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ABSTRACT: During the period 1965-1987 Spain was an emerging market in full transition from developing to developed status. During the same period the Spanish banking system underwent an unprecedented episode of expansion growing from 5,000 to over 30,000 bank branches. We examine whether the latter process partly caused the former by focusing on the relationship between branch expansion and entrepreneurship in the wholesale and retail trade industries. To address the non-random allocation of bank branches we exploit changes in branching policies that induced a plausibly exogenous time-varying pattern in the relationship between a municipality's initial financial development and branch expansion. Our estimates, based on a panel data-set of over 2,000 Spanish municipalities, reveal that branch expansion had a strong positive impact on entrepreneurship. This effect was essentially driven by the savings banks, which have stronger regional development objectives than those held by the commercial banks, and which expanded more intensely into municipalities with more precarious financial services.

JEL Codes: G21, O43, L26

Keywords: Banks, entrepreneurship, economic development.

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1. Introduction

An important channel via which financial development fosters economic development is through the modification of occupational choices in favour of entrepreneurship (Banerjee and Newman, 1993; Banerjee, 2004). For this reason development economists are interested in understanding whether, and if so the extent to which, financial development spurs entrepreneurship. A common problem in developing countries is that many people have little wealth and, hence, lack the necessary collateral to access the formal banking system. A number of papers document the fact that microcredit can in part circumvent this problem by alleviating the credit constraints on those excluded from conventional financial systems.[1] However, microcredit has its own limitations, the most important of which perhaps being that it provides small loans (that might be insufficient to finance large scale investments) at high interest rates. The ideal situation, it might be argued, would be for developing countries to gradually converge to the situation observed in developed countries where the vast majority of people have access to the formal credit market.[2] What would the gains for developing countries be if their formal financial markets converged to the levels of development and inclusion observed in developed economies?

We can obtain a satisfactory answer to this question by focusing on Spanish municipalities between the years 1965 and 1987, when by far most of the present-day Spanish banking system was built. During this period, the number of bank branches grew from 5,000 to over 30,000 (representing an increase of almost one branch per thousand inhabitants) and the percentage of unbanked municipalities fell from roughly 50% to below 5%.[3] This notable wave of bank expansion led to a substantial improvement in financial services particularly in small rural municipalities that had hitherto been forced to resort to informal credit. Coinciding with this enhancement in the country's level of financial development, Spain underwent an extraordinary process of economic and social transformation. At the

[1] Randomized evaluations reveal that microcredit expands the scale of existing self-employment activities of households in rural areas of Morocco (Crépon et al, 2011) and has positive effects on business creation in Hyderabad, India, (Banerjee et al., 2010), but has no effect on business expansion in the Philippines (Karlan and Zinman, 2010).

[2] While converging to the levels of financial development observed in developed countries might well seem desirable, it should be stressed that credit constraints remain in developed countries. For instance, uneven levels of financial development explain differences in entrepreneurship and growth in a cross-section of Italian regions (Guiso et al., 2004; Pascali, 2012). Financial development caused by inter-state bank branching deregulations in the US caused an increase in startup activity (Black and Strahan, 2002; Cetorelli and Strahan, 2006; and Kerr and Nanda, 2009). Differences in the supply of venture capital lead to marked differences in entrepreneurship across US metropolitan areas (Samila and Sorenson, 2011).

[3] The Spanish financial system is largely bank based (this was particularly true during the period we study) which means we can obtain an accurate measure of financial development by simply tracking the deployment of bank branches.

beginning of our sample period, Spain was a dictatorship that had just abandoned self-sufficiency in a bid to open up to trade and foreign direct investment, and the country presented GDP growth rates that were typical of emerging markets (close to 8%). By the end of the eighties, Spain was a democracy and a member of the EU and presented growth rates that had fallen to levels more typical of developed economies. We believe this environment to be ideal for illustrating the way in which banking development can nudge an economy towards economic development. We seek to isolate the effects of bank branch expansion in the country's economic development process by estimating its impact on entrepreneurship in the wholesale and retail trade industries (measured as the number of commercial licenses per capita).

Measuring the exact impact of bank expansion is a challenging task mainly because financial development typically responds to various economic demands. This makes the identification of the causal impact of bank branch expansion on entrepreneurship problematic. Addressing this reverse causality issue is indeed the main challenge of the empirical literature on financial development and growth (Levine, 1997). Spain presents an ideal "laboratory" in which to address this issue as the enormous between and within variation in branch expansion across Spanish municipalities during the period 1965-1987 was largely policy driven. This provides us with a credible source of exogenous variation in bank branch location decisions.

In 1939, following the Spanish Civil War, the Fascist regime sought to reconstruct the financial system by implementing a series of restrictive norms that kept the financial system strictly regulated. This regulatory wave ushered in a period extending from 1939 to 1964 which came to be referred to as the banking *status quo*. One of the main consequences of this *status quo* was that the number of bank branches barely increased and so financial development remained firmly anchored at pre Civil War levels for more than twenty years. This was to change between 1964 and 1973 when the Government launched an ambitious Banking Expansion Plan aimed at expanding the provision of banking services throughout the Spanish territory. The main goal of the program was to address the virtual absence of banking services in many municipalities. As a result, the vast majority of branches created during the Banking Expansion Plan were opened in municipalities with low levels of initial financial development. In August 1974 branching restrictions were totally lifted for commercial banks, but only partly lifted for savings banks (who were only permitted to

branch within their traditional provinces). This triggered different expansion strategies in the commercial and savings banks: so while the former expanded to prosperous locations with high initial financial development immediately after 1975, the latter continued to open branches primarily in the unbanked municipalities until the beginning of the eighties (when their branching restrictions were also further relaxed).

Our identification strategy exploits the policy-driven nature of branch expansion to address the likely non randomness of branch locations. We show that between 1965 and 1974, while the Banking Expansion Plan was operative, aggregate (commercial and savings) bank branch expansion was relatively higher in initially less financially developed municipalities. The opposite would be the case between 1975 and 1987 under the liberalized regime. Our instruments capture the time-varying pattern between a municipality's initial financial development and bank branch expansion. This strategy remains valid as long as other municipality-specific variables with the potential to influence entrepreneurship outcomes did not exhibit a similar time-varying pattern with respect to the municipalities' initial financial development. We argue that entrepreneurship-related policies such as regional, welfare or road infrastructure policies did not experience such time-varying patterns. Our methodology is closely related to that adopted by Burgess and Pande (2005) in their use of time breaks in branch expansion across Indian States to estimate the impact of the Indian Social Banking Experiment on poverty.

Interestingly, the divergence in the way in which the expansion trajectories taken by the commercial and savings banks responded to the municipalities' initial financial development after 1975 enables us to identify the separate effects of the two types of banking institution. Commercial banks are purely profit-driven public limited companies, while savings banks are private limited companies with much stronger local development objectives (their board of directors comprising representatives of local public bodies, i.e., the municipalities and autonomous communities). The different nature and objectives of commercial and savings banks mean that the latter may well impose less stringent conditions on their borrowers, as their primary mission is to facilitate access to loans to small and medium-sized enterprises. We test whether savings banks had a stronger impact on entrepreneurship.

To frame the empirical analysis we use a slightly modified version of Evans and Jovanovic's (1989) model of occupational choice.[4] We first examine the individual-level decision to enter into entrepreneurship as a function of the financial development (understood as increased borrowing possibilities) of the location to which the individual belongs. Financial development enhances the individual's chances of becoming an entrepreneur by allowing him to borrow a larger multiple of his wealth up to a point at which starting a business may become profitable. We then aggregate over individuals to derive an expression that shows that the share of entrepreneurs of a given location is positively related with its level of financial development. In short, we use Evans and Jovanovic's (1989) model to motivate an empirical equation similar to those recurrently estimated in the literature (and most closely related to our paper) on financial development and entrepreneurship (Black and Strahan, 2002; Guiso et al., 2004; Cetorelli and Strahan 2006; Kerr and Nanda, 2009; Fulford, 2012).[5]

In this paper we take municipalities as the relevant market for financial development. If the inhabitants from a given municipality were able to tap the financial services of neighbouring municipalities then our municipality-based definition of credit market conditions could be criticized for being too narrow a geographical definition for financial development. There are two powerful reasons, however, for using municipalities as our relevant market for financial development. First, the Banking Expansion Plan was conceived at a municipality level. The reason why the Bank of Spain took municipalities as its geographical unit is that road infrastructures were extremely precarious (highways were literally absent at the beginning of the period under study) leaving many municipalities largely isolated. Second, and related to this point, there is an increasing body of literature documenting the fact that distance matters in the provision of funds (Petersen and Rajan, 2002; Berger et al., 2005; Degryse and Ongena, 2005). In line with the oft-cited statement made by the president of the Italian Association of Bankers, and first reported in Guiso et al. (2004), "the banker's rule-of-thumb is to never lend to a client located more than three miles from his office". If this was the case in Spain too (and it is fairly plausible given the

[4] This model is at the heart of the empirical literature on wealth and entrepreneurship (Evans and Jovanovic, 1989; Holtz-Eakin et al., 1994; Paulson and Townsend, 2004; Hurst and Lusardi, 2004).

[5] This is interesting because the literature on financial development and entrepreneurship (or growth) descends from a different family of macroeconomic models on financial development and growth (Bencivenga and Smith, 1991; Goldsmith, 1969; Greenwood and Jovanovic, 1990; King and Levine 1993; McKinnon, 1973). Our modified version of Evans and Jovanovic (1989) might thus serve to link two streams of related empirical research (those on wealth and entrepreneurship and those on financial development and growth) that have remained largely separate to date (Kerr and Nanda, 2011).

many similarities between Spain and Italy), then the municipalities would serve as an exact approximation of the relevant geographical market.[6]

Our main finding is that bank branch expansion significantly affected entrepreneurship. Using a panel data-set for almost all Spanish municipalities with more than 1,000 inhabitants, we find that, between the years 1965-1987, branch expansion was responsible for a 0.24 percentage point increase in the number of commercial licenses per capita during the sample period. This is a particularly high value, representing 30% of the total increase in the municipalities' average number of commercial licenses per capita during the years 1965-1987. Moreover, we find that this effect is essentially driven by the savings banks, which had stronger regional development objectives and which expanded into municipalities with the greatest need for financial services. All our evidence points to the fact that bank expansion played a key role in the unprecedented process of economic development experienced by Spain during the second half of the 20th century.

The remainder of the paper is organized as follows. Section 2 presents a model of entrepreneurship and local financial development; Section 3 describes the Spanish Banking Expansion Plan and the data used in the regressions; Section 4 describes our research design; Section 5 presents the results, and Section 6 concludes.

2. A model of local financial development and entrepreneurship

We use Evans and Jovanovic's (1989) model of occupational choice to characterise an individual's transition to entrepreneurship as a function of the financial development of the location to which they belong. We then derive an expression that relates the share of entrepreneurs in a particular location with its level of financial development. This expression is used to derive our main econometric specification and to discuss identification issues.

