

# Education and Credit: A Matthew effect

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# Motivation

# Main questions

1. Are entrepreneurs with higher levels of education more likely to apply for business loans?
2. If yes, do they have higher chances of getting those loans?
3. Following a bank's credit decision, is education mirrored in managerial investment decisions that lead to future individual and firm rewards?

What are the mechanisms through which education affects firm's outcomes via the credit channel?

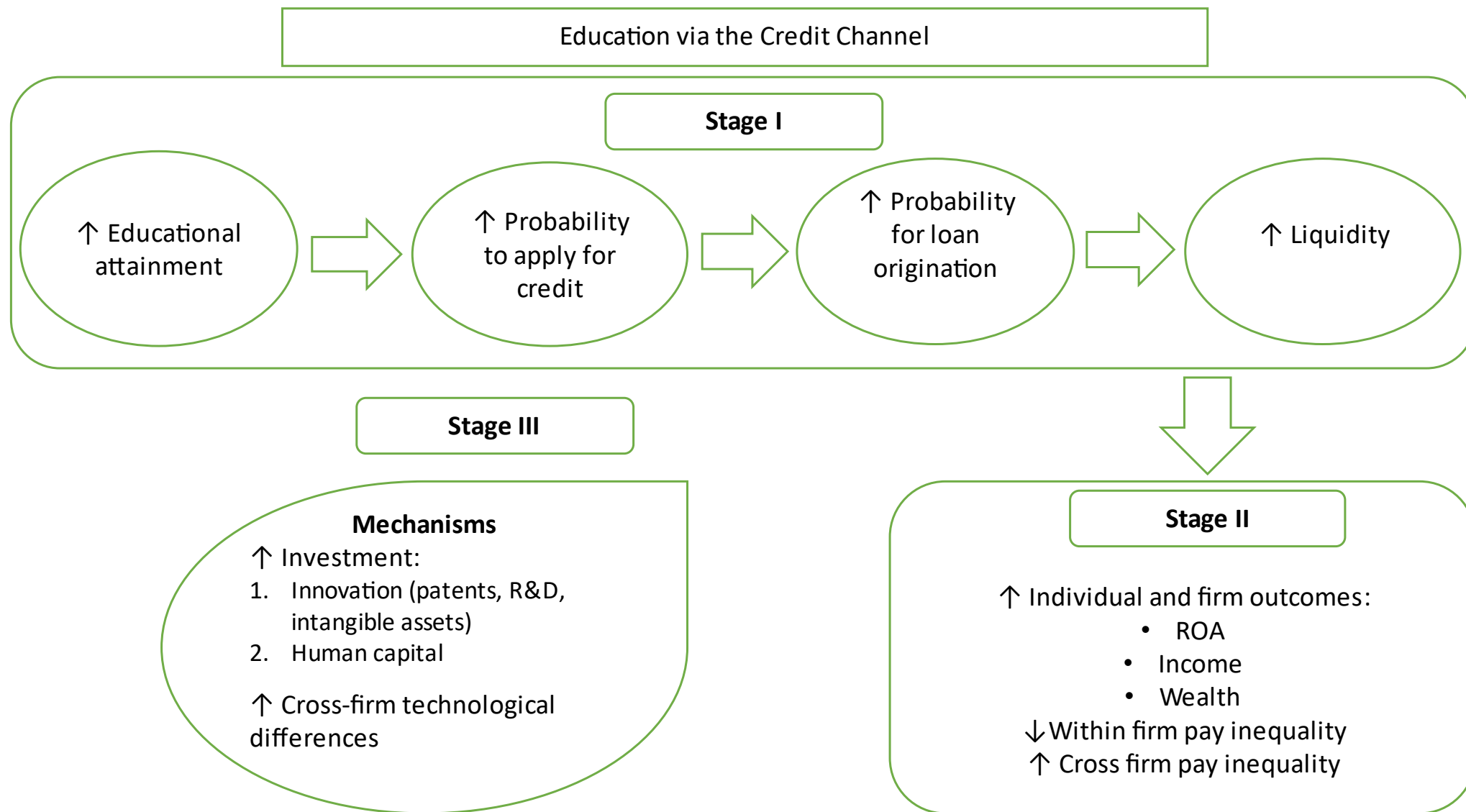
# Credit channel and education: Three stages

- **Credit channel:** loan origination → ↑ liquidity → ↑ investment → ↑ firm profitability → ↑ entrepreneurs' future wealth and income
- We identify **three stages** in our analysis:
  1. **Stage I:** Educational attainment affects entrepreneurs' decision to apply for a loan and the bank's decision to grant the loan
  2. **Stage II:** Via its role through the credit channel in stage I, educational attainment affects future firm and individual outcomes
  3. **Stage III:** How firms use the increased liquidity for investment influences the effects identified in stage I and stage II

