Bank Specialization in Lending to New Firms

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Abstract

We formulate a novel dimension of bank-lending specialization—specialization in lending to new firms—and investigate its impact on the creation, credit access, and survival of new businesses. We exploit a Portuguese reform that drastically reduced the red tape of starting a new firm and that was rolled out in a staggered manner across municipalities. We show that while reducing regulatory barriers stimulates business creation, this effect depends crucially on the pre-reform local presence of bank branches specialized in lending to new firms. A greater presence of such branches is associated with improved credit access and higher leverage of new local businesses. Moreover, new firms that obtain loans from specialized branches exhibit an up to 12 percent higher survival rate.

JEL codes: E51, G21, L26, M13

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1 Introduction

Contrary to the principle of comprehensive diversification outlined in foundational financial intermediation theory (Diamond, 1984; Boyd and Prescott, 1986), banks frequently concentrate their loan portfolios in particular industries or geographic areas (Carey, Post, and Sharpe, 1998; Acharya, Hasan, and Saunders, 2006). By concentrating their lending in this way, banks can build up valuable expertise (Paravisini, Rappoport, and Schnabl, 2023) and better overcome information asymmetries in the industries or regions in which they specialize (Berger, Minnis, and Sutherland, 2017).

This paper explores a different and hitherto overlooked dimension of bank specialization: a focus on lending to new firms.[1] Information asymmetries between banks and newly established firms (which typically neither have a track record nor much collateral to offer) tend to be especially severe. We document substantial variation across banks, as well as across bank branches, in how much they focus on lending to such new firms. Moreover, our analysis shows that bank specialization in lending to young firms has important economic implications for local firm dynamics.

Our empirical setting is Portugal, a country that during the years 2005–2008 drastically reduced entry barriers for new firms. This entry deregulation was rolled out across municipalities in a staggered and quasi-random way and therefore provides an ideal identification framework for our purposes. More specifically, it allows us to empirically investigate the economic repercussions of bank specialization in lending to new firms, precisely when the screening of such firms becomes more challenging. This is because entry deregulation not only stimulates firm creation (Klapper, Laeven, and Rajan, 2006) but may also reduce the quality of new entrants.[2] Indeed, Branstetter, Lima, Taylor, and Venâncio (2013) show this is exactly what happened in Portugal: lower entry barriers boosted firm creation but eroded the quality of new firms, on average.[3]

Against this background, the aim of this paper is to analyze whether and how bank specialization in lending to new firms may prevent lower entry barriers from undermin-

[1] We will use the terms "new firm", "young firm", and "start-up" interchangeably to refer to recently established firms.

[2] At the same time, entry deregulation and the associated firm entry tends to increase competition, make incumbent firms more productive (Foster, Haltiwanger, and Krizan, 2001; Poschke, 2010; Barseghyan and DiCecio, 2011) and generate employment (Bertrand and Kramarz, 2002).

[3] We define entry barriers as costs that must be incurred by a new entrant and that incumbents do not or have not had to incur (McAfee, Mialon, and Williams, 2004).

ing the quality of newly established firms. We are interested in particular in whether the deregulation reform had a heterogeneous impact across municipalities—on local entrepreneurial activity, business survival, and job creation—depending on local bank branches' prior specialization in lending to new firms.

We start our analysis by confirming that the Portuguese entry deregulation had a strong positive impact on firm creation. We do so using a two-way fixed effects (TWFE) estimator, which leverages the fact that entry barriers were reduced step-by-step across Portuguese municipalities. This allows us to compare treated and non-treated municipalities over time in a difference-in-differences framework. Because standard TWFE estimators can return biased estimates when treatment effects vary across units and time, we employ staggered methodologies recently developed by Callaway and Sant'Anna (2021) and Cengiz, Dube, Lindner, and Zipperer (2019). We find that once a municipality lowers entry barriers, it experiences a significant increase in annual business creation of around 25 firms per 100,000 inhabitants.

Next, we access the Portuguese credit register, which has universal coverage across the country. These comprehensive and granular data allow us to precisely measure each bank branch's relative expertise in lending to new firms. Using this new measure, we show that the impact of the reform on firm creation is concentrated in municipalities with a high degree of start-up specialization among lenders. The presence of one more specialized bank branch is associated with the post-reform incorporation of 8 more firms per 100,000 inhabitants. A one standard deviation increase in the share of specialized branches (or a similar increase in their market share) is associated with an increase of around 14 new firms per 100,000 inhabitants per year.

We proceed by examining the credit access channel and show that this channel is responsible for the elevated rate of business creation. In a firm-level analysis, we document that new firms located in municipalities with a higher degree of branch specialization are more likely to obtain bank credit and have higher financial leverage. The magnitude of this impact depends on firm age: as younger firms are typically more opaque and credit constrained, the positive impact of the presence of specialized lenders on credit availability increases for younger start-ups. Thus, for example, we establish that for firms up to two years of age, an increase in the number of specialized branches from the 25th to the 75th percentile (that is, from 1 to 4) is associated with a 2.1 percentage points (pp) increase

in the likelihood of borrowing. This is almost 12% of the average probability (18%).

Finally, we explore whether bank branches specialized in lending to new firms have a competitive advantage in screening and selecting such borrowers. To do so, we compare the long-term performance of firms that obtain, soon after establishment, loans from specialized versus non-specialized branches. We find that a firm borrowing for the first time from a specialized lender has an up to 5.6 pp higher probability of 10-year survival than a firm borrowing from a non-specialized lender. This constitutes 12% of the average survival probability in the sample (46%). After securing a loan from a start-up specialized lender, new firms also demonstrate an up to 4 pp higher return on assets. Moreover, at the age of 10 years, such firms employ 9% more workers than local industry peers financed by non-specialized branches. Lastly, we show that lenders' start-up specialization is a stronger determinant of borrowers' improved chances of long-term survival than other lender characteristics, such as their industry specialization or branch size.

In sum, we document that specialization in lending to new firms is a relevant institutional feature in local credit markets, especially at times when entry barriers are lowered and information asymmetries become more daunting.

Related literature. We bring three new insights to the literature. First and foremost, we introduce a novel dimension of bank specialization: specialization in lending to new firms. Earlier work has shown how banks use specialization as a strategy to accumulate, deepen, and maintain market-specific knowledge about borrowers in particular industries (Blickle, Parlatore, and Saunders, 2023; Di and Pattison, 2023), geographical regions (Duquerroy, Mazet-Sonilhac, Mésonnier, and Paravisini, 2022; Casado and Martinez-Miera, 2023) or export markets (Paravisini et al., 2023). Specialization allows banks to lower monitoring costs (Berger et al., 2017); offer better loan terms and improve loan performance (De Jonghe, Dewachter, Mulier, Ongena, and Schepens, 2020; Blickle et al., 2023); and alleviate credit constraints in the targeted markets (Di and Pattison, 2023; Duquerroy et al., 2022). Bank specialization can also contribute to lending stability, especially when the downside risks of lending are high (Winton, 1999) such as during economic turmoil (De Haas and Van Horen, 2013; De Jonghe et al., 2020).

Our contribution is to show that banks not only specialize in terms of geographical or industry dimensions, but also in terms of their focus on recently established firms. We

find that such specialization in lending to new firms alleviates the credit constraints of viable new businesses, enhancing firm survival and stimulating job creation in the process. Moreover, it is exactly when information asymmetries become more salient, such as after a drastic lowering of entry barriers, that the expertise of specialized banks pays off.

A second strand of literature we contribute to is the work on bank credit as a funding source for newly established firms. When financially unconstrained, young firms contribute disproportionately to job creation (Haltiwanger, Jarmin, and Miranda, 2013; Lawless, 2014), innovation (Breitzman and Hicks, 2008), and potential economic growth.[4] Yet, while bank credit is an important source of external funding for some young firms (Robb and Robinson (2012), Bustamante and D'Acunto (2019), di Patti and Nigro (2018)), many newly established businesses remain cut off from access to bank credit, especially in industries characterized by high set-up costs (Derrien, Mésonnier, and Vuillemey, 2021).[5] At the micro level, such financial frictions keep such young firms from investing and growing. At the macro level, they perpetuate resource misallocation and slow productivity growth (Buera and Shin, 2013; Midrigan and Xu, 2014). Our contribution is to show how the local presence of banks specialized in lending to young firms, can enhance access to credit for startups and contribute to their long-term growth and survival.

Third, our findings contribute to a rich literature on the economic repercussions of spatial variation in local credit markets. Even in an increasingly digital world, stark geographical differences remain in firms' ability to borrow (Guiso, Sapienza, and Zingales, 2004; Lee and Luca, 2019; Granja, Leuz, and Rajan, 2022) as access to credit continues to depend on the physical presence of bank branches (Pollard, 2003; Zhao and Jones-Evans, 2017; Beck, Degryse, De Haas, and Van Horen, 2018). The type of banks that are present in a locality, and the intensity with which they compete with each other, remains a first-order determinant of local socioeconomic outcomes including employment, inequality, and firm innovation.[6] While the structure of local credit markets has been shown to be highly relevant for the firm incorporation rate (for example, Black and Strahan (2002)), the link

[4]See Demirgüç-Kunt and Maksimovic (1998); Rajan and Zingales (1998); Demirgüç-Kunt, Maksimovic, and Beck (2005); Aghion, Fally, and Scarpetta (2007); Ayyagari, Demirgüç-Kunt, and Maksimovic (2008); Beck, Demirgüç-Kunt, and Maksimovic (2008).

[5]See, for example, Carpenter and Petersen (2002); Beck, Demirgüç-Kunt, and Maksimovic (2005); Banerjee and Duflo (2014); Hadlock and Pierce (2010) and Lelarge, Sraer, and Thesmar (2010).

[6]See Jayaratne and Strahan (1996), Rice and Strahan (2010), Kroszner and Strahan (2014), Favara and Imbs (2015), Célérier and Matray (2019) for the US; Guiso et al. (2004); Herrera and Minetti (2007); Benfratello, Schiantarelli, and Sembenelli (2008) for Italy; and Berkowitz, Hoekstra, and Schoors (2014) and Bircan and De Haas (2020) for Russia.

between local bank specialization and firm creation has not been examined before.

We organize the remainder of this paper as follows. Section 2 first provides a brief description of the Portuguese reform. Section 3 then presents our data, after which Section 4 analyzes the impact of the reform on firm creation. In Section 5, we present our measure of start-up specialization and estimate its post-reform impact on firm creation, access to credit for young firms, and their survival rate. Section 6 concludes.

2 The *Empresa Na Hora* entry reform

Prior to 2005, starting a business in Portugal was expensive and time consuming. The process cost up to 2,000 euros and required multiple visits to different public agencies, taking up to 95 days to complete. To eradicate these excessive administrative hurdles, the government developed a program that drastically simplified establishing a new firm.

The Empresa na Hora (ENH) or "On the Spot Firm" program established one-stop shops in which all registration procedures for firms in eligible industries could be completed within a few hours.[7] The program was launched on July 6, 2005 and actively advertised by the government. Importantly, however, resource constraints (both in terms of office space and trained bureaucrats) prevented it from being implemented simultaneously in all municipalities. Instead, the program was implemented in a staggered manner across municipalities by taking advantage of pre-existing local infrastructure in the form of former Trade Registry Offices and Business Formalities Centers. Municipalities were thus not chosen on the basis of past or expected economic activity.[8]

According to the World Bank's Doing Business report, by 2008, Portugal had made significant progress in reducing the time and cost associated with starting a business. In municipalities where the program was implemented, the period required to start a business was reduced to a single day. As a result, Portugal moved from the 111^{th} place to the 5^{th} place when ranked by the average number of days required to start a business (see Figure 1). Simultaneously, the sum of fees declined from 12.5% of annual income per capita to 2.9% or approximately 600 euros.

Furthermore, the government launched an extension of the ENH program that allowed

[7] A few industries were not eligible as firm entry required additional permits or certification were required, such as finance, arms manufacturing, public transportation, pharmacies, etc.

[8] Both Branstetter et al. (2013) and Felix and Maggi (2022) provide extensive anecdotal as well as empirical evidence in support of this claim.

for registering a business entity via the Internet—"Empresa Online". Initially, the procedure required prospective entrepreneurs to engage the services of intermediaries with digital certification, such as lawyers, solicitors, or notaries. This resulted in additional legal costs and rendered this option unattractive for potential small businesses. It was only in the second half of 2009, that "Empresa Online" became available to individuals with an electronic certification that allowed them to identify themselves digitally.

Branstetter et al. (2013) provide the first evidence on the short-term consequences of the ENH reform. They document that in the months following its implementation in a municipality, the number of newly registered start-ups increases by 17%, and seven more new jobs are created per 100,000 local inhabitants. Importantly, the authors also find that, post-reform, new entrants are on average smaller and have a lower survival probability than businesses registered pre-reform. More recently, Felix and Maggi (2022) have confirmed the positive impact of the ENH on the rate of firm incorporation and local employment. They estimate that newly established firms contributed 40% of the post-reform job creation, while the other 60% resulted from incumbent firms' expansion in response to the competition shock.

3 Data

We start our empirical analysis by merging several micro data sets. First, we take information on the staggered ENH rollout across municipalities—that is, the ENH offices' opening dates—from Branstetter et al. (2013). Like that paper, we focus on the period 2000–2008. There are two reasons to cap the sample at the end of 2008. First, this prevents the global financial crisis from confounding our estimates. Second, in 2009, the "Empresa Online" extension of the ENH program became available, allowing for remote firm registration irrespective of the business location. This could undermine our identification as entrepreneurs in control municipalities could now register a firm on-line.

To accurately estimate the impact of the reform, we work with a sample of Portuguese municipalities that are relatively homogeneous in terms of economic structure and population size. In practice, this means we exclude the Portuguese islands (the Azores and Madeira); very small municipalities with a population below 10,000; and the two largest economic centers of the country—Lisbon and Porto. As a result, the sample comprises

184 municipalities across the whole of mainland Portugal. By the end of 2008, 84 of these municipalities had been treated, while the other 100 make up the control group.

