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# Intergenerational Linkages in Household Credit

Andra C. Ghent  
University of Wisconsin,  
Madison  
[ghent@wisc.edu](mailto:ghent@wisc.edu)

Marianna Kudlyak  
Federal Reserve Bank of  
Richmond  
[Marianna.Kudlyak@rich.frb.org](mailto:Marianna.Kudlyak@rich.frb.org)

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We document economically important correlations between children's future credit outcomes and their parents' credit risk scores, default, and the extent of credit constraints – intergenerational linkages in household credit. Using observations on siblings, we find that the linkages are due to unobserved household heterogeneity rather than parental credit conditions directly affecting children's credit outcomes. In particular, in the sample of siblings, there is no correlation between parental and child credit attributes after controlling for household fixed effects. The linkages are stronger in cities with lower intergenerational income mobility, implying that common factors drive both. Finally, existing measures of state-level educational policy interventions appear to have limited effects on the strength of intergenerational linkages.

JEL: D14, E21, G10.

Keywords: Household Finance; Intergenerational Mobility; Credit Constraints; Income Inequality.

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## 1. Introduction

Existing evidence on economic mobility shows that there are persistent intergenerational linkages in income (e.g., Solon, 1992; Chadwick and Solon, 2002), wealth (Charles and Hurst, 2003), and consumption (Waldfkirch, Ng, and Cox, 2004).<sup>1</sup> Economists have theorized that credit markets are an important mechanism driving intergenerational income and consumption mobility (Grawe and Mulligan, 2002). However, intergenerational linkages in household credit markets have not yet been explored. Understanding the nature of such linkages and the factors that influence them can advance our understanding of intergenerational mobility.

We study intergenerational linkages in household credit using administrative data on individual credit records. First, we document economically important correlations between children's future credit outcomes and their parents' credit risk scores, default, and the extent of credit constraints – intergenerational linkages in household credit. Second, we study whether such linkages arise because parental credit conditions directly affect children's credit outcomes or whether the estimated correlations are due to other factors that differ across households - household heterogeneity. Using observations on siblings, we find that the linkages are due to unobserved household heterogeneity. In particular, in the sample of siblings, there is no correlation between parental and child credit attributes after controlling for household fixed effects. Third, we examine what local factors are correlated with the strength of the linkages. We find that intergenerational linkages in household credit are stronger in cities with lower intergenerational income mobility, implying that common factors drive both. However, the linkages are not stronger in cities with more unequal distributions of income. Finally, we study the effect of local educational policy interventions on the strength of the intergenerational linkages in credit using time-series and state-level variation in school requirements regarding economic education, financial literacy education, mathematics education, and school spending per pupil. We find that economic education weakens the intergenerational linkages while other local policy interventions (financial education requirements and the overall quality of schools) do not appear to have an effect.

We use data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax (CCP), 1999 - 2013. We focus on the following children's credit outcomes: default behavior,

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<sup>1</sup> See also reviews in Solon (1999) and Black and Devereux (2011) and the references therein.

homeownership and having a credit card, and the child's credit risk score as measured by Equifax Risk Score (hereafter, risk score). The data allow us to study child credit outcomes over two different horizons – between ages 19 and 24, and between ages 25 and 29. Regarding parental credit attributes, we focus on three main attributes measured at the time when the child is 19 years old and shares the household with parents – the incidence of serious default, the degree of credit constraints, and the Equifax Risk Score (hereafter, risk score).

The study consists of four parts. The first part documents the existence of intergenerational linkages in household credit. Children of parents with high credit scores, low levels of credit utilization, and no serious defaults are less likely to default, have higher credit scores, are more likely to become homeowners in their 20s, and are more likely to have credit cards. Controlling for the household's location (zip code) weakens the relationships only slightly, suggesting the linkages are not merely caused by access to local amenities such as schools or the affluence of the child's peers. Rather, there exists a correlation between parents and children's credit market outcomes in excess of the effect of neighborhood. Furthermore, the relationships persist into ages 25 to 29.

The magnitudes of the effects are economically large. For example, after controlling for zip code and cohort fixed effects, a one standard deviation increase in parental credit risk scores is associated with a 35 percent reduction in the child's likelihood of bankruptcy, a 49 percent decrease in the child's likelihood of other serious default, and a 6 percent increase in the child's credit score. It is also associated with a 12 percent increase in the likelihood of becoming a homeowner by age 25 and a 23 percent increase by age 29. Conversely, a one standard deviation increase in the extent to which parents are credit constrained is associated with an 8 percent reduction in the likelihood of a child becoming a homeowner by age 25 and a 14 percent reduction by age 29.

In the second part of the paper, we study what factors drive the intergenerational linkages in household credit. The linkages might arise because credit conditions experienced by the parent directly affect their children's outcomes. For example, more credit-constrained parents might have less resources available to directly or indirectly subsidize or invest in children. Alternatively, the estimated correlations may be due to time-invariant household-level heterogeneity, i.e., due to underlying factors that drive both the credit attributes of parents and

the future credit outcomes of children in the household. The identification of which of the two scenarios better describes the estimated intergenerational linkages requires observations on more than one child-parent pair from the same household and variation in the parents' credit characteristics within the same household. We obtain such observations by constructing a sample of siblings. In the sample of siblings, we reject the existence of linkages beyond household-level fixed effects. That is, the results indicate that the intergenerational linkages in household credit are not due to parental credit attributes causing children's future credit outcomes.

In the third part of the study, we use household location data to examine the effect of local area characteristics on the strength of intergenerational linkages in credit markets. Overall, we find that the linkages are stronger in cities with lower levels of income mobility indicating that some of the same factors that drive intergenerational linkages in household credit also drive income mobility. The linkages, however, are not consistently stronger in cities with more income inequality as measured by the Gini coefficient.

Finally, we turn to the question of what policies can affect the strength of the intergenerational linkages in household credit. The identification strategy exploits state-level differences over time in economic, financial, and quantitative literacy programs. We also examine whether the quality of public schooling affects the linkages as high-quality public schooling is often perceived as the main equalizer of opportunity for children. Among the four policy interventions, financial literacy, economic education, mathematics education, and school spending per pupil, higher economic education requirements is the only policy that weakens the intergenerational linkages in household credit.

In summary, we find economically important intergenerational linkages in household credit behavior. The data, however, do not support the conjecture that these linkages are causal. Instead, the linkages are due to household-level heterogeneity. More research is needed to understand the factors that cause some households to fare better in credit markets than others. In particular, there is a need for models that illustrate how household characteristics that persist across generations manifest themselves in credit market outcomes, such as default and home ownership.

## **1.1. Related Literature**

To our knowledge, ours is the first empirical study of intergenerational linkages in household credit. Our study builds on the extensive literature on intergenerational linkages in income (Solon, 1992; Chadwick and Solon, 2002; Lee and Solon, 2009; Corak, 2013; Chetty, Hendren, Kline, and Saez, 2014; and Chetty, Hendren, Kline, Saez, and Turner, 2014; Olivetti and Paserman, 2015; and Olivetti, Paserman, and Salisbury, 2015). In addition, Charles and Hurst (2003) use the Panel Survey of Income Dynamics (PSID) to document intergenerational linkages in wealth and find that more than a third of the relationship between parental and child wealth remains unexplained after controlling for income, propensity to own assets, education, gifts, and expected bequests. Moreover, Charles and Hurst (2003) report that, even after controlling for income, there are similarities in the types of assets that children and parents hold, a finding that they attribute to similarities in risk preferences. Waldkirch, Ng, and Cox (2004) use data from the PSID to report that there are similarities in familial consumption patterns even after controlling for parental income. Charles, Danziger, Li, and Schoeni (2014) similarly find that intergenerational linkages in consumption patterns persist after controlling for intergenerational linkages in income.

The findings in Charles and Hurst (2003) and Waldkirch, Ng, and Cox (2004) suggest that children may have similar preferences to their parents. Dohmen, Falk, Huffman, and Sunde (2012) and Zumbuehl, Dohmen, and Pfann (2013) use German survey data to test more directly for intergenerational linkages in preferences. They find that attitudes toward risk are linked across generations. Cesarini, Dawes, Johannesson, Lichtenstein, and Wallace (2009), Barnea, Cronqvist, and Siegel (2010), and Cesarini, Johannesson, Lichtenstein, Sandewall, and Wallace (2010) use data on twins to conclude that genetics constitute a substantial component of risk preferences. Kuhnen and Chiao (2009) and Zhong, Israel, Xue, Ebstein, and Chew (2009) link risk-taking behavior with particular genes. Such similarity in preferences will manifest itself in household fixed effects and suggests a reason why we observe intergenerational linkages in credit even if the relationships are not causal.

Parents may also transmit human capital to their children in excess of what may manifest itself in the labor market. In particular, parents may transmit financial literacy. Lusardi, Mitchell, and Curto (2010) use the National Longitudinal Survey of Youth (NLSY) to conclude that financial

literacy among youth is generally low. Moreover, Lusardi, Mitchell, and Curto (2010) report that youth financial literacy is strongly associated with family financial sophistication.

The remainder of the paper proceeds as follows. Section 2 describes the framework for measuring the intergenerational linkages in household credit and the data. Section 3 documents our benchmark measurement of linkages in household credit markets. Section 4 examines the mechanism behind the intergenerational linkages using a sample of siblings. Section 5 explores environmental factors that affect the strength of the intergenerational linkages. Section 6 studies the effect of educational policy interventions on the linkages. Finally, Section 7 concludes.

## **2. Framework for Measuring Intergenerational Linkages in Household Credit**

### **2.1. New York Federal Reserve Bank Consumer Credit Panel/Equifax Data**

The data are from the New York Federal Reserve Bank Consumer Credit Panel/Equifax (CCP). The CCP is an individual-level panel dataset that contains detailed records of individual debt and borrowing on a quarterly basis from the first quarter of 1999 to the most recent quarter. The CCP is a 5 percent random sample of all U.S. consumers with a credit record. These individuals constitute the primary sample. In addition, the CCP has information about individuals who reside at the same address as individuals in the primary sample. Using this information, we link individual records to a household and then use individuals' ages to identify children's and parents' records as described below.<sup>2</sup>

The advantage of the CCP relative to survey data (e.g., PSID, Health and Retirement Study, NLSY) is its sample size and accuracy. The data in the study cover the period from the first quarter of 1999 to the fourth quarter of 2013. The resulting dataset on children contains over 300,000 individual records that we follow for a full decade starting in 1999-2003 and even more individual records that we follow for five years.