Each individual $j = 1, \dots, N_i$ belonging to location i must decide whether to work for himself of for someone else. Wage work will yield him a wage of w_j while a self-employment opportunity will yield a payoff equal to $y_j = \theta_j k_j^{\alpha} \varepsilon_j$. As usual, θ_j is

[6] While detailed municipality level information is not available, we know that the loans granted in a province by banks with no branches in that province are negligible (Jiménez et al., 2008).

entrepreneurial ability, k_j is the amount of capital invested in the business, ε_j is a lognormal disturbance and $\alpha \in (0,1)$ is common to all individuals. An entrepreneur net income is

$$y_j + r(l_j + z_j - k_j) \tag{1}$$

r is one plus the rate of interest (and is common to all individuals), l_j and z_j are liquid and illiquid assets respectively. Liquid assets can be directly invested in capital while illiquid wealth cannot. Both liquid and illiquid assets can be used as collateral for loans. Each person can borrow up to an amount that is proportional to his wealth. The factor of proportionality is denoted by $\lambda_i - 1$ with $\lambda_i > 1$. λ_i is location-specific and can be considered an indicator of the financial development of location i. The most that a person can invest in the business is his liquid assets plus the maximum borrowable quantity $l_j + (\lambda_i - 1)(l_j + z_j) = \lambda_i l_j + (\lambda_i - 1)z_j$. If $\lambda_i = 1$, financial development is at its minimum and the entrepreneur cannot borrow; hence, the most he can invest is his illiquid assets. As λ_i increases an individual can borrow an increasing proportion of his total wealth. In bank-based financial systems where almost all loans are secured (the borrower pledging some wealth as collateral for the loan), it seems reasonable to assume that λ_i will take values no larger than 2 (i.e., individuals can at most borrow an amount equal to their wealth). Indeed, Evans and Jovanovic (1989) estimate λ_i at 1.4 using data from the National Longitudinal Survey of Young Men in the US. The entrepreneur therefore faces the constraint

$$0 \leq k_j \leq \lambda_i l_j + (\lambda_i - 1)z_j \tag{2}$$

The entrepreneur does not know ε_j, but does know θ_j. Under risk neutrality the investment decision solves

$$\max_{k \in [0, \lambda_i l_j + (\lambda_i - 1)z_j]} \left[\theta_j k_j^{\alpha} + r(l_j + z_j - k_j) \right] \tag{3}$$

which leads to the solution

$$k_j = \left(\frac{\theta_j \alpha}{r} \right)^{1/(1-\alpha)} \tag{4}$$

which is valid as long as the right-hand side is no greater than $\lambda_i l_j + (\lambda_i - 1)z_j$ (the entrepreneur is unconstrained). For the entrepreneur j to be unconstrained, θ_j must satisfy

$$\theta_j \leq \left(\lambda_i l_j + (\lambda_i - 1)z_j\right)^{1-\alpha} \left(\frac{r}{\alpha}\right) \tag{5}$$

The individual will choose to start a business if and only if his expected net income from doing so exceeds that from wage work:

$$max\left[\, \theta_j k_j^{\alpha} + r\left(l_j + z_j - k_j\right)\right] \geq w_j + r\left(l_j + z_j\right) \tag{6}$$

Since the left-hand side increases with θ_j while the right-hand side does not, we can define selection into entrepreneurship in terms of the threshold $\tilde{\theta}_j = f(l_j, z_j, w_j, \lambda_i)$ that makes an individual indifferent to either wage work or self-employment (i.e. that solves equation (6) as an exact inequality). More specifically, individual j will self-select into entrepreneurship if $\theta_j > \tilde{\theta}_j$. Appendix A derives $\tilde{\theta}_j$ and shows that $\partial\, \tilde{\theta}_j / \partial \lambda_i \leq 0$. The share of entrepreneurs in location i is given by:

$$share\ entrepreneurs_i = \left[\sum_{j=1}^{N_i} 1\{\theta_j - \tilde{\theta}_j(\lambda_i) > 0\}\right] / N_i \tag{7}$$

where $1\{\ \ \}$ is the indicator function. The degree to which financial development spurs entrepreneurship in a given location depends on the number of individuals in this location that find it profitable to switch from wage work to self-employment following a certain increase in financial development. An improvement in financial development causing a shift in λ_i from λ_i^1 to λ_i^2 will only have a positive impact on entrepreneurship if there is a mass of individuals with $\theta_j - \tilde{\theta}_j(\lambda_i^1) < 0$ and $\theta_j - \tilde{\theta}_j(\lambda_i^2) > 0$. This is likely to occur in localities with an initially low level of financial development and a large proportion of inhabitants with a low ratio of liquid assets to wages, high wages, a high amount of illiquid assets and high entrepreneurial capital. In this scenario, some individuals with high entrepreneurial capital will initially be prevented from becoming entrepreneurs because they are not able to start a business that is large enough to generate a total product which exceeds the non-entrepreneurial outside option. But as financial development improves

from λ_i^1 to λ_i^2 individuals become increasingly able to borrow a larger multiple of their wealth up to a point at which starting a business becomes more profitable than the outside option for some of them.

Empirically, the effects of financial development on entrepreneurship can be estimated via two routes. Firstly, using individual-level data for a given location (with a fixed level of financial development) we can attempt to recover the structural parameters of the model, in line with Evans and Jovanovic (1989), so as to then calculate the share of entrepreneurs that can be attained for each level of financial development. Alternatively, in line with Guiso et al. (2004), the average effect of financial development on entrepreneurship can be obtained from the variation observed in financial development across locations (and ideally over time as well). Here, we adopt this second approach and study the relationship between financial development and entrepreneurship using municipality data from Spain for the period 1965-1987. The financial development of Spanish municipalities displayed a huge between and within variation during this period. Crucially, this variation was largely policy driven, which enables us to deal with the potential endogeneity of financial development.

3. Data and program description

3.1. Program description: the Banking Development Plan

Spain's modern banking system came into being around 1850, coinciding with the country's industrial revolution, and by 1930 had achieved a notable size. However, its natural evolution was dramatically interrupted in 1936 with the outbreak of the Civil War. The division of the country into Nationalist and Republican factions brought Spain's monetary and banking system to the point of collapse. In the immediate aftermath of the war, one of the first tasks addressed by the newborn Fascist regime was the reconstruction of the country's financial system. This process was underpinned by a series of restrictive norms that ensured that the banking system was heavily regulated until virtually the end of the dictatorship. This regulatory wave ushered in a period of what was known as banking *status quo* from 1939 to 1964, decades characterised above all by the restrictions imposed by the Ministry of Finance limiting banking activity to those that had been registered as bankers prior to the Civil War. As such, new entrants could not overcome the barriers to the banking market, while incumbent banks were only permitted to open new branches under the strict supervision of the Ministry of Finance. The result was that the number of bank branches barely increased during the period of *status quo*.

This stagnant financial system was aligned to Spain's economic self-sufficiency of the 40s. However, as the economy progressively moved away from autarchy to a tentative opening up of its markets in the fifties, the economy began to demand greater financial resources. It was during these years that the inoperability of the banking system became more than apparent. In 1959 the government launched its National Plan of Economic Stabilization, which was to open up the country to trade and foreign direct investment, ushering in a decade of unprecedented economic growth. However, the banking system acted as a bottleneck, seriously limiting economic development. The response was the 1962 Banking Law which put an end to the *status quo* and established the foundations for an ambitious Banking Expansion Plan aimed at promoting the provision of banking services throughout Spain.[7]

The proposals for expanding the system were unfolded in nine yearly plans (nine for commercial banks and a further nine for savings banks) introduced between 1964 and 1973 (no plans were enforced in 1971).[8] In each plan the Bank of Spain fixed the number of new branches to be created and the municipalities in which they were to be located. The banks were then required to select the branches they wished to open from the plan circulated by the Bank of Spain. The Bank of Spain's decisions regarding branch locations were grounded on one of the following four criteria: a) the total absence of banking services; b) an insufficient banking service given the wealth, population and economic activity of the municipality and its surroundings; c) an insufficient banking service given the plans or economic development programs of the municipality and its surroundings; d) the convenience of more intense banking competition in the municipality. The preamble to the yearly expansion plans indicate that the Bank of Spain's main concern was the absence of banking services afflicting many municipalities. This is reflected in its final branching decisions: 48% of the branch openings listed in the first seven plans responded to criterion "a" and 41% to criterion "b". [9] The savings banks, more than their commercial counterparts, adhered most closely to this pattern, expanding their business most notably in municipalities with an absence or insufficiency of financial services (70% of their branch openings responded to criterion "a" and 99% to criteria "a" or "b", while just 40% of the

[7] For an excellent review of Spain's banking history see Aceña (2005).
[8] A detailed description of the Banking Expansion Plans can be consulted in Cruz-Roche (1974).
[9] Access to the first seven yearly plans (seven expansion plans for banks and seven more for savings banks) was gained via the Bank of Spain's library and the Ministry of Finance's historical archives.

branch openings of the commercial banks responded to criterion "a" and 73% to criteria "a" or "b").

In the first seven Banking Expansion Plans (dating from 1964 to 1970), there was a clear tendency for branches to be opened in municipalities with initially low levels of financial development. This expansion process was interrupted in 1971 only to be resumed in 1972 and 1973 with two additional plans that responded to a slightly different formula. This gave banks freedom of decision regarding the location of 80% of their new branches. Under this hybrid model, branches were presumably opened in relatively prosperous locations that presented initially higher levels of financial development and where profit opportunities were greater. In August 1974 this trend was further strengthened when the banking system was liberalized and the banks were allowed to determine their own branching activity (i.e. the number and location of their branches). Interestingly, the 1974 liberalization treated commercial and savings banks distinctly: while the commercial banks were given freedom to open branches nationwide, the savings banks were only allowed to open branches within specific provinces. As a result, following liberalization the commercial banks expanded their business within prosperous locations with high levels of financial development, whereas the savings banks were not able to follow suit until the eighties when branching restrictions were further relaxed.

In short, the expansion of bank branching in Spain was largely policy driven. Restrictions on branching activity induced a time-varying relationship between a municipality's initial financial development and branch expansion over time. While the Banking Expansion Plan was operational, (aggregate) branch expansion was more intense in municipalities with lower initial financial development. By contrast, after 1971, under the hybrid model, and particularly after 1975, following liberalization, branch expansion took place in municipalities with higher initial financial development. We exploit this policy driven time-varying relationship between the initial financial development and branch expansion to provide a credible instrumentation of branch openings. In addition, we also exploit the difference in the way the expansion trajectories of the commercial and savings banks responded to the municipalities' initial financial development after 1975 to identify not only the impact of aggregate branch expansion but also the effects accruing to each type of banking institution.

Figure 1 shows the evolution in the total number of bank branches over the period 1950-1990 period. The number of bank branches remained steady during the *status quo* period, doubled during the Banking Expansion Plan and took off after the 1974 liberalization.