# Hypotheses

1. Higher education increases **probability of loan application**: better understanding of the process
  - Higher education, higher confidence and self efficacy (Zhao et al., 2005)
2. Higher education **signals ability**: bank's decision, credit score
  - Higher probability of loan origination (Higher credit scores; Goodman et al. 2017)
  - Better terms of lending (better negotiation power; Zhao, 2005)
3. Affects **investment and managerial decisions**
  - Investment towards technological-oriented decisions
  - Accentuates technological differences (Acemoglu, 1999)
  - Investment in human capital, lower pay inequality, increasing segregation (Song et al., 2019)

# Education via the credit channel



- **Two distinct strands** relating to the effects of education:
  1. Access of credit and credit score formation
    - Hartley (2019) finds that education plays an important role
    - Papadimitri et al. (2020) find that when key members of a board of directors have higher levels of education, they are more likely to receive better credit ratings
  2. Firm performance (through the credit channel)
    - Marilanta and Nurmi (2018), Lin et al. (2011) and Ferrante (2005) examine different firm performance indicators

Data



# Data

- **Major systemic European Bank:** Global scale, credit to all business types, similar characteristics with other systemic European banks
- **Period:** 2002 – 2018
- All types of loans to domestic small and micro firms (total assets of up to 10,000,000 euro)
- Loan applicants: **majority owners** (own more than 50%) of the firm
- **More than one loan application during our sample period**
- **Applicant characteristics:** age, gender, income, wealth, marital status, credit score by the bank, number of dependents
- **Firm characteristics:** size, leverage, return on assets (ROA), liquidity, profitability, region, industry, forward growth, number of applications before the origination, R&D, patents, salaries
- **Loan deal:** loan amount and maturity applied for, granted loan characteristics (price, amount, maturity, performance pricing provisions, collateral)

# Dataset: Things to note

- The disclosure of the precise cutoff is not permitted; we normalize it to the value of zero
- The bank can identify which firms apply for loans to other banks, knows the timing of these applications, and their outcome through the firms' and the country's credit register
- Our full sample suggests that 65% of the firms have an exclusive relationship with the bank (this is common for small firms)
- For education and marital status, we observe enough changes from year to year
- When we do not know the precise year of the change, we assume that it happens in the middle of the time interval between the two loan applications (this assumption does not affect our main results)
- We complete the observations with the last credit score calculated by the bank, if there is a loan application in year  $t$  but not one in year  $t+1$ , we impute in year  $t+1$  the credit score in year  $t$

# Final panel

- Discard loans from applicants who establish a relationship with the bank in the middle of our period
- Discard firms, both accepted and rejected applicants, that never reapply
- We end up with all individuals who reapply for loans within a four-year period
- All observed firms have a relationship with the bank from 2004 onward (the bank has information for the applicants from 2002 onward)

***Balanced panel with a **total of 414,730 observations**  
138,633 loan applications by 24,712 unique applicants  
From these loan applications 84.2% were originated (116,753 loans)***

# Sample representativeness: 4 dimensions

- **Bank:**
  1. Annual averages of **ratio of liquid assets to total assets**, **the ratio of market to book value**, and **return on assets** are **similar and significantly correlated** with those of our bank over the years in our sample (correlation coefficients equal to 0.52, 0.67, and 0.75, respectively, Compustat)
  2. The annual Euro Area average **rejection rate** is strongly correlated (0.86) with our bank's equivalent (Survey on Access to Finance of Enterprises)
- **Firm:** The **characteristics** of our firms are similar to that of similar-sized EU firms
- **Bank-firm:** 65% of the firms in our full sample have an **exclusive relationship with our bank**. Other studies on lending relationships report similar numbers (i.e. Berger et al, 2011; 2014; Farinha and Santos 2002).
- **Applicant's:** In our sample, entrepreneurs with higher education consist 50.3% of all loan applicants. Data for North-European countries shows that 47.1% of self-employed individuals have higher levels of educational attainment (EU Labor Force Survey) and our country falls within this range.