### **2.2. Construction of Intergenerational Records**

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<sup>2</sup> Lee and van der Klaauw (2010) provides an excellent description of the CCP data and contains additional details on the CCP.

To link the data records of children and parents, we combine individual records that correspond to the same mailing address into household records. The earliest age of the individuals included in the CCP is generally 18. In the paper, we refer to the individuals for whom we have records at age 18 or 19 as children. An individual who resides in a household with a 19-year-old child and is 34 years or older is considered a parent (i.e., an adult in the household). The adult might not be a genetic parent of the child. However, the analysis in the paper is concerned with the transmission of credit market behavior within the household in which the child grows up rather than solely genetic transmission (for a similar focus, see, for example, Solon, 1992).<sup>3</sup> Having identified children and their parents from the household identifiers at the time when children are 18 or 19 years old, we follow the individual records over time even when children and their parents no longer reside in the same household. We present results from the sample of the individuals whom we identify as children at 19 years old.<sup>4</sup>

### **2.3. Measurement Framework for Intergenerational Linkages**

We define the intergenerational linkages in household credit as the linear relationship between an individual's (i.e., child's) credit outcomes and the individual's parents' credit characteristics at the time when the individual was 19 years old and lived in the same household with the parents

We focus on measuring the children's credit outcomes at two different time horizons: (1) a short-term horizon, which covers first five years after we identify an individual as a child in our sample, i.e., the period during which children are between 19 and 24 years old; and (2) a long-term horizon, which covers the second five years after we identify an individual as a child in our sample, i.e., the period during which children are between 25 and 29 years old. Since the data in the study covers the period from the first quarter of 1999 to the fourth quarter of 2013, we can identify five cohorts of children – cohorts who are 19 in 1999, 2000, 2001, 2002, and 2003 – whom we can follow for the full 10 years and thus construct both the short- and long-term horizon outcomes. We use data from the fourth quarter of each year.

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<sup>3</sup> To decrease the probability of capturing some nontraditional living arrangements (for example, military bases), we restrict our analysis to the individuals who at the age of 19 live in households with at most two adults. We also drop households with more than 10 members.

<sup>4</sup> In unreported analyses, instead of 19-year-olds, we use 18-year-olds (with parents being 33 or over). The results using 18-year-olds are very similar to those with 19-year-olds. The results from this sample are available from the authors upon request.

We focus on the following children’s credit outcomes: default patterns (delinquencies and serious default), credit risk score (Equifax Risk Score), homeownership status, and having a credit card. We define indicators of default, homeownership, or having a credit card using the information from the years between  $t_0$  and  $t_0 + 5$  for short horizon outcomes and from the years between  $t_0 + 6$  and  $t_0 + 10$  for long horizon outcomes. For the credit risk score, we consider the average risk score over the respective horizon as well as the end-of-horizon risk score.

We define parents’ credit attributes using information from the year when the child is 19 years old ( $t_0$ ). For parents, we create variables that summarize whether a parent has a default and its severity (e.g., bankruptcy, foreclosure, or delinquency), the extent to which the parent is credit-constrained, and the parents’ average credit score.

In the benchmark analysis, we estimate the following relationship

$$C_{iaT} = \alpha + \beta P_{iat_0} + \delta A_{iat_0} + D_{t_0} + D_a + D_{at_0} + \varepsilon_{iaT} \quad (1)$$

where  $C_{iaT}$  is the outcome of child  $i$  over horizon  $T$  ( $T$  is between  $t_0$  and  $t_0 + 5$  for the short horizon and between  $t_0 + 6$  and  $t_0 + 10$  for the long horizon),  $P_{iat_0}$  is the outcome of parents of child  $i$  in year  $t_0$ ,  $A_{iat_0}$  is the age of the parents of child  $i$  in year  $t_0$ ,  $D_{t_0}$  is the cohort effect of children who are 19 in year  $t_0$ ,  $D_a$  is the location-specific effect of location  $a$  where the child resides when she is 19, and  $D_{at_0}$  is the cohort- and location-specific effect. In the estimation below, we also allow the linear relationship described in (1) to differ by quartile of the distribution of the child’s outcome for continuous outcomes.

The child’s credit outcomes analyzed are indicators of bankruptcy, serious default, and delinquency in any of the years during the short- or long-term horizon, an indicator of homeownership, an indicator of having a credit card, and, finally, the average risk score over the horizon and the end-of-the-horizon risk score.<sup>5</sup> We use three alternative variables to summarize the parents’ credit attributes at the time their child is 19 years old. First, we consider a binary variable,  $P_{iat_0}^D$ , that takes value 1 if any parent has a serious default at  $t_0$ , where serious default is defined when a parent has a bankruptcy, a foreclosure, or a 90-day or greater delinquency. The

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<sup>5</sup> Appendix A contains a detailed description of the variables.

second measure,  $P_{iat_0}^C$ , is the credit balance as a percentage of credit limit available for use at time  $t_0$ . It captures the extent to which a parent may be able to borrow to improve their children's outcomes. Finally,  $P_{iat_0}^R$ , is the parents' risk score (the average of the scores if there are two parents).

## 2.4. Summary Statistics

Table 1 shows the summary statistics of the parental variables when the children are 19 years old. Panel A of Table 1 shows the summary statistics for the parents for the sample of 19-year-olds that we can follow until age 24. Panel B shows the statistics for the parents of the 19-year-olds that we can follow until age 29. If a child has two parents in the CCP, the summary statistics in Table 1 are calculated including both observations. In general, the samples in Panel A and B are very similar.

For comparison, the last column of Table 1 presents analogous statistics for adults 34 years or older who have at least one child 18 years or older in the 1998 through 2010 waves of the Survey of Consumer Finances (SCF). The parents in the CCP sample look broadly similar to those in the SCF. The CCP parents' homeownership rate is slightly lower than the homeownership rate in the SCF (55 percent vs. 65 percent), largely because we define homeownership as having a mortgage. In both samples, 8.0 percent of parents have experienced a bankruptcy in the last 10 years (the longest time a bankruptcy can be retained on a credit record). The average age of parents in the CCP is 48 while it is 45 in the SCF. The most substantial difference is that only 22 percent of parents in the CCP sample are single parents, while 30 percent of parents in the SCF are single parents.

Table 2 presents key statistics for the children in our sample at ages 24 and 29. Panel A presents these statistics for the sample of children that we follow to age 24, i.e., those children who turn 19 in 1999 through 2003. In this sample, 34 percent experience a serious default sometime between ages 19 and 24, 10 percent become homeowners by age 24 and 84 percent have a credit card at some point between ages 19 and 24.<sup>6</sup> The average Equifax Risk Score at age 24 is 636.

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<sup>6</sup> The rate of serious default in our sample is higher than the delinquency rate because we use only data from quarter four of the year. Serious default is akin to a stock variable while delinquency is a flow variable such that an individual could enter serious default in Q2 and remain there in Q4 without our ever

Panel B presents the same statistics for individuals who are 25 to 29 years old, that is, those individuals who turn 19 sometime between 1999 and 2003 and whom we can follow to age 29 – the long horizon sample.<sup>7</sup> The long horizon sample has fewer observations than the short horizon sample because fewer individuals can be followed for 10 years than can be followed for five years.<sup>8</sup>

### **3. Intergenerational Linkages in Household Credit**

This section documents key empirical facts about intergenerational linkages in household credit markets. We first measure the strength between parental and child credit outcomes controlling only for cohort effects without conditioning on geographic location. We then analyze how much of the linkage across generations is explained by the household’s geographic location at  $t_0$  versus differences in parental characteristics within the location and variation over time in the labor market opportunities available to individuals in different locations. Finally, to absorb differential changes in macroeconomic conditions over time, we estimate an equation with state-cohort fixed effects.

#### **3.1. Baseline Estimates of the Intergenerational Linkages**

Tables 3 through 5 show the relationship between children’s outcomes and parental credit attributes – parental default, extent of parents’ credit constraints, and parental credit score, respectively. For each child outcome, we estimate three different specifications. The first row for each outcome shows the coefficients from the specification with cohort effects. The second row shows the coefficients from the specification with cohort and zip code fixed effects. Finally, the

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having observed a delinquency. See Debbaut, Ghent, and Kudlyak (2015) for additional discussion of this feature of the CCP data.

<sup>7</sup> Unlike the rest of the variables, the following variables - an indicator of whether the child left the parents’ home, the age of such an event, the age when she got her first card, and the age at which the child bought her first home – are defined over the entire 10 years for the long horizon sample rather than through ages 25-29.

<sup>8</sup> Also, the long horizon sample is not strictly a subsample of the short horizon or vice versa. This is because, to be included in the short or long horizon sample, we require the individual to have a credit record at the end of the horizon (at 24 years old for the short horizon and at 29 years old for the long horizon) as well as at age 19. In the appendix Table A1 presents summary statistics for an alternative definition of the short horizon sample in which the short horizon sample is a subsample of the long horizon sample.

third row shows the coefficients from the specification with cohort, zip code, and state-cohort fixed effects. Depending on the child's outcome, including zip code fixed effects decreases the magnitude of the coefficients on parental variables by 10-30 percent. The results using cohort, zip code, and state-cohort fixed effects are virtually identical to those with only cohort and zip code fixed effects. All the results in the tables are based on specifications in which the standard errors are clustered by state. Finally, Table 6 aids in the interpretation of the effects by providing a summary of the magnitude of the estimated effect in response to a one standard deviation increase in  $P_{iat_0}^C$  and  $P_{iat_0}^R$  for each of the child outcome variables from the regressions with zip code fixed effects presented in Tables 3 through 5.

### **3.1.1. Children's Default and Bankruptcy**

As can be seen from Table 3 through 5, there exist strong intergenerational linkages between children's default or bankruptcy and the parental credit attributes. The linkages are found between parental credit attributes and children outcomes measured when children are 19-24 years old as well as between parental credit attributes and children outcomes measured at 25-29.

In particular, focusing on the results with zip code fixed effects, we observe that children of parents with stronger credit characteristics (i.e., not having a serious default, being less credit constrained, and having a higher credit score) are less likely to experience a bankruptcy or other serious default and less likely to be delinquent. For delinquency and other serious default, the magnitude of the effect is slightly larger in the 19- to 24-year-olds sample than for the 25- to 29-year-olds sample. For bankruptcy, the effect of parental credit is twice as large for 25- to 29-year-olds than for 19- to 24-year-olds in part because there are relatively few bankruptcies among those under the age of 25 (see Table 2).