[INSERT FIGURE 1]

3.2. Data

We use a panel data-set for most Spanish municipalities with more than 1,000 inhabitants which spans the period 1965-1987 (see Appendix B for a detailed description of the dataset).[10] This means that the dataset extends from the beginning of the Banking Expansion Plan until a period well after liberalization. The time variable of the panel is a year-pair indicator representing the years 1965-1966, 1967-1968 ..., 1987-1988.[11] The data used in the paper are drawn primarily from the Banesto yearbooks (*Anuario del Mercado Español del Banco Español de Crédito*), which provide information on a series of variables that enable us to proxy quite closely the share of entrepreneurs (in the wholesale and retail industries) and the financial development of a municipality:

Share of entrepreneurs – Although ideally we would wish to dispose of a measure of the total share of entrepreneurs working in all types of activity, only a yearly measure of the share of entrepreneurs in the wholesale and retail trade industries is available. This, however, is an especially interesting sector for our purposes here, because: (1) wholesale and retail trade industries are high-starting capital industries (see Table A1 in Hurst and Lusardi, 2004) that we would expect to benefit from improvements in financial development and (2) commercial establishments account for a relatively large share of the total number of establishments in Spanish municipalities.[12] The share of entrepreneurs in the wholesale and retail trade industries is proxied by the number of commercial licenses per capita.[13] Some establishments need more than one license to commercialise a sufficiently wide variety of products, but most establishments are relatively small and can

[10] The panel spans the period 1965-1990 with some time invariant variables capturing initial conditions covering information for the period 1963-1964.
[11] Henceforth, for the sake of brevity, we mention only the first of the year-pairs when referring to each of the panel periods (e.g., we state 1965 whenever we refer to the year-pair 1965-1966, 1967 whenever we refer to the year-pair 1967-1988, and so on).
[12] On average commercial establishments accounted for 36% of the total number of establishments in Spanish municipalities with more than 1,000 inhabitants in 1970 (manufacturing and services related establishments accounted for 20 and 40% respectively). Source: 1970 Census of Establishments.
[13] Commercial licenses are municipality specific authorizations (later on replaced by the so called tax on economic activities) required to commercialise specific sets of products.

operate with just one license (the Banesto yearbooks estimate there to be in the order of 1.2 commercial licenses per establishment). Thus, we can conclude that commercial licenses are a fairly good proxy for the number of establishments in the wholesale and retail industry.

Financial development – We identify a municipality's initial financial development as the number of bank branches per capita in the municipality in 1963-1964. Subsequent financial development is measured as the cumulative number of new bank branches per capita opened in each municipality since 1963-1964.[14]

Controls – In the baseline regressions we will control for the number of telephones per capita and the number of inhabitants in the municipality in 1963-1964 (interacted with time dummies). [15] In the robustness checks we will also control for a series of province-level variables that capture time-varying policies with the potential to affect entrepreneurship.

Table 1 provides summary definitions of the variables and their data sources. In the regressions we include all the municipalities observed over the whole period for which all the variables included in the regressions were available.[16] Panels A and B in Table 2 provide descriptive statistics for the main sample and for the subsample of municipalities included in any of the first seven Banking Expansion Plans respectively. Figure 2 compares the evolution in the total number of bank branches according to official data (solid line) and our main sample as used in the regressions (dashed line).[17] The two lines evolve in parallel and virtually coincide, indicating that our municipality-level sample contains almost the whole population of branches opened during the period 1963-1987 countrywide. The average number of branches per capita increased from 0.2 per 1,000 inhabitants in 1963-1964 to 1 per 1,000 inhabitants in 1987-1988 with a remarkable average increase of 0.8 branch openings per 1000 inhabitants over the whole period. Similarly, the percentage of

[14] We consider take into account branches from both commercial banks and savings banks, by far the two main banking institutions in Spain.
[15] The population variable available in the Banesto yearbooks comes from the last available census from the INE, which is updated every ten years. To construct the per capita variables (such as licenses per capita, branches per capita, telephones per capita, etc.) we constructed a yearly population variable by assuming a constant growth rate between any two censuses from the INE.
[16] The main reason for including municipalities observed for at least ten panel periods is that the instrument we use, based on the time-varying relationship between initial financial development and branch expansion, is inoperative for municipalities that are observed over a period of just a few years. However, we also experimented with alternative samples achieving similar results.
[17] The dashed line is an aggregation of the municipality level information on bank branches included in the Banesto yearbooks.

unbanked municipalities fell from 42 to 4% over the same period. Thus, it seems that financial development progressed from close to $\lambda = 1$ to $\lambda > 1$ for many municipalities.

[INSERT TABLE 1]

[INSERT TABLE 2]

[INSERT FIGURE 2]

4. Research design

We estimate the average effect of financial development on entrepreneurship from a regression of the form:

$$y_{it+1} = \beta * B_{it} + controls + \eta_i + \phi_t + \varepsilon_{it} \quad (8)$$

where y_{it+1} denotes the number of commercial licenses per capita and is our proxy for the share of entrepreneurs[18], B_{it} stands for the cumulative number of branch openings per capita and is our proxy for financial development λ_{it}, η_i and ϕ_t are municipality and year (year-pair) fixed effects, and ε_{it} is an idiosyncratic error term. β is our parameter of interest and measures the average increase in y_{it} attributable to a one-point increase in B_{it}. Notice that the number of branches per capita in 1963-1964 was zero in many municipalities. So increases in B_{it} are likely to capture increases in λ from $\lambda = 1$ (entrepreneurs cannot borrow) to $\lambda > 1$ (entrepreneurs can borrow a fraction of their wealth) that should result in a positive and significant estimate of β. Causal interpretation of β, however, is problematic. Liberalized banking markets expand into relatively richer municipalities where inhabitants are *per se* more likely to start a business.[19] This logic implies that β could provide an overestimate of the true effect of financial development on entrepreneurship.

[18] We let commercial licenses per capita react with a lag to branch expansion for two main reasons. The first one is grounded purely on definition issues. Both commercial licenses and bank branches are measured at the last day of the year. Imagine that a branch is opened in the last month of year t. Then increases in the number of commercial licenses taking place over the whole year t will certainly not be due to this opening. The effects of this new branch opening will rather manifest at t+1. The second reason is more of a conceptual matter. It is well known that asymmetric information problems tend to be acute in small firms. Bank financing often involves a long-term relationship that may help attenuate these information problems. For instance, Berger and Udell (1992) find that borrowers with longer banking relationships pay lower interest rates and are less likely to pledge collateral. This suggests that a prudential time might be necessary for new branches to concede loans to new (and unknown) customers.

[19] Recall from Section 2 that municipalities with a high critical mass of potential switchers to entrepreneurship will have a large proportion of inhabitants with high wages, a high amount of illiquid assets and high entrepreneurial ability. These are precisely the most economically active municipalities into which banks are likely to naturally expand their activity.

On the other hand, the Banking Expansion Plan prioritized branch openings in relatively poorer municipalities where inhabitants are less likely to engage in self-employment. Thus, β could well underestimate the true impact of financial development on entrepreneurship.

Hence, there is a need for credible instruments in order to be able to claim causality. Our instruments for branch expansion draw on the fact that the time-varying relationship between a municipality's initial financial development and bank branch expansion was policy driven. This strategy should be sufficient for the identification of causal effects, if this time-varying relationship between a municipality's initial financial development and bank branch expansion had no direct impact on entrepreneurial activity (i.e., no other municipality level entrepreneurship-related policies displayed a similar time-varying relationship with municipalities' initial financial development).

4.1. Initial financial development and bank branch expansion

To study whether there really is a time-varying relationship in the way in which branch expansion related to initial financial development we start by estimating:

$$B_{it} = \sum_{s=1967}^{1987} \gamma_s (B_{i1963} \times D_s) + \sum_{s=1967}^{1987} \delta_s (X_{i1963} \times D_s) + \eta_i + \phi_t + \varepsilon_{it} \qquad (9)$$

where B_{i1963} is our measure of the initial financial development indicating the number of branches per capita in 1963-1964. This variable enters the regression interacted with year-pair dummies. D_s is a dummy which equals one when $t = s$ (1965-1966 is the control year-pair and the 1965-1966 dummy is omitted). γ_s denotes the year-specific coefficients. The difference between γ_{s+1} and γ_s tells us how a municipality's initial financial development affected branch growth between years $t = s$ and $t = s + 1$. X_{i1963} denotes a vector of initial municipality conditions, which includes the number of inhabitants, the number of telephones per capita (all measured in 1963-1964) and a dummy variable with value one if the municipality is included in any of the first seven plans. These controls are also interacted with year-specific dummies.

Table 3, provides the regression results of the interaction terms described in equation (9). Columns (1) and (2) report the results for all municipalities excluding and including the vector of initial municipality conditions. Columns (5) and (6) report the results obtained

with the sample of municipalities included in any of the first seven Banking Expansion Plans again excluding and including the vector of initial municipality conditions. The circles on the dotted line in Figure 3 plot the estimated γ_s coefficients reported in columns (2) and (6). Between the year pairs 1965-1966 and 1971-1972, while the Banking Expansion Plan was operational, the γ_s coefficients decrease with time. This means that financially less developed municipalities in 1963-1964 experienced a higher growth in the cumulative number of branch openings per capita during this period. This is consistent with our expectations as the Banking Expansion Plan sought to spread banking activity to municipalities where there was an absence of financial services. This trend weakens after 1971-1972 when the hybrid model came into force and is definitely reverted after 1975-1976 when the banking system was liberalized and the banks were able to open branches wherever they wished. The trend reversals in the way in which branch expansion relates to initial financial development is manifest more cleanly in the subsample of municipalities included in the Banking Expansion Plans. This is because some of the municipalities excluded from the plans remained unbanked as late as 1975. Some banks, essentially savings banks (see Figure 4), chose to expand into these municipalities partly because they could not do so in other marketplaces (expansion being limited to a given province) and partly because it was an easy way to saturate small municipalities (thereby escaping from competition). Hence, some openings took place in municipalities with lower levels of initial financial development. In what follows we run separate regressions for the different samples to show that the sluggish reaction to the 1974 branch liberalization observed in the main sample does not affect our results.

It should be recalled that the 1974 liberalisation treated commercial and savings banks quite differently. While the former were able to open branches nationwide, the latter were only able to do so within given provinces. This triggered different time-varying patterns in the relationship between commercial and savings banks branch expansion and initial financial development. This is readily appreciated in Figure 4 where the square (triangle) markers plot the estimated coefficients on initial financial development from a regression of the form described in equation (9) with the dependent variable being the cumulative number of new commercial (savings) bank branches per capita opened in each municipality. Commercial banks quickly occupied prosperous locations with high initial financial development immediately following the liberalization. By the mid-eighties commercial banks had completed their expansion plans and so they began a process of consolidation

comprising five mergers that gave birth, among others, to the two present-day leaders in the Spanish banking sector (BBVA and SCH). Each of these mergers involved major restructuring and the closure of a number of branches (Fuenteslaz et al., 2004). The savings banks reacted to the 1974 liberalization quite differently. Since they already had branches in the main municipalities of their provinces, they could only expand their network by entering into unbanked municipalities. These were typically small, not very appealing municipalities that had been excluded from the Banking Plans. In 1979 branching restrictions were relaxed further and the savings banks were able to open branches in their traditional regions (or Autonomous Communities). In 1989 branching restrictions were lifted definitively enabling savings banks to branch nationwide. This move had been anticipated by the savings banks, which began expanding within their regions well before future competitors from other regions might do so (Fuenteslaz et al., 2004).[20] The time-varying relationship between aggregate branch expansion (dotted markers) and initial financial development is, therefore, the average of the actions taken by the commercial and savings banks.

