The Effect of Student Loans on Entrepreneurial Firm Risk-taking, Performance, and Access to Venture Capital with Implications for the Effects of Student Loan Forgiveness Programs on Entrepreneurship

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- Main findings: No-loan financial aid policies
  1. positively affect risk taking both at the extensive and intensive margin
     - Higher propensity of becoming an entrepreneur
     - Conditional on starting a firm, risk is higher
  2. positively affect access to VC financing both at the extensive and intensive margin
     - Such firms get more funding from VCs, VCs invest larger amount in these firms, and use staging to a lesser extent
  3. positively affect firm performance
     - Positive effect on sales, employment, innovation output

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- **Channel:** lower student loan burden increases net wealth and reduces risk aversion

Comments

- Important to understand the effects of student debt on the economy
  - Second largest consumer debt after mortgages
  - Was a big issue in the 2020 Presidential campaign
- The paper contributes by exploring the benefits of reducing debt burden
  - Most studies focus on career choices or financial outcomes, this paper offers a previously unexplored perspective
- Paper brings together multiple datasets: impressive data effort
- Comments
  - Clarity of the conceptual framework
  - Better connection between theory and empirical analysis

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- Relationship between net wealth and expected payoff theoretically ambiguous and needs more structure

Model with project quality and DARA

- Individuals have wealth W, utility function with DARA preference:

$$U(C) = \frac{C^{1-\gamma}}{1-\gamma}, \quad \gamma > 0$$

- Two choices:
  - Salaried employment: safe return $C = W + R$
  - Risky entrepreneurship:

$$\begin{cases} W - k + H & \text{with prob } \theta \\ W - k & \text{with prob } 1 - \theta \end{cases}$$

- θ depends on the quality of the project

Entry decision

- Wage utility:

$$U^{\text{wage}} = \frac{(W+R)^{1-\gamma}}{1-\gamma}$$

- Entrepreneur utility:

$$U^{\text{ent}} = \theta \cdot \frac{(W-k+H)^{1-\gamma}}{1-\gamma} + (1-\theta) \cdot \frac{(W-k)^{1-\gamma}}{1-\gamma}$$

- Entry occurs if $U^{\text{ent}} \geq U^{\text{wage}}$
- Indifference condition yields:

$$\theta^*(W) = \frac{(W+R)^{1-\gamma} - (W-k)^{1-\gamma}}{(W-k+H)^{1-\gamma} - (W-k)^{1-\gamma}}$$

- $\theta^*(W)$: minimum project quality needed for entry

Effect of wealth on threshold project quality

$$\frac{d\theta^*}{dW} = \frac{N'(W) \cdot D(W) - D'(W) \cdot N(W)}{[D(W)]^2}$$

Where

$$\begin{aligned}
N(W) &= (W+R)^{1-\gamma} - (W-k)^{1-\gamma} \\
D(W) &= (W-k+H)^{1-\gamma} - (W-k)^{1-\gamma} \\
N'(W) &= (1-\gamma)\left[(W+R)^{-\gamma} - (W-k)^{-\gamma}\right] \\
D'(W) &= (1-\gamma)\left[(W-k+H)^{-\gamma} - (W-k)^{-\gamma}\right]
\end{aligned}$$

$$\boxed{\frac{d\theta^*}{dW} < 0 \quad \text{for } \gamma > 1}$$

For risk aversion parameter greater than 1, project quality declines with wealth!

- Consistent with agents with lower risk aversion requiring lower risk compensation (Hvide and Panos, 2014 JFE)

Heterogeneity in loan burden

- Empirical analysis compares treated universities with control universities
- Several confounding factors can be at play: demographics, alumni network, location, composition of majors
- Loan burden could be higher at universities offering programs that are correlated with entrepreneurship
- Matched controls and fixed effects address the issue to some extent
- Useful to do a more granular analysis at the intensive margin using intensity of loan reduction rather than using a binary indicator
- Propensity to become an entrepreneur could differ across majors. Include major fixed effects?

Does a reduction in student debt increase net wealth?

- Lower student debt $\rightarrow$ Higher net wealth
- The effect of student debt on net wealth would depend on
  - Substitution between different debt types
    - Dinerstein et al. (2025) find that for every dollar of student loan forgiven, mortgage, auto, and credit card debt went up by 9 cents
  - Marginal propensity to consume. If the additional dollar is saved, effect on wealth would be larger
- Important to think about these forces as the empirical analysis looks at firm entry 3-5 years after graduation

Risk aversion and VC financing

- Projects under no-loan aid policy get higher VC financing because VC firms believe these projects will generate higher payoffs
- What factors drive VC financing?
- **"How Do Venture Capitalists Make Decisions?" JFE (2020)**
  - Surveyed 885 VCs to learn about how they source investments, select companies, structure deals, and add value to those deals
  - Over 95% of the VC firms considered the founding team to be the most important factor
  - Fewer than 3% of the firms thought valuation was the most important factor
  - Valuation becomes more important for late stage financing
  - Among founder attributes, ability was the most important factor
- What was the effect of no-loan financial aid on students' learning outcomes? Could that be a confounding factor?

Risk aversion and VC staging

- Why do VCs provide financing in stages?
  - **Agency problems**: Abandon the project if it fails to meet certain targets (Admati and Pfleiderer, 1994; Gompers, 1995; Kaplan and Stromberg, 2003, 2004)
  - **Hold up problem:** Founder can leave for better career opportunities (Neher, 1999; Hart and Moore, 1994)
  - **Learning hypothesis**: VC learns about the project over time and has the option to abandon the project earlier (Bergemann and Hege, 1998; Fluck, Garrison, and Myers, 2007)
- How would higher risk aversion of the entrepreneur affect agency problems or hold up issues or information asymmetry?
- Clarifying the underlying economic mechanism would help understand the results better
- Can make the narrative tighter by focusing on key results such as access to VC financing

Other comments

- Cost benefit analysis for Biden's loan forgiveness program problematic as it does not take into account general equilibrium effects arising from
  - Crowding out of public investment in education
  - Current or anticipated higher tax burden can negatively affect consumption
- Loan forgiveness and federal grants also differ in terms of ex ante and ex post effects (moral hazard)
- Useful to clarify institutional details:
  - Sample restricted to students who were already enrolled before the policy was implemented
  - How would this affect loans for these students?
  - Students borrow upfront or get financing in stages?
  - Loan prepaid in case of upfront borrowing?
- Literature review can be expanded along two dimensions:
  - Other ways of reducing student loans (income driven repayment programs). How would the effects differ?
  - Papers related to VC financing, size of VC funding, staging, value added by VCs, startup performance

Conclusion

- Interesting findings on an explored dimension of student loan forgiveness
- Paper can be improved by
  - tightening the conceptual framework
  - better connecting the empirical analysis with the theory
  - narrowing the focus to key results