Second, to examine the impact of the ENH reform on business creation, we consider the number of newly established firms scaled by the population at the municipality-year level. The SPAI database (Sistema de Partilha de Informação) is our source for the exact establishment date of firms as well as their single-digit industry of operation. These data are available from 2000 onwards and we match them to annual financial statements from the Central Balance Sheet Database (CBSD), available from 2006. Municipality-level population data come from Statistics Portugal.

Our focus is on firms operating in industries that were eligible for registration via an ENH office. Eligible firms constitute 88% of the total number of firms in the data. We also apply a set of criteria to ensure that the newly incorporated firms that we consider are indeed new businesses rather than subsidiaries of existing entities. In particular, we retain newly originated firms that, in their first year of operation, do not consist of more than four establishments, do not have establishments abroad or subsidiaries of their own, and do not employ more than ten employees. Varying the number of employees between ten and fifty does not change our results in any meaningful way.

Third, we access the Portuguese credit registry, the Central de Reponsabilidades de Crédito (CRC), maintained by the Banco de Portugal. The CRC covers the universe of bank-firm credit relationships in Portugal and reports the total sum of corporate loans provided by a bank to individual firms at a monthly frequency. We use these data to track bank-firm relationships over time and, importantly, to create for each individual bank branch a measure of its specialization in lending to new firms. As the CRC provides us with credit exposure at the bank-firm level, we approximate branch-level loan portfolios by aggregating each bank's corporate loans at the municipality level. This means that if a bank operates several branches in a municipality, we consider those as one combined branch (essentially, a bank-municipal level loan portfolio) for our purposes.

In subsection 5.4, where we investigate new firms' access to bank credit, our analysis requires a sample of economically active firms irrespective of whether they borrow or not. Such a sample allows us to estimate the impact of the local presence of specialized branches on a firm's probability of obtaining a corporate loan. When a firm does not have a loan and, thus, does not appear in the credit registry, we can only determine its

operational status in a particular year based on whether it submitted a financial statement or not. Since financial statement data are only available as of 2006, we take a sample of firms registered in 2004–2005, and assume that they were economically active in the years 2004 and 2005 (for which no financial statement data are available). For firms created in or after 2006, no such assumptions are required. Overall, we therefore examine new firms' access to bank credit over the period 2004–2008.

4 Entry reform and business creation

We exploit the staggered implementation of the ENH reform to infer the impact of firm entry deregulation on business creation. This analysis is at the municipality-year level so we can study the dynamics of the annual number of newly established firms in the already treated compared to not yet treated municipalities. To ensure comparability between municipalities, we follow Branstetter et al. (2013) and scale the number of new firms by local population size. We first employ a two-way fixed effects (TWFE) linear model that controls for unit (municipality) and time observable and unobservable characteristics with unit and time fixed effects:

$$\text{N new firms/100K inhabitants}_{mt} = \alpha + \beta_1 \text{ENH}_{mt} + \tau_t + \mu_m + \epsilon_{mt} \tag{1}$$

where ENH is an indicator variable that is '1' when the ENH program is launched in municipality m in year t and onwards ('0' otherwise) and where τ_t and μ_m are year and municipality fixed effects, respectively.

Considering the potential for biased TWFE estimates when there is variation in treatment timing (for example, Goodman-Bacon (2021); Sun and Abraham (2021)), we employ two alternative estimators: Callaway and Sant'Anna (2021) and Cengiz et al. (2019). In the Callaway and Sant'Anna (2021) model, the control group consists of the not yet treated and never treated (not treated until 2008) municipalities. The Cengiz et al. (2019) methodology generates separate stacks (samples) of observations for each treated cohort. A stack includes observations from a cohort of municipalities that receive treatment in the same year and all the municipalities that never receive the treatment.

Table 1 presents the estimation results of the aforementioned models. We observe

that after the ENH reform is implemented in a municipality (that is, an ENH office is opened), the number of new firm entrants increases by an additional 24 firms per 100,000 inhabitants (relative to the control municipalities). This amounts to 7% of the average number of 346 new firms per municipality.[9] All three models yield very similar results.

Figure 3 depicts a dynamic event study plot based on the Cengiz et al. (2019) estimator to scrutinize the progression of the reform's impact on business creation over time. The year prior to entry deregulation in a municipality is taken as the benchmark year. It becomes clear that the ENH reform had a lasting and gradually increasing impact on firm incorporation. Reassuringly, the figure also clearly shows that prior to the reform, there was no difference in firm creation trends between the treated and control municipalities.

We now move on to our analysis of how bank specialization in lending to new firms acts as a moderator in the relationship between—on the one hand—entry deregulation and—on the other hand—firm creation, growth, and survival.

5 Entry reform, bank specialization and firm dynamics

5.1 Measuring bank specialization in lending to new firms

The prevailing approach to measuring lending specialization is to assess the relative credit exposure of a bank to a particular market segment, typically an industry or geographical unit. To the best of our knowledge, Duquerroy et al. (2022) is the first study to consider lending specialization at the bank *branch* level. The authors focus on the industry specialization of French bank branches while accounting for the average industry composition of credit markets at the county level.

In a similar vein, our measure of start-up specialization captures a branch's local comparative advantage in lending to new firms relative to other branches in the same municipality. This approach ensures that our specialization measure is not a mere reflection of the number of start-ups in a municipality or, more generally, municipality-specific economic conditions. Instead, the branches that we identify as specialized in lending to new firms maintain loan portfolios that are markedly distinct from those of their competi-

[9]Reassuringly, although Branstetter et al. (2013) employ a different methodology, they arrive at the same estimated impact of the ENH reform. They measure the short-term impact of the reform in the months after the reform and arrive at an estimate of two extra firms per month, which translates into 24 extra firms per year.

tors *in the same municipality*. In other words, they exhibit lending behavior consistent with a strategic focus on lending to new firms. Following Ko and McKelvie (2018), we define new firms (or start-ups) as firms in their initial four years of operation. In the terminology of Berger and Udell (1998), this means we consider "infant" (0-2 years) and "adolescent" (3-4 years) firms as the group of interest.

We take three steps to construct our specialization measure. First, we calculate the share of new firms in the total number of business borrowers in a branch's loan portfolio. We use the number of new borrowers rather than the total sum of loans to such borrowers, because the borrower number better reflects the operational time and costs that loan managers of the branch spend processing loan applications and, thus, gaining expertise in lending to new firms.

Second, we subtract the average share of new firm borrowers among all bank branches in the same municipality. This ensures that our specialization measure does not simply reflect the average local credit market exposure to new firms. We thus measure relative specialization as follows:

$$RS_{bmt} = \underbrace{\frac{\mathbf{N} \text{ start-up borrowers}_{bmt}}{\mathbf{N} \text{ borrowers}_{bmt}}}_{\text{absolute branch exposure to start-ups}} - \underbrace{\frac{\mathbf{N} \text{ start-up borrowers}_{mt}}{\mathbf{N} \text{ borrowers}_{mt}}}_{\text{municipal exposure to start-ups}} \tag{2}$$

where RS_{bmt} is the relative specialization in lending to new firms by bank branch b in municipality m at time t. RS_{bmt} takes values in the range [-1,1], where positive values indicate that a branch lends relatively more to new firms as compared to its local competitors. We consistently measure relative specialization at the end of 2004 to capture the pre-reform credit market landscape and thus avoid endogeneity concerns.

Third, we follow Duquerroy et al. (2022) and define specialized branches as those whose relative specialization in lending to new firms falls within the top quartile of the country-wide distribution. Figure 4 shows this distribution for all Portugese bank branches in 2004. Start-up specialized branches lie at the right of this distribution, in the 4^{th} quartile:

$$\text{Spec}_{bmt} = \mathbf{I}(RS_{bmt} > p75) \tag{3}$$

In order to evaluate the impact of start-up specialization on firm creation and credit access at the municipality level, we construct three measures that capture how much local

branches specialize in lending to new firms: (1) the number of specialized branches in a municipality; (2) the share of specialized branches in the total number of branches; and (3) the market share of specialized branches. Figure 5 presents graphically the geographical distribution of these municipality-level specialization measures across Portugal. The three panels show that specialized bank branches do not cluster in specific parts of the country but are instead distributed quite evenly.

5.2 Bank specialization and firm entry: Estimation

After establishing the positive impact of the ENH reform on firm entry, we now investigate the heterogeneity of the reform's impact across Portuguese municipalities depending on local branches' comparative advantage in lending to new firms. We introduce the municipality-level specialization measures into Equation 1 as follows:

$$\text{N new firms/100K inhabitants}_{mt} = \alpha + \beta_1 \text{ENH}_{mt} + \beta_2 \text{ENH}_{mt} \times \text{Spec}_m + \tau_t + \mu_m + \epsilon_{mt} \quad (4)$$

where Spec_m is one of the three branch specialization variables, measured at the end of 2004 and at the municipality level. The coefficient of interest is β_2: the marginal effect of bank specialization on business creation after an ENH office is launched in year t in municipality m. The specialization measures do not enter the estimation as stand-alone terms as they are time-invariant and hence absorbed by the municipality fixed effects.

5.3 Bank specialization and firm entry: Results

Table 2 presents the results of estimating Equation 4 for the three local measures of bank specialization in lending to new firms. The results in column (1) indicate that the presence of one more specialized bank branch is associated with the post-reform incorporation of eight more firms per 100,000 inhabitants. Likewise, columns (2) and (3) show that a one standard deviation increase in the share of specialized branches and of the market share of these branches, respectively, is associated with 12 and 16 more new firms per 100,000 inhabitants per year. These results indicate that entry deregulation primarily boosts business creation in municipalities where more bank branches had previously built up a comparative advantage in lending to new and young firms.

The specifications in columns (4)-(6) include additional municipality-level explanatory variables to ensure that the observed positive impact of bank specialization on firm creation after the reform is not driven by other municipality characteristics. Analogous to the variables of interest, we measure these control variables at the end of the pre-reform year 2004. We horse-race these controls with the variables of interest by also interacting them with the ENH indicator variable. Hence, we verify that the influence of our municipality-level specialization measures is distinct from that of two other key municipality characteristics: local bank competition and local entrepreneurial activity.

First, since credit market competition can stimulate firm creation (Black and Strahan (2002)), we include a measure of local bank concentration—the Herfindahl-–Hirschman Index (HHI)—as an inverse proxy for lender competition. We define banks' market shares on the basis of the total credit market in their municipality. In Table 2, we observe that, despite having the expected negative sign (a higher HHI indicates more market power and therefore likely less competition), bank competition does not moderate the rate of firm incorporation after local entry deregulation in a statistically significant way.

Second, even though pre-trends in firm creation are parallel in the treated and control municipalities (Figure 3), we nevertheless ensure that our findings are not driven by pre-existing variation in local entrepreneurial activity (which will capture an array of business-environment factors that determine the rate of firm creation). More specifically, we include the number of economically active start-ups (that is, firms up to four years old) in a municipality per 100,000 inhabitants at the end of 2004. The relevant coefficient is not precisely estimated either. Moreover, a comparison of the first and the last three columns of Table 2 shows that adding these two interaction terms hardly moves the coefficients of interest, indicating that these additional municipality traits are unlikely to be important confounders.

5.4 Bank specialization and credit access: Estimation

A natural mechanism through with the local presence of startup-specialized bank branches can foster firm creation is by making credit more accessible for newly established enterprises. We therefore test whether an increased local presence of specialized branches is associated with better credit access for new firms. To do so, we run the following model on a firm-level panel of new firms (again defined as those up to four years old):

$$Y_{fimt} = \alpha + \beta_1 \text{ENH}_{mt} + \beta_2 \text{ENH}_{mt} \times \text{Spec}_m + \gamma X_{fimt} + \tau_t + \mu_m + \nu_i + \epsilon_{fimt} \quad (5)$$

where Y_{fimt} captures borrowing outcomes for firm f in industry i in municipality m at the end of year t. To study the extensive margin of access to credit, we employ an indicator variable that takes the value of one if a firm has a bank loan of at least 5,000 euro (zero otherwise). To study the intensive margin, we use financial leverage (debt-to-total assets ratio) as a second outcome. In this firm-level analysis, we include year and municipality fixed effects (τ_t and μ_m, respectively) as well as several standard firm controls: its one-digit industry (based on the Portuguese Classification of Economic Activities (CAE), Rev. 3), ν_i, and its age in months at time t. In some specifications, we also control for firm size at time t (the natural logarithm of total assets). This limits our sample to the years 2006–2008 as balance sheet data are only available as of 2006.

We also present specifications in which we control for firm type-specific credit demand to ensure that our estimates capture differences in credit supply resulting from variation in local bank specialization. To achieve this, we replace the separate municipality and industry fixed effects with municipality-industry-size group fixed effects à la Degryse, De Jonghe, Jakovljević, Mulier, and Schepens (2019).[10] The adjusted model is:

$$Y_{fimt} = \alpha + \beta_1 \text{ENH}_{mt} + \beta_2 \text{ENH}_{mt} \times \text{Spec}_m + \gamma X_{fimt} + \tau_t + \kappa_{mis} + \epsilon_{fimt} \quad (6)$$

where κ_{mis} are the municipality-industry-size group fixed effects.

5.5 Bank specialization and credit access: Results

Figure 6 plots the coefficients of interest from estimating Equation 5 with the loan dummy as the dependent variable and without controlling for firm size (thus covering the entire sample period). Each dot and associated confidence interval reflect a different age group: firms up to two (green), three (red), or four (blue) years old. The coefficients refer to the interaction between a binary variable indicating the reform implementation and one of

[10] We define size groups as within-industry quintiles by total assets. As the combination of municipality and year fixed effects would be collinear with the variables of interest, we include year fixed effects separately. Appendix Figure A1 provides estimates using an alternative combination of fixed effects.

three continuous measures of bank start-up specialization at the municipality level: the number of specialized branches, the share of specialized branches in the total number of branches, and the market share of the specialized branches (each depicted in a separate chart). These estimates hence represent the probability that a firm has a bank loan after the ENH reform is implemented in their municipality, depending on the start-up specialization of local bank branches. We find that, following the ENH reform, all three measures of local bank specialization in lending to new firms are associated with a higher borrowing probability for all age groups of young firms.