The magnitudes of the intergenerational credit linkages are economically substantial. For example, children of parents with a serious default are 68 percent (1.3 percentage points) more likely to experience a bankruptcy by age 24 and 46 percent (2.4 percentage points) more likely to experience a bankruptcy between ages 25 and 29. A one standard deviation increase in  $P_{iat_0}^R$  is associated with a 24-35 percent decrease in the risk of bankruptcy, a 36-49 percent decrease in

the risk of other serious default, and a 23-36 percent decrease in the risk of delinquency for the child (see Table 6).

### 3.1.2. Children's Homeownership and Credit Cards

Children's participation in credit markets is also correlated with parental credit attributes. Children of parents with good credit characteristics are more likely to become homeowners or have a credit card early in life. In particular, a one standard deviation increase in  $P_{iat_0}^C$  is associated with an 8 percent decrease in the probability of the child becoming a homeowner by the age of 24 and a 14 percent decrease in the probability that the child becomes a homeowner by age 29. Similarly, a one standard deviation increase in  $P_{iat_0}^R$  is linked to a 12 percent increase in the probability that a child is a homeowner by age 24 and a 23 percent increase by age 29. In the regressions for homeownership presented in Tables 3 through 5, the coefficients on parental age are all negative and statistically significant indicating that children of older parents are less likely to become homeowners.

### 3.1.3. Children's Credit Risk Scores

Children of parents with a serious default have risk scores 51 points lower at age 24 and 46 points lower at age 29. A one standard deviation increase in the extent to which parents are credit constrained is associated with child risk scores 4 percent lower at age 24 and a 3 percent lower child risk score at age 29. Similarly, a one standard deviation increase in the parental risk score is associated with child risk scores that are 6 percent higher at age 24 and 5 percent higher at age 29.<sup>9</sup>

One concern with the documented linkages in household credit could mechanically arise due to children and parents sharing cosigned credit cards. We thus re-estimate the benchmark specification in equation (1) by adding an indicator if a child has a cosigned account in retail trade or credit card, and the interaction of this indicator with the parental credit variable. We find that the documented intergenerational linkages are very similar to the ones estimated in our

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<sup>9</sup> We also estimate the relationship between  $P_{iat_0}^C$  and children's risk scores as well as between  $P_{iat_0}^R$  and children's risk scores using quantile regression. The relationships are similar at the 25<sup>th</sup>, 50<sup>th</sup>, and 75<sup>th</sup> percentiles. These results are available from the authors upon request.

benchmark specification. Consequently, the benchmark results on the linkages are not driven by the joint parent-child accounts.<sup>10</sup>

#### **4. Household-Level Heterogeneity or Causal Effects of Parental Credit Conditions: Evidence from the Sample of Siblings**

The previous section documents correlations between an individual's credit market outcomes and the credit market attributes of the individual's parents at the time when the individual is 19 years old. For example, individuals whose parents are more credit-constrained are more likely to be in default and have lower risk scores in the future. There are two potential mechanisms that could generate such correlations. One possibility is that the credit conditions experienced by the parents directly affect their children's outcomes, i.e., the documented intergenerational linkages are causal. The other possibility is that the correlations are entirely due to time-invariant household-level heterogeneity, i.e., underlying factors that drive both the credit attributes of parents and the future credit outcomes of children in the household.

To better understand these alternatives, consider, for example, the case under which all individuals are homogeneous in terms of their preferences and endowments and are subject to similar shocks. Under this scenario, less credit-constrained parents have the means to invest more in their children's human capital or, more generally, are able to provide better insurance against shocks. As a result, children of less credit constrained parents are also less credit constrained, fare better when faced with negative shocks, and their measurable credit market outcomes are better – they have higher risk scores and lower default rates. Under such a scenario, the documented intergenerational linkages are caused by parental credit characteristics.

Alternatively, consider the scenario wherein there is no causal effect of parental credit on the children's credit market outcomes. Instead, households differ in their preferences and/or endowments such that measurable credit market characteristics – risk scores, default rates, delinquency rates, homeownership rates – differ systematically across households. That is, children of parents with high risk scores tend to also have higher risk score, children of less

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<sup>10</sup> These results are in Table A2-A4.

credit-constrained parents tend to be less-credit constrained, and children from households where parents default less tend to also default less. However, higher parent risk score does not contribute to higher children's risk score and parents being less credit-constrained does not directly cause less credit-constrained children. Instead, the linkage arises due to, for example, some common saving and consumption habits passed from generation to generation or some other common factor. Under such a scenario, the documented intergenerational linkages are a result of household-level heterogeneity rather than being caused by parental credit market behavior or opportunities.

The identification of which of the two scenarios better describes the estimated intergenerational linkages requires observations on more than one child-parent pair from the same household with some variability in the measured parents' credit characteristics in the pairs from the same household. We obtain such observations by constructing a sample of siblings. Using the sample of siblings, we estimate the following specification

$$C_{iaT} - \bar{C}_{iaT} = \alpha + \beta(P_{iat_0} - \bar{P}_{iaT}) + \delta(A_{iat_0} - \bar{A}_{iaT}) + D_{t_0} + D_a + D_{at_0} + \varepsilon_{iaT}, \quad (2)$$

where  $\bar{C}_{iaT}$  is the average outcome of all children in the household that child  $i$  is associated with at age 19, and  $\bar{P}_{iaT}$  is the average outcome of the parents at the time the children in the household are 19 years old. All other variable definitions are as described after equation (1).

The specification in equation (2) removes the household-level fixed effect. Thus, any correlation between the difference in child  $i$ 's outcome and the average outcome of all children in the household,  $(C_{iaT} - \bar{C}_{iaT})$ , and  $(P_{iat_0} - \bar{P}_{iaT})$  is the causal effect of the parental attribute on the child's outcome.

Table 7 contains the results from estimating the intergenerational linkages in the sample of siblings with controls for household-level fixed effects. To construct the household-level fixed effect, we estimate the specifications with continuous parental variables only – parental risk score and the extent of parental credit constraints. Column 1 shows the estimates of equation (1) for the sample of siblings. We confirm that the benchmark results on intergenerational linkages described in Section 3 are present in the sample of siblings. Column 2 shows the results from estimating equation (2). When we control for household-level heterogeneity, the estimated

coefficient on the parental credit attribute, either parental risk score or parental credit constraint, is close to zero and not statistically significant across all child credit outcomes that we consider.

Consequently, the estimates reject the existence of linkages beyond household-level fixed effects. That is, the results suggest that the documented intergenerational linkages in household credit cannot be attributed to a causal link between parental credit attributes and future children credit outcomes. The same conclusion holds in the regressions without controls for zip code fixed effects (these results available upon request).

## 5. Intergenerational Linkages in Household Credit and Local Characteristics

The results in Section 4 suggest that intergenerational linkages in household credit markets are due to household-level heterogeneity rather than being manifestations of causal effects of parental credit conditions on children’s future credit outcomes. In this section, we examine what observables can help explain some of the heterogeneity. The credit bureau data do not contain information on socio-demographic characteristics of households beyond individuals’ ages. We thus use the household’s location information at the time when the child is 19 years old to examine what local area characteristics are correlated with stronger intergenerational linkages.

### 5.1. Local Income Levels, Income Inequality, and Racial Composition

To estimate the role of the local area characteristics in the estimated intergenerational linkages, we estimate the following specification:

$$C_{iat} = \alpha + \beta P_{iat_0} + \gamma P_{iat_0} L_a + \delta A_{iat_0} + D_{t_0} + D_a + D_{at_0} + \varepsilon_{iat}, \quad (3)$$

where  $L_a$  is the characteristic of area  $a$  in year  $t_0$  and  $P_{iat_0} L_a$  is the interaction term between the area characteristic and the parental credit attribute.

Tables 8 and 9 contain estimates of the benchmark regressions with the local characteristic interacted with the extent of parental credit constraints and parental risk score, respectively. Following Chetty, Hendren, Kline, and Saez (2014), we consider the following area characteristics: household income per capita for working-age adults per capita in the county,

percent of middle class in the county (i.e., the fraction of parents in the county who have family incomes between the 25<sup>th</sup> and 75<sup>th</sup> percentiles of the national parent income distribution), county Gini coefficient, county-level income segregation, and the fraction of black residents in the county.<sup>11</sup>

For all local characteristics, we find that the coefficient on the parental credit attribute remains economically and statistically significant. In addition, the coefficients on the interaction terms between local characteristics and parental credit attributes are statistically significant. In particular, the coefficient on the interaction between local area income level and parental credit attribute indicates that intergenerational linkages vary with local income. In locations with higher income levels, we find stronger intergenerational linkages for children’s delinquency and risk score but weaker intergenerational linkages for homeownership and the presence of a credit card.

Intergenerational credit linkages are generally weaker in cities with higher inequality as measured by the Gini coefficient. They are also often weaker in cities with high income segregation. The coefficient on the interaction on the percent of middle class is often statistically insignificant but sometimes also indicates that the linkages are stronger in cities with a larger middle class, consistent with our results for the Gini coefficient. Overall, the linkages are not much stronger in cities in which a higher share of the population is black. The only case in which the interaction term between the percent of the population that is black and the parental credit attribute is consistently statistically significant is with parent risk score in the regression for child delinquency.

## 5.2. Intergenerational Linkages in Household Credit and Income Mobility

Finally, we examine the extent to which intergenerational linkages in household credit are driven by factors that are also associated with intergenerational income mobility. We use the MSA-level estimates of intergenerational income mobility from Chetty, Hendren, Kline, and Saez (2014), which are based on data from IRS tax records. We estimate the following specification

$$C_{iat} = \alpha + \beta P_{iat_0} + \gamma P_{iat_0} M_a + D_{t_0} + D_a + \varepsilon_{iat}, \quad (4)$$

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<sup>11</sup> See Chetty, Hendren, Kline, and Saez (2014) for the calculation of county income segregation indicators.

where  $M_a$  is the income mobility measure in area  $a$  and  $P_{iat_0} M_a$  is the interaction between the mobility measure and the parental attribute variable.

We estimate equation (4) for 381 MSAs and use the two measures of mobility provided by Chetty, Hendren, Kline, and Saez (2014). The first, relative mobility, is the difference in outcomes for children with the wealthiest parents from those for children with the poorest parents. A higher number indicates a greater correlation between parent and child outcomes and may thus perhaps be thought of as a measure of immobility. The second measure, absolute mobility, is the predicted rank for a child born to parents at the 25<sup>th</sup> percentile and indicates a measure of upward mobility. The results of the estimation are contained in Tables 8 and 9 with the extent of parental credit constraints and parental risk score, respectively.

We find that intergenerational linkages in household credit are stronger in cities with lower intergenerational income mobility. While our analysis does not speak to the direction of the causality between intergenerational linkages in credit and income, the results suggest that common factors drive both. This conclusion is consistent with our finding in Section 4 that household-level heterogeneity drives the intergenerational linkages in household credit.