# Means of key variables by level of educational attainment

	Below secondary	Secondary	Postsecondary/ Nontertiary	Tertiary	MSc	Ph.D./MBA
Apply	<b>0.291</b>	<b>0.326</b>	<b>0.328</b>	<b>0.335</b>	<b>0.345</b>	<b>0.348</b>
Income	<b>10.525</b>	<b>10.864</b>	<b>11.946</b>	<b>10.978</b>	<b>10.990</b>	<b>11.000</b>
Wealth	<b>11.722</b>	<b>12.001</b>	<b>12.076</b>	<b>12.102</b>	<b>12.112</b>	<b>12.123</b>
Gender	0.788	0.799	0.802	0.804	0.802	0.803
Age	44.413	44.913	44.937	44.957	44.963	44.928
Marital status	0.592	0.589	0.588	0.589	0.590	0.585
Dependents	1.887	1.893	1.904	1.896	1.847	1.820
Firm size	12.871	12.888	12.896	12.895	12.897	12.905
Leverage	0.201	0.205	0.206	0.207	0.207	0.207
ROA	<b>0.075</b>	<b>0.078</b>	<b>0.079</b>	<b>0.080</b>	<b>0.079</b>	<b>0.080</b>
Cash	0.077	0.079	0.080	0.080	0.080	0.080
Credit score	0.397	0.591	0.655	0.687	0.708	0.729
Applications	6.706	6.813	6.830	6.853	6.843	6.877
Granted	<b>0.820</b>	<b>0.829</b>	<b>0.836</b>	<b>0.861</b>	<b>0.868</b>	<b>0.875</b>
Default	<b>0.018</b>	<b>0.019</b>	<b>0.017</b>	<b>0.017</b>	<b>0.017</b>	<b>0.016</b>
Loan amount	0.763	3.345	3.528	3.601	3.618	3.646
Loan spread	<b>355.32</b>	<b>350.14</b>	<b>352.19</b>	<b>340.20</b>	<b>330.88</b>	<b>331.72</b>
Maturity	43.560	47.454	47.020	47.775	48.042	49.227
Loan provisions	0.465	0.415	0.413	0.407	0.383	0.339
Collateral	0.642	0.695	0.710	0.709	0.608	0.613
Share in the sample (all applications)	0.003	0.209	0.285	0.301	0.093	0.109
Share in the sample (granted)	0.003	0.197	0.248	0.338	0.108	0.106