These 1971-1972 and 1975-1976 trend reversals in (aggregate) branch expansion coinciding with the implementation of the hybrid model and liberalization can be summarized by the following trend break model:[21]

$$\begin{aligned} B_{it} = {} & \gamma_1(B_{i1963} \times [t - 1965]) + \gamma_2(B_{i1963} \times [t - 1971] \times P_{71}) \\ & + \gamma_3(B_{i1963} \times [t - 1975] \times P_{75}) + \gamma_4(B_{i1963} \times P_{71}) \\ & + \gamma_5(B_{i1963} \times P_{75}) + controls + \eta_i + \phi_t + \varepsilon_{it} \end{aligned} \quad (10)$$

where $[t - 1965]$, $[t - 1971]$ and $[t - 1975]$ are linear time trends that enter the regression interacted with municipalities' initial financial development, B_{i1963}. The $[t - 1971]$ and $[t - 1975]$ linear trends are activated in 1971 and 1975 respectively and hence enter interacted with P_{71} and P_{75}, two dummy variables equal to one from 1971 and 1975 respectively. The coefficients of interest γ_1, γ_2 and γ_3 measure the average trend

[20] Several articles published in "El País" (one of Spain's leading newspapers) between 1982 and 1985 describe an environment in which the 1989 lifting of branching restrictions was perceived merely as a matter of time. Specifically, these articles document unsuccessful attempts to pass the 1989 law in 1982 and 1983 mainly as a result of the pressure brought to bear by small savings banks that sought to isolate their markets from increased competition.

[21] The liberalization dates from August 1974 so it was not until the year pair 1975-1976 that banks took control of their branching decisions.

relationship between a municipality's initial financial development and branch expansion, and the subsequent change in this relationship after 1971 and 1975. The coefficients γ_4 and γ_5 measure intercept changes in the relationship between initial financial development and branch expansion in 1971 and 1975. The set of controls X_{i1963} enters the regression in the same way as B_{i1963}.

[INSERT TABLE 3]
[INSERT FIGURE 3]
[INSERT FIGURE 4]

Columns (3) and (4) of Table 3 report the results of the trend break model described in equation (10) using the main sample and excluding and including the controls respectively. The two sets of results are extremely similar. Focusing on the results reported in column (4) we find that, between 1965 and 1971, one additional point of initial financial development reduced branch openings by 0.06 points annually. Between 1971 and 1975 branch expansion was unrelated to initial financial development.[22] After 1975 one additional point of initial financial development reduced branch openings by 0.036 points annually.[23] We obtain qualitatively similar results when we use just the sample of municipalities included in any of the first seven Banking Expansion Plans (columns 7 and 8). Focusing on column (8) we find that, between 1965 and 1971, one additional point of initial financial development reduced branch openings by 0.08 points annually. Between 1971 and 1975 branch expansion was unrelated to initial financial development.[24] After 1975 one additional point of initial financial development reduced branch openings by 0.07 points annually.[25]

The diamonds on the dotted line in Figure 3 show the γ_s coefficients implied by the trend break estimates (calculated as $\gamma_s = \gamma_1 \times [t - 1965] + \gamma_2 \times [t - 1971] \times P_{71} + \gamma_3 \times [t - 1975] \times P_{75}$). The pattern of the coefficients obtained in the trend break model is very similar to that of the coefficients obtained in equation (9). This suggests that the trend break model is an accurate approximation of the interaction-term model in equation (9).

[22] The linear combination $\gamma_1 + \gamma_2 = 0.013$ is not significantly different from zero.
[23] The linear combination $\gamma_1 + \gamma_2 + \gamma_3 = 0.036$ is significant at 1%.
[24] The linear combination $\gamma_1 + \gamma_2 = 0.02$ is not significantly different from zero.
[25] The linear combination $\gamma_1 + \gamma_2 + \gamma_3 = 0.07$ is significant at 1%.

This is particularly true for the subsample of municipalities included in the Banking Expansion Plan.

5. Results

5.1. Initial financial development and entrepreneurship

Before moving to the evidence provided by the instrumental variables we first examine the more intermediate results. So far we have shown that branching policies induced a very particular time-varying pattern in the relationship between municipalities' initial financial development and branch expansion over the period 1965-1987. If branch expansion did have an impact on the number of licenses per capita, we would expect to observe the same time-varying pattern in the relationship between commercial licenses per capita and initial financial development. To check if this is the case we fit a regression of the form:

$$y_{it+1} = \sum_{s=1967}^{1987} \lambda_s (B_{i1963} \times D_s) + \sum_{s=1967}^{1987} \delta_s (X_{i1963} \times D_s) + \eta_i + \phi_t + \varepsilon_{it} \qquad (11)$$

Columns (1) and (2) of Table 4 report the results for the main sample excluding and including the controls respectively. Columns (5) and (6) report the results obtained with the sample of municipalities included in any of the first seven Banking Expansion Plans, again excluding and including the vector of initial municipality conditions. The λ_s coefficients reported in columns (2) and (6) of Table 4 are plotted in Figure 5 together with the γ_s coefficients reported in columns (2) and (6) of Table 3. The response of commercial licenses per capita to initial financial development almost perfectly tracks the branch expansion response to initial financial development.[26] Indeed, when we plot the λ_s coefficients against the γ_s coefficients we observe a strong positive relationship between the two (see Figure 6). This implies that in periods when branch expansion takes place in relatively more (less) initially financially developed municipalities the number of commercial licenses per capita also increases more sharply in more (less) initially financially developed municipalities. Under the identifying assumption that initial financial development only affected the number of commercial licenses per capita through branch

[26] This common pattern is not driven by the fact that both commercial licenses and branch expansion are defined in per capita terms. We also estimated equation (11) with the dependent variable in levels including and excluding the number of inhabitants in the right-hand side and the same pattern still emerged. Defining the dependent variable in per capita terms is useful however because municipalities differ widely in size so that that there is a great deal of dispersion in the number of commercial licenses, with some extremely large values acting as outliers.

expansion this can be taken as compelling evidence that branch expansion had a causal impact on entrepreneurship. A tentative measure of this causal effect can be gauged from a regression of the form

$$\lambda_s = a + b\gamma_s + c_1 P_{1971} + c_2 P_{1975} + \varepsilon_s \qquad (12)$$

where we allow for intercept changes in the relationship between λ_s and γ_s in 1971 and 1975. The estimated b coefficient is 3.5 for the main sample and 8.3 for the sample of municipalities included in the plans. This result implies that a one-point increase in the response of branch expansion to initial financial development is associated with an increase of between 3.5 and 8.3 per cent in the response of commercial licenses per capita to initial financial development.

Table 4 also shows results from the linear trend break model described in equation (10) where the dependent variable is the number of commercial licenses per capita. The results are in line with those of the interaction-term model and suggest that commercial licenses underwent the expected trend reversals in their relationship with initial financial development. Columns (3) and (4) report the results based on the main sample. Let us focus on the results in column (4) corresponding to the specification with controls. The number of commercial licenses per capita decreased more sharply in more financially developed municipalities between 1965 and 1971 when one additional point in the 1963-1964 number of branches per capita reduced the number of licenses per capita by 0.55 points annually. Between 1971 and 1975 commercial licenses were unrelated to initial financial development.[27] After 1975 one additional point in initial financial development increased the number of commercial licenses per capita by 0.1 points annually.[28] If we focus on the subsample of municipalities included in the plans (Table 4, column 8) we find that the number of commercial licenses per capita is unrelated to initial financial development until 1975. After 1975 one additional point in initial financial development increased the number of commercial licenses per capita by 0.62 points annually.[29]

[INSERT TABLE 4]

[INSERT FIGURE 5]

[27] The linear combination $\gamma_1 + \gamma_2 = -0.077$ is not significantly different from zero.
[28] The linear combination $\gamma_1 + \gamma_2 + \gamma_3 = 0.102$ is significant at 10%.
[29] The linear combination $\gamma_1 + \gamma_2 + \gamma_3 = 0.62$ is significant at 1%.

[INSERT FIGURE 6]

5.2. Instrumental variables evidence

We now turn to the evidence provided by the instrumental variables of the way in which the number of branches per capita affected entrepreneurship. We run two types of IV regressions. The first is based on the interaction terms specification with the first stage regression of the IV estimates being as in equation (9) (shown in Table 3, columns 2 and 6) and the second stage regression being of the form:

$$y_{it+1} = \beta * B_{it} + \sum_{s=1967}^{1987} \delta_s (X_{i1963} \times D_s) + \eta_i + \phi_t + \varepsilon_{it} \qquad (13)$$

where the instruments for B_{it} are the full set of interaction terms $\sum_{s=1967}^{1987} \gamma_s (B_{i1963} \times D_s)$. The identifying assumption underlying this IV regression is that the time-varying relationship between a municipality's initial financial development and bank branch expansion had no direct impact on entrepreneurial activity and, hence, the set of interaction terms $\sum_{s=1967}^{1987} \gamma_s (B_{i1963} \times D_s)$ can be safely excluded from equation (13). This identifying assumption seems fairly plausible because the time-varying relationship between commercial licenses per capita and initial financial development mimics very closely that of (aggregate) branch expansion (see Figure 5). In turn, the latter is the average of the actions taken by the commercial and savings banks, each following opposite trends after 1975 (see Figure 4). This can be taken as strong evidence that commercial licenses reacted to branch expansion and not to arbitrary omitted factors. Moreover, this specification is quite demanding in that it requires commercial licenses per capita to exhibit, year by year, the same relationship with initial financial development as branch expansion (this requirement is largely satisfied as demonstrated by Figures 5 and 6). This requirement has an important payoff: it is difficult to identify an omitted factor with exactly the same time-varying response to initial financial development as branch expansion. Confounding factors might display the same relationship with initial financial development over one, two or perhaps three panel periods, but it is highly unlikely over the whole panel span.