## **6. Intergenerational Linkages in Household Credit and Educational Policies**

In this section, we examine whether local policy on financial education or, more generally, better school quality affect the strength of the intergenerational linkages.

### **6.1. Financial Literacy, Economic Education, and Math Education**

To estimate the effect of educational policies on the strength of the intergenerational linkages in household credit, we augment equation (1) with interactions between parents' credit characteristics and state-level policy variables regarding the financial education. Financial education may be associated with lower intergenerational linkages in household credit by reducing the influence of underlying household heterogeneity on financial decision-making.

The schooling curriculum regarding financial literacy, economic education or mathematical education varies by state and by year. We use the state-year classification for these three

components from Brown, Grigsby, van der Klaauw, Wen, and Zafar (2014).<sup>12</sup> For each state, Brown, Grigsby, van der Klaauw, Wen, and Zafar identify years in which each state changed requirements for each of the three components. Consequently, the educational policy varies across locations (states) as well as across time (for those states that experienced the policy change during the sample period). We estimate the following specification with different measures of local educational policy

$$C_{iat} = \alpha + \beta P_{iat_0} + \chi E_{at_0} + \gamma P_{iat_0} E_{at_0} + D_{t_0} + D_a + \varepsilon_{iat}, \quad (5)$$

where, for economic and financial literacy,  $E_{at_0}$  is a dummy variable for whether a financial literacy or economic education mandate was enacted or strengthened before the individual turned 18; for math,  $E_{at_0}$  takes values of 0,1, or 2 for no reform, one reform, or two reforms.

Tables 10 and 11 contain the results of estimating educational policy equation (5) with two alternative parental credit attributes - the extent of parental credit constraints and parental risk score, respectively, separately for each educational policy.

If economic education improves decision-making in credit markets, the expected effect of the (level of) economic education on child's bankruptcy, delinquency, and serious default, *ceteris paribus*, is negative, while the expected effect on child's homeownership, having a credit card, or on the child's risk score is positive. In addition, economic education might weaken intergenerational linkages in household credit by mitigating the influence of household endowments. That is, under the null hypothesis, the sign on the interaction term between the economic education measure and the parental credit attribute is opposite to the sign of the coefficient on the parental credit attribute variable.

As can be seen from Tables 10 and 11, the estimated coefficient on the economic education measure is small in magnitude and often not statistically significant for all children credit outcomes except for the end-period children risk score, in which the coefficient is statistically significant and has an expected positive sign. However, since we cannot include state-year fixed effects in a regression that also includes a state-specific and time-varying measure of economic education in levels and cohort fixed effects, the coefficient on the economic education measure

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<sup>12</sup> See Table 1 in Brown, Grigsby, van der Klaauw, Wen, and Zafar (2014).

might capture state effects other than educational policy. We thus focus on the interaction between the educational policy variables and parental credit attributes.

In the regressions with child bankruptcy, delinquency, serious default, homeownership, or risk score, the interaction term has the sign opposite to the sign on the parental credit attribute variable. Consequently, the results suggest that a higher level of economic education is associated with weaker intergenerational linkages in household credit. The interaction term is close to zero and not statistically significant only in the regressions on the child having a credit card. Importantly, the inclusion of the interaction term of the economic education measure and a parental credit attribute in equation (1) leaves the coefficient on the parental credit attribute almost unchanged.

We next proceed to analyzing the effect of financial literacy. We estimate equation (5) using the financial literacy measure from Brown et al. (2014). As can be seen from Tables 10 and 11, the estimated coefficient on the financial literacy measure is small in magnitude and often not statistically significant. As can be seen from Tables 10 and 11, the inclusion of the interaction terms between financial literacy and parental credit attributes in equation (1) leaves the coefficient on the parental credit attribute almost unchanged and the interaction term itself is rarely statistically significant. Consequently, it appears that the changes in the state-specific measures of financial literacy requirements do not affect intergenerational linkages in household credit.

Similarly, we find no statistically significant effect of existing measures of mathematical reform on intergenerational linkages in household credit.<sup>13</sup>

## 6.2 School Quality

Finally, we examine the effects of school quality on intergenerational linkages in credit. We use local tax rates as a proxy for the quality of inputs into public schooling. Because local taxes

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<sup>13</sup> We also re-estimate educational policy equation (5) using alternative measures of financial and economic education across states. In particular, we use the state graduation requirement variables developed by Urban and Schmeiser (2015). However, the same conclusions carry through. These results are contained in Table A5 (for the extent of parents' being credit constrained) and Table A6 (for the parents' risk score).

primarily fund public schools in the United States, areas with higher local taxes are likely to spend more on schooling. In particular, we estimate

$$C_{iat} = \alpha + \beta P_{iat_0} + \gamma P_{iat_0} S_a + D_{i_0} + D_a + \varepsilon_{iat}, \quad (6)$$

where  $S_a$  is the average total spending per pupil on K-12 education in student  $i$ 's state of residence. The data on state-level spending per pupil is available from the U.S. Census Bureau tables "Public Elementary-Secondary Education Finance Data" for 2001-2012. We use the earliest year available, 2001-2002. As in estimating equations (3) and (4), the first order effect of  $S_a$  is subsumed in the zip code fixed effects.

The results of the estimation are contained in Tables 10 and 11. In general, higher levels of school spending are associated with weaker transmission of parental credit characteristics on homeownership and participation in credit card markets. However, the effect of parental credit characteristics on delinquency and risk scores is actually *stronger* in states with higher spending per pupil. As such, high-quality schooling does not seem to level the playing field.

## 7. Conclusions

We document the existence and quantify the extent of intergenerational linkages in household credit. By studying a sample of siblings, we further show that these intergenerational linkages are the result of household heterogeneity rather than parental credit market conditions directly affecting the credit outcomes of children. Furthermore, we use state variation in educational policies and find that educational policy has a limited influence on the strength of the linkages.

The results are encouraging as they indicate that credit market frictions for parents are not so severe that transitory shocks affect their children's future credit market outcomes. Our results also suggest that any disadvantages children face from family endowments that manifest themselves in adverse credit market outcomes might be hard to overcome with policy. Our results also suggest that financial and economic literacy policies are improving credit market outcomes through some channel other than mitigation of the influence of family endowments.

More empirical and theoretical research on the household heterogeneity that drives both parents' and children's outcomes in credit markets is needed to better understand what causes default, homeownership, and credit market participation across generations.

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## Appendix A. Variables Definitions

The child credit outcomes that we study are

1. An indicator for having a credit card that is a dummy variable that takes a value of 1 if the child has a credit card between age 19 and 24 for the short horizon sample and between age 25 and 29 for the long horizon sample.
2. The age at which the child first has a credit card.
3. A dummy variable that takes value 1 if the child has a mortgage between age 19 and 24 for the short horizon sample and between 19 and 29 for the long horizon sample.
4. The age at which the child first has a mortgage.
5. A dummy variable that takes value 1 if the child has a bankruptcy flag on his or her credit record between age 19 and 24 for the short horizon sample and between age 25 and 29 for the long horizon sample.
6. A dummy variable that takes value 1 if the child has a foreclosure on his or her credit record between age 19 and 24 for the short horizon sample and between age 25 and 29 for the long horizon sample.
7. A dummy variable that takes value 1 if the child has an account 90DPD or greater default (excluding bankruptcy and foreclosure) on his or her credit record between age 19 and 24 for the short horizon sample and between age 25 and 29 for the long horizon sample.
8. A dummy variable that takes value 1 if the child has an account 30DPD or 60DPD on his or her credit record between age 19 and 24 for the short horizon sample and between age 25 and 29 for the long horizon sample.
9. The average Equifax Risk Score for the child between age 19 and 24 for the short horizon sample and between age 25 and 29 for the long horizon sample.
10. The child's Equifax Risk Score at the age 24 for the short horizon sample and at the age 29 for the long horizon sample.
11. An indicator if individual moves to address different from the parental residence between age 19 and 24 for the short horizon sample and between age 19 and 29 for the long horizon sample.
12. Age (by end of year) at which the child first moves away from the parental residence.

The parental attributes that we study are

1. An indicator for parents' homeownership that takes value 1 if a parent has a mortgage and 0 otherwise, measured when the child is 19 years old.
2. An indicator for parents' bankruptcy that takes value 1 if a parent has any account in bankruptcy and 0 otherwise, measured when the child is 19 years old.
3. An indicator for parents' foreclosure that takes value 1 if a parent has a foreclosure and 0 otherwise, measured when the child is 19 years old.

4. An indicator for parents' serious default that takes value 1 if a parent has any account 90DPD or greater default (excluding bankruptcy and foreclosure) and 0 otherwise, measured when the child is 19 years old.
5. An indicator for parents' delinquency that takes value 1 if a parent has any account 30DPD or 60DPD and 0 otherwise, measured when the child is 19 years old.
6. A degree of parents being credit constrained is the ratio of credit balance to card limit, measured when the child is 19 years old. It is the maximum credit balance as a percentage of the combined credit limit available for use at time  $t_0$  of the two parents if there are two.
7. Parents' credit Equifax Risk Score, measured when the child is 19 years old and the average if there are two parents in the household.
8. Parents' age when the child is 19 years old, measured as the average age if there are two parents in the household.

Table 1: Parent Summary Statistics

	Mean	Std. Dev.	Min	25th %	Median	75th %	Max	Obs.	Mean (SCF)
1	2	3	4	5	6	7	8	9	10
<i>Panel A: Parents of 19 year olds that can be followed to age 24</i>									
Parent Homeowner	0.56	0.50	0	0	1	1	1	862,835	0.64
Parent Bankrupt	0.08	0.27	0	0	0	0	1	862,835	0.08
Parent Serious Default	0.18	0.38	0	0	0	0	1	862,835	
Parent Delinquency	0.08	0.26	0	0	0	0	1	862,835	
Parent Credit Constrained	0.33	0.32	0	0.04	0.20	0.58	1	693,210	
Parent Equifax Risk Score	686.2	104.2	293	617	712	772	842	831,885	
Parent Age	48.4	8.6	34	43	47	52	102	862,835	45.2
Parent Single	0.20	0.40	0	0	0	0	1	862,835	0.30
Total Number in Household	2.8	0.4	2	3	3	3	5	862,835	3.0
<i>Panel B: Parents of 19 year olds that can be followed to age 29</i>									
Parent Homeowner	0.55	0.50	0	0	1	1	1	682,324	0.64
Parent Bankrupt	0.08	0.27	0	0	0	0	1	682,324	0.08
Parent Serious Default	0.18	0.39	0	0	0	0	1	682,324	
Parent Delinquency	0.08	0.27	0	0	0	0	1	682,324	
Parent Credit Constrained	0.33	0.32	0	0.04	0.20	0.58	1	547,274	
Parent Equifax Risk Score	685.1	104.1	293	616	710	771	842	657,547	
Parent Age	48.4	8.7	34	43	47	52	102	682,324	45.2
Parent Single	0.22	0.41	0	0	0	0	1	682,324	0.30
Total Number in Household	2.8	0.4	2	3	3	3	5	682,324	3.0

Notes: 1) Authors' calculations using the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset and the Survey of Consumer Finance (SCF). 2) The table contains statistics of parents of 19 year-olds at time t0 (1999, 2000, 2001, 2002, 2003). If an individual has two parents, an observation for each parent is included. 3) Mean (SCF) is the average for adults aged 34+ with one child aged 18+. 4) Mean (SCF) for Total Number in Household is the number of individuals in the household aged 18+.