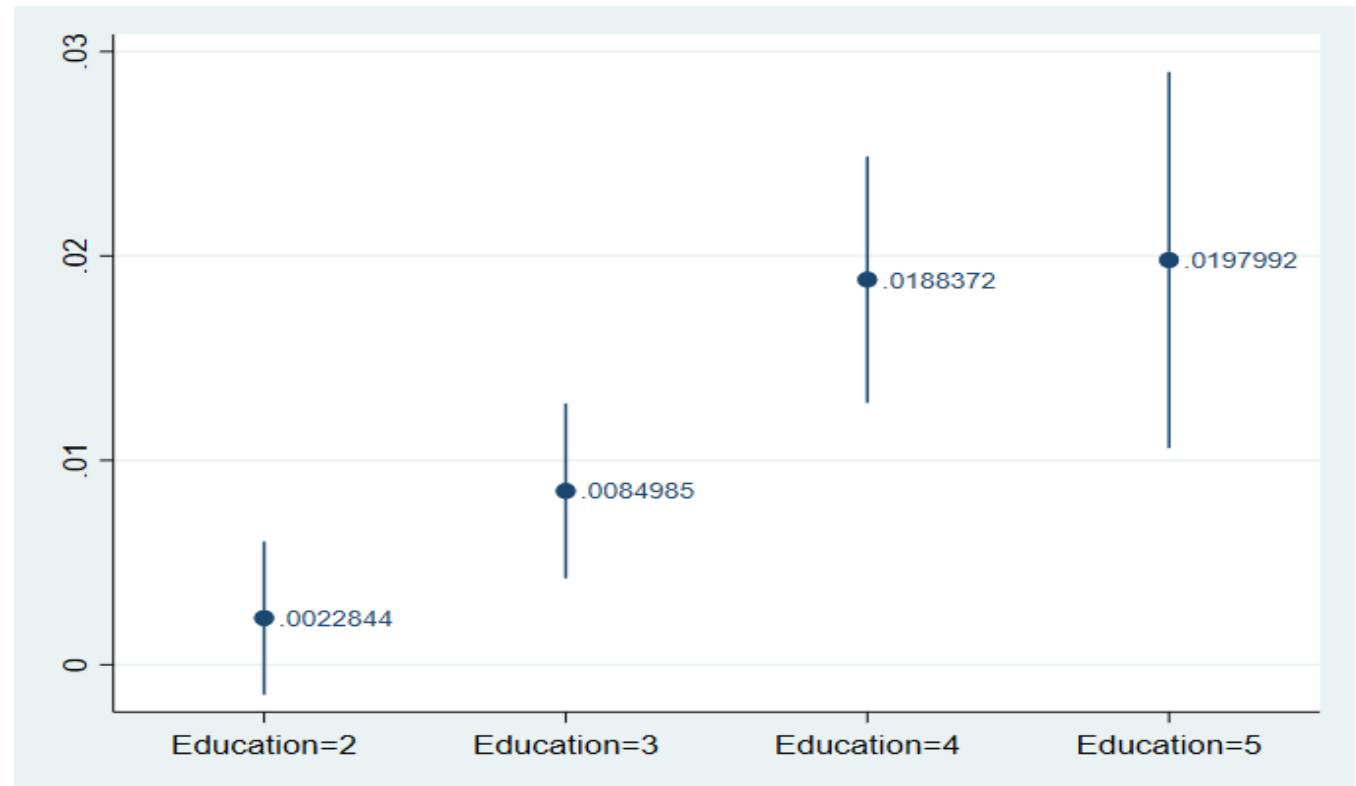
# Data on Education: First results

Ordinal variable ranging  
between 0 - 5

- 0: No secondary (%)
- 1: Secondary
- 2: Post-secondary, non-tertiary
- 3: Tertiary
- 4: MSc
- 5: MBA or PhD (Professional)

**Figure 1. Point increments in education and probability of loan application**

The figure reports coefficient estimates and confidence intervals from the estimation of the probability of loan application but including four dummy variables for *Education* (*Education* equals 0+1, 2, 3+4, to *Education* equals 5)



# Identification and Empirical analysis

# Methodology and identification

- Unit of analysis: **individual level**
- Cluster at individual applicants (main independent is education)
- Year, industry, and **individual fixed effects** (more than one application per firm)
- We get identification from the *Switchers of Education*: **2,711** in our sample
- We conduct the following analysis at each stage:

**Stage I:** Loan application and origination (linear probability models, OLS and 2SLS, with individual fixed effects).

- **IV in 2SLS model:** the average – by industry, region, and year – regional education, 15 years prior (country-data)

**Stage II:** Future firm and individual outcomes (RDD with individual fixed effects)

**Stage III:** Identifying the mechanisms (RDD with different dependent variables)



# Stage I: Loan application and origination

# An empirical question: To apply or not to apply?

$$\begin{aligned} & \textit{Apply}_{it} \textit{ (Granted}_{it} / \textit{Credit score}_{it}) \\ & = a_0 + a_1 \textit{HigherEducation}_{it} (\textit{ProfessionalEducation}_{it}) \\ & + a_2 \mathbf{x}_{i(f)t} + u_{it} \end{aligned}$$

- ***Apply*<sub>it</sub>**: Binary variable, value of 1 if an individual *i* applies for a loan at year *t* and 0 otherwise
- ***Granted*<sub>it</sub>**: Binary variable equal to 1 if the loan is originated by the bank and 0 if it is rejected
- ***Credit score*<sub>it</sub>**: A continuous variable normalized around 0, above which the bank grants the loan
- ***HigherEducation*<sub>it</sub>**: A dummy variable that takes the value 1 if the individual (*i*) has completed higher (tertiary) education and 0 otherwise
- ***ProfessionalEducation*<sub>it</sub>**: Dummy which takes the value 1 if the individual (*i*) has completed professional education (MBA/Ph.D.) and the value 0 otherwise
- ***x*<sub>i(f)t</sub>**: Vector of control variables reflecting individual (*i*) or firm (*f*) characteristics
- All specifications include regional, year, and/or individual fixed effects

# Higher education and probability of loan application

Dependent variable:	1	2	3	4
	Apply	Apply	Apply	Apply
Higher education	0.018*** (0.002)	0.034*** (0.007)		
Professional education			0.024*** (0.002)	0.043*** (0.008)
Income	0.034*** (0.003)	0.025*** (0.005)	0.034*** (0.003)	0.027*** (0.004)
Wealth	-0.021*** (0.002)	-0.021*** (0.002)	-0.021*** (0.002)	-0.021*** (0.002)
Gender	0.010*** (0.002)	0.010*** (0.002)	0.010*** (0.002)	0.011*** (0.002)
Age	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Dependents	0.001* (0.000)	0.001** (0.000)	0.001* (0.000)	0.001** (0.000)
Firm size	0.036*** (0.002)	0.036*** (0.002)	0.036*** (0.002)	0.036*** (0.002)
Firm leverage	0.285*** (0.034)	0.287*** (0.035)	0.285*** (0.034)	0.283*** (0.035)
Firm ROA	0.005 (0.010)	0.006 (0.010)	0.005 (0.010)	0.006 (0.010)
Firm cash	-2.398*** (0.340)	-2.472*** (0.344)	-2.393*** (0.340)	-2.413*** (0.344)
Past applications	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
<u>First stage</u>				
Regional education		0.212*** (0.078)		0.117*** (0.032)
Observations	414,730	414,730	251,326	251,326
R-squared	0.56		0.56	
Year fixed effects	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes

- Columns 1 and 3: OLS
- Columns 2 and 4: 2SLS - IV

# Higher education and probability of loan application

	1	2	3	4
Dependent variable:	Apply	Apply	Apply	Apply
Higher education	0.018*** (0.002)	0.034*** (0.007)		
Professional education			0.024*** (0.002)	0.043*** (0.008)
<u>First stage</u>				
Regional education		0.212*** (0.078)		0.117*** (0.032)
Observations	414,730	414,730	251,326	251,326
R-squared	0.56		0.56	
Year fixed effects	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes

- Columns 1 and 3: OLS
- Columns 2 and 4: 2SLS – IV
- All controls included

# Heckman test

	1	2	3	4	5
Dependent variable:	Apply	Apply	Apply	Apply	Apply
Higher education	0.018*** (0.002)	0.034*** (0.007)	0.024*** (0.002)	0.044*** (0.005)	0.041*** (0.010)
<u>First stage</u>					
Regional education		0.232*** (0.080)		0.228*** (0.072)	
Observations	551,354	551,354	551,354	551,354	216,420
R-squared	0.56		0.56		
Other controls	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	No	No	Yes

# University education and probability of loan origination

	1	2	3	4	5	6	7	8
Dependent variable:	Granted	Granted	Credit score	Credit score	Granted	Granted	Credit score	Credit score
Higher education	0.007*** (0.002)	0.010** (0.005)	0.018*** (0.002)	0.031*** (0.004)				
Professional education					0.007** (0.003)	0.016*** (0.005)	0.025*** (0.003)	0.056*** (0.015)
<b>First stage</b>								
Regional education		0.201*** (0.063)		0.212*** (0.078)		0.125*** (0.033)		0.117*** (0.032)
Observations	137,321	137,321	414,730	414,730	76,076	76,076	251,326	251,326
R-squared	0.56		0.56		0.56		0.56	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

- Columns 1 and 3: Simple Probit and OLS
- Columns 2 and 4: Probit-IV and 2SLS

## Additional tests:

• **Probability to re-apply after rejection:** 2.5% higher probability to reapply after one year, if you have university education and 3% after two years

• *The probability of re-application is smaller for entrepreneurs with an MBA/PhD!*

# Loan amount, spread, and collateral

## Panel A: Higher education

Dependent variable:	1	2	3	4	5	6
	Loan amount	Loan amount	Loan spread	Loan spread	Collateral	Collateral
Higher education	0.0003 (0.0011)	0.0011 (0.0027)	-5.718** (2.561)	-7.911** (3.689)	0.001 (0.002)	-0.015 (0.014)
<u>First-stage results</u>						
Regional education		0.197*** (0.073)		0.199*** (0.073)		0.197*** (0.073)
R-squared	0.65		0.59		0.71	
Observations	114,641	114,641	114,641	114,641	114,641	114,641

## Panel B: Professional education

	7	8	9	10	11	12
	Loan amount	Loan amount	Loan spread	Loan spread	Collateral	Collateral
Professional education	0.0018* (0.0010)	0.0027* (0.0018)	-7.193** (3.650)	-9.119** (4.011)	0.002 (0.002)	0.007 (0.016)
<u>First-stage results</u>						
Regional education		0.119*** (0.034)		0.121*** (0.034)		0.119*** (0.034)
R-squared	0.65		0.60		0.71	
Observations	63,053	63,053	63,053	63,053	63,053	63,053
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

# Stage 2: Future firm and individual outcomes



# Firm outcomes

$$\text{Forward Outcome}_{i,t+3} = a_0 + a_1 \text{Granted}_{it} + a_2 x'_{i(f)t} + u_{it}$$

- **Forward Outcome** $_{i,t+3}$ : Default, Forward ROA, Forward leverage, Future pay inequality, and individual Future income and Wealth 3 years after the bank's credit decision
- Estimated with RDD
- The *credit score* is the assignment variable
- We examine the heterogeneous effect of granting a loan to *higher* education and *non-higher* education applicants separately
- All specifications include regional and year fixed effects