Figure 7 similarly plots the coefficients for the more stringent model specification that includes firm-group fixed effects. This shows that across the board, the relative size of the specialized branches (i.e., their market share) does not impact the probability of borrowing among young firms. What matters instead is the number of such branches being present, even if they are relatively small. Moreover, the younger the firm, the more important is this local presence of specialized branches for its access to credit.[11] Local start-up specialized branches facilitate credit access primarily for the youngest (and most opaque) firms of up to two years old. In the rest of this subsection, we therefore review in more detail the effect of specialized branches on credit access for this borrower group.

Table 3 first presents the results of estimating Equation 5 with the loan dummy dependent variable (the extensive margin). The sample in columns (1)-(3) includes start-ups active between 2004 and 2008. Columns (4)-(6) account for firm size and therefore only cover the 2006-2008 period.[12] We observe that more and larger start-up specialized branches in a municipality are associated with a higher borrowing probability for local young firms after the ENH reform gets locally implemented. When controlling for firm size in the last three columns, the impact of local lender specialization on the post-reform credit access increases in size and statistical significance (except for the market share variable). The estimates indicate that the presence of start-up specialized branches is an important determinant of bank credit availability for companies of up to two years old: one more specialized branch in the area increases a firm's probability of having a bank loan by 0.7 percentage point (pp) or 4% of the average probability of having a loan (18%). Likewise, a one standard deviation increase in the share of specialized branches improves a firm's probability of having a loan by almost 7% relative to the mean.

[11] Notably, in our sample, 95% of firms have some bank credit by the age of four years.

[12] Data availability is discussed in Section 3.

Table 4 presents the results of estimating equation 5 with financial leverage as the dependent variable (intensive margin). Since the calculation of financial leverage requires balance sheet information, the sample covers 2006–2008. The estimates in Table 4 indicate that all three measures of local start-up specialization have a positive impact on the volume of credit available to young companies. One standard deviation increase in the municipality-level lending specialization measures is associated with a 5.5-6.4% increase in firms' financial leverage relative to the mean value.

Our results are robust to running a more stringent model specification with firm-group fixed effects as per Equation 6.[13] If anything, the estimated coefficients are larger, indicating a stronger positive relationship between the local presence of start-up specialized lenders and the availability of credit for firms up to two years of age. Table A1 provides these specifications. Moreover, our results also hold when estimating the extensive margin (loan dummy) and intensive margin (leverage) specifications with a Probit and Tobit model, respectively. Tables A2 and A3 present these results.

5.6 Bank specialization and the survival of new firms

Focusing on a particular market segment, and gaining experience with that segment over time, gives banks an informational advantage in lending to that particular borrower group. We now examine whether specialization in lending to young firms is associated with a superior ability of bank branches to select viable new businesses. In particular, we are interested in whether post-reform start-ups are more likely to survive if they obtain their first loan from a start-up specialized branch. To answer this question, we use a sample of all new firms that obtain bank credit, and then gauge the difference in survival rates between start-ups that borrow from specialized branches and those that obtain credit from a non-specialized lender. We employ two complementary methodologies: a cross-sectional linear probability model and a Cox proportional hazards model (Cox (1972)).

5.6.1 Linear probability model

We first estimate a cross-sectional linear probability model to examine whether first-time borrowers that obtain credit from a specialized branch have a higher five- and ten-year

[13] As mentioned before, the trade-off here is that because firm balance sheet information is only available as of 2006, the estimation period is shorter (2006–2008) when including these interactive fixed effects.

survival probability than firms who receive their first loan from a non-specialized lender:[14]

$$S_{fimc}^{age} = \alpha + \beta_1 \text{ENH Firm}_f + \beta_2 \text{ENH Firm}_f \times \text{Spec}_{bm} + \beta_3 \text{Spec}_{bm} + \tau_c + \kappa_{mi} + \epsilon_{fimc} \quad (7)$$

where S_{fimc}^{age} is an indicator that is '1' if firm f operating in industry i and municipality m reaches the age of five or ten years ($age \in \{5, 10\}$), and '0' otherwise. We again consider all firms started between 2004 and 2008.[15] $Spec_{bm}$ is an indicator that takes the value of '1' if a firm obtains its first loan from a start-up specialized bank branch b and '0' if the loan is issued by a non-specialized branch. c indicates the firm cohort (the year of firm origination) and we control for each cohort's average survival probability with cohort fixed effects τ_c. ENH Firm$_f$ indicates firms created after the ENH reform was implemented in their municipality m. Within the same cohort, there are ENH firms and non-ENH firms depending on whether they were established before or after the local ENH introduction. Apart from the cohort fixed effects τ_c and municipality-industry fixed effects κ_{mi},[16] some specifications include bank fixed effects η_B. Bank fixed effects help to isolate the effect of an individual branch's specialization in lending to new firms from bank-wide characteristics, such as the bank's size or its organizational structure.

Columns (1)–(2) and (5)–(6) of Table 5 present the results of estimating Equation 7. We find that start-ups that obtain their first loan from a specialized bank branch are approximately 5 pp more likely to survive in the medium and long term. In columns (3)–(4) and (7)–(8), we include municipality-industry-cohort fixed effects. We now compare the difference in survival probability between new firms who get their first loan from a specialized versus a non-specialized bank among startups created in the same year, industry, and municipality. In this stringent specification, the effect of interest increases further: being screened and selected by a specialized lender is associated with a 6.1 (5.6) pp higher probability that a firm stays in business for five (ten) years. As only 46% of the borrowing firms in our sample stay in business for at least ten years, this constitutes a 12.2% higher survival probability.

We again examine the role of start-up specialized lenders on firms by age group.

[14] In this analysis, we focus on first-time borrowers because the information asymmetry between bank and potential borrower is largest for such loan applicants.

[15] Since here we consider firms when they obtain their first bank loan, there is no uncertainty about their activity status. The firms in the sample are all economically active and no assumptions are required.

[16] The model with three separate groups of fixed effects yields similar positive and statistically significant results, see Table A4.

We find that the difference in survival probability between new firms borrowing from a specialized versus a non-specialized branch, is largest for firms that obtain their first loan in the first year after establishment. Figure 8 depicts the coefficients of interest for four age groups. This shows that if an ENH start-up obtained a loan from a specialized branch before reaching the age of 12 months, it has an 8 pp higher survival probability than other equally old firms. In other words, the role of start-up specialization is strongest in the market segment where information asymmetries are likely to be largest. This supports the idea that the higher survival rates of young firms in the loan portfolio of specialized bank branches, reflect these branches' superior screening and selection expertise.

Next, we explore how two other key branch characteristics correlate with firms' survival probabilities, and we horse-race these characteristics with branch start-up specialization. In particular, we consider the branch's industry specialization and its size (the natural logarithm of the branch's loan portfolio) as alternative proxies for lenders' screening ability.[17] Table 6 reports the results. We observe that when a lender specializes in an industry, then the five-year survival probability of new firms in that particular industry is substantially higher as compared to firms who borrow from a branch that is not specialized in their industry. This effect is statistically significant at the ten percent level, operative in the post-reform period, but dissipates in the longer run and is no longer detectable after ten years. The branch's size, especially when compared with other branches of the same bank by means of bank fixed effects, is also positively associated with firms' survival probability. However, this effect exists before and after the ENH reform.

In sum, compared to these two alternative branch characteristics, a branch's specialization in lending to new firms has the most robust effect on the survival probability of such firms when entry barriers are drastically reduced.[18]

5.6.2 Cox proportional hazards model

We further examine the link between branch specialization and start-up survival probability by means of a Cox proportional hazard analysis. We start by examining Kaplan-Meier

[17] Our industry specialization measure is constructed in the same way as the start-up specialization, that is by using the number of borrowers in each industry. If we instead construct an industry specialization measure based on industry-specific lending volumes instead of the number of borrowers, we find very similar results, as can be seen in Table A5.

[18] In Appendix Table A6, we present an additional test where we control for the branches' observable and unobservable characteristics by means of branch fixed effects.

curves for firm survival rates over time. Figure 9 plots the survival functions for firms created before and after the deregulation took place in treated municipalities. We observe that firms created after the reform are more likely to go out of business, starting from the third year of operations. This gap in survival rates widens during the first decade.

Next, we examine whether borrowing from different types of bank branches shifts these survival functions. Figure 10 depicts the Kaplan-Meier curves for firms established after the ENH reform, splitting them by whether they received their first loan from a start-up specialized branch or not. Consistent with our earlier findings, we see that start-ups borrowing from a specialized bank branch have a higher survival probability, especially in the longer term. More formally, we can estimate the following proportional hazards model, using the same sample as in Section 5.6.1:

$$\lambda(t) = \lambda_0(t) \times \exp(\beta_1 \text{ENH Firm}_f + \beta_2 \text{ENH Firm}_f \times \text{Spec}_{bm} + \beta_3 \text{Spec}_{bm} + \tau_c + \mu_m + \nu_i) \quad (8)$$

The coefficients (log hazard ratio) for Equation 8 are reported in column 1 of Table 7. In column 2, we allow for stratification by cohort, so that an individual baseline hazard $\lambda_c(t)$ is estimated for each cohort c. The estimates resulting from this proportional hazards model are fully consistent with our prior findings. Among all firms created after a municipality reduced firm-entry barriers, those borrowing from a start-up specialized branch are less likely to fail in the medium- to long term. We find an almost 12% decrease in the relative risk of going out of business at every age (conditional on reaching this age) for firms who obtain their first loan from a specialized branch.

5.7 Bank specialization and the performance of new firms

In this last section, we compare the operational performance of firms originated after the ENH reform depending on whether they received their first loan from a start-up specialized branch or a regular branch. We estimate a cross-sectional model analogous to Equation 7:

$$Y_{fimc}^{age} = \alpha + \beta_1 \text{ENH Firm}_f + \beta_2 \text{ENH Firm}_f \times \text{Spec}_{bm} + \beta_3 \text{Spec}_{bm} + \tau_c + \kappa_{mi} + \epsilon_{fimc} \quad (9)$$

where Y_{fimc}^{age} is one of several continuous firm performance measures calculated at the end of the calendar year, when a firm reaches a certain age ($age \in \{5, 10\}$). We consider the following firm outcomes: net profit over total assets; EBITDA (earnings before interest, taxes, depreciation, and amortisation) over total assets; the natural logarithm of the number of workers; and the growth in the number of workers between the year when the first loan is obtained and the year when a firm reaches the specified age.

As before, we control for common cohort characteristics with cohort fixed effects, τ_c, while municipality-industry fixed effects, κ_{mi}, account for the average performance of local peer firms. $Spec_{bm}$ is a dummy variable indicating that a firm obtained its first bank loan from a start-up specialized branch and $ENH\ Firm_f$ indicates that a firm was originated after the ENH reform was implemented in its municipality.

Table 8 presents the results on start-up specialization and firm performance. We find that firms that obtain financing from a branch specialized in lending to young firms, exhibit a substantially higher return on assets when they are five years old. Considering that the median net profit over total assets in this sample is 0 and the median EBITDA over total assets is 3.5%, the observed 3 pp and 4 pp of excess profitability are striking.

Among firms that survive until the age of ten, there is no longer a profitability difference depending on the type of bank branch they first borrowed from. We do find tentative evidence, however, that at that age, firms that initially borrowed from a start-up specialized lender employ more workers than their peers. In columns 5-8 of Table 9, we find positive coefficients indicating a higher number of workers and higher growth in the number of workers among these firms. These coefficients are only statistically significant (at the 10% level) when we include bank fixed effects. They suggests that, controlling for the overall bank-level quality of lending, the start-ups that obtain loans from specialized branches employ 9% more workers after a decade in business. These firms have also grown their workforce by 33 pp more than their peers between the year in which they obtained their first bank loan and the year in which they turn ten years old.

The higher profitability of firms funded by specialized branches explains, at least partially, the higher survival rate of these firms. It also provides further evidence in favor of specialized branches' expertise in screening and selecting new firms. The faster job creation among firms borrowing from specialized branches is another policy-relevant finding. It suggests the superior screening of specialized banks helps to achieve the

objectives of the deregulation while mitigating potential adverse effects on firm quality.

6 Conclusions

We have evaluated the benefits of bank specialization in lending to new firms for firm creation and subsequent survival. Exploiting a spatially staggered deregulation reform in Portugal that spurred firm entry, we document that firm creation is concentrated in areas where start-up specialized bank branches play a larger role. This effect is separate from that of overall bank competition in the area and does not reflect local pre-reform entrepreneurial activity. In terms of mechanisms, we demonstrate that start-up specialization facilitates access to credit for new firms that are typically characterized by high levels of opacity. Moreover, firms that borrow from these lenders face substantially better survival prospects; achieve higher productivity; and employ more workers.

Our findings can inform public policy directed at supporting small business creation while preserving financial stability. In particular, we show that there are important complementarities between local credit market conditions and policies aimed at stimulating entrepreneurial activity. While lowering entry barriers can boost firm entry and local employment growth, such deregulation can also undermine the quality of the marginal firm entrant. We show that such negative side effects may be mitigated when local bank branches that have specialized in lending to new and young firms, can effectively screen the increased flow of new firm establishments.