The second type of IV regressions we run is based on the trend break specification with the first stage regression of the IV estimates as in equation (10) (shown in Table 3, columns 4 and 8) and the second stage regression being of the form:

$$y_{it+1} = \beta * B_{it} + \delta_1(B_{i1963} \times [t - 1965]) + \delta_2(B_{i1963} \times P_{71}) + \delta_3(B_{i1963} \times P_{75}) + controls + \eta_i + \phi_t + \varepsilon_{it} \quad (14)$$

where $B_{i1963} \times [t - 1965]$ is a municipality-specific trend that captures the way in which entrepreneurship related to initial financial development. Deviations from this trend, $B_{i1963} \times [t - 1971] \times P_{71}$ and $B_{i1963} \times [t - 1975] \times P_{75}$, are used as our instruments for B_{it}. Notice that the identifying assumption differs slightly from that in equation (13) where we needed the full time-varying pattern in the relationship between initial financial development and bank branch expansion to be exclusive of branch expansion. Here we acknowledge that branch expansion and commercial licenses might share a common trend and simply require the 1971 and 1975 trend reversals to be exclusive of branch expansion. This specification has one advantage and one disadvantage over the previous one. The advantage is that we now allow licenses per capita and branch expansion to share a common trend. The disadvantage is that we now simply exploit coincidences in the trend reversals displayed by both branch expansion and commercial licenses. These trend reversals are relatively infrequent (there being just two) and concentrate around 1975, so they may be more easily shared by unobserved factors. Instead, the previous specification exploited coincidences in all the interactions describing the time-varying relationship of commercial licenses and branch expansion with initial financial development. There are many such interactions (as many as 12) and they are unlikely to be fully shared by unobserved factors.

Table 5 provides the IV evidence. The IV estimates all take very similar values and, consistent with a program-based explanation, are substantially larger than the FE estimates regardless of the specification (interaction terms vs. trend break) or the sample (entire sample vs. municipalities included in the plans) used. This result is unsurprising given that the bulk of branch expansion took place in municipalities with lower levels of initial financial development and presumably poorer economic prospects (see Figure 3). This causes a downward bias in β that is eliminated when we instrument branch expansion. Notice that this bias seems to be larger for the main sample as the fixed effects estimates in columns (1) and (3) are smaller than the fixed effects estimates of columns (5) and (7). This makes perfect sense precisely because the bulk of branch expansion takes place in

municipalities with lower levels of initial financial development in the main sample.[30] Let us now focus on the IV results. Starting with the main sample, the point estimate obtained with the interaction terms specification (column 2) implies that one additional percentage point in the cumulative number of new bank branches per capita increases the number of licenses per capita by 5.32 percentage points. As expected, the trend break specification (column 4) delivers very similar results with a point estimate of 6.75. This suggests that allowing for a common trend between branch expansion and commercial licenses per capita and simply exploiting the 1971 and 1975 trend breaks does not substantially differ from exploiting the full time-varying pattern in the relationship between initial financial development and bank branch expansion. As for the subsample of municipalities included in the plans, the interaction terms and the trend break specifications (columns 6 and 8) deliver similar point estimates of 5 and 6.12 respectively. We now move on to the interpretation of our estimates. Evaluated at the sample average, the point estimate of column (2) implies that branch expansion was responsible for a 0.24 (5.32*0.045) percentage point increase in the number of commercial licenses per capita during the sample period. This is a very large value as it represents 30% of the total increase in the municipalities' average number of commercial licenses per capita during the years 1965-1987.

[INSERT TABLE 5]

5.3. Who is driving the effects: commercial banks or savings banks?

The different responses in the branch expansion of commercial and savings banks to initial financial development enable us to identify their separate effects on the number of commercial licenses per capita. From a conceptual viewpoint, we have already argued that savings banks are more concerned with local development than are the commercial banks. Partly because of this concern for regional development and partly because of branching restrictions, savings banks expanded more intensely into the smaller municipalities that presented the severest credit constraints. Thus, we would expect savings banks to have a greater impact on entrepreneurship. Indeed, it seems that the response of commercial licenses to initial financial development (shown in Figure 5) mimics more closely that of

[30] Figure 3 shows that while the 1975 trend reversal in branch expansion is very clear for the subsample of municipalities included in the plans, it is much fuzzier for the main sample in which branch expansion does not show a clear reversal until 1983. Between 1975 and 1983, branch expansion remained rather flat with respect to the municipalities' initial financial development meaning that many new branch openings were still taking place in municipalities with low levels of initial financial development.

the savings banks than that of the commercial banks (shown in Figure 4). In Table 6 we replicate the regressions from Table 5 but use separate measures of the branch expansion of commercial banks and savings banks as opposed to aggregate bank expansion. The branch expansion of the savings banks is always positive and significant while that of the commercial banks is never significant and, on occasions, is even negative. This confirms that the previous results are essentially driven by the savings banks.

[INSERT TABLE 6]

5.4. Discussion of the validity of the identifying assumption

The key identifying assumption underlying our IV regressions is that the time-varying relationship between initial financial development and branch expansion had no direct impact on entrepreneurial activity. In other words, no other municipality level entrepreneurship-related policies displayed a similar time-varying relationship with the municipalities' initial financial development. If this requirement did not hold we would then have an omitted variable bias and our instruments could be picking up not only the policy driven component of branch expansion but other effects stemming from policies or environmental changes undergoing similar trend reversals.

In this respect, it must be admitted that the reversals in the relationship between initial financial development and branch expansion coincided with the 1975 political transition from dictatorship to democracy. The 1975 political transition represented a turning point that involved major changes at many levels. This finding raises legitimate doubts as to whether branch expansion and commercial licenses reacted to shifts in branching policies or rather they commoved in response to institutional changes. A particularly worrying scenario would be one in which there was a policy shift from having unanimously favoured municipalities with lower levels of initial financial development during the dictatorship to unanimously favouring municipalities with higher levels of initial financial development under democracy.

To the best of our knowledge, entrepreneurship-promotion policies did not undergo such trend reversals with respect to the municipalities' initial financial development. If anything, it would seem that they were exposed to trend reversals in quite the opposite direction. Regional and welfare policies benefited less economically developed areas before 1975 and

continued to benefit them (even more so) after 1975. Transport policies favoured more economically developed areas until 1985 and began benefiting less economically developed areas thereafter. In Table 7 we check that our IV results are robust to a series of (province-level) controls that capture each of these time-varying policies. For the sake of space, we only report the results obtained after adding these controls to the interaction terms specification (for the main sample) reported in Table 5, column 2 (similar results were obtained with the trend break specification and with the sample of municipalities included in the plans).

Regional policies – Admittedly the Banking Expansion Plan was not an isolated action. It was indeed conceived as a complement to the 1964-1974 Development Plans that sought to rectify the marked economic and social disparities between Spanish regions by promoting growth in less developed areas.[31] Thus, banking and regional policies followed similar trends during the period 1964-1974, both seeking to promote entrepreneurship in less financially (i.e., economically) developed areas. However, the regional development policy did not exhibit a trend reversal after the political transition to democracy in 1975. Rather it underwent a period of "inertia and accumulation" whereby many of the instruments that were introduced during the 1964-1974 remained operative.[32] In Table 7, column (1), we control for an indicator of the number of regional programs active in the province to which the municipality belongs. This variable enters the equation significantly but barely changes our IV point estimate.

Welfare policies – After the 1975 shift to democracy the tax system was reformed with the introduction of personal income tax, corporation tax and VAT (among others), which resulted in a huge increase in tax revenues. These revenues served to finance the welfare state (public education and health) and led to very generous transfers from richer to poorer regions in order to guarantee the equalization of the quality of services throughout

[31] See Pujadas and Font (1998) for a detailed explanation of Spanish regional policy during this period. The First Development Plan (1964-1967) essentially channelled public aid to a small list of cities in the hope they might become "Industrial Development Poles". The Second Development Plan (1969-1972) simply extended the list of cities that would benefit from public aid. The Third Development Plan (1972-1975) modified the strategy and worked with the notion of "Great Areas of Industrial Expansion" that extended over larger regions rather than just cities.

[32] Indeed, many "Great Areas of Industrial Expansion" in the Third Development Plan were defined after 1975 (Andalusia in 1975, Extremadura in 1978 and Castilla León in 1979).

Spanish territory.[33] Thus, democracy brought about redistributive efforts (absent during the dictatorship) towards less developed areas, while banking liberalization triggered branch openings in the most developed areas. In Table 7, columns (2) and (3), we include province-level measures of capital stocks in education and health. Again, the point estimate remains unchanged.

Transport infrastructure policies – Highway infrastructures, inexistent in Spain at the beginning of our sample period in 1965, were included on the political agenda in 1967 with the drafting of the Spanish National Highways Program (SNHP). The SNHP planned the construction of up to 6,430 kilometres of toll highways. However, only 1,807 kilometres of these were built between 1967 and 1985, concentrated primarily in the prosperous north-east and Mediterranean coast corridors. The remaining stretches, linking corridors of lesser economic activity (primarily the radial routes converging on Madrid), turned out to be unprofitable under a toll regime and were aborted. They were subsequently constructed in a toll-free regime as part of the 1984-1991 General Road Plan (even though many of these itineraries did not become operational until 1990). In short, highways were constructed in municipalities with higher economic (i.e. financial) development during the period 1967-1985 and in municipalities with lower economic (i.e. financial) development thereafter (Bel, 2010). Again, it would seem that if there was a trend reversal in highway construction it went in the opposite direction to that observed in branch expansion. In Table 7, columns (4) and (5), we include the province-level capital stock in toll highways and other road infrastructure. The point estimates on branch expansion are slightly larger in all cases. Finally, in column (6), which includes all the controls, the point estimate on branch expansion remains largely unchanged.

To sum up, regional and welfare policies continued or even intensified their support to the less developed areas of Spain after 1975. When we include province-level measures of regional, welfare and transport policies in our IV regressions the point estimates remain largely unchanged. Hence, it would seem that the trend reversals in entrepreneurship-related policies triggered by the 1975 political transition do not affect our results.

[33] Some studies have estimated that as much as 8 to 10 per cent of the GDP of the richest regions is being transferred to the poorest. This has been the subject of much debate in Spain over recent decades with the wealthier Autonomous Communities claiming that this fiscal deficit is undermining their growth potential.

[INSERT TABLE 7]

6. Conclusions

In this paper we have studied the extent to which the expansion of Spain's banking system during the second half of the twentieth century contributed to the country's process of rapid economic growth. Between 1965 and 1987 Spain's banking system evolved from a level of financial development and inclusion that was typical of developing countries to one more in keeping with a developed country. This episode of expansion in the country's banking system (one, moreover, that was heavily concentrated in time) offers a unique opportunity to assess the overall gains of comprehensive banking development. Here, we have documented the marked impact that bank branch expansion had on the country's entrepreneurial activity.

Causal identification of the effect of branch expansion on the number of commercial licenses per capita has been feasible as the expansion was largely policy driven. An ambitious Banking Expansion Plan, together with a subsequent relaxation of branch regulations, crucially tied branch expansion to the initial financial development of the municipalities. Between 1965 and 1973, while the Banking Expansion Plan was operative, branches were opened in the country's backward municipalities that suffered from a shortage of banking services. The reverse was true after 1974 when branching restrictions were lifted (fully in the case of commercial banks and only partially in that of savings banks) enabling banks (initially the commercial entities but later on also the savings banks) to expand, understandably, into prosperous locations with high levels of initial financial development. We have exploited the policy driven (and plausibly exogenous) time-varying relationship between the municipalities' initial financial development and branch expansion to identify the effects of this expansion.