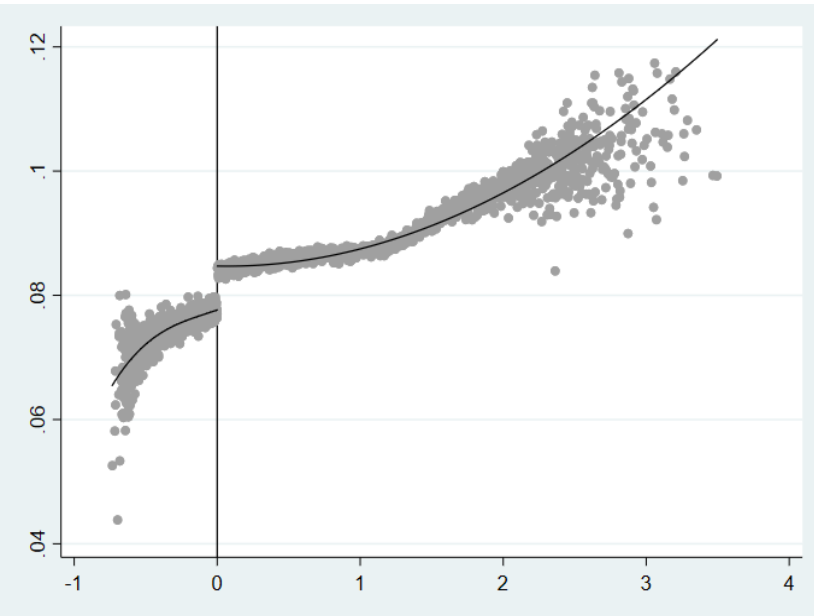
# Education, credit decision, and future firm outcomes

	1	2	3	4	5	6
Dependent variable:	<u>Applicants with higher education</u>			<u>Applicants without higher education</u>		
	Default	Future ROA	Future leverage	Default	Future ROA	Future leverage
Granted	-0.164*** (0.029)	0.067*** (0.015)	0.013** (0.006)	-0.245*** (0.031)	0.061*** (0.016)	0.008 (0.006)
Observations	75,801	75,801	75,801	61,520	61,520	61,520
Dependent variable:	<u>Applicants with professional education</u>					
	Default	Future ROA	Future leverage			
Granted	-0.150*** (0.038)	0.077*** (0.023)	0.020*** (0.006)			
Observations	14,556	14,556	14,556			

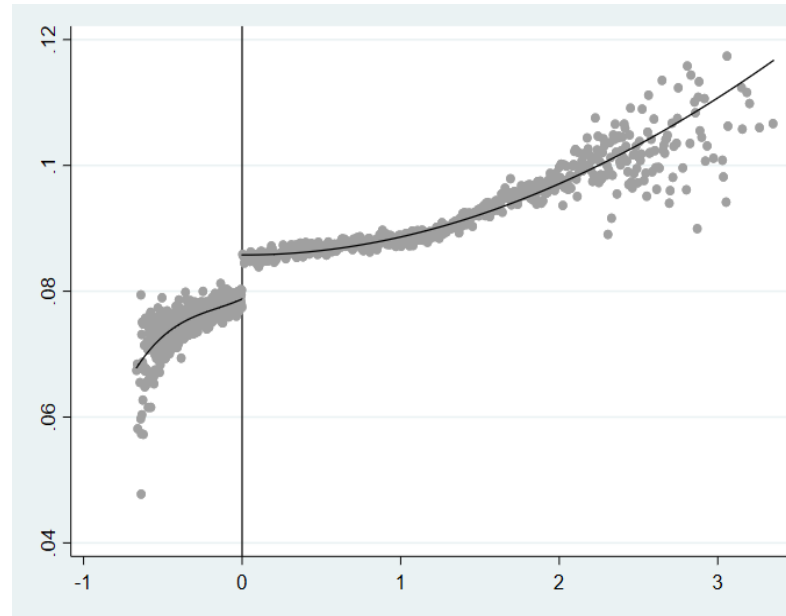
# Response of forward ROA at the credit score's cutoff

- The points represent local sample means of the applicant's income for a set of disjoint bins of control and treatment units spanning the full sample