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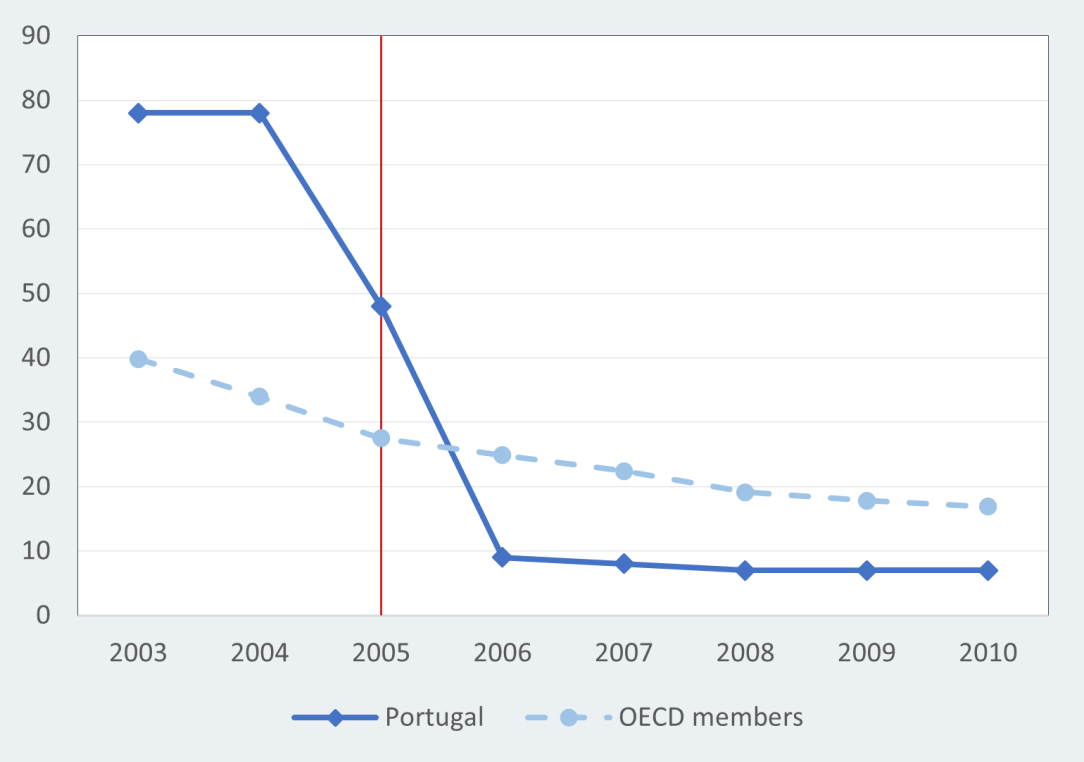
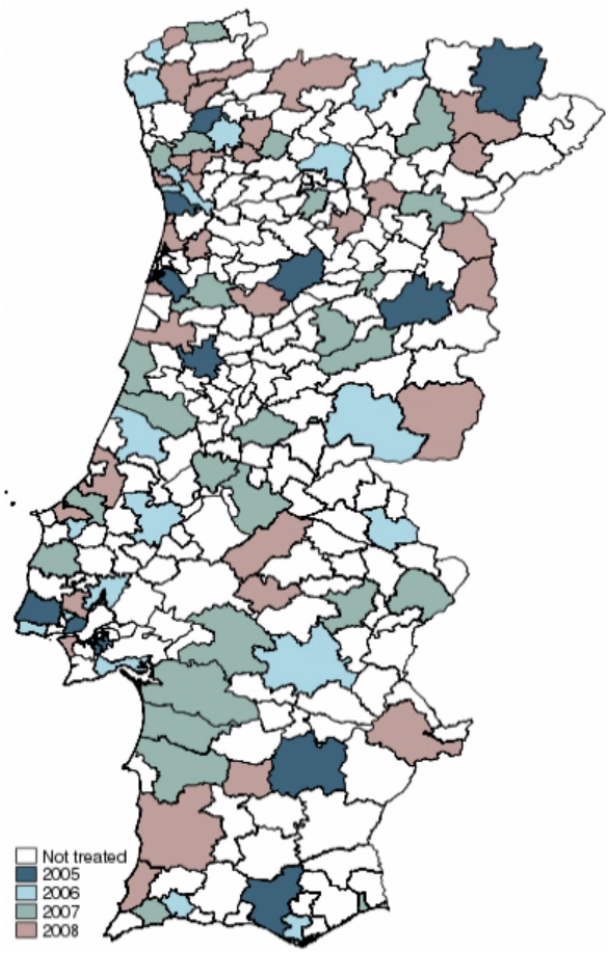
Figure 1: Number of days required to start a business



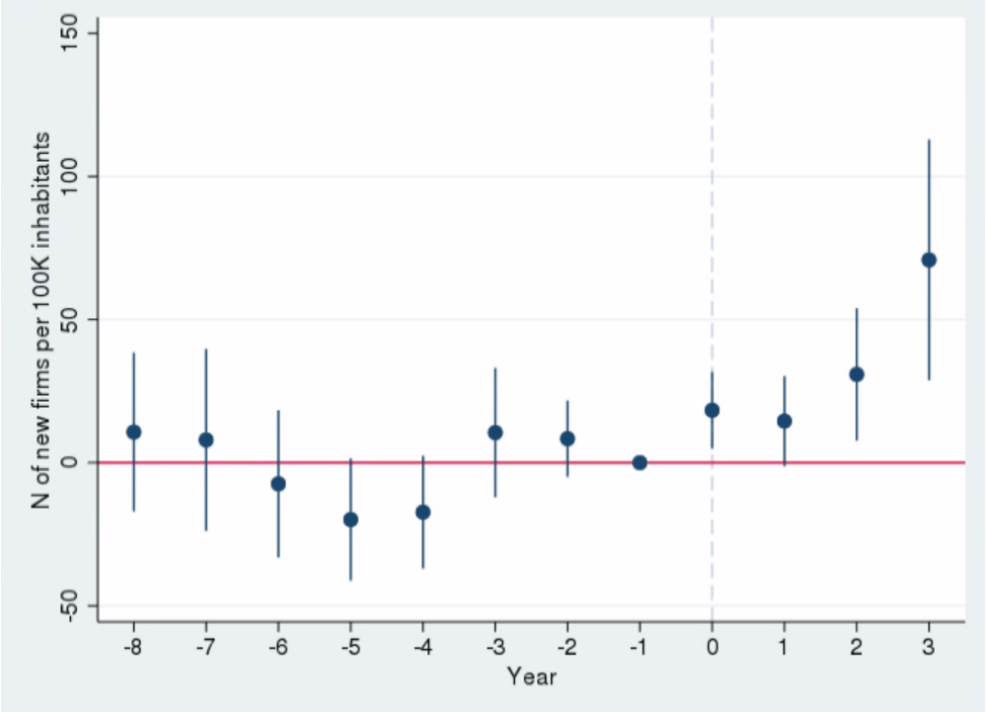
Notes: This figure plots the average number of days it takes to register a company in OECD member countries (dashed line) and in Portugal (solid line). The vertical red line indicates the start of the staggered rollout of the ENH program across Portugal in 2005. *Source*: Ease of Doing Business Index (World Bank)

Figure 2: Staggered rollout of the ENH reform across municipalities and over time



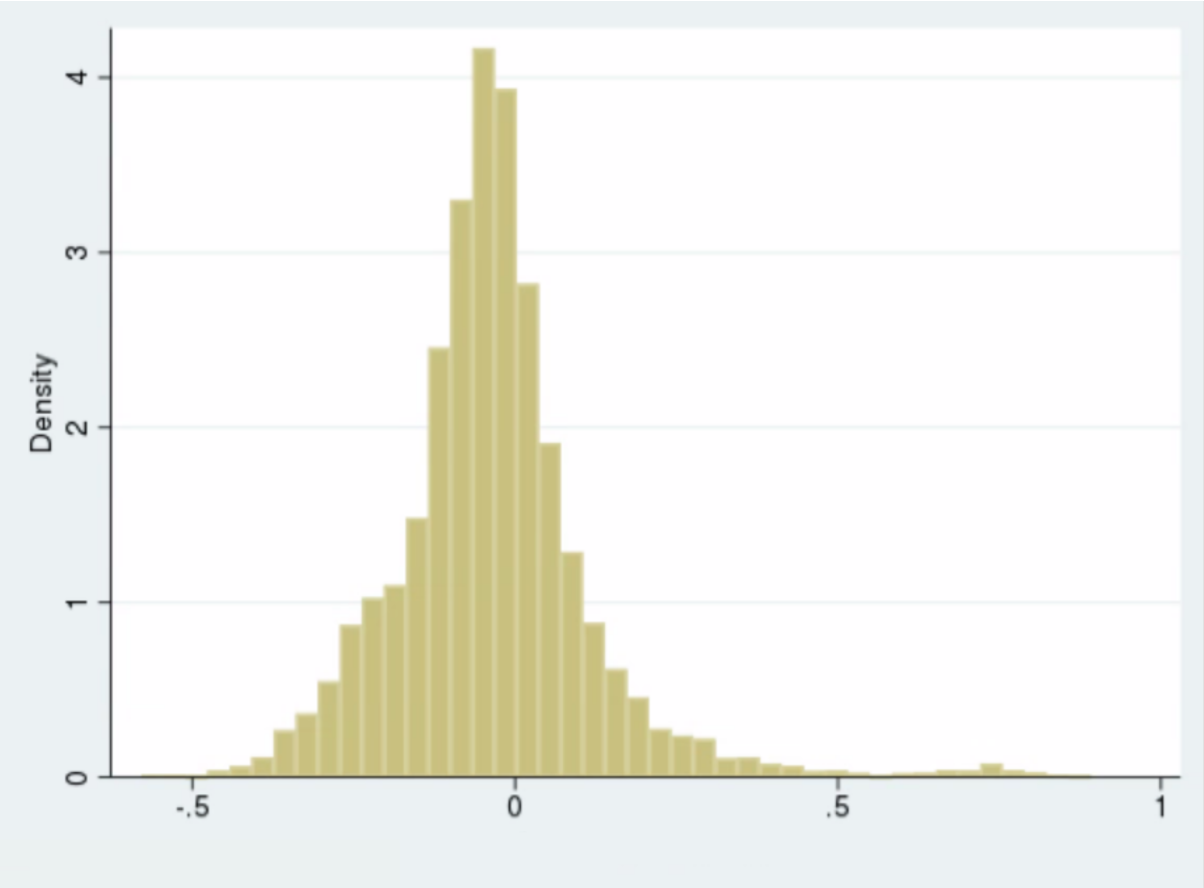
Notes: This map depicts the staggered implementation of the ENH program across Portuguese municipalities in 2005 (dark blue), 2006 (light blue), 2007 (light green), and 2008 (light brown). "Not treated" (white) indicates municipalities which had not been treated by the end of 2008.

Figure 3: Dynamic impact of the ENH reform on local firm creation



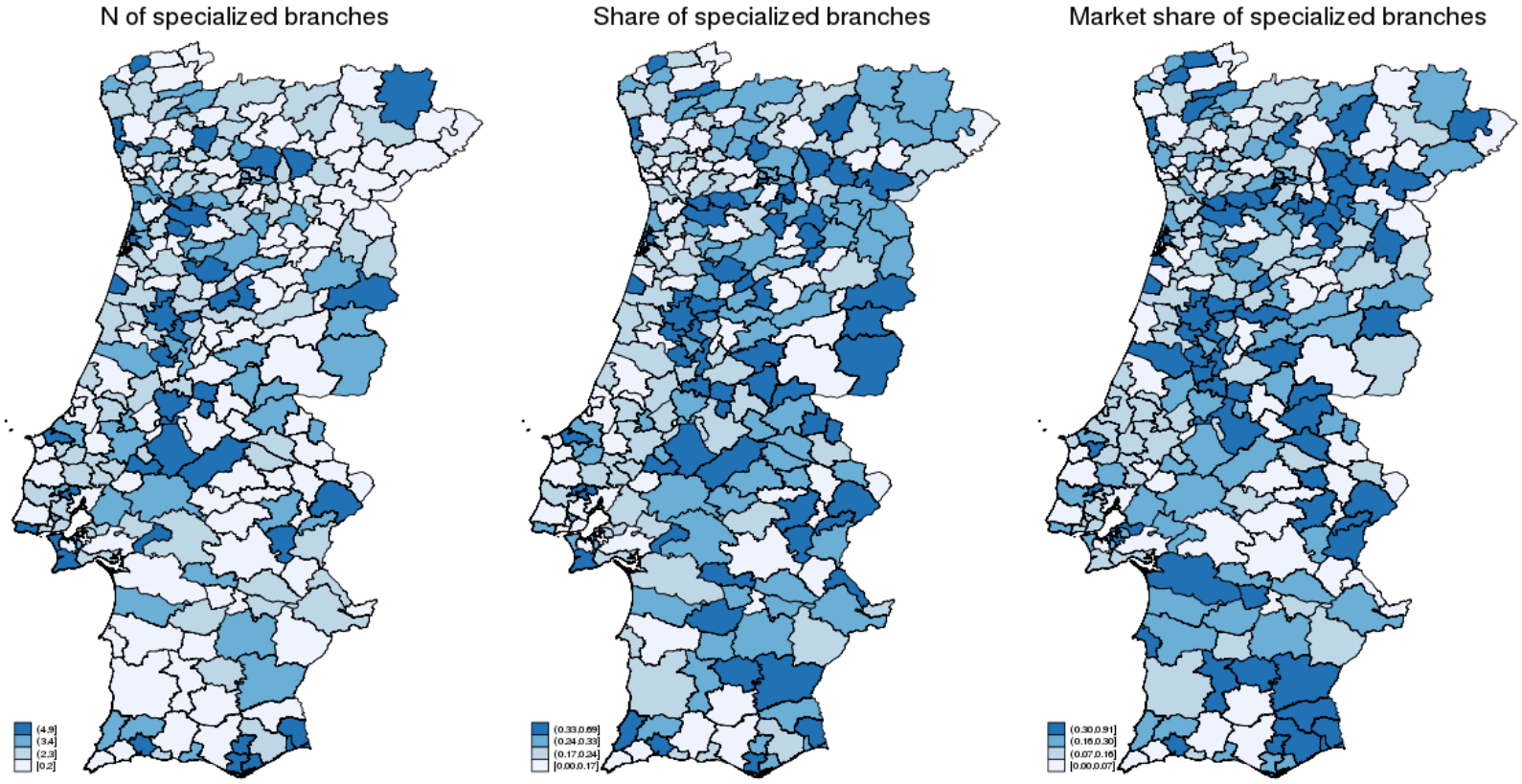
Notes: This event study plot is based on the stacking methodology of Cengiz et al. (2019) and shows the dynamic impact of the staggered ENH implementation across Portuguese municipalities on local firm creation. Estimation is performed at the municipality-year level. The dependent variable is the number of newly incorporated firms in a municipality per year per 100,000 inhabitants. The staggered treatment at the municipality level starts in mid-2005. 95% confidence intervals are shown.

