-0.050	-0.097**	-0.079**	-0.014**
	(0.029)	(0.018)	(0.020)	(0.035)	(0.029)	(0.026)	(0.007)
Log (GSP per Capita)	-0.106	0.292	0.803*	-1.242**	-1.335	-0.348	-0.406**
	(0.586)	(0.489)	(0.452)	(0.563)	(1.160)	(0.688)	(0.146)
Log (Population)	0.381	0.133	-0.996*	1.629*	-0.466	2.178	-0.028
	(0.651)	(0.936)	(0.585)	(0.813)	(1.214)	(1.382)	(0.209)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort Linear Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	9377	9370	11253	9202	5390	5427	10608
R-Squared	0.136	0.156	0.518	0.214	0.217	0.304	0.165
P-Value	0.174	0.506	0.050	0.868	0.004	0.013	0.071

Table 7. Bank Branching Deregulation and Children's Academic Achievement: Heterogeneous Responses by Initial Family Conditions

This table reports heterogeneous OLS regression results of children's academic achievement on interstate branching deregulation and other controls. For the dependent variables, *Average Rank* denotes the child's age-adjusted rank of the average of PIAT Mathematics and Reading score. For the partitioning variables, *Mom-FT* is a dummy variable that equals one if mother (1) works at least 50 weeks, and (2) works at least 2000 hours at the entry year, and zero otherwise. *Grandparents-Entry Year* is a dummy variable that equals one if grandparents live in the household at the entry year. The key independent variables are based on the interstate branching measure, *IBBEA Index*, which ranges from 0 (most restrictive) to 4 (most deregulated). State controls include log of GSP per capita and log of total population. We include *IBBEA Index (High Income)*, which equals the *IBBEA* Index interacted with a dummy variable that equals one if the child is in a household with above the median income and *IBBEA Index (Low Income)*, which equals the *IBBEA Index* interacted with a dummy variable that equals one if the child is in a household with below the median income. We include individual and year fixed effects, as well as birth cohort linear time trends, in all columns. All regressions use the sample weights provided by NLSY79 Child. Heteroskedasticity-robust standard errors clustered at the state level are in parentheses. We test whether the estimated coefficient *IBBEA Index (High Income)* is significantly different from the estimated coefficient on *IBBEA Index (Low Income)* and report the p-value of this test in the last second row. We test whether the estimated coefficients *IBBEA Index (Low Income)* between subsamples are significantly different and report the p-value of this test in the last row. For coefficient estimates, *, **, and *** indicate significance at 10%, 5%, and 1%.

	Mom-FT-Entry Year		Grandparents-Entry Year	
	No	Yes	No	Yes
	Average Rank	Average Rank	Average Rank	Average Rank
	(1)	(2)	(3)	(4)
IBBEA Index (High Income)	0.080	0.018	0.028	-0.271
	(0.353)	(0.419)	(0.294)	(0.952)
IBBEA Index (Low Income)	-0.897**	-0.340	-0.782**	-0.404
	(0.314)	(0.625)	(0.339)	(0.831)
Log (GSP per Capita)	19.449*	27.530*	19.121*	37.949
	(11.043)	(16.160)	(9.767)	(23.026)
Log (Population)	-23.845	4.032	-21.713	39.008
	(17.561)	(29.390)	(16.663)	(28.127)
Individual FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cohort Linear Trends	Yes	Yes	Yes	Yes
Observation	17475	4811	19855	2715
R-Squared	0.726	0.703	0.719	0.728
P-Value (High-Low Income)	0.000	0.614	0.026	0.876
P-Value (Low Income between Subsamples)	0.352		0.680	

Table 8. Bank Branching Deregulation and Mothers' Labor Market Outcomes: Heterogeneous Responses by Initial Employment Status

This table reports heterogeneous OLS regression results of mothers' labor market outcomes on interstate branching deregulation and other controls. For the dependent variables, *Mom-Work Hours* denotes the mother's total working hours in a given year. *Mom-Work Hours Non-School Times* denotes the mother's total working hours that are within the child's activity time. For the partitioning variables, *Mom-FT* is a dummy variable that equals one if mother (1) works at least 50 weeks, and (2) works at least 2000 hours at the entry year, and zero otherwise. The key independent variables are based on the interstate branching measure, *IBBEA Index*, which ranges from 0 (most restrictive) to 4 (most deregulated). State controls include log of GSP per capita and log of total population. We include *IBBEA Index (High Income)*, which equals the *IBBEA* Index interacted with a dummy variable that equals one if the mother is in a household with above the median income and *IBBEA Index (Low Income)*, which equals the *IBBEA Index* interacted with a dummy variable that equals one if the mother is in a household with below the median income. We include individual and year fixed effects, as well as birth cohort linear time trends, in all columns. All regressions use the sample weights provided by NLSY79. Heteroskedasticity-robust standard errors clustered at the state level are in parentheses. We test whether the estimated coefficient *IBBEA Index (High Income)* is significantly different from the estimated coefficient on *IBBEA Index (Low Income)* and report the p-value of this test in the last second row. We test whether the estimated coefficients *IBBEA Index (Low Income)* between subsamples are significantly different and report the p-value of this test in the last row. For coefficient estimates, *, **, and *** indicate significance at 10%, 5%, and 1%.