Table 2: Child Summary Statistics

	Mean	Std. Dev.	Min	25th %	Median	75th %	Max	Obs.
1	2	3	4	5	6	7	8	9
<i>Panel A: Between t0 and t0+5 (Ages 19-24)</i>								
Child Household Formation	0.50	0.50	0	0	0	1	1	523,980
Child Household Formation First Age	21.6	1.5	20	20	21	23	24	259,782
Child Has Credit Card	0.84	0.37	0	1	1	1	1	523,980
Child Has Credit Card First Age	19.8	1.6	15	19	19	20	24	440,434
Child Homeowner	0.10	0.30	0	0	0	0	1	523,980
Child Homeowner First Age	22.5	1.6	15	22	23	24	24	54,123
Child Bankrupt	0.019	0.136	0	0	0	0	1	523,980
Child Foreclosure	0.077	0.266	0	0	0	0	1	523,980
Child Other Serious Default	0.34	0.47	0	0	0	1	1	500,654
Child Delinquency	0.25	0.43	0	0	0	0	1	500,654
Child Equifax Risk Score Average	632.1	78.0	312	567	647.7	697.3	829	511,811
Child Equifax Risk Score End	635.7	98.5	288	563	648	721	834	504,677
Child Credit Constrained	0.627	0.341	0	0.325	0.731	0.944	1	444,942
<i>Panel B: Between t0+6 and t0+10 (Ages 25-29)</i>								
Child Household Formation	0.74	0.44	0	0	1	1	1	417,705
Child Household Formation First Age	22.86	2.72	20	20	22	25	29	309,428
Child Has Credit Card	0.80	0.40	0	1	1	1	1	417,705
Child Has Credit Card First Age	20.18	2.36	15	19	19	21	29	377,368
Child Homeowner	0.28	0.45	0	0	0	1	1	417,705
Child Homeowner First Age	25.24	2.61	15	23	25	27	29	123,488
Child Bankrupt	0.052	0.222	0	0	0	0	1	417,705
Child Foreclosure	0.03	0.17	0	0	0	0	1	417,705
Child Other Serious Default	0.38	0.49	0	0	0	1	1	392,930
Child Delinquency	0.21	0.41	0	0	0	0	1	392,930
Child Equifax Risk Score Average	644.10	94.65	312	565	645	732.4	833	411,339
Child Equifax Risk Score End	654.20	102.90	310	578	661	746	838	399,483
Child Credit Constrained	0.591	0.345	0	0.263	0.669	0.925	1	332,024

Notes: 1) Authors' calculations using the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset. 2) The individuals in Panel A are subsample of the individuals for whom we have an observation at 19 and at 24 years of age. 3) The individuals in Panel B are subsample of the individuals for whom we have an observation at 19 and at 29 years of age. 4) The sample in Panel B is not necessarily a subsample of the sample in Panel A or vice versa. 5) See Table A1 for the summary statistics for individuals at 24 years old who are the subsample of the sample in Panel B.

Table 3: Child Credit Outcomes and Parental Default

Child Outcome	Coef. On Parent Serious Default		Coef. On Parent Age		Fixed effects controls			R <sup>2</sup>	
	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	State-Cohort	5-Year	10-Year
1	2	3	4	5	6	7	8	9	10
Bankruptcy	0.014***	0.028***	-0.000022	-0.00021***	Yes	No	No	0.5%	0.6%
	0.013***	0.024***	0.000050	-0.0000088	Yes	Yes	No	6.8%	8.8%
	0.013***	0.024***	0.000050	-0.0000066	Yes	Yes	Yes	6.9%	8.9%
Delinquency	0.14***	0.079***	-0.00098***	-0.00071***	Yes	No	No	2.1%	1.1%
	0.11***	0.057***	-0.00072***	-0.00049***	Yes	Yes	No	9.2%	9.0%
	0.11***	0.057***	-0.00072***	-0.00049***	Yes	Yes	Yes	9.3%	9.1%
Homeowner	-0.022***	-0.11***	-0.00082***	-0.0017***	Yes	No	No	0.2%	1.4%
	-0.017***	-0.085***	-0.00035***	-0.00097***	Yes	Yes	No	8.1%	11.0%
	-0.017***	-0.085***	-0.00035***	-0.00097***	Yes	Yes	Yes	8.1%	11.0%
Other Serious Default (Ex. Foreclos. and Bankruptcy)	0.30***	0.24***	-0.0011***	-0.0013***	Yes	No	No	7.3%	4.9%
	0.23***	0.18***	-0.00087***	-0.00098***	Yes	Yes	No	18.0%	16.0%
	0.23***	0.18***	-0.00087***	-0.00098***	Yes	Yes	Yes	18.0%	17.0%
Average Equifax Risk Score	-64.5***	-62.7***	0.31***	0.34***	Yes	No	No	13.0%	8.4%
	-50.2***	-46.9***	0.23***	0.25***	Yes	Yes	No	27.0%	23.0%
	-50.2***	-46.9***	0.23***	0.25***	Yes	Yes	Yes	27.0%	23.0%
Date T Equifax Risk Score	-67.3***	-62.3***	0.42***	0.33***	Yes	No	No	8.7%	6.9%
	-51.4***	-46.2***	0.31***	0.24***	Yes	Yes	No	21.0%	21.0%
	-51.4***	-46.2***	0.31***	0.24***	Yes	Yes	Yes	21.0%	21.0%
Has Credit Card	-0.094***	-0.14***	0.00039***	0.00042**	Yes	No	No	1.2%	2.3%
	-0.065***	-0.099***	0.00014**	0.00014	Yes	Yes	No	11.0%	13.0%
	-0.065***	-0.099***	0.00014**	0.00014	Yes	Yes	Yes	11.0%	13.0%

Note: 1) Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset. 2) Each row of table presents results from two regressions of child outcome variable on parental variables indicated and fixed effects.

Table 4: Child Credit Outcomes and Parental Credit Constraints

Child Outcome	Coef. On Parent Credit Constrained		Coef. On Parent Age		Fixed effects controls			R <sup>2</sup>	
	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	State-Cohort	5-Year	10-Year
1	2	3	4	5	6	7	8	9	10
Bankruptcy	0.016***	0.034***	-0.0000027	-0.00022**	Yes	No	No	0%	1%
	0.014***	0.028***	0.000063*	-0.000017	Yes	Yes	No	8%	10%
	0.014***	0.028***	0.000062*	-0.000014	Yes	Yes	Yes	8%	10%
Delinquency	0.20***	0.13***	-0.00056***	-0.00042**	Yes	No	No	3%	2%
	0.17***	0.11***	-0.00038**	-0.00024*	Yes	Yes	No	10%	10%
	0.17***	0.11***	-0.00038**	-0.00024*	Yes	Yes	Yes	11%	10%
Homeowner	-0.025***	-0.14***	-0.0014***	-0.0030***	Yes	No	No	0%	2%
	-0.025***	-0.12***	-0.00076***	-0.0020***	Yes	Yes	No	9%	11%
	-0.025***	-0.12***	-0.00076***	-0.0020***	Yes	Yes	Yes	9%	12%
Other Serious Default (Ex. Foreclos. and Bankruptcy)	0.33***	0.30***	-0.0000027	-0.00033	Yes	No	No	6%	5%
	0.26***	0.24***	0.000015	-0.00020	Yes	Yes	No	17%	17%
	0.26***	0.24***	0.000015	-0.00019	Yes	Yes	Yes	17%	17%
Average Equifax Risk Score	-79.6***	-85.2***	0.055	0.052	Yes	No	No	13%	10%
	-65.2***	-69.0***	0.011	0.0085	Yes	Yes	No	27%	23%
	-65.2***	-69.0***	0.012	0.0075	Yes	Yes	Yes	27%	23%
Date T Equifax Risk Score	-87.7****	-83.8****	0.14**	0.036	Yes	No	No	10%	8%
	-71.4***	-67.4***	0.079**	-0.0092	Yes	Yes	No	21%	21%
	-71.4***	-67.4***	0.078**	-0.0094	Yes	Yes	Yes	21%	21%
Has Credit Card	-0.095***	-0.14***	-0.00039**	-0.00040*	Yes	No	No	1%	2%
	-0.070***	-0.11***	-0.00054***	-0.00054***	Yes	Yes	No	10%	12%
	-0.069***	-0.11***	-0.00053***	-0.00054***	Yes	Yes	Yes	11%	13%

Notes: 1) Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset. 2) Each row in the table presents results from two regressions for child outcome variable on parental variables indicated and fixed effects.