Figure 4: Distribution of Portuguese bank branches' relative specialization in lending to new firms (E_{bmt}) in 2004



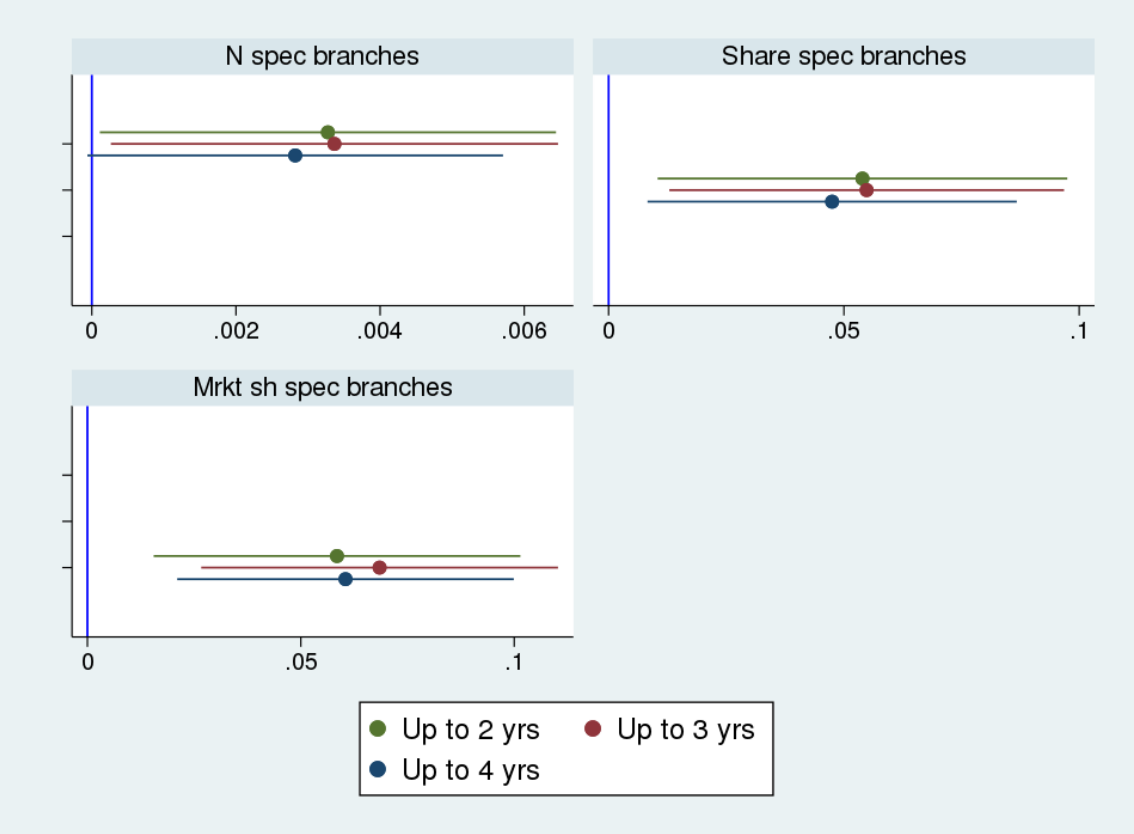
Notes: This figure depicts the distribution of Portuguese bank branches' relative specialization in lending to new firms. Relative specialization is calculated as the difference between a branch's individual exposure to firms aged four years or less (as a share of total corporate lending) and the average such exposure among all bank branches in the same municipality.

Figure 5: Municipality-level measures of bank specialization in lending to new firms



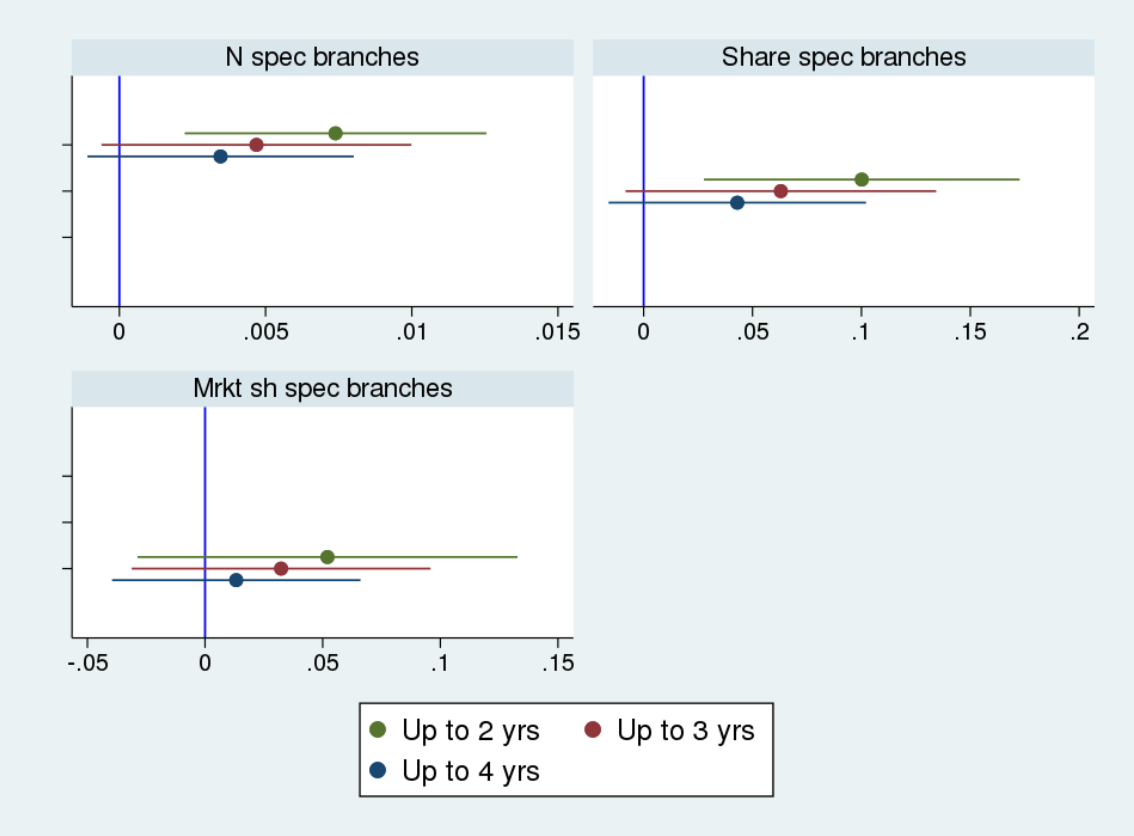
Notes: These heat maps show the spatial distribution across Portuguese municipalities of bank specialization in lending to new firms. The distribution of the measures are split in quartiles, where darker blue indicates higher quartiles and hence more local bank branch specialization in lending to new firms. The municipality-level specialization measures are the number of specialized branches in the municipality (left); the share of specialized branches in the total number of branches in the municipality (middle); and the joint market share of specialized branches in the municipality (right).

Figure 6: Bank specialization, firm age, and credit access



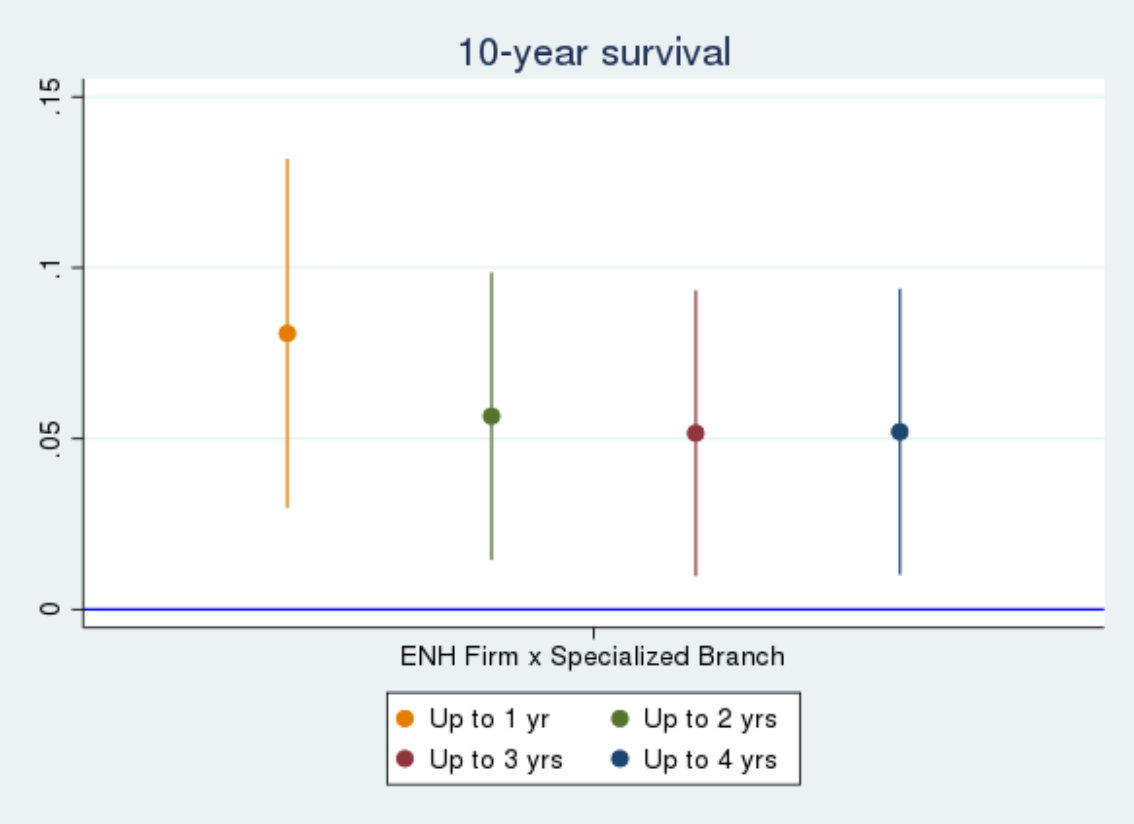
Notes: This figure plots the probability of having a bank loan for new firms, after the ENH reform is implemented in their municipality and depending on the start-up specialization of local bank branches. Each horizontal line refers to a different age group of firms (firms up to 2, 3, or 4 years old). The dot represents the point estimate of a panel regression where the dependent variable takes the value of 1 if the firm has a bank loan at the end of the year (0 otherwise). The displayed coefficients refer to the interaction between a binary variable indicating the ENH reform implementation and a continuous variable of local branches' start-up specialization aggregated at the municipality level: the number of specialized branches, the share of specialized branches in the total number of branches, and the total market share of specialized branches (each represented in a separate chart). The regressions include municipality, industry, and year fixed effects as well as the firm's age in months and pre-reform measures for bank market concentration (HHI) and entrepreneurial activity (the number of economically active start-ups). The estimation period is 2004–2008 and 90% confidence intervals are shown.

Figure 7: Bank specialization, firm age, and credit access: Including municipality-industry-size group fixed effects



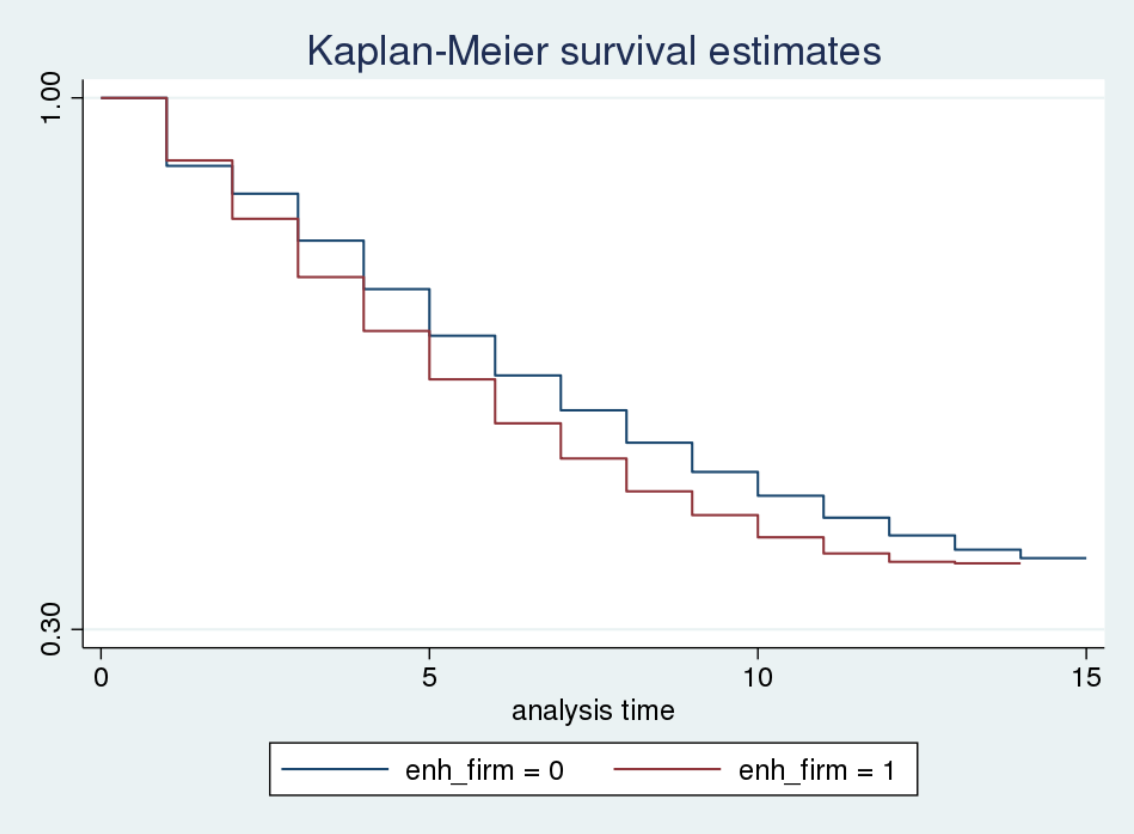
Notes: This figure plots the probability of having a bank loan for new firms, after the ENH reform is implemented in their municipality and depending on the start-up specialization of local bank branches. Each horizontal line refers to a different age group of firms (firms up to 2, 3, or 4 years old). The dot represents the point estimate of a panel regression, where the dependent variable takes the value of 1 if the firm has a bank loan at the end of the year (0 otherwise). The displayed coefficients refer to the interaction between a binary variable indicating the reform implementation and a continuous variable of local branches' start-up specialization aggregated at the municipality level: the number of specialized branches, the share of specialized branches in the total number of branches, and the total market share of specialized branches (each represented in a separate chart). The regressions include year fixed effects and firm-group fixed effects (that is, municipality-industry-size group fixed effects). The size group is determined as a within-industry quintile of the natural logarithm of firms' total assets. The regressions include the firm age in months as well as the pre-reform measures for bank market concentration (HHI) and level of the entrepreneurial activity (number of economically active start-ups) as controls. The estimation period is 2006–2008 and 90% confidence intervals are shown.