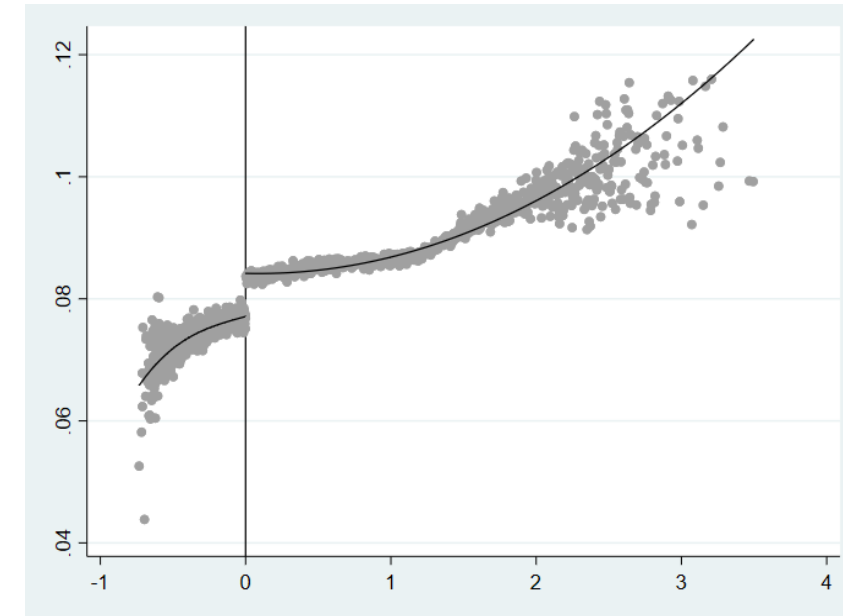
Full Sample



With University Education



With No University Education



# Education, credit decision, and future individual outcomes

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	<u>Applicants with higher education</u>			<u>Applicants without higher education</u>		
Dependent variable:	Future income	Future wealth	Future pay inequality	Future income	Future wealth	Future pay inequality
Granted	0.038*** (0.011)	0.031*** (0.013)	0.016 (0.012)	0.021*** (0.008)	0.017** (0.007)	0.040*** (0.013)
Observations	75,801	75,801	75,801	61,520	61,520	61,520
	<b>7</b>	<b>8</b>	<b>9</b>			
	<u>Applicants with professional education</u>					
Dependent variable:	Future income	Future wealth	Future pay inequality			
Granted	0.050*** (0.013)	0.035*** (0.017)	0.021* (0.011)			
Observations	14,556	14,556	14,556			

# Stage 3: Identifying the mechanisms

# Hypotheses

- Entrepreneurs with higher education undertake different managerial and investment decisions:
  1. **Investment in innovation** (R&D, patents, and intangible assets) → ↑ *future firm performance and individual outcomes*
  2. **Hire employees with similar education** → ↓ *within-firm pay inequality*
- Steps to identify mechanisms:
  1. Re-estimate RDD with dependents: *Asset intangibility, R&D expenses, and Patents*
  2. Re-estimate RDD with *Future ROA* and *Future wealth* as dependents **while controlling** for *asset intangibility* and *within-firm-pay inequality*

# Education, credit decision, and intangible assets

**Panel A: Effect of the credit decision on asset intangibility, R&D expenses, and patents**

Dependent variable:	<u>Applicants with higher education</u>			<u>Applicants without higher education</u>		
	1 Asset intangibility	2 R&D expenses	3 Patent dummy	4 Asset intangibility	5 R&D expenses	6 Patent dummy
Granted	0.112*** (0.023)	0.098*** (0.015)	0.083*** (0.028)	0.054 (0.031)	0.061** (0.029)	0.007 (0.023)
Dependent variable:	<u>Applicants with professional education</u>					
	7 Asset intangibility	8 R&D expenses	9 Patent dummy			
Granted	0.130*** (0.028)	0.152*** (0.029)	0.119*** (0.040)			

**Panel B: Heterogeneous effect of the credit decision on firm and individual outcomes due to asset intangibility**

	<u>Applicants with higher education</u>		<u>Applicants without higher education</u>		<u>Applicants with professional education</u>	
	Future ROA	Future wealth	Future ROA	Future wealth	Future ROA	Future wealth
Granted	<b>1</b> 0.067*** (0.015)	<b>2</b> 0.031*** (0.013)	<b>3</b> 0.061*** (0.016)	<b>4</b> 0.017** (0.007)	<b>5</b> 0.077*** (0.023)	<b>6</b> 0.035*** (0.017)
Granted (with Asset intangibility control)	<b>7</b> 0.048*** (0.016)	<b>8</b> 0.026** (0.013)	<b>9</b> 0.059*** (0.018)	<b>10</b> 0.016** (0.007)	<b>11</b> 0.044** (0.021)	<b>12</b> 0.027** (0.012)
Granted (with Pay inequality control)	<b>13</b> 0.054*** (0.016)	<b>14</b> 0.024*** (0.013)	<b>15</b> 0.055*** (0.019)	<b>16</b> 0.014** (0.007)	<b>17</b> 0.059*** (0.020)	<b>18</b> 0.025** (0.011)
Granted (with Asset intangib. and Pay inequality controls)	<b>19</b> 0.035* (0.018)	<b>20</b> 0.021 (0.014)	<b>21</b> 0.054*** (0.020)	<b>22</b> 0.014* (0.008)	<b>23</b> 0.029* (0.015)	<b>24</b> 0.019 (0.012)