Table 5: Child Credit Outcomes and Parental Credit Risk Score

Child Outcome	Coef. On Parent Equifax Risk Score		Coef. On Parent Age		Fixed effects controls			R <sup>2</sup>	
	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	State-Cohort	5-Year	10-Year
1	2	3	4	5	6	7	8	9	10
Bankruptcy	-0.000071***	-0.00014***	0.000052	-0.000085	Yes	No	No	1%	1%
	-0.000064***	-0.00012***	0.00012***	0.000092	Yes	Yes	No	7%	9%
	-0.000064***	-0.00012***	0.00012***	0.000095	Yes	Yes	Yes	7%	9%
Delinquency	-0.00097***	-0.00057***	0.00047***	0.00015	Yes	No	No	5%	2%
	-0.00086***	-0.00046***	0.00052***	0.00018	Yes	Yes	No	12%	10%
	-0.00086***	-0.00046***	0.00052***	0.00018	Yes	Yes	Yes	12%	10%
Homeowner	0.00012***	0.00069***	-0.0011***	-0.0030***	Yes	No	No	0%	3%
	0.00012***	0.00062***	-0.00063***	-0.0021***	Yes	Yes	No	8%	12%
	0.00012***	0.00062***	-0.00063***	-0.0021***	Yes	Yes	Yes	8%	12%
Other Serious Default (Ex. Foreclos. and Bankruptcy)	-0.0019***	-0.0016***	0.0017***	0.0011***	Yes	No	No	16%	11%
	-0.0016***	-0.0013***	0.0014***	0.00088***	Yes	Yes	No	23%	20%
	-0.0016***	-0.0013***	0.0014***	0.00088***	Yes	Yes	Yes	23%	20%
Average Equifax Risk Score	0.42***	0.42***	-0.32***	-0.31***	Yes	No	No	30%	21%
	0.36***	0.35***	-0.29***	-0.27***	Yes	Yes	No	38%	30%
	0.36***	0.35***	-0.29***	-0.27***	Yes	Yes	Yes	38%	30%
Date T Equifax Risk Score	0.45***	0.42***	-0.26***	-0.32***	Yes	No	No	21%	17%
	0.38***	0.34***	-0.24***	-0.27***	Yes	Yes	No	29%	26%
	0.38***	0.34***	-0.24***	-0.27***	Yes	Yes	Yes	29%	26%
Has Credit Card	0.00066***	0.00093***	-0.00072***	-0.0011***	Yes	No	No	3%	6%
	0.00050***	0.00073***	-0.00070***	-0.00099***	Yes	Yes	No	12%	15%
	0.00050***	0.00073***	-0.00069***	-0.00099***	Yes	Yes	Yes	12%	15%

Notes: 1) Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset. 2) Each row of table presents results from two regressions for the indicated child outcome variable on parental variables indicated and fixed effects.

Table 6: Economic Effect of One Standard Deviation Increase in Parental Credit Attributes on Child Credit Outcomes

Child Outcome	Parent Credit Constrained				Parent Equifax Risk Score			
	5-Year Horizon		10-Year Horizon		5-Year Horizon		10-Year Horizon	
	Level	Percent of mean	Level	Percent of mean	Level	Percent of mean	Level	Percent of mean
1	2	3	4	5	6	7	8	9
Bankruptcy	0.004	24%	0.009	17%	-0.007	-35%	-0.012	-24%
Delinquency	0.055	22%	0.035	17%	-0.090	-36%	-0.048	-23%
Homeowner	-0.008	-8%	-0.039	-14%	0.013	12%	0.065	23%
Other Serious Default (Ex. Foreclosure and Bankruptcy)	0.083	25%	0.077	20%	-0.167	-49%	-0.135	-36%
Average Equifax Risk Score	-20.9	-3%	-22.2	-3%	37.5	6%	36.4	6%
End-of-period Equifax Risk Score	-22.9	-4%	-21.7	-3%	39.6	6%	35.4	6%
Has Credit Card	-0.022	-3%	-0.035	-4%	0.052	6%	0.076	9%

Notes: 1) Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset. 2) The table presents results from OLS estimation with zip code fixed effects from Tables 3-5.

Table 7: Intergenerational Linkages in Household Credit with and without Controls for Household Heterogeneity

Child Outcome	Parental Equifax Risk Score				
	No controls for household heterogeneity	With controls for household heterogeneity	Cohort Fixed Effects	Zip Code Fixed Effects	N
1	2	3	4	5	6
Credit Constrained	-0.0012***	-0.0000021	Yes	Yes	31,510
Average Equifax Risk Score	0.35***	0.022*	Yes	Yes	35,438
Date T Equifax Risk Score	0.37***	-0.010	Yes	Yes	35,011
	Parental Credit Constraints				
	No controls for household heterogeneity	With controls for household heterogeneity	Cohort Fixed Effects	Zip Code Fixed Effects	N
Credit Constrained	0.27***	-0.005	Yes	Yes	28,220
Average Equifax Risk Score	-59.9***	-2.450	Yes	Yes	31,760
Date T Equifax Risk Score	-67.5***	0.470	Yes	Yes	31,453

Notes: 1) Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset. 2) Regressions in this table are run on the sibling sample, i.e., the subsample of children who have at least one sibling in our data. 3) Column (2) shows the coefficient estimates from the regression of the child outcome on the parental credit attribute as described in eq. (1). Each regression in column (2) also controls for parental age in levels. 4) Column (3) shows the coefficient estimates from the regression of the demeaned child outcome on the demeaned parental credit attribute as described in eq. (2). Each regression in column (3) also controls for demeaned parental age. Demeaned variables subtract off within-family mean for that variable. 5) Table presents results for the 5-year horizon; results for the 10-year horizon are similar and available upon request.

Table 8: Geographic Variables and Strength of Intergenerational Linkages between Child Credit Outcomes and Parental Credit Constraints

Child Outcome	Covariate Specification	Coef. On Parent Constrained		Coef. On (Parent Constrained) * Geographical Variable		Other Controls		
		5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	Parent Age
1	2	3	4	5	6	7	8	9
Delinquency	None (Benchmk)	0.20***	0.13***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	0.15***	0.066***	0.00000048	0.0000010***	Yes	Yes	Yes
	% Middle Class	0.16***	0.100***	0.011	0.012	Yes	Yes	Yes
	Gini	0.20***	0.13***	-0.073***	-0.064***	Yes	Yes	Yes
	Inc. Segregation	0.18***	0.11***	-0.15*	-0.088	Yes	Yes	Yes
	% Black	0.17***	0.11***	-0.00099	-0.031	Yes	Yes	Yes
	Rel. Immobility	0.11***	0.071***	0.17***	0.10**	Yes	Yes	Yes
	Abs. Mobility	0.19***	0.095**	-0.00044	0.00026	Yes	Yes	Yes
Homeowner	None (Benchmk)	-0.025***	-0.14***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	-0.066***	-0.18***	0.0000010***	0.0000013***	Yes	Yes	Yes
	% Middle Class	0.028*	-0.03	-0.11***	-0.19***	Yes	Yes	Yes
	Gini	-0.041***	-0.17***	0.037	0.11***	Yes	Yes	Yes
	Inc. Segregation	-0.042***	-0.15***	0.23***	0.43***	Yes	Yes	Yes
	% Black	-0.021***	-0.12***	-0.034*	-0.016	Yes	Yes	Yes
	Rel. Immobility	0.016	-0.029	-0.12**	-0.26***	Yes	Yes	Yes
	Abs. Mobility	-0.14***	-0.30***	0.0028***	0.0045***	Yes	Yes	Yes
Date T Riskscore	None (Benchmk)	-87.7****	-83.8***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	-65.3***	-60.2***	-0.00015***	-0.00018*	Yes	Yes	Yes
	% Middle Class	-75.9***	-69.4***	9.17	4.04	Yes	Yes	Yes
	Gini	-75.1***	-72.0***	8.37	10.3	Yes	Yes	Yes
	Inc. Segregation	-73.0***	-69.4***	20.3	26.2	Yes	Yes	Yes
	% Black	-69.9***	-65.8***	-13.0**	-13.9*	Yes	Yes	Yes
	Rel. Immobility	-44.9***	-38.3***	-78.0***	-85.5***	Yes	Yes	Yes
	Abs. Mobility	-85.3***	-87.8***	0.34	0.51	Yes	Yes	Yes
Has Credit Card	None (Benchmk)	-0.095***	-0.14***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	-0.11***	-0.18***	0.0000011***	0.0000018***	Yes	Yes	Yes
	% Middle Class	-0.040*	-0.062***	-0.06	-0.092**	Yes	Yes	Yes
	Gini	-0.076***	-0.091***	0.013	-0.039	Yes	Yes	Yes
	Inc. Segregation	-0.084***	-0.12***	0.18***	0.17***	Yes	Yes	Yes
	% Black	-0.071***	-0.10***	0.012	-0.055**	Yes	Yes	Yes
	Rel. Immobility	-0.041**	-0.065***	-0.080*	-0.12***	Yes	Yes	Yes
	Abs. Mobility	-0.18***	-0.23***	0.0026***	0.0030***	Yes	Yes	Yes

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset and other data sources as described in the text.

Table 9: Geographic Variables and Strength of Intergenerational Linkages between Child Credit Outcomes and Parental Credit Risk Score

Child Outcome	Covariate Specification	Coef. On Parent Equifax Risk Score		Coef. On (Parent Equifax Risk Score) * Geographical Variable		Other Controls		
		5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	Parent Age
1	2	3	4	5	6	7	8	9
Delinquency	None (Benchmk)	-0.00086***	-0.00046***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	-0.00062***	-0.00021***	-6.2e-09***	-6.5e-09***	Yes	Yes	Yes
	% Middle Class	-0.00087***	-0.00051***	0.000015	0.000085	Yes	Yes	Yes
	Gini	-0.0011***	-0.00061***	0.00049***	0.00033***	Yes	Yes	Yes
	Inc. Segregation	-0.00091***	-0.00048***	0.00055***	0.00026	Yes	Yes	Yes
	% Black	-0.00090***	-0.00050***	0.00030***	0.00026***	Yes	Yes	Yes
	Rel. Immobility	-0.00075***	-0.00044***	-0.00032*	-0.00007	Yes	Yes	Yes
	Abs. Mobility	-0.00055***	-0.000026	-0.0000075*	-0.000011***	Yes	Yes	Yes
Homeownership	None (Benchmk)	0.00012***	0.00062***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	0.00036***	0.00093***	-6.0e-09***	-7.8e-09***	Yes	Yes	Yes
	% Middle Class	-0.00017**	0.000065	0.00058***	0.0011***	Yes	Yes	Yes
	Gini	0.00021***	0.00094***	-0.00019*	-0.00071***	Yes	Yes	Yes
	Inc. Segregation	0.00021***	0.00081***	-0.0012***	-0.0025***	Yes	Yes	Yes
	% Black	0.00011***	0.00063***	0.0001	-0.0001	Yes	Yes	Yes
	Rel. Immobility	-0.00011*	0.00011	0.00066***	0.0014***	Yes	Yes	Yes
	Abs. Mobility	0.00075***	0.0015***	-0.000016***	-0.000022**	Yes	Yes	Yes
Date T Equifax Risk Score	None (Benchmk)	0.38***	0.34***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	0.32***	0.30***	0.0000014***	0.0000012***	Yes	Yes	Yes
	% Middle Class	0.39***	0.35***	-0.022	-0.008	Yes	Yes	Yes
	Gini	0.42***	0.38***	-0.097***	-0.093***	Yes	Yes	Yes
	Inc. Segregation	0.39***	0.36***	-0.16***	-0.17***	Yes	Yes	Yes
	% Black	0.38***	0.34***	-0.047*	-0.019	Yes	Yes	Yes
	Rel. Immobility	0.30***	0.24***	0.23***	0.29***	Yes	Yes	Yes
	Abs. Mobility	0.35***	0.35***	0.00068	-0.00019	Yes	Yes	Yes
Has Credit Card	None (Benchmk)	0.00050***	0.00073***	x	x	Yes	Yes	Yes
	HH Inc. per Capita	0.00094***	0.0012***	-0.000000011***	-0.000000011***	Yes	Yes	Yes
	% Middle Class	0.000035	0.00033***	0.00094***	0.00080***	Yes	Yes	Yes
	Gini	0.00065***	0.00079***	-0.00032**	-0.00014	Yes	Yes	Yes
	Inc. Segregation	0.00065***	0.00086***	-0.0019***	-0.0018***	Yes	Yes	Yes
	% Black	0.00052***	0.00073***	-0.00015	-3.6e-08	Yes	Yes	Yes
	Rel. Immobility	0.00026**	0.00047***	0.00064**	0.00068***	Yes	Yes	Yes
	Abs. Mobility	0.0013***	0.0014***	-0.000020***	-0.000018***	Yes	Yes	Yes

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset and other data sources as described in the text.