Figure 8: Borrowing from start-up specialized lenders and survival probability



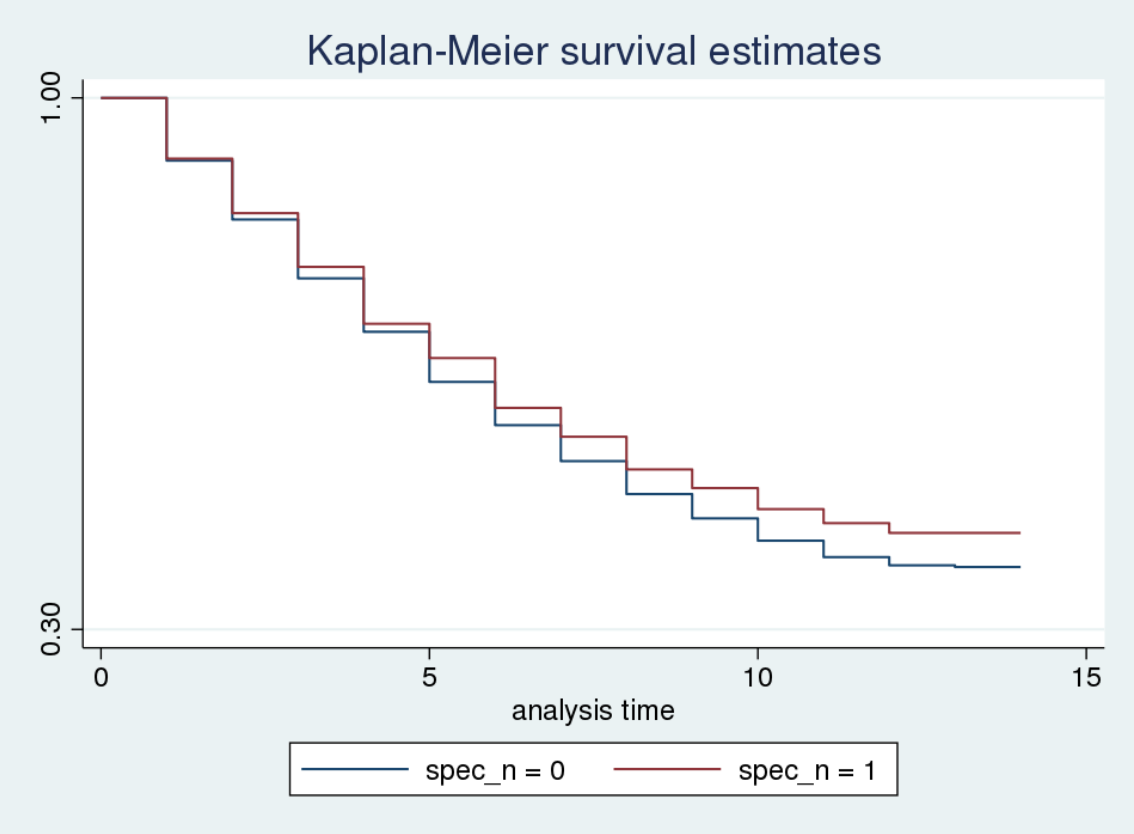
Notes: This figure plots the 10-year survival probability of start-up firms, created after the reform and financed by a specialized bank branch. Each vertical line refers to a different age group of firms (firms up to 1, 2, 3, or 4 years old). The dot represents the point estimate of a cross-sectional regression, where the dependent variable takes the value of 1 if the firm is in operation for at least 10 years (0 otherwise). The coefficient refers to the interaction between a binary variable capturing if the firm was created after the reform and a binary variable capturing if the firm borrows from a bank branch specialized in lending to start-ups (defined as being in the upper quartile of the relative branch specialization measure). The regression includes municipality-industry and firm creation cohort fixed effects. The vertical lines represent 95% confidence intervals.

Figure 9: Kaplan-Meier survival analysis: ENH firms vs non-ENH firms



Notes: This Kaplan-Meier plot shows the survival functions for ENH firms (firms established after the ENH reform was introduced in their municipality, shown in red) and non-ENH firms (firms established before the ENH reform was introduced in their municipality, shown in blue) in the treated municipalities. Each step of the function indicates the share of the firms in the population that survived up to the corresponding age. The data is right-censored as after year 2018 the survival of firms is not observed. Logrank test statistics for differences between the curves: $\chi^2(1) = 57.0$ (p-value $= 0.000$).

Figure 10: Kaplan-Meier survival analysis of ENH firms: Specialized branch borrowers vs non-specialized branch borrowers



Notes: This Kaplan-Meier plot shows survival functions for the populations of the ENH firms that obtain their first loan from a start-up specialized branch (red) or from a non-specialized branch (blue). Each step of the function indicates the share of the firms in the population that survived up to the corresponding age. The data is right-censored as after year 2018 the survival of firms is not observed. An ENH firm is a firm registered after the ENH reform was implemented in a municipality. A specialized branch is a bank branch that is identified as specialized in lending to new firms pre-reform. Logrank test statistics for differences between the curves: $\chi^2(1) = 5.9$ (p-value $= 0.015$).

Table 1: Impact of the ENH reform on municipal firm creation

	(1) Two-Way Fixed Effects	(2) Callaway and Sant'Anna (2021)	(3) Cengiz et al. (2019)
ENH	24.26***	24.78***	25.07***
	(7.92)	(8.29)	(7.24)
Obs.	1,656	1,656	4,356
R^2	0.778		0.773

Notes: The estimations are performed at the municipality-year level. The dependent variable is the number of new firms per 100,000 municipality inhabitants annually. The two-way fixed effects model includes municipality and year fixed effects. The Callaway and Sant'Anna (2021) model uses not yet treated and "never treated" (i.e. not treated until 2008) municipalities as the control group. The Cengiz et al. (2019) methodology constructs the control group out of "never treated" municipalities in the sample. Column 3 reports a higher number of observations, as the Cengiz et al. (2019) methodology generates separate stacks (samples) of observations for each treated cohort. A stack includes observations from a cohort of municipalities that receive treatment in the same year and from all the municipalities that never receive the treatment. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Impact of the ENH reform on municipal firm creation, conditional on local branch specialization in lending to new firms

	(1)	(2)	(3)	(4)	(5)	(6)
ENH	0.200	-0.944	9.265	40.64	50.33	68.79*
	(10.99)	(10.98)	(8.803)	(35.73)	(35.23)	(35.77)
ENH x No. of specialized branches	8.384**			7.893**		
	(3.377)			(3.296)		
ENH x Share of specialized branches		120.2**			119.0**	
		(47.66)			(47.14)	
ENH x Market share of specialized branches			112.2*			121.5*
			(63.46)			(62.73)
ENH x HHI				-56.56	-138.2	-154.5
				(142.7)	(143.4)	(135.2)
ENH x No. of new firms scaled by population				-0.033	-0.034	-0.042
				(0.030)	(0.030)	(0.032)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,656	1,656	1,656	1,656	1,656	1,656
Adjusted R-squared	0.749	0.750	0.749	0.749	0.750	0.749
Impact of one SD increase in specialization measure	*13.2*	*12.4*	*16.2*	*12.4*	*12.3*	*17.5*

Notes: The estimations are performed at the municipality-year level. The dependent variable is the number of newly registered firms per 100,000 inhabitants annually. ENH is an indicator variable that takes the value of 1 starting from the year when the ENH reform was implemented in a municipality and 0 otherwise. The coefficients of interest are the interaction terms of the ENH variable and municipality-level measures of the intensity of local bank branches' specialization: "No. of specialized branches" is the absolute number of specialized bank branches operating in a municipality at the end of the pre-reform year 2004; "Share of specialized branches" is the number of specialized branches divided by the total number of bank branches operating in a municipality at the end of 2004; "Market share of specialized branches" is the sum of market shares of all the specialized branches operating in a municipality (value between 0 and 1). HHI is Hirschman-Herfindahl index that captures bank competition in the credit market at the end of 2004. We control for the level of the pre-reform entrepreneurial activity in a municipality by including the number of economically active young firms (up to 4 years old) at the end of 2004 scaled by the municipality's population. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Local bank specialization and credit access: Extensive margin

	2004-2008			2006-2008		
	(1)	(2)	(3)	(4)	(5)	(6)
ENH	-0.008	-0.003	0.001	-0.008	-0.004	0.002
	(0.018)	(0.018)	(0.018)	(0.032)	(0.033)	(0.035)
ENH x No. of specialized branches	0.003*			0.007***		
	(0.002)			(0.003)		
ENH x Share of specialized branches		0.054**			0.097***	
		(0.026)			(0.036)	
ENH x Market share of specialized branches			0.059**			0.050
			(0.026)			(0.042)
ENH x HHI	-0.004	-0.043	-0.020	0.051	0.011	0.092
	(0.084)	(0.089)	(0.083)	(0.098)	(0.105)	(0.113)
ENH x No. of new firms scaled by population	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm size				0.104***	0.104***	0.104***
				(0.002)	(0.002)	(0.002)
Firm age	0.013***	0.013***	0.013***	0.008***	0.008***	0.008***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	235,367	235,367	235,367	107,527	107,527	107,527
Adjusted R-squared	0.104	0.104	0.104	0.183	0.183	0.183
Impact of one SD increase in specialization measure (relative to mean)	*2.8%*	*3.7%*	*3.4%*	*6.7%*	*6.7%*	

Notes: This table presents estimations for new firms' borrowing probability depending on local bank branch specialization in lending to new firms. The estimations are based on a firm-year panel. The dependent variable is an indicator that is 1 if a firm has a bank loan at the end of the calendar year; 0 otherwise. The sample consists of firms of up to two years old. For other age groups, see Figures 7 and A1). ENH is an indicator that is 1 starting from the year when the ENH reform was implemented in a municipality; 0 otherwise. The coefficients of interest are the interaction terms of the ENH variable and municipality-level measures of the intensity of local bank branches' specialization: "No. of specialized branches" is the absolute number of specialized bank branches operating in a municipality at the end of the pre-reform year 2004; "Share of specialized branches" is calculated as the number of specialized branches divided by the total number of bank branches operating in a municipality at the end of 2004; "Market share of specialized branches" is the sum of market shares of all specialized branches operating in a municipality (value between 0 and 1). HHI is the Hirschman-Herfindahl index that proxies for bank competition in the credit market at the end of 2004. We control for the level of pre-reform entrepreneurial activity in a municipality by including the number of economically active young firms (up to 4 years old) at the end of 2004 scaled by the municipality's population. Firm age is measured in months at the end of the calendar year. Firm size is the natural logarithm of total assets. Total assets data is available starting from 2006. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Local bank specialization and credit access: Intensive margin

	(1)	(2)	(3)	(4)	(5)	(6)
ENH	0.009	0.010	0.012	0.008	0.009	0.011
	(0.025)	(0.024)	(0.024)	(0.025)	(0.024)	(0.024)
ENH x No. of specialized branches	0.003*			0.003*		
	(0.002)			(0.002)		
ENH x Share of specialized branches		0.049**			0.049**	
		(0.022)			(0.022)	
ENH x Market share of specialized branches			0.048*			0.049*
			(0.026)			(0.026)
ENH x HHI	0.051	0.024	0.054	0.047	0.021	0.050
	(0.119)	(0.125)	(0.114)	(0.119)	(0.125)	(0.114)
ENH x No. of new firms scaled by population	-0.000*	-0.000*	-0.000**	-0.000*	-0.000*	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm size				0.011***	0.011***	0.011***
				(0.001)	(0.001)	(0.001)
Firm age	0.003***	0.003***	0.003***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	106,989	106,989	106,989	106,989	106,989	106,989
Adjusted R-squared	0.018	0.018	0.018	0.021	0.021	0.021
Impact of one SD increase in specialization measure (relative to mean)	*5.5%*	*6.4%*	*5.3%*	*5.5%*	*6.4%*	*5.4%*