	Mom-FT-Entry Year		Mom-FT-Entry Year	
	No	Yes	No	Yes
	Mom-Work Hours	Mom-Work Hours	Mom-Work Hours Non-School Times	Mom-Work Hours Non-School Times
	(1)	(2)	(3)	(4)
IBBEA Index (High Income)	-18.402	9.893	-0.010	0.028
	(16.892)	(15.726)	(0.032)	(0.057)
IBBEA Index (Low Income)	41.303**	11.282	0.126**	0.023
	(19.294)	(23.491)	(0.038)	(0.041)
Log (GSP per Capita)	750.620**	-450.374	0.777	-0.016
	(342.273)	(362.344)	(0.515)	(0.876)
Log (Population)	-364.367	-663.745**	-0.168	-0.551
	(369.094)	(322.993)	(0.550)	(0.723)
Individual FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cohort Linear Trends	Yes	Yes	Yes	Yes
Observation	20573	7165	21069	7367
R-Squared	0.510	0.379	0.266	0.322
P-Value (High-Low Income)	0.001	0.956	0.003	0.955
P-Value (Low Income between Subsamples)	0.326		0.054	

Appendix 1. Variable Definition

Variable	Definition	Source
State-Level Bank Branching Deregulation		
IBBEA Index	We follow RS (2010) and contrast the index ranging from 0 (most restrictive) to 4 (most deregulated). We add one point to the index if the state (1) does not impose a minimum age restriction for acquisition, (2) allows de novo interstate branching, (3) permits interstate branching by acquiring a single branch; (4) sets the deposit-cap no less than 30%.	Rice and Strahan (2010)
Children's Academic Achievement		
Average Rank	Child's age-adjusted rank of the average of PIAT Mathematics and Reading score.	NLSY79 Child-CS (1986-2004)
Average Score	Child's age-adjusted standardized average score of PIAT Mathematics and Reading score with a mean of zero and a standard deviation.	NLSY79 Child-CS (1986-2004)
Parents' Employment Status		
Mom (Dad)-FT	A dummy variable that equals one if mother (father) (1) works at least 50 weeks, and (2) works at least 2000 hours in a given year, and zero otherwise.	NLSY79 (1986-2005)
Mom (Dad)-Work Hours	Mother's (father's) total working hours in a given year.	NLSY79 (1986-2005)
Mom (Dad)-Works Non-School Times	A dummy variable that equals one if mother (father) works during the child's activity time based on mother's (father's) reported job beginning time (before 7am or after 5pm), and zero otherwise.	NLSY79 (1986-2004)
Mom (Dad)-Work Hours Non-School Times	Mother's (father's) total working hours that are within the child's activity time.	NLSY79 (1986-2004)
Mom (Dad)-Work Hours During HW Times	Mother's (father's) total working hours that are within the child's typical homework time (6pm to 10pm).	NLSY79 (1986-2004)
Parents' Effective Monitoring		
Limit TV & Games	Child's rating of the statement "How often parents limit the amount of time watching TV/video games". The answer ranges from 0 (never) to 3 (often).	NLSY79 Child-SS (1996-2004)
TV Hours in Weekdays	Number of hours child watches TV on typical weekday. The answer ranges from 1 (almost none) to 6 (highly frequently).	NLSY79 Child-MS (1990-2004)
TV Hours on Weekends	Number of hours child watches TV on typical weekend day. The answer ranges from 1 (almost none) to 6 (highly frequently).	NLSY79 Child-MS (1990-2004)

Mom Knows	Mother's rating of the statement "How often mom knows who child is with when not home". The answer ranges from 1 (only rarely) to 4 (all the time).	NLSY79 Child-MS (1992-2004)
Tell Parents	Child's rating of the statement "How much child tells parents about where child is when not home". The answer ranges from 1 (not at all) to 3 (a lot).	NLSY79 Child-CSAS (1996-2004)
Parents' Involvement in Children's Education		
Discuss Class	Child's rating of the statement "How often discuss things studied in class". The answer ranges from 0 (never) to 3 (often).	NLSY79 Child-SS (1996-2004) & Age>=6
Discuss Grades	Child's rating of the statement "How often discuss grades or report card". The answer ranges from 0 (never) to 3 (often).	NLSY79 Child-SS (1996-2004) & Age>=6
Mom Lectures	Mother's rating of the statement "Mom would lecture child if (s)he got low grades", ranging from 1 (not at all likely) to 5 (very likely).	NLSY79 Child-MS (1988-2004)
Discuss Standardized Tests	Child's rating of the statement "How often discuss district/state/national exams/tests". The answer ranges from 0 (never) to 3 (often).	NLSY79 Child-SS (1996-2004) & Age>=6
Discuss Courses	Child's rating of the statement "How often discuss selecting courses or programs". The answer ranges from 0 (never) to 3 (often).	NLSY79 Child-SS (1996-2004) & Age>=10
Discuss College	Child's rating of the statement "How often discuss going to college". The answer ranges from 0 (never) to 3 (often).	NLSY79 Child-SS (1996-2004) & Age>=10
Parent-Teacher Conference	A dummy variable that equals one if mother attends parent-teacher conference, and zero otherwise.	NLSY79 Child-SS (1996-2004)
State-Level Controls		
Log (GSP per Capita)	Natural logarithm of state-level GSP per capita.	BEA
Log (Population)	Natural logarithm of state-level total population.	BEA
Partitioning Variables		
Individual-Level Partitioning Variable		
Income Group	We use family's total income at the entry year to divide the full sample into high- and low-income groups based on the state median family income.	NLSY79