Table 10: Educational Policies and Strength of Intergenerational Linkages between Child Credit Outcomes and Parental Credit Constraints

Child Outcome	Covariate Specification	Coef. On Parent Constrained		Coef. On Educational Policy		Coef. On (Parent Constrained) * Educational Policy		Other Controls		
		5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	Parent Age
1	2	3	4	5	6	7	8	9	10	11
Delinquency	None (Benchmark)	0.17***	0.11***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	0.14***	0.072***	x	x	0.0000035**	0.0000043***	Yes	Yes	Yes
	Financial Literacy	0.17***	0.11***	-0.0041	0.0052	0.0053	-0.00094	Yes	Yes	Yes
	Economic Literacy	0.17***	0.11***	0.017***	0.051***	-0.0051	-0.016***	Yes	Yes	Yes
	Math Curr. Improvement	0.17***	0.10***	0.0031	-0.0088*	0.0074	0.011*	Yes	Yes	Yes
Homeownership	None (Benchmark)	-0.025***	-0.12***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	-0.071***	-0.18***	x	x	0.0000059***	0.0000075***	Yes	Yes	Yes
	Financial Literacy	-0.026***	-0.12***	-0.0018	-0.012***	0.016***	0.029***	Yes	Yes	Yes
	Economic Literacy	-0.024***	-0.12***	0.0013	-0.00016	-0.0022	0.0033	Yes	Yes	Yes
	Math Curr. Improvement	-0.023***	-0.12***	-0.0085	-0.001	-0.0073	-0.013	Yes	Yes	Yes
Date T Riskscore	None (Benchmark)	-71.4***	-67.4***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	-55.5***	-53.3***	x	x	-0.0020***	-0.0018***	Yes	Yes	Yes
	Financial Literacy	-71.0***	-67.2***	2.43*	-3.56***	-4.92**	-2.1	Yes	Yes	Yes
	Economic Literacy	-72.5***	-68.6***	-1.72	-4.54*	3.17	3.53	Yes	Yes	Yes
	Math Curr. Improvement	-70.2***	-66.1***	-1.36	0.71	-4.96**	-5.21**	Yes	Yes	Yes
Has Credit Card	None (Benchmark)	-0.070***	-0.11***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	-0.12***	-0.16***	x	x	0.0000069***	0.0000064***	Yes	Yes	Yes
	Financial Literacy	-0.070***	-0.11***	-0.012**	-0.0015	0.0081*	0.0049	Yes	Yes	Yes
	Economic Literacy	-0.066***	-0.10***	0.041***	0.024***	-0.011	-0.016	Yes	Yes	Yes
	Math Curr. Improvement	-0.068***	-0.11***	0.0056	-0.020***	-0.0073	0.00026	Yes	Yes	Yes

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset and educational policy variables from Brown et al (2014).

Table 11: Educational Policies and Strength of Intergenerational Linkages between Child Credit Outcomes and Parental Credit Risk Score

Child Outcome	Covariate Specification	Coef. On Parent Equifax Risk Score		Coef. On Educational Policy		Coef. On (Parent Equifax Risk Score) * Educational Policy		Other Controls		
		5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	Parent Age
1	2	3	4	5	6	7	8	9	10	11
Delinquency	None (Benchmark)	-0.00086***	-0.00046***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	-0.00064***	-0.00030***	x	x	-0.000000029***	-0.000000021**	Yes	Yes	Yes
	Financial Literacy	-0.00086***	-0.00046***	0.017	0.027	-0.000028	-0.000026	Yes	Yes	Yes
	Economic Literacy	-0.00089***	-0.00049***	-0.028	0.0037	0.000063**	0.000058***	Yes	Yes	Yes
	Math Curr. Improvement	-0.00086***	-0.00045***	0.019	0.027*	-0.000035	-0.000042*	Yes	Yes	Yes
Homeownership	None (Benchmark)	0.00012***	0.00062***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	0.00038***	0.00095***	x	x	-0.000000033***	-0.000000042***	Yes	Yes	Yes
	Financial Literacy	0.00013***	0.00062***	0.050***	0.048	-0.000067**	-0.000071	Yes	Yes	Yes
	Economic Literacy	0.00012***	0.00063***	-0.011	0.026	0.000013	-0.00004	Yes	Yes	Yes
	Math Curr. Improvement	0.00011***	0.00059***	-0.036	-0.079**	0.000037	0.00010*	Yes	Yes	Yes
Date T Equifax Risk Score	None (Benchmark)	0.38***	0.34***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	0.31***	0.30***	x	x	0.0000084***	0.0000061*	Yes	Yes	Yes
	Financial Literacy	0.37***	0.34***	-17.2***	-12.3**	0.026***	0.011*	Yes	Yes	Yes
	Economic Literacy	0.38***	0.35***	14.0**	9.88	-0.021**	-0.020*	Yes	Yes	Yes
	Math Curr. Improvement	0.37***	0.34***	-20.6***	-20.5***	0.026***	0.026***	Yes	Yes	Yes
Has Credit Card	None (Benchmark)	0.00050***	0.00073***	x	x	x	x	Yes	Yes	Yes
	Sch. Spending per Pupil	0.00094***	0.0011***	x	x	-0.000000057***	-0.000000043***	Yes	Yes	Yes
	Financial Literacy	0.00051***	0.00073***	0.062**	0.032	-0.00010***	-0.000043	Yes	Yes	Yes
	Economic Literacy	0.00048***	0.00071***	0.00024	-0.038	0.000047	0.000051	Yes	Yes	Yes
	Math Curr. Improvement	0.00049***	0.00072***	-0.033	-0.050*	0.000055	0.000034	Yes	Yes	Yes

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset and educational policy variables from Brown et al (2014).

Table A1: Summary Statistics for 5-year subsample of the original 10-year sample

	Mean	Std. Dev.	Min	25th %	Median	75th %	Max	Obs.
1	2	3	4	5	6	7	8	9
Child Forms Household	0.55	0.50	0	0	1	1	1	417,601
Child Forms Household First Age	21.5	1.4	20	20	21	23	24	228,739
Child Has Credit Card	0.84	0.37	0	1	1	1	1	417,601
Child Has Credit Card First Age	19.7	1.5	15	19	19	20	24	350,481
Child Homeowner	0.11	0.31	0	0	0	0	1	417,601
Child Homeowner First Age	22.5	1.6	15	22	23	24	24	46,247
Child Bankrupt	0.019	0.136	0	0	0	0	1	417,601
Child Foreclosure	0.066	0.249	0	0	0	0	1	417,601
Child Other Serious Default	0.33	0.47	0	0	0	1	1	399,357
Child Delinquency	0.25	0.44	0	0	0	1	1	399,357
Child Equifax Risk Score Average	630.6	77.7	295	566.8	645.7	695	827	408,162
Child Equifax Risk Score End	633.5	99.0	288	561	644	720	834	364,045
Child Credit Constrained	0.632	0.339	0	0.337	0.739	0.945	1	354,460

Note: Authors' calculations using the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset.

Table A2: Benchmark Regressions of the Intergenerational Linkages between Child Credit Outcomes and Parental Credit Constraints, with an Indicator for Cosigned Credit Cards

Child Outcome	Coef. On Parent Constrained		Coef. On Parent Age		Coef. On Indicator of Child Cosign Credit Card		Coef. On (Indicator of Child Cosign Credit Card) * (Parent Constrained)		Fixed effects		Adjusted R <sup>2</sup>	
	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	5-Year	10-Year
1	2	3	4	5	6	7	8	9	10	11	12	13
Bankruptcy	0.014***	0.031***	-0.0000021	-0.00022**	-0.000078	-0.010***	0.018***	0.020***	Yes	No	0.54%	0.65%
	0.012***	0.025***	0.000061*	-0.000020	-0.00056	-0.012***	0.018***	0.021***	Yes	Yes	1.7%	2.5%
Delinquency	0.20***	0.12***	-0.00056***	-0.00043**	-0.029***	-0.025***	0.032***	0.019**	Yes	No	2.8%	1.6%
	0.16***	0.10***	-0.00038**	-0.00025*	-0.027***	-0.021***	0.033***	0.023***	Yes	Yes	4.6%	2.9%
Homeowner	-0.021***	-0.13***	-0.0013***	-0.0028***	0.098***	0.24***	0.034***	0.053***	Yes	No	2%	5.7%
	-0.021***	-0.11***	-0.00077***	-0.0019***	0.092***	0.22***	0.032***	0.052***	Yes	Yes	4.7%	8.2%
Other Serious Default (Ex. Foreclos. and Bankruptcy)	0.32***	0.31***	-0.0000070	-0.00043	-0.069***	-0.095***	-0.023***	-0.086***	Yes	No	6.5%	6.1%
	0.26***	0.24***	0.000025	-0.00023	-0.064***	-0.086***	-0.018**	-0.073***	Yes	Yes	12%	11%
Average Equifax Risk Score	-77.1***	-84.4***	0.057	0.079	21.1***	30.5***	-5.81***	12.4***	Yes	No	14%	12%
	-62.8***	-68.2***	0.010	0.020	20.0***	28.9***	-6.89***	8.10***	Yes	Yes	23%	19%
Date T Equifax Risk Score	-85.5***	-83.3***	0.15**	0.062	21.1***	28.7***	-3.99**	12.4***	Yes	No	10%	9.5%
	-69.2***	-66.8***	0.077**	0.0013	19.8***	27.0***	-5.31***	8.56***	Yes	Yes	17%	16%
Has Credit Card	-0.094***	-0.15***	-0.00037**	-0.00027	0.10***	0.11***	0.062***	0.13***	Yes	No	2.7%	4.4%
	-0.069***	-0.12***	-0.00055***	-0.00049***	0.099***	0.11***	0.058***	0.11***	Yes	Yes	6.4%	8%

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset.