Notes: The table presents the estimations for the new firms' financial leverage depending on the local bank branches' specialization in lending to new firms. The estimations are performed in a panel setup at the firm-year level. The dependent variable is financial leverage calculated as debt over total assets. Firm balance sheet information is available starting from 2006. Therefore, the estimation period in the table is from 2006 to 2008. The sample consists of firms in the age group of up to two years. ENH is an indicator variable that takes the value of 1 starting from the year when the ENH reform was implemented in a municipality and 0 otherwise. The coefficients of interest are the interaction terms of the ENH variable and municipality-level measures of the intensity of local bank branches' specialization: "No. of specialized branches" is the absolute number of the specialized bank branches operating in a municipality at the end of the pre-reform year 2004; "Share of specialized branches" is calculated as the number of specialized branches divided by the total number of bank branches operating in a municipality at the end of 2004; "Market share of specialized branches" is the sum of market shares of all the specialized branches operating in a municipality (value between 0 and 1). HHI is Hirschman-Herfindahl index that approximates bank competition in the credit market at the end of 2004. We control for the level of the pre-reform entrepreneurial activity in a municipality by including the number of economically active young firms (up to 4 years old) at the end of 2004 scaled by the municipality's population. Firm age is measured in months at the end of the calendar year. Firm size is the natural logarithm of total assets. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Branch specialization in lending to new firms and firm survival

	5-year survival				10-year survival			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENH Firm	0.004	0.003	0.022	0.022	0.002	0.000	-0.014	-0.016
	(0.010)	(0.010)	(0.025)	(0.024)	(0.010)	(0.010)	(0.022)	(0.021)
ENH Firm x Specialized Branch	0.051**	0.048**	0.061***	0.057***	0.052**	0.047**	0.056**	0.054***
	(0.021)	(0.020)	(0.023)	(0.022)	(0.021)	(0.020)	(0.022)	(0.021)
Specialized Branch	-0.003	-0.020*	-0.004	-0.015	0.002	-0.019*	0.001	-0.018
	(0.011)	(0.011)	(0.013)	(0.013)	(0.011)	(0.011)	(0.012)	(0.012)
Municipality-Ind & Cohort FE	Yes	Yes			Yes	Yes		
Municipality-Ind-Cohort FE			Yes	Yes			Yes	Yes
Bank FE		Yes		Yes		Yes		Yes
Observations	36,582	36,578	34,186	34,183	36,582	36,578	34,186	34,183
Adjusted R-squared	0.032	0.037	0.030	0.035	0.041	0.048	0.042	0.047
Relative to average survival rate	*7.8%*	*7.4%*	*9.4%*	*8.8%*	*11.6%*	*10.4%*	*12.4%*	*12.0%*

Notes: This table presents estimations of the cross-sectional linear probability model 7 to examine the survival rate of new firms created after the ENH reform, depending on whether a firm obtains its first ever loan from a specialized or a non-specialized bank branch. The dependent variables are indicator variables that take the value of 1 if a start-up reached the age of 5 or 10 years and 0 otherwise. The average 5- and 10-year survival probability in this sample of borrowing new firms is 67% and 46%, respectively. ENH firm is an indicator variable that takes the value of 1 if a firm was registered after the ENH office was launched in its municipality and 0 otherwise. Specialized branch is an indicator variable that takes the value of 1 if a bank branch is identified as specialized in lending to new firms in the pre-reform year 2004 and the value of 0 if the branch is not specialized. Cohort stands for the year in which a firm is originated. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Branch specialization in lending to new firms and firm survival: Alternative branch characteristics

	5-year survival				10-year survival			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENH Firm	-0.001	-0.002	-0.069	-0.053	0.003	0.001	-0.061	-0.057
	(0.010)	(0.010)	(0.091)	(0.090)	(0.010)	(0.010)	(0.089)	(0.090)
ENH Firm x Specialized Branch	0.049**	0.046**	0.052**	0.047**	0.053**	0.047**	0.055**	0.049**
	(0.021)	(0.020)	(0.023)	(0.021)	(0.021)	(0.020)	(0.023)	(0.021)
Specialized Branch	-0.003	-0.020*	0.002	-0.016	0.002	-0.020*	0.005	-0.016
	(0.011)	(0.011)	(0.011)	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)
ENH Firm x Industry Specialized Branch	0.024*	0.026*	0.027*	0.027*	-0.006	-0.004	-0.004	-0.003
	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)	(0.015)
Industry Specialized Branch	-0.008	0.004	-0.003	0.005	-0.008	0.003	-0.006	0.004
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
ENH Firm x Branch Size			0.004	0.003			0.003	0.003
			(0.005)	(0.005)			(0.005)	(0.005)
Branch Size			0.009***	0.019***			0.004	0.018***
			(0.003)	(0.006)			(0.004)	(0.006)
Constant	0.669***	0.669***	0.505***	0.323***	0.458***	0.459***	0.381***	0.131
	(0.003)	(0.003)	(0.047)	(0.107)	(0.003)	(0.003)	(0.064)	(0.115)
Municipality-Ind & Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes		Yes		Yes		Yes
Observations	36,582	36,578	36,582	36,578	36,582	36,578	36,582	36,578
Adjusted R-squared	0.032	0.037	0.032	0.038	0.041	0.048	0.041	0.048
Relative to average survival rate	*7.5%*	*7.1%*	*8.0%*	*7.2%*	*11.8%*	*10.4%*	*12.2%*	*10.9%*

Notes: This table presents estimates of the cross-sectional linear probability model 7 to examine the survival rate of new firms created after the ENH reform, depending on whether a firm obtains its first ever loan from a specialized or a non-specialized branch. The dependent variables are indicator variables that take the value of 1 if a start-up reached the age of 5 or 10 years, and 0 otherwise. Average 5- and 10-year survival probabilities in this sample of borrowing new firms are 67% and 46%, respectively. ENH firm is an indicator variable that takes the value of 1 if a firm was registered after the ENH office was launched in its municipality and 0 otherwise. Specialized branch is an indicator variable that takes the value of 1 if a bank branch is identified as specialized in lending to new firms in the pre-reform year 2004 and the value of 0 if the branch is not specialized. Cohort stands for the year when a firm is originated. Industry-specialized branch is an indicator for a bank branch specialized in the new firm's 1-digit industry (pre-reform). Branch size is the natural logarithm of the branch's total corporate loan portfolio in thousand euros. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Cox survival analysis

	(1)	(2)
ENH Firm	0.009	0.007
	(0.024)	(0.024)
ENH Firm x Specialized Branch	-0.120**	-0.116**
	(0.055)	(0.054)
Specialized Branch	-0.007	-0.008
	(0.028)	(0.028)
Municipality FE	Yes	Yes
Industry FE	Yes	Yes
Cohort FE	Yes	
Stratification by Cohort		Yes
Observations	36,995	36,995
Wald chi2	4.93E+06	7.64E+07
Prob >chi2	0.000	0.000

Notes: This table presents estimations of a proportional hazard model for new firms' hazard of going out of business over time. The point estimates are the log of the hazard ratio ($\lambda(t)/\lambda_0(t)$) and reflect the approximate increase or decrease in the underlying hazard ratio. To arrive at an exact estimate, subtract an exponent of the coefficient from 1. A negative (positive) estimate indicates a lower (higher) probability of going out of business. Cohort is the year of firm origination. Stratification by cohort allows for an individual baseline hazard $\lambda_c(t)$, i.e., individual average failure probability, for each cohort of firms. ENH firm is an indicator for a new firm that was originated as a result of the ENH reform. Specialized branch is an indicator for a bank branch specialized in lending to new firms pre-reform. The interaction coefficient of interest indicates that an ENH firm that obtains its first loan from a specialized branch has an 11.3% (*1-exp(-0.12)*) lower hazard of going out of business than an ENH firm borrowing from a non-specialized branch. The estimation period is 2004–2008. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Branch specialization in lending to new firms and firm profitability

	At the age of 5 years				At the age of 10 years			
	$\frac{\text{Net Profit}}{\text{Total Assets}}$		$\frac{\text{EBITDA}}{\text{Total Assets}}$		$\frac{\text{Net Profit}}{\text{Total Assets}}$		$\frac{\text{EBITDA}}{\text{Total Assets}}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENH Firm	-0.008	-0.008	-0.006	-0.006	-0.013**	-0.013**	-0.008	-0.009
	(0.008)	(0.007)	(0.008)	(0.008)	(0.006)	(0.006)	(0.007)	(0.007)
ENH Firm x Specialized Branch	0.033**	0.029**	0.039***	0.037**	0.004	0.007	0.001	0.004
	(0.013)	(0.014)	(0.014)	(0.015)	(0.013)	(0.012)	(0.014)	(0.013)
Specialized Branch	0.003	-0.005	0.001	-0.006	-0.003	-0.001	-0.004	-0.002
	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.007)	(0.008)
Municipality-Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes		Yes		Yes		Yes
Observations	23,799	23,795	23,799	23,795	16,201	16,193	16,201	16,193
Adjusted R-squared	0.045	0.045	0.046	0.048	0.054	0.054	0.047	0.046

Notes: This table presents estimations of the cross-sectional model 9 to examine the performance of firms created after the ENH reform depending on whether they obtain their first loan from a specialized branch or non-specialized branch. The dependent variables are continuous measures of firm profitability calculated at the end of the calendar year when a firm reaches the age of 5 or 10 years: net profit over total assets and EBITDA over total assets. ENH firm is an indicator variable that takes the value of 1 if a firm was registered after the ENH office was launched in its municipality and 0 otherwise. Specialized branch is an indicator variable that takes the value of 1 if a bank branch is identified as a specialized in lending to new firms in the pre-reform year 2004 and the value of 0 if the branch is not specialized. Cohort stands for the year in which a firm is originated. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

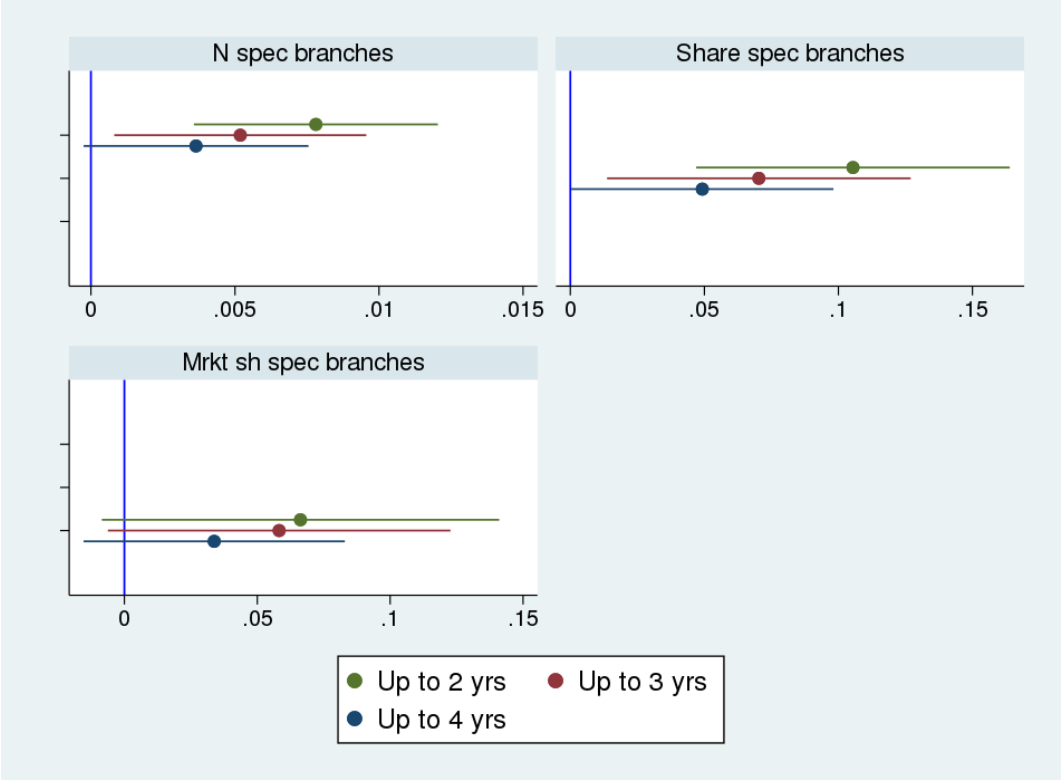
Table 9: Branch specialization in lending to new firms and job creation

	At the age of 5 years				At the age of 10 years			
	Ln(No.Workers)		Δ No.Workers		Ln(No.Workers)		Δ No.Workers	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENH Firm	0.005	0.004	0.058	0.047	-0.019	-0.024	0.011	-0.008
	(0.018)	(0.018)	(0.053)	(0.053)	(0.029)	(0.029)	(0.082)	(0.081)
ENH Firm x Specialized Branch	-0.015	-0.005	0.020	0.055	0.071	0.093*	0.262	0.330*
	(0.031)	(0.031)	(0.121)	(0.127)	(0.052)	(0.051)	(0.167)	(0.168)
Specialized Branch	-0.019	-0.034*	-0.038	-0.115	-0.014	-0.033	0.032	-0.015
	(0.016)	(0.018)	(0.062)	(0.074)	(0.021)	(0.026)	(0.081)	(0.091)
Municipality-Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE		Yes		Yes		Yes		Yes
Observations	23,983	23,977	13,137	13,132	16,306	16,298	8,789	8,775
Adjusted R-squared	0.099	0.102	0.029	0.029	0.095	0.097	0.042	0.045

Notes: This table presents estimates of cross-sectional model 9 to examine the number of jobs created by firms originated after the ENH reform, depending on whether they obtain their first loan from a specialized or a non-specialized bank branch. The dependent variables are continuous measures calculated at the end of the calendar year when a firm reaches the age of 5 or 10 years: the natural logarithm of the number of workers, and the change in the number of workers between the year the firm first borrows and the year in which it reaches age five (columns 3-4) or age ten (columns 7-8). ENH firm is an indicator that is 1 if a firm was registered after an ENH office was opened in its municipality; 0 otherwise. Specialized branch is an indicator that is 1 if a bank branch is identified as specialized in lending to new firms in the pre-reform year 2004; 0 if otherwise. Cohort stands for the year in which a firm is originated. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix

Figure A1: Credit access coefficients by firm age group, using municipality and industry-year-size group fixed effects



This figure plots the probability of having a bank loan for new firms after the ENH reform is implemented in their municipality, and depending on the start-up specialization of local bank branches. Each horizontal line indicates a different age group of firms (firms up to 2, 3, or 4 years old). The dots represent point estimates of a panel regression where the dependent variable takes the value of 1 if the firm has a bank loan at the end of the year (0 otherwise). The displayed coefficients refer to the interaction between a binary variable indicating the reform implementation and a continuous variable reflecting local branches' start-up specialization: the number of specialized branches, the share of specialized branches in the total number of branches, and the total market share of specialized branches. The regressions include municipality and industry-year-size group fixed effects. The size group is determined as a within-industry quintile of the natural logarithm of firms' total assets. The regressions include the firm age in months as well as the pre-reform measures for bank market concentration (HHI) and the level of entrepreneurial activity (the number of economically active start-ups) as controls. The estimation period is 2006–2008. 90% confidence intervals are shown

Table A1: Branch specialization in lending to new firms and credit access, using municipality-industry-size group fixed effects

	Loan dummy			Leverage		
	(1)	(2)	(3)	(4)	(5)	(6)
ENH	0.022	0.025	0.028	0.011	0.011	0.011
	(0.036)	(0.038)	(0.040)	(0.021)	(0.021)	(0.020)
ENH x No. of specialized branches	0.007**			0.003**		
	(0.003)			(0.002)		
ENH x Share of specialized branches		0.100**			0.058**	
		(0.044)			(0.023)	
ENH x Market share of specialized branches			0.052			0.061**
			(0.049)			(0.023)
ENH x HHI	-0.145	-0.181	-0.078	0.001	-0.031	0.018
	(0.129)	(0.136)	(0.155)	(0.096)	(0.102)	(0.086)
ENH x No. of new firms scaled by population	-0.000	-0.000	-0.000	-0.000*	-0.000*	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	0.007***	0.007***	0.007***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Municipality-Industry-Size FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	105,403	105,403	105,403	104,866	104,866	104,866
Adjusted R-squared	0.216	0.216	0.216	0.048	0.049	0.049
Impact of one SD increase in specialization measure (relative to mean)	*6.7%*	*6.9%*		*5.5%*	*7.6%*	*6.8%*

Notes: This table presents estimates of new firms' probability of having bank credit (columns 1-3) and financial leverage (columns 4-6) depending on local bank branches' specialization in lending to new firms. The estimations are based on a firm-year panel. Municipality-Industry-Size fixed effects capture the average capital structure and borrowing probability within a group of similar firms. Firm size groups are defined as quintiles of the firm size distribution withing the same industry. Firm balance sheet information is available starting from 2006 and the estimation period is therefore 2006–2008. The sample consists of firms in the age group of up to two years. ENH is an indicator variable that takes the value of 1 starting from the year when the ENH reform was implemented in a municipality; 0 otherwise. The coefficients of interest are the interaction terms of the ENH variable and municipality-level measures of the intensity of local bank branches' specialization: "No. of specialized branches" is the absolute number of specialized bank branches operating in a municipality at the end of the pre-reform year 2004; "Share of specialized branches" is the number of specialized branches divided by the total number of bank branches in a municipality at the end of 2004; "Market share of specialized branches" is the sum of market shares of all specialized branches in a municipality (value between 0 and 1). HHI is the Hirschman-Herfindahl index that proxies for bank competition in the credit market at the end of 2004. We control for the level of pre-reform entrepreneurial activity in a municipality by including the number of economically active young firms (up to 4 years old) at the end of 2004 scaled by the municipality's population. Firm age is measured in months at the end of the calendar year. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Branch specialization in lending to new firms and credit access: Marginal effects from a Probit model

	Average marginal effect			Marginal effect at covariates' mean		
	(1)	(2)	(3)	(4)	(5)	(6)
ENH x No. of specialized branches	0.008***			0.008***		
	(0.003)			(0.003)		
ENH x Share of specialized branches		0.105***			0.117***	
		(0.035)			(0.039)	
ENH x Market share of specialized branches			0.067			0.075
			(0.043)			(0.048)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Municipality-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	107,525	107,525	107,525	107,525	107,525	107,525
Pseudo R2	0.177	0.177	0.177	0.177	0.177	0.177

Notes: This table presents marginal effects from a Probit model to estimate the effect of local bank branches' specialization in lending to new firms on the probability that such firms use bank credit after the ENH reform is implemented in their municipality. The marginal effect is defined as the partial derivative of the fitted probit model with respect to the interaction term of interest. The estimates are based on a firm-year panel dataset. The dependent variable is an indicator variable that takes the value of 1 if a firm has a bank loan at the end of the calendar year; 0 otherwise. The estimated model contains the full set of municipality- and firm-level controls: firm age, firm size, and an interaction of the ENH indicator variable with HHI and the number of active new firms at the end of 2004 scaled by population. The sample consists of firms in the age group of up to two years. ENH is an indicator variable that takes the value of 1 starting from the year when the ENH reform was implemented in a municipality and 0 otherwise. Only the marginal effects for the variables of interest are reported: the interaction of the ENH variable and municipality-level measures of the intensity of local bank branches' specialization. "No. of specialized branches" is the absolute number of specialized bank branches in a municipality at the end of the pre-reform year 2004; "Share of specialized branches" is calculated as the number of specialized branches divided by the total number of bank branches in a municipality at the end of 2004; "Market share of specialized branches" is the sum of market shares of all the specialized branches in a municipality (value between 0 and 1). HHI is a Hirschman-Herfindahl index that approximates bank competition in the credit market at the end of 2004. We control for the level of pre-reform entrepreneurial activity in a municipality by including the number of economically active young firms (up to 4 years old) at the end of 2004 scaled by the municipality's population. Firm age is measured in months at the end of the calendar year. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Branch specialization in lending to new firms and financial leverage: Tobit model

	(1)	(2)	(3)
ENH	0.039	0.038	0.066
	(0.126)	(0.124)	(0.117)
ENH x No. of specialized branches	0.018**		
	(0.009)		
ENH x Share of specialized branches		0.347***	
		(0.112)	
ENH x Market share of specialized branches			0.262*
			(0.145)
ENH x HHI	0.174	-0.023	0.204
	(0.605)	(0.632)	(0.578)
ENH x No. of new firms scaled by population	-0.000	-0.000	-0.000**
	(0.000)	(0.000)	(0.000)
Firm age	0.011***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)
Firm size	0.116***	0.116***	0.116***
	(0.004)	(0.004)	(0.004)
Municipality FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	106,989	106,989	106,989
Pseudo R2	0.042	0.042	0.042

Notes: This table presents Tobit estimations that explain start-ups' financial leverage by local bank branch specialization in lending to new firms. As a lot of start-ups do not have debt, we here use a Tobit censored regression model where the dependent variable, financial leverage, is censored at its natural minimum value of zero. The estimations are based on a firm-year panel dataset. The dependent variable is financial leverage calculated as a firm's total debt over total assets. Because firm balance sheet information is available starting from 2006, the estimation period is 2006–2008. The sample consists of firms in the age group of up to two years. ENH is an indicator variable that takes the value of 1 starting from the year when the ENH reform was implemented in a municipality; 0 otherwise. The coefficients of interest are the interaction terms of the ENH variable and municipality-level measures of the intensity of local bank branches' specialization: "No. of specialized branches" is the absolute number of specialized bank branches in a municipality at the end of the pre-reform year 2004; "Share of specialized branches" is the number of specialized branches divided by the total number of bank branches in a municipality at the end of 2004; "Market share of specialized branches" is the sum of market shares of all specialized branches in a municipality (value between 0 and 1). HHI is a Hirschman-Herfindahl index that approximates bank competition in the credit market at the end of 2004. We control for the level of the pre-reform entrepreneurial activity in a municipality by including the number of economically active young firms (up to 4 years old) at the end of 2004 scaled by the municipality's population. Firm age is measured in months at the end of the calendar year. Firm size is the natural logarithm of total assets. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Branch specialization in lending to new firms and firm survival, including municipality, industry, and year fixed effects

	5-year survival		10-year survival	
	(1)	(2)	(3)	(4)
ENH Firm	0.004	0.003	-0.001	-0.002
	(0.010)	(0.010)	(0.010)	(0.010)
ENH Firm x Specialized Branch	0.041**	0.039**	0.041**	0.039**
	(0.020)	(0.019)	(0.020)	(0.019)
Specialized Branch	-0.003	-0.020*	0.004	-0.019*
	(0.011)	(0.011)	(0.011)	(0.011)
Municipality FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Cohort FE	Yes	Yes	Yes	Yes
Bank FE		Yes		Yes
Observations	36,994	36,991	36,994	36,991
Adjusted R-squared	0.032	0.037	0.037	0.044

Notes: This table presents cross-sectional linear probability estimates of the survival rate of new firms created after the ENH reform as a function of whether a firm obtains its first ever loan from a specialized or a non-specialized bank branch. The dependent variables are indicator variables that take the value of 1 if a start-up reached the age of five years (columns 1-2) or ten years (columns 3-4); 0 otherwise. The average five-year and ten-year survival probabilities in this sample of borrowing new firms are 67% and 46%, respectively. ENH firm is an indicator variable that takes the value of 1 if a firm was registered after the ENH office was launched in its municipality; 0 otherwise. Specialized branch is an indicator variable that takes the value of 1 if a bank branch is identified as a specialized in lending to new firms in the pre-reform year 2004; 0 otherwise. Cohort stands for the year when a firm is originated. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Branch specialization in lending to new firms and firm survival, controlling for industry specialization

	5-year survival				10-year survival			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ENH Firm	-0.002	-0.003	0.014	0.013	0.005	0.004	-0.009	-0.011
	(0.010)	(0.010)	(0.025)	(0.025)	(0.011)	(0.010)	(0.023)	(0.023)
ENH Firm x Specialized Branch	0.050**	0.047**	0.059**	0.055**	0.053**	0.048**	0.057**	0.056***
	(0.021)	(0.020)	(0.024)	(0.022)	(0.021)	(0.020)	(0.022)	(0.021)
Specialized Branch	-0.004	-0.020*	-0.004	-0.015	0.002	-0.020*	0.001	-0.018
	(0.011)	(0.011)	(0.013)	(0.013)	(0.011)	(0.011)	(0.012)	(0.013)
ENH Firm x Ind Specialized Branch (exp)	0.021	0.021	0.027*	0.028*	-0.012	-0.014	-0.015	-0.017
	(0.014)	(0.014)	(0.016)	(0.016)	(0.014)	(0.014)	(0.017)	(0.018)
Ind Specialized Branch (exp)	0.007	0.010	0.003	0.007	-0.000	0.002	-0.004	-0.001
	(0.007)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)
Municipality-Ind & Cohort FE	Yes	Yes			Yes	Yes		
Municipality-Ind-Cohort FE			Yes	Yes			Yes	Yes
Bank FE		Yes		Yes		Yes		Yes
Observations	36,582	36,578	34,186	34,183	36,582	36,578	34,186	34,183
Adjusted R-squared	0.032	0.038	0.030	0.036	0.041	0.048	0.042	0.047

Notes: This table presents cross-sectional linear probability regressions to estimate the survival rate of new firms created after the ENH reform depending on whether a firm obtains its first ever loan from a specialized or a non-specialized branch. The dependent variables are indicators that take the value of 1 if a start-up reached the age of five years (columns 1-4) or ten years (columns 5-8); 0 otherwise. The average five- and ten-year survival probabilities in this sample of borrowing new firms are 67% and 46%, respectively. ENH firm is an indicator variable that takes the value of 1 if a firm was registered after the ENH office was launched in its municipality; 0 otherwise. Specialized branch is an indicator variable that takes the value of 1 if a bank branch is specialized in lending to new firms in the pre-reform year 2004; 0 otherwise. Cohort stands for the year when a firm is originated. Industry-specialized branch indicates a bank branch that is specialized in the new firm's one-digit industry pre-reform. Contrary to the main specification presented in Table 6, branch industry specialization is measured using the branches credit exposure, i.e., loan volume provided to borrowers in the respective industry. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Branch specialization and firm survival: including branch fixed effects

	5-year survival		10-year survival	
	(1)	(2)	(3)	(4)
ENH Firm	0.007	0.018	0.000	-0.026
	(0.010)	(0.025)	(0.010)	(0.021)
ENH Firm x Specialized Branch	0.030	0.049**	0.045*	0.058**
	(0.021)	(0.024)	(0.025)	(0.029)
Municipality-Ind & Cohort FE	Yes		Yes	
Municipality-Ind-Cohort FE		Yes		Yes
Branch FE	Yes	Yes	Yes	Yes
Observations	36,357	33,852	36,357	33,852
Adjusted R-squared	0.032	0.028	0.045	0.043

Notes: This table presents cross-sectional linear probability regressions to estimate the survival rate of new firms created after the ENH reform, depending on whether a firm obtains its first ever loan from a specialized or a non-specialized branch. The dependent variables are indicators that take the value of 1 if a start-up reached the age of five years (columns 1-2) or ten years (columns 3-4). The average five-year and ten-year survival probability in this sample of borrowing new firms are 67% and 46%, respectively. ENH firm is an indicator variable that takes the value of 1 if a firm was registered after the ENH office was launched in its municipality; 0 otherwise. Specialized branch is an indicator variable that takes the value of 1 if a bank branch is identified as a specialized in lending to new firms in the pre-reform year 2004; 0 otherwise. Cohort stands for the year when a firm is originated. Branch fixed effects control for observable and unobservable time-invariant branches' characteristics that can impact the quality of lending. Standard errors are clustered at the municipality level and shown in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$