We expected that the substantial wave of branch expansions that we have analyzed would have had a considerable impact on the municipalities' provision of financial services. In 1965 bank branches were absent from many Spanish municipalities due to strict regulations that had left the bank branch network firmly anchored at pre-1939 (Civil War) levels. This meant that many municipalities were financially unattended and some firms and households had no option but to resort to informal credit markets (particularly in rural areas). However, the subsequent expansion in the branch network ensured the presence of

a branch in virtually all of Spain's municipalities (with more than 1,000 inhabitants) and the gradual incorporation of an increasing number of inhabitants to the formal banking system. Evaluated at the sample mean, we find that branch expansion accounts for a third of the overall increase in the number of commercial licenses per capita over the period. This effect was essentially driven by the savings banks, which have stronger regional development objectives than commercial banks and which expanded more intensely into unbanked municipalities with a shortage of financial services.

Finally, we should highlight that an interesting prediction of occupational choice models, such as the one described in Section 2, is that financial development does not necessarily spur entrepreneurship under all conditions, but it does so essentially in environments with: (a) large returns to capital where incentives to invest are high; (b) low levels of initial financial development where individuals are likely to suffer financial constraints; (c) wealthy inhabitants who can capitalize on the value of their wealth (such as housing that serves as collateral for loans). Spain met all these requirements and hence was ready to take advantage of branch expansion; however, similar waves of branch expansion might fail to achieve the same effects in contexts where these conditions do not apply.

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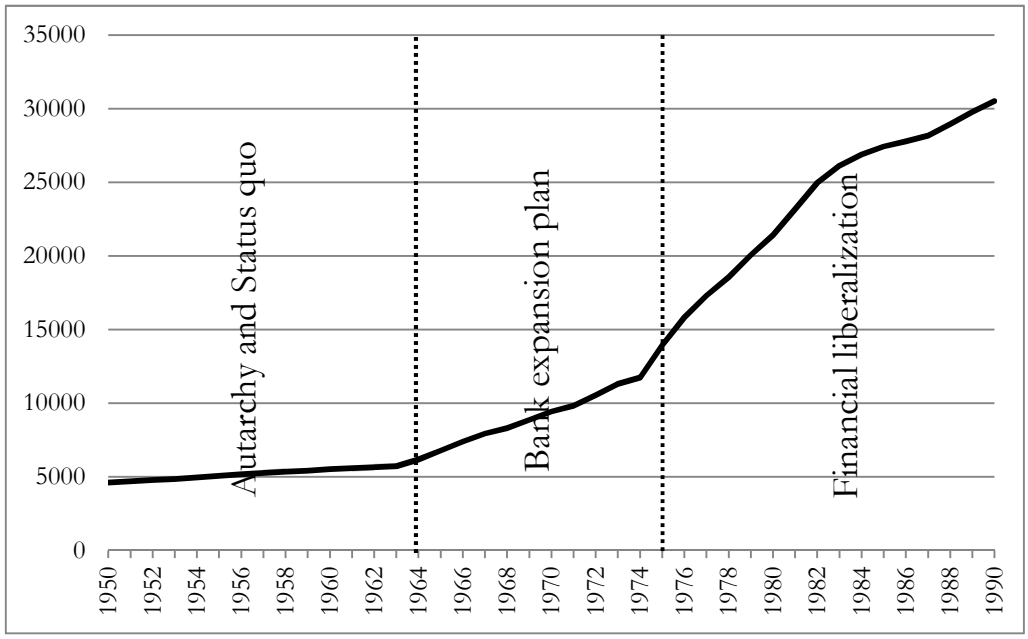
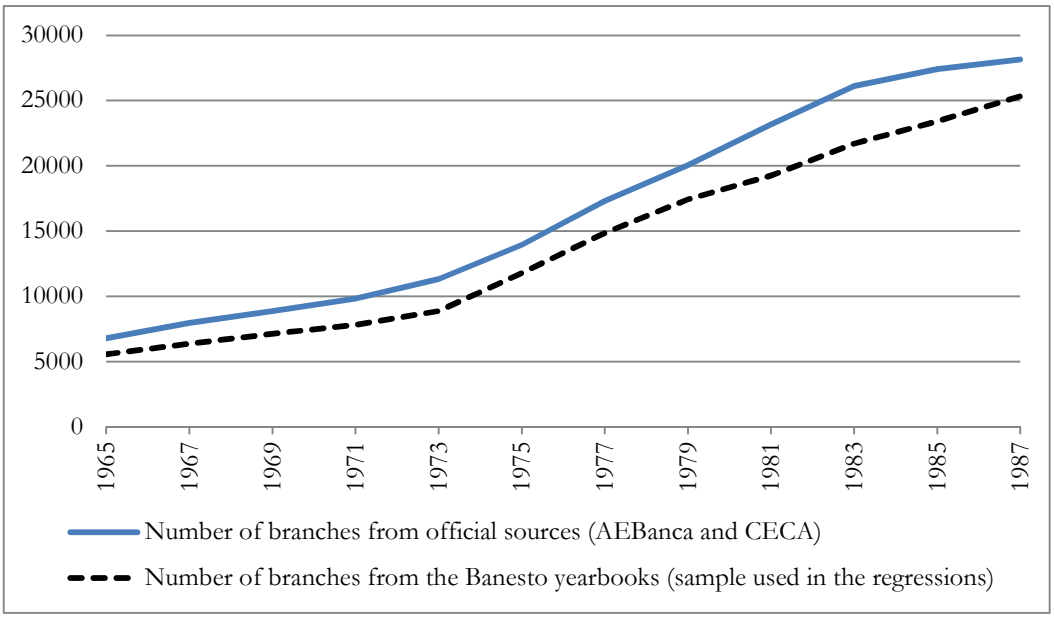
Figures

Figure 1. Evolution of the total number of bank branches under changing scenarios



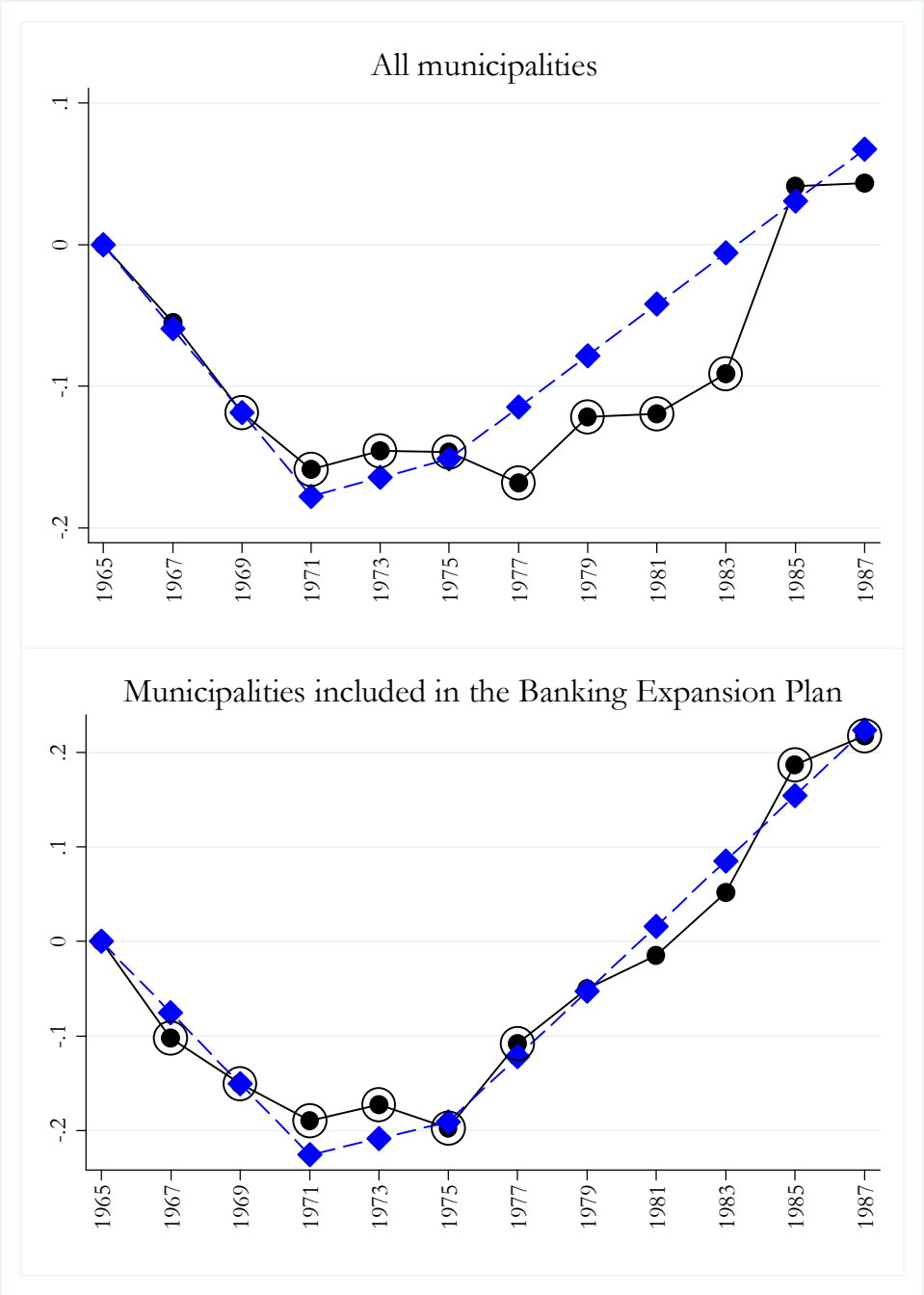
Sources: Anuario Estadístico de la Banca Privada (AEBanca) and Anuario Estadístico de las Cajas de Ahorros Confederadas (CECA).