Table A3: Benchmark Regressions of the Intergenerational Linkages between Child Credit Outcomes and Parental Serious Default, with an Indicator for Cosigned Credit Cards

Child Outcome	Coef. On Parent Serious Default		Coef. On Parent Age		Coef. On Indicator of Child Cosign Credit Card		Coef. On (Indicator of Child Cosign Credit Card) * (Parent Serious Default)		Fixed effects		Adjusted R <sup>2</sup>	
	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	5-Year	10-Year
1	2	3	4	5	6	7	8	9	10	11	12	13
Bankruptcy	0.013***	0.025***	-0.000024	-0.00021***	0.0050***	-0.0050**	0.016***	0.022***	Yes	No	0.58%	0.65%
	0.011***	0.022***	0.000048	-0.000097	0.0045***	-0.0067***	0.016***	0.023***	Yes	Yes	1.6%	2.6%
Delinquency	0.13***	0.075***	-0.00097***	-0.00071***	-0.028***	-0.023***	0.039***	0.025***	Yes	No	2.1%	1.1%
	0.11***	0.053***	-0.00071***	-0.00049***	-0.024***	-0.017***	0.038***	0.027***	Yes	Yes	3.9%	2.4%
Homeowner	-0.017***	-0.095***	-0.00085***	-0.0016***	0.11***	0.26***	0.021***	0.024***	Yes	No	2.1%	5.9%
	-0.013***	-0.075***	-0.00038***	-0.00095***	0.11***	0.25***	0.020***	0.023***	Yes	Yes	4.6%	8.3%
Other Serious Default (Ex. Foreclos. and Bankruptcy)	0.29***	0.24***	-0.0010***	-0.0014***	-0.093***	-0.13***	0.00076	-0.051***	Yes	No	7.8%	6.1%
	0.23***	0.18***	-0.00084***	-0.00099***	-0.082***	-0.12***	0.0026	-0.043***	Yes	Yes	14%	11%
Average Equifax Risk Score	-62.3***	-60.9***	0.31***	0.36***	24.0***	38.5***	-6.05***	6.61***	Yes	No	14%	11%
	-48.3***	-45.6***	0.22***	0.25***	21.5***	34.6***	-6.62***	3.86**	Yes	Yes	24%	20%
Date T Equifax Risk Score	-65.2***	-60.8***	0.41***	0.34***	24.6***	36.5***	-4.64**	6.63***	Yes	No	9.4%	8.7%
	-49.6***	-45.1***	0.30***	0.24***	21.7***	32.8***	-5.42***	3.75*	Yes	Yes	17%	16%
Has Credit Card	-0.092***	-0.14***	0.00036***	0.00049***	0.14***	0.17***	0.065***	0.11***	Yes	No	3.4%	5.2%
	-0.065***	-0.10***	0.000095	0.00015	0.13***	0.16***	0.061***	0.10***	Yes	Yes	8.3%	9.7%

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset.

Table A4: Benchmark Regressions of the Intergenerational Linkages between Child Credit Outcomes and Parental Credit Risk Score, with an Indicator for Cosigned Credit Cards

Child Outcome	Coef. On Parent Equifax Risk Score		Coef. On Parent Age		Coef. On Indicator of Child Cosign Credit Card		Coef. On (Indicator of Child Cosign Credit Card) * (Parent Equifax Risk Score)		Fixed effects		Adjusted R <sup>2</sup>	
	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	5-Year	10-Year
1	2	3	4	5	6	7	8	9	10	11	12	13
Bankruptcy	-0.000062***	-0.00012***	0.000056	-0.000085	0.077***	0.087***	-0.000097***	-0.00012***	Yes	No	0.7%	0.77%
	-0.000055***	-0.00011***	0.00012***	0.000089	0.074***	0.084***	-0.000095***	-0.00012***	Yes	Yes	1.7%	2.6%
Delinquency	-0.00094***	-0.00054***	0.00047***	0.00014	0.18***	0.12***	-0.00026***	-0.00019***	Yes	No	5.4%	2.3%
	-0.00083***	-0.00043***	0.00052***	0.00017	0.17***	0.13***	-0.00025***	-0.00020***	Yes	Yes	6.3%	3.2%
Homeowner	0.000098***	0.00061***	-0.0011***	-0.0027***	0.24***	0.40***	-0.00019***	-0.00020***	Yes	No	2.1%	6.9%
	0.00010***	0.00056***	-0.00061***	-0.0019***	0.23***	0.38***	-0.00017***	-0.00020***	Yes	Yes	4.6%	9%
Other Serious Default (Ex. Foreclosure and Bankruptcy)	-0.0018***	-0.0016***	0.0017***	0.00097***	-0.11***	-0.36***	0.000065	0.00035***	Yes	No	16%	12%
	-0.0016***	-0.0013***	0.0013***	0.00082***	-0.094***	-0.33***	0.000048	0.00031***	Yes	Yes	19%	15%
Average Equifax Risk Score	0.41***	0.42***	-0.32***	-0.28***	-5.82	60.5***	0.031***	-0.041***	Yes	No	31%	22%
	0.35***	0.34***	-0.29***	-0.26***	-8.42*	50.6***	0.034***	-0.029***	Yes	Yes	35%	26%
Date T Equifax Risk Score	0.44***	0.41***	-0.26***	-0.28***	-2.05	61.0***	0.026***	-0.043***	Yes	No	22%	18%
	0.37***	0.34***	-0.24***	-0.25***	-6.00	50.6***	0.030***	-0.031***	Yes	Yes	25%	22%
Has Credit Card	0.00067***	0.00096***	-0.00067***	-0.00088***	0.47***	0.70***	-0.00049***	-0.00077***	Yes	No	5.3%	8.5%
	0.00051***	0.00076***	-0.00067***	-0.00090***	0.45***	0.67***	-0.00045***	-0.00072***	Yes	Yes	8.9%	11%

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset.

Table A5. Educational Policies (Urban and Schmeiser, 2015) and Strength of Intergenerational Linkages between Child Credit Outcomes and Parental Credit Constraints

Child Outcome	Covariate Specification	Coef. On Parent Constrained		Coef. On (Parent Constrained) * Educational Policy		Fixed effects			Adjusted R <sup>2</sup>	
		5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	Parent Age	5-Year Horizon	10-Year Horizon
1	2	3	4	5	6	7	8	9	10	11
Delinquency	None (Benchmark)	0.17***	0.11***	x	x	Yes	Yes	Yes	4.6%	2.9%
	Personal Finance	0.17***	0.10***	0.0083**	0.0076*	Yes	Yes	Yes	4.6%	2.9%
	Economic Education	0.17***	0.11***	-0.0069	-0.012**	Yes	Yes	Yes	4.6%	2.9%
Homeownership	None (Benchmark)	-0.025***	-0.12***	x	x	Yes	Yes	Yes	3.1%	4.5%
	Personal Finance	-0.027***	-0.12***	0.013**	0.016	Yes	Yes	Yes	3.1%	4.5%
	Economic Education	-0.027***	-0.13***	0.0071	0.018*	Yes	Yes	Yes	3.1%	4.5%
Date T Riskscore	None (Benchmark)	-71.4***	-67.4***	x	x	Yes	Yes	Yes	16%	15%
	Personal Finance	-70.5***	-66.8***	-5.61***	-3.72**	Yes	Yes	Yes	16%	15%
	Economic Education	-72.3***	-68.9***	2.36	4.05	Yes	Yes	Yes	16%	15%
Has Credit Card	None (Benchmark)	-0.070***	-0.11***	x	x	Yes	Yes	Yes	4.7%	5.6%
	Personal Finance	-0.071***	-0.11***	0.0090	0.013*	Yes	Yes	Yes	4.7%	5.6%
	Economic Education	-0.072***	-0.11***	0.0066	0.0060	Yes	Yes	Yes	4.7%	5.6%

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset and educational policy data from Urban and Schmeiser (2015).

Table A6: Educational Policies (Urban and Schmeiser, 2015) and Strength of Intergenerational Linkages between Child Credit Outcomes and Parental Credit Risk Score

Child Outcome	Covariate Specification	Coef. On Parent Equifax Risk Score		Coef. On (Parent Equifax Risk Score) * Educational Policy		Controls			Adjusted R <sup>2</sup>	
		5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon	Cohort	Zip Code	Parent Age	5-Year Horizon	10-Year Horizon
1	2	3	4	5	6	7	8	9	10	11
Delinquency	None (Benchmark)	-0.00086***	-0.00046***	x	x	Yes	Yes	Yes	6.3%	3.1%
	Personal Finance	-0.00086***	-0.00046***	-0.000034***	-0.0000023	Yes	Yes	Yes	6.3%	3.1%
	Economic Education	-0.00086***	-0.00046***	-0.0000074	-0.0000039	Yes	Yes	Yes	6.3%	3.1%
Homeownership	None (Benchmark)	0.00012***	0.00062***	x	x	Yes	Yes	Yes	3%	5.4%
	Personal Finance	0.00013***	0.00062***	-0.000040**	-0.000042	Yes	Yes	Yes	3%	5.4%
	Economic Education	0.00012***	0.00063***	-0.000011	-0.000032*	Yes	Yes	Yes	3%	5.4%
Date T Equifax Risk Score	None (Benchmark)	0.38***	0.34***	x	x	Yes	Yes	Yes	25%	21%
	Personal Finance	0.38***	0.34***	0.0062	0.0032	Yes	Yes	Yes	25%	21%
	Economic Education	0.38***	0.34***	-0.0013	-0.0041	Yes	Yes	Yes	25%	21%
Has Credit Card	None (Benchmark)	0.00050***	0.00073***	x	x	Yes	Yes	Yes	7.1%	8.8%
	Personal Finance	0.00051***	0.00073***	-0.000050	-0.000027	Yes	Yes	Yes	7.1%	8.8%
	Economic Education	0.00051***	0.00074***	-0.000033*	-0.000026	Yes	Yes	Yes	7.1%	8.8%

Note: Results using data from the New York Federal Reserve Bank Consumer Credit Panel/Equifax dataset and educational policy data from Urban and Schmeiser (2015).