# Education, credit decision, and intangible assets

**Panel A: Effect of the credit decision on asset intangibility, R&D expenses, and patents**

	1	2	3	4	5	6
	<u>Applicants with higher education</u>			<u>Applicants without higher education</u>		
Dependent variable:	Asset intangibility	R&D expenses	Patent dummy	Asset intangibility	R&D expenses	Patent dummy
Granted	0.112*** (0.023)	0.098*** (0.015)	0.083*** (0.028)	0.054 (0.031)	0.061** (0.029)	0.007 (0.023)
	7	8	9			
	<u>Applicants with professional education</u>					
Dependent variable:	Asset intangibility	R&D expenses	Patent dummy			
Granted	0.130*** (0.028)	0.152*** (0.029)	0.119*** (0.040)			



# Education, credit decision, and intangible assets

**Panel B: Heterogeneous effect of the credit decision on firm and individual outcomes due to asset intangibility**

	<u>Applicants with higher education</u>		<u>Applicants without higher education</u>		<u>Applicants with professional education</u>	
	Future ROA	Future wealth	Future ROA	Future wealth	Future ROA	Future wealth
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Granted	0.067*** (0.015)	0.031*** (0.013)	0.061*** (0.016)	0.017** (0.007)	0.077*** (0.023)	0.035*** (0.017)
	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
Granted (with Asset intangibility control)	0.048*** (0.016)	0.026** (0.013)	0.059*** (0.018)	0.016** (0.007)	0.044** (0.021)	0.027** (0.012)
	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
Granted (with Pay inequality control)	0.054*** (0.016)	0.024*** (0.013)	0.055*** (0.019)	0.014** (0.007)	0.059*** (0.020)	0.025** (0.011)
	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>
Granted (with Asset intangib. and Pay inequality controls)	0.035* (0.018)	0.021 (0.014)	0.054*** (0.020)	0.014* (0.008)	0.029* (0.015)	0.019 (0.012)

# Sensitivity analysis

- Run the models within an unbalanced panel
- Exclude individual fixed effects
- Heckman model for sample selection bias
- Probability of re-application after rejection
- Manipulation test for the RDD
- Clustering at the regional level

# Conclusions

- **Matthew effect: The initial advantage of higher education magnifies over time** and is rewarded via the credit channel to produce greater firm and individual outcomes
- **Key mechanisms: Differential managerial and investment decisions** by highly educated entrepreneurs, which accentuate *cross-firm technological differences* and *within-firm pay inequalities*
- **Investment decisions:** increasingly oriented towards **technological innovation** (R&D, intangible assets, and patents)
- **Managerial decisions:** focus on investments in **human capital and selecting higher-wage workers** i.e. rising segregation

Thank you!

# Appendix

# Stage 1 results: No fixed effects

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<b>Replicates Table 4</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Dependent variable:	Apply	Apply	Apply	Apply
Higher education	0.023*** (0.001)	0.043*** (0.005)		
Professional education			0.027*** (0.001)	0.045*** (0.006)

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# Higher education and probability to reapply after rejection

	1	2	3	4
Dependent variable:	Reapply one year	Reapply two years	Reapply one year	Reapply two years
University education	0.025** (0.012)	0.030** (0.013)		
MBA/PhD education			0.020* (0.011)	0.024* (0.013)
<u>First stage</u>				
Regional education		0.191*** (0.063)		0.128** (0.058)
Observations	21,284	21,284	21,284	21,284
Controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes

# Stage 2 results with no fixed effects

<b>Replicates Table 5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Dependent variable:	Granted	Granted	Credit score	Credit score
Higher education	0.013*** (0.002)	0.017*** (0.004)	0.025*** (0.002)	0.039*** (0.003)
	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Dependent variable:	Granted	Granted	Credit score	Credit score
Professional education	0.013*** (0.002)	0.024*** (0.003)	0.037*** (0.002)	0.073*** (0.011)
<b>Replicates Table 6</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Dependent variable:	Reapply one year	Reapply one year	Reapply two years	Reapply two years
Higher education	0.034*** (0.010)	0.038** (0.010)		
Professional education			0.025*** (0.007)	0.029*** (0.011)
<b>Replicates Table 7, panel A, IV models</b>	<b>1</b>	<b>2</b>	<b>3</b>	
	Loan amount	Loan spread	Collateral	
Higher education	0.0019 (0.0020)	-10.372*** (3.011)	-0.038*** (0.012)	
<b>Replicates Table 7, panel B, IV models</b>	<b>4</b>	<b>5</b>	<b>6</b>	
	Loan amount	Loan spread	Collateral	
Professional education	0.0037* (0.0017)	-14.398*** (3.857)	-0.007 (0.016)	