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# Does Financing Spur Small Business Productivity?

## Evidence from a Natural Experiment

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Access to adequate financing is an important issue for firms, particularly younger and smaller ones. Given the role these firms play in the process of creative destruction, alleviating financial constraints for start-ups and small businesses is an important concern around the world. More recently, the financial crisis of 2008 demonstrated the critical role of bank financing, at both the firm and economy wide levels. While prior studies have examined how financing affects entrepreneurial firm starts and closures (e.g., Black and Strahan, 2002; Kerr and Nanda, 2009), no study has directly analyzed the link between bank financing and firm productivity, particularly for smaller firms where access to financing is critical. This is important given that most start-ups appear to rely on bank-debt financing (Robb and Robinson, 2013).

Determining the relation between bank financing and firm productivity is difficult because of the possibility of reverse causality. A positive correlation between bank financing and productivity might mean that more productive firms seek additional bank financing, or that increased access to bank financing enhances productivity. Yet another possibility is that unobserved factors affect both access to financing and productivity.

Our research addresses reverse causality by exploiting an exogenous shift in firms' access to bank financing due to deregulation of interstate bank branching. During the 1990s, states began allowing out-of-state banks to set up and acquire local branches. This increased interstate banking and thus allowed greater access to financing for firms. Consistent with prior literature, we show that deregulations were not driven by prior productivity of firms. The key question is whether this increased access to cheaper financing is dissipated by firms taking on unproductive or less productive pet projects or whether it increases firms' ability to undertake additional productive projects.

We examine whether firms in states that deregulate interstate banking within their borders achieve higher productivity, as measured by the growth in a firm's output after accounting for growth attributable to the factors of production. We use data on private and public manufacturing firms from the U.S. Census Bureau's Longitudinal Research Database, which contains detailed data for small and large manufacturing firms in the U.S. over 1976–2005.

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We show that the number and out-of-state ownership of bank branches increased in states following the interstate bank branching deregulation accomplished by the Interstate Banking and Branching Efficiency Act of 1994 (IBBEA). This supports our premise that in deregulating states, the IBBEA led to an increase in access to bank financing.

We show that firm productivity increases in those states that allowed greater interstate banking within their borders. This result is robust to a range of specification checks.

We then investigate the mechanism through which increased access to financing leads to greater productivity. We exploit the fact that the Small Business Administration (SBA) provides financial support to firms up to a certain size cutoff as a way to distinguish firms that are more financially constrained from those that are less financially constrained. For manufacturing firms, the size cutoff is a pre-specified level of employment. The advantage of this approach is that firms just above and just below the SBA cutoff are unlikely to differ substantially in terms of other characteristics but differ in terms of their access to SBA financing. In particular, firms just above the SBA employment threshold are ineligible for SBA funding and are thus more financially constrained relative to firms just below the SBA employment threshold. It follows that, if productivity increases following bank branching deregulation are primarily driven by financially constrained firms, then productivity increases for firms just above the SBA threshold should be greater than for firms just below the SBA threshold after the deregulation.

Our results are consistent with this expectation. Firms ineligible for SBA support experience a greater increase in productivity from before to after interstate bank branching deregulation compared to otherwise similar firms. This supports the argument that financially constrained firms benefit the most from increased access to financing. Further, since the control firms (SBA eligible firms) are similar to the treatment firms (SBA ineligible firms) that are financially constrained, this methodology provides additional assurance that our results are not driven by other, potentially unobservable, differences between firms.

We also employ an alternative statistical strategy that tests whether the relation between interstate bank branching deregulation and firm-level productivity is affected by firm financial constraints (proxied by SBA eligibility). This test utilizes the time variation in when deregulation occurred. Our results are consistent with those of the earlier analysis. In particular, firms just above the SBA eligibility threshold experience higher productivity increases in states with a greater extent of interstate banking deregulation, whereas firms just below the SBA eligibility threshold do not. We conduct a variety of robustness checks, which confirm our results.

We also use firm size measured immediately prior to the deregulation as another proxy for financial constraint. We find that the positive relation between the extent of bank branching deregulations in a state and firm productivity is stronger for smaller firms, consistent with the idea that firms that are more financially constrained benefit the most from increased access to financing. To dig deeper into whether financial constraints are indeed driving our results, we test whether our productivity results are stronger for firms in industries that are more financially constrained, based on a free cash flow measure calculated using industry level Compustat data, following Rajan and Zingales (1998). We find that industries classified as more dependent on external finance experience substantially greater increases in productivity for firms in states with greater extent of interstate bank branching deregulation than industries classified as less dependent on external finance.

Our results add to these studies by causally establishing that greater access to financing leads to higher firm level productivity, particularly for financially constrained firms. Banking deregulations alleviated such constraints, leading to an increase in productivity.

## NOTE

This Research Brief is based on http://www.nber.org/papers/w20149.

All works cited are provided therein.