

Credit Constraints and capital misallocation in small enterprises: Empirical Evidence

14.771

HOW TO TEST FOR CREDIT CONSTRAINTS?

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- Definition: A firm is credit constrained if it cannot borrow as much as it wants under the going market rate.
 - Equivalently: marginal product of capital is bigger than the market interest rate.
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LITERATURE ON CREDIT CONSTRAINTS

- Excess sensitivity of investment to cash flow (e.g. Fazzari, Hubbard and Petersen (1998, BPEA)
 - Problem: correlation of cash flows with expected profitability of investment. Need to control for "Tobin's Q", which it is difficult to do. See Critique by Kaplan and Zingales (QJE, 2000).
 - Slide 2 → Effect of family wealth on investment (Blanchflower and Oswald (1998), JOLE). Effect of remittances on investments (Mesnard, Ravallion).
 - Lamont (1997) uses oil-price shocks to look at non-oil investments of oil companies.
 - Large (cash rich) firms: cash flow shocks may be different for small and large companies.
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BANERJEE DUFLO (DO FIRMS WANT TO BORROW MORE?)

- India: all banks are required to lend at least 40% of their net credit to the "priority sector", including SSI.
 - January 1998: change in the definition of the SSI sector
 - Pre-reform: firms with investment in plant and machinery up to Rs 6.5 millions (\$130,000)
 - Post-reform: Limit was raised to Rs 30 million.
 - The share of priority sector lending for this bank was close to 40%(before and after), suggesting that the rule binds.
 - The change in definition caused the bank to switch lending towards the bigger firms within this category.
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EMPIRICAL STRATEGY

Theory: How to identify credit constraints from a shock to the supply of subsidized credit? We are **not** interested in showing that these firms would want more credit from the bank (which is quite clear), but in the question of whether the **market (trade creditor, finance companies, money lenders) do provide these goods.**

Slide 4 **The problem** is that more subsidized credit may generate sales and profit growth even if the firm is not in the credit constrained at the market price.

Testable Implications of being unconstrained.

- ① There should be substitution of market credit by subsidized credit. Sales should only grow for those firms that have fully eliminated market borrowing.
- ② Sales should grow slower than bank credit.

EMPIRICAL SPECIFICATION: REDUCED FORM

Data: data on 253 firms (with 93 big firms), all clients of one bank. We got access to loan folder of these client, with balance sheet information and information on lending decisions of the bank.

Slide 5 $\log y_{it} - \log y_{bit-1} = \alpha_y BIG_i + \beta_y POST_t + \gamma_y BIG_i * POST_t + \epsilon_{yit},$

For a series of outcomes y_{it} (credit, credit utilization, sales, sales/credit, profit). Difference-in-difference-in-difference estimation. Allows big and small firms to have different trends (e.g. productivity).

Assumption: in the absence of the reform, rates of growth of small and large firms would not have differentially changed.

RESULTS: REDUCED FROM

- Bank lending to the big firms went up (Table 4, 5).
- This is entirely due to the intensive margin (Table 4,5).
- Loan Utilization did not change (Table 6).
- Sales grew at the same rate as bank loans.
- Specification check: no effect on the sample of firms without increase in limit

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IV ESTIMATES

We estimate the elasticity of sales and profit with respect to bank loans:

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$$\log y_{it} - \log y_{it-1} = \alpha POST + \beta BIG + \lambda [\log k_{bit} - \log k_{bit-1}] + v_{yit} \quad (1)$$

using the interaction $POST * BIG$ as an instrument for $[\log k_{bit} - \log k_{bit-1}]$.

STRUCTURAL ESTIMATES: RESULTS

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- Elasticity of sales to bank loans is close to 1, implying non-decreasing returns
 - Elasticity of profits to bank loans is about 3, and does not change much if we look at firms in non SSI industries.
 - Implied gap between the marginal product of capital and the interest rate
 - The average loan is 96,000 Rupees.
 - An increase of Rs. 1,000 in the loan corresponds to a 1.04% increase, hence a 2.7% in profit
 - Increase in Rs 1000 in loan → increase of Rs. 999 at the mean profit (Rs. 37,000) **after repaying interest**. 100% rate of return...
 - Lower bound for at cost interest rate: $1.12(\text{depositor rate})/0.92(\text{repayment rate})+0.05$ (average monitoring cost)+0.02 (extra monitoring cost for small firms)=29%. Subsidy is 13%. Social marginal return of lending is 87%.
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DIRECT EVIDENCE OF MIS-ALLOCATION OF CAPITAL: BANERJEE-MUNSHI

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- Difficulty of monitoring, enforcement, etc... are serious constraints empirically. Compounded by the fact that banks officer are, by the very nature of their job, difficult to monitor.
 - This suggests that people with money will prefer to avoid bank, and allocate money where they have a comparative advantage in monitoring its uses, rather than in its most efficient use: misallocation of capital.
 - Tiruppur in South India: T-shirt city (manufacturing of T-shirt for export).
 - One local communities (Gounders), whose parents became rich in agriculture
 - Outsiders are attracted to Tiruppur by the vibrant T-shirt business.
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DATA AND PREDICTIONS

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- Data: survey of Garment manufacturing firms, with retrospective data on production, export, capital, duration of establishment in Tiruppur, links with subcontractors.
 - Gounders have access to cheaper capital and should invest more than outsiders
 - However we will need to distinguish this explanation from the alternative explanation that they are just more able and invest more (investment and ability are complement), or are less able and invest more (investment and ability are substitute).
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RESULTS

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- Gounders start with 3 times as much capital stock as outsiders, and though the difference declines, they keep more capital throughout their career
 - Outsiders start with lower production and export, but have a much steeper trajectory, and eventually overtake the Gounders.
 - This suggests that outsiders have higher ability.
 - Are capital and ability **substitute (!)?**
 - Within community, those who invest more produce more and do not have flatter trajectory. So capital and ability are not substitute.
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