Figure 2. Total number of bank branches in official data vs. those in the main sample



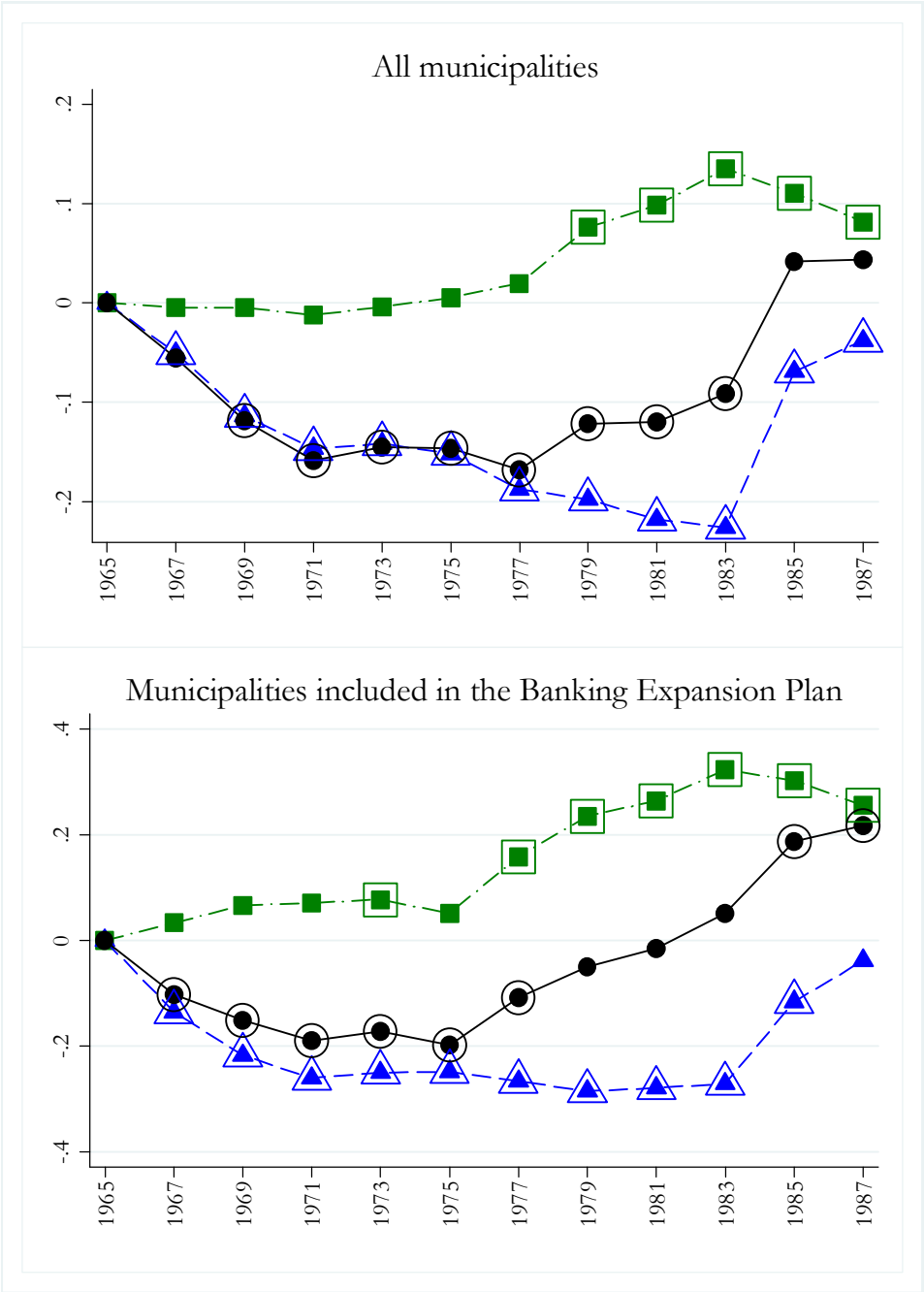
Sources: Anuario Estadístico de la Banca Privada (AEBanca), Anuario Estadístico de las Cajas de Ahorros Confederadas (CECA) and Anuario del Mercado Español del Banco Español de Crédito (Banesto)

Figure 3. Initial financial development and branch expansion



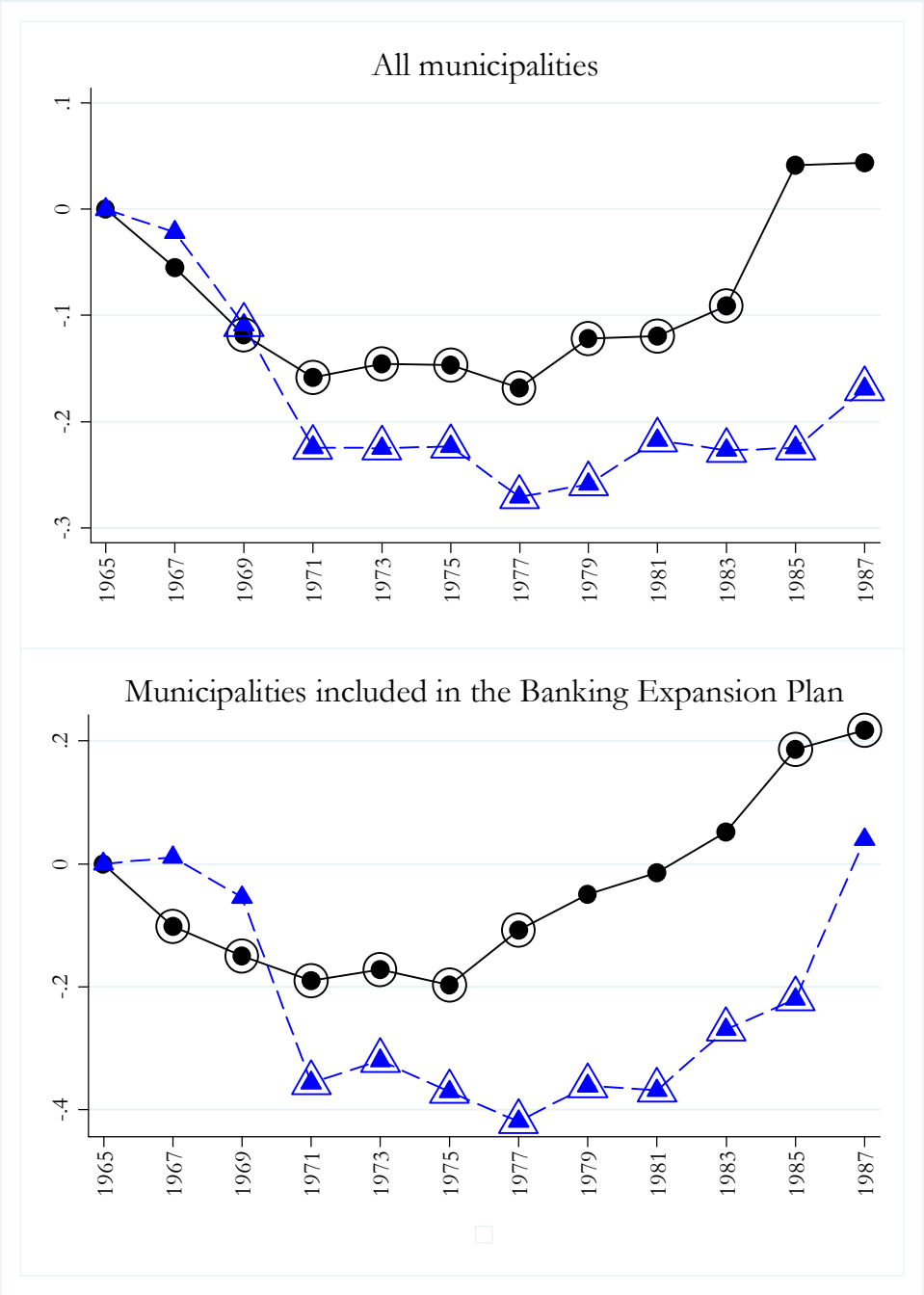
Notes: the solid line with round markers plots the yearly coefficients γ_s on initial financial development (as measured by the number of bank branches per capita in 1963-1964) from a regression of the form described in equation (9) whose results are reported in Table 3, columns (2) and (6). Circles around the markers denote significance at a 5% level. The dashed line with diamond markers plots the yearly coefficients implied by the trend break model described in equation (10) whose results are reported in Table 3, columns (4) and (8). In all cases the dependent variable is the cumulative number of new bank branches per capita opened in each municipality. All regressions include as controls the number of inhabitants and the number of telephones per capita (both variables enter the corresponding regressions in the same way as B_{i1963}).

Figure 4. Initial financial development and branch expansion by banking institution



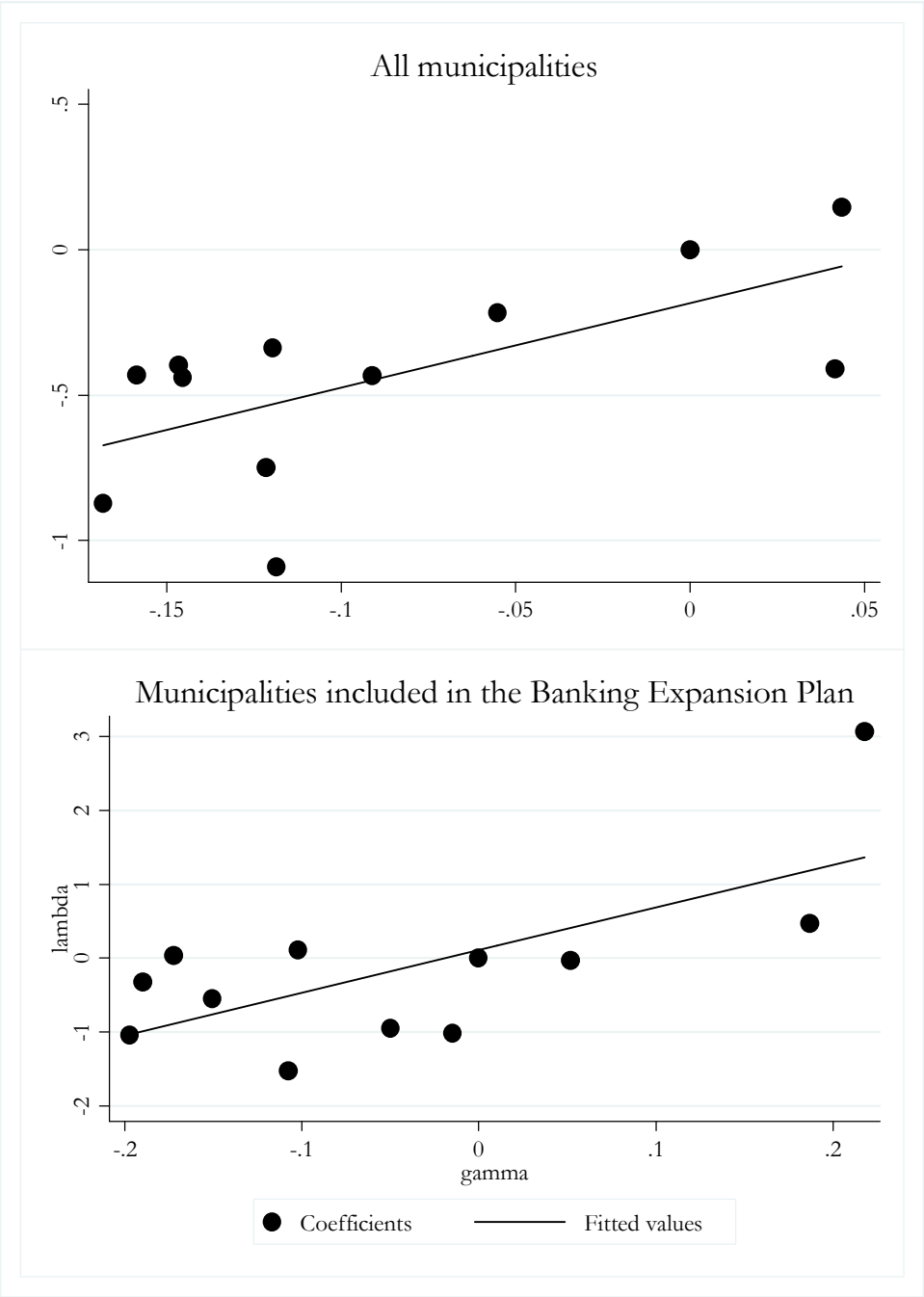
Notes: the solid line with round markers plots the yearly coefficients on initial financial development from a regression of the form described in equation (9) where the dependent variable is the cumulative number of new bank branches per capita opened in each municipality (just as in Figure 3). The dash-dot line with square markers plots the yearly coefficients on initial financial development from a regression of the form described in equation (9) where the dependent variable is the cumulative number of new commercial bank branches per capita opened in each municipality. The dashed line with triangle markers plots the yearly coefficients on initial financial development from a regression of the form described in equation (9) where the dependent variable is the cumulative number of new savings bank branches per capita opened in each municipality. All regressions include as controls the number of inhabitants and the number of telephones per capita (both variables enter the corresponding regressions in the same way as B_{i1963}). Circles, squares and triangles around the markers denote significance at a 5% level.

Figure 5. Initial financial development, branch expansion and entrepreneurship



Notes: the solid line with round markers plots the yearly coefficients γ_s on initial financial development from a regression of the form described in equation (9) whose results are reported in Table 3, columns (2) and (6) (just as in Figure 3). The dashed line with triangle markers plots the yearly coefficients λ_s (divided by 10) on initial financial development from a regression of the form described in equation (11), whose results are reported in Table 4, columns (2) and (6). All regressions include as controls the number of inhabitants and the number of telephones per capita (both variables enter the corresponding regressions in the same way as B_{i1963}). Circles and triangles around the markers denote significance at a 5% level.

Figure 6. Correlation between commercial licenses and branch expansion response to initial financial development



Notes: this figure plots the λ_s coefficients obtained from a regression of the form described in equation (11) against the γ_s coefficients obtained from a regression of the form described in (9). The λ_s used in the graphs is purged of P_{1971} and P_{1975} effects.

Tables

Table 1. Variables definition

Variable	Definition	Source
	Municipality-level variables	
Commercial licenses per capita	number of commercial licenses of the municipality over total population of the municipality	Banesto yearbooks
Cumulative number of new branches per capita	cumulative number of commercial and savings bank branches opened in the municipality since 1963-1964 over total population of the municipality	Banesto yearbooks
Cumulative number of new commercial bank branches per capita	cumulative number of bank branches and savings bank branches opened in the municipality since 1963-1964 over total population of the municipality	Banesto yearbooks
Cumulative number of new savings bank branches per capita	cumulative number of bank branches and savings bank branches opened in the municipality since 1963-1964 over total population of the municipality	Banesto yearbooks
Number of bank branches per capita in 1963-1964 (initial financial development)	number of bank branches and savings bank branches of the municipality in 1963-1964 over total population of the municipality in 1963-1964	Banesto yearbooks
Number of inhabitants in 1963-1964	population of the municipality in the year 1963-1964	Banesto yearbooks
Telephones per capita in 1963-1964	number of telephones per capita of the municipality in 1963-1964 over total population of the municipality in the year 1963-1964	Banesto yearbooks
	Province-level variables	
Number of regional programs	number of regional programs active in the province where the municipality is located	Based on information in Pujadas and Font (1998)
Capital stock in education (per capita)	capital stock in education (1986 thousands of Euros) over province total population	IVIE-BBVA Foundation
Capital stock in health (per capita)	capital stock in health (1986 thousands of Euros) over province total population	IVIE-BBVA Foundation
Capital stock in toll-highways (per capita)	capital stock in toll highways (1986 thousands of Euros) over province total population	IVIE-BBVA Foundation
Capital stock in other road infrastructure (per capita)	capital stock in other road infrastructure (1986 thousands of Euros) over province total population	IVIE-BBVA Foundation

Table 2. Descriptive statistics

	Panel A: All municipalities (N=2,343, N*T=28,116)					Panel B: Municipalities in the Banking Expansion Plan (N=1,375, N*T=16,500)				
	Mean	Standard deviation		Min	Max	Mean	Standard deviation		Min	Max
		overall	within				overall	within		
Municipality-level variables										
Commercial Licenses per capita	0.0199	0.0088	0.0043	0.0006	0.1028	0.0208	0.0093	0.0046	0.0017	0.1028
Cumulative number of new bank branches per capita	0.0004	0.0005	0.0004	-0.0009	0.0051	0.0005	0.0005	0.0003	-0.0007	0.0051
Cumulative number of new commercial bank branches per capita	0.0002	0.0003	0.0003	-0.0007	0.0036	0.0002	0.0003	0.0002	-0.0004	0.0036
Cumulative number of new savings bank branches per capita	0.0002	0.0003	0.0002	-0.0009	0.0029	0.0002	0.0003	0.0002	-0.0008	0.0029
Number of bank branches per capita in 1963-1964	0.0002	0.0003	0	0	0.0021	0.0002	0.0002	0	0	0.0016
Number of inhabitants in 1963-1964	10,778	67,724	0	1,008	2,580,078	15,782	88,017	0	1,008	2,580,078
Telephones per capita in 1963-1964	0.04	0.05	0	0	0.94	0.04	0.06	0	0	0.94
Province-level variables										
Intensity of regional policies	0.44	0.58	0.42	0	2.00	0.45	0.59	0.41	0	2.00
Capital stock in education	0.15	0.07	0.06	0.03	0.52	0.14	0.07	0.06	0.03	0.52
Capital stock in health	0.07	0.04	0.03	0	0.37	0.06	0.04	0.03	0	0.37
Capital stock in toll highways	0.11	0.27	0.18	0	2.18	0.11	0.25	0.17	0	2.18
Capital stock in other road infrastructure	0.35	0.18	0.10	0.10	1.66	0.33	0.18	0.09	0.10	1.66

Table 3. Bank branch expansion as a function of initial financial development

	All municipalities				Municipalities included in the plans			
	Interaction terms specification		Trend break specification		Interaction terms specification		Trend break specification	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$B_{i1963} \times D_{1967}$	-0.05*	-0.06*			-0.10**	-0.10**		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1969}$	-0.11***	-0.12***			-0.14***	-0.15***		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1971}$	-0.15***	-0.16***			-0.18***	-0.19***		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1973}$	-0.13***	-0.15***			-0.16***	-0.17***		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1975}$	-0.10***	-0.15***			-0.15***	-0.20***		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1977}$	-0.11***	-0.17***			-0.04	-0.11**		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1979}$	-0.07**	-0.12***			0.01	-0.05		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1981}$	-0.07**	-0.12***			0.05	-0.01		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1983}$	-0.03	-0.09***			0.12**	0.05		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1985}$	0.10***	0.04			0.26***	0.19***		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times D_{1987}$	0.11***	0.04			0.29***	0.22***		
	(0.03)	(0.03)			(0.05)	(0.05)		
$B_{i1963} \times [t - 1965]$			-0.05***	-0.06***			-0.07***	-0.08***
			(0.02)	(0.02)			(0.02)	(0.03)
$B_{i1963} \times [t - 1971] \times P_{71}$			0.07**	0.07**			0.09*	0.09
			(0.03)	(0.04)			(0.06)	(0.06)
$B_{i1963} \times [t - 1975] \times P_{75}$			0.02	0.02			0.05	0.05
			(0.03)	(0.03)			(0.05)	(0.05)
$B_{i1963} \times P_{71}$			0.02	0.02			0.04	0.04
			(0.04)	(0.04)			(0.06)	(0.07)
$B_{i1963} \times P_{75}$			-0.03	-0.06			-0.00	-0.04
			(0.05)	(0.05)			(0.08)	(0.08)
Fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Other controls	NO	YES	NO	YES	NO	YES	NO	YES
Within R-squared	0.48	0.49	0.48	0.49	0.54	0.55	0.54	0.55
Number of municipalities	2,343	2,343	2,343	2,343	1,375	1,375	1,375	1,375
Observations	28,116	28,116	28,116	28,116	16,500	16,500	16,500	16,500

Notes: ***, ** and * indicate significance at a 1%, 5% and 10% level respectively. The dependent variable is the number of new bank branches per capita accumulated in each municipality since 1963. Explanatory variables reported are the number of bank branches per capita in the year 1963 interacted with year-pair dummies for the interaction terms specification and the number of bank branches per capita in the year 1963 interacted with (a) a time trend, (b) a post 1971 time trend, (c) a post 1975 time trend, (d) a post-1971 dummy and (e) a post-1975 dummy for the trend break specification. Other controls include population, telephones per capita (all measured in 1963) and enter the regression in the same way as branches per capita in 1963. The trend break specification always includes a 1965-1987 time trend, a post-1971 dummy interacted with a 1971-1987 time trend and a post-1975 dummy interacted with a 1975-1987 time trend.

Table 4. Initial financial development and entrepreneurship

	All municipalities				Municipalities included in the plans			
	Interaction terms specification		Trend break specification		Interaction terms specification		Trend break specification	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$B_{i1963} \times D_{1967}$	-0.25	-0.22			0.06	0.11		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1969}$	-1.08**	-1.09**			-0.54	-0.54		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1971}$	-2.36***	-2.24***			-3.71***	-3.56***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1973}$	-2.43***	-2.25***			-3.35***	-3.20***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1975}$	-2.31***	-2.23***			-3.80***	-3.71***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1977}$	-2.59***	-2.71***			-3.97***	-4.19***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1979}$	-2.64***	-2.59***			-3.70***	-3.61***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1981}$	-2.45***	-2.18***			-4.10***	-3.69***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1983}$	-2.26***	-2.27***			-2.73***	-2.70***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1985}$	-2.29***	-2.25***			-2.37***	-2.20***		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times D_{1987}$	-1.42***	-1.69***			0.55	0.40		
	(0.44)	(0.44)			(0.81)	(0.82)		
$B_{i1963} \times [t - 1965]$			-0.54**	-0.55**			-0.27	-0.27
			(0.22)	(0.22)			(0.40)	(0.41)
$B_{i1963} \times [t - 1971] \times P_{71}$			0.48	0.54			0.63	0.63
			(0.49)	(0.50)			(0.90)	(0.92)
$B_{i1963} \times [t - 1975] \times P_{75}$			0.19	0.11			0.26	0.26
			(0.44)	(0.45)			(0.82)	(0.83)
$B_{i1963} \times P_{71}$			-0.84	-0.72			-3.01***	-2.87***
			(0.56)	(0.57)			(1.04)	(1.06)
$B_{i1963} \times P_{75}$			-0.18	-0.32			-1.73	-1.82
			(0.72)	(0.73)			(1.34)	(1.36)
Fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Other controls	NO	YES	NO	YES	NO	YES	NO	YES
Within R-squared	0.25	0.26	0.25	0.25	0.33	0.33	0.33	0.33
Number of municipalities	2,343	2,343	2,343	2,343	1,375	1,375	1,375	1,375
Observations	28,116	28,116	28,116	28,116	16,500	16,500	16,500	16,500

Notes: ***, ** and * indicate significance at a 1%, 5% and 10% level respectively. The dependent variable is the number of commercial licenses per capita in the year t+1. Explanatory variables reported are the number of bank branches per capita in the year 1963 interacted with year-pair dummies for the interaction terms specification and the number of bank branches per capita in the year 1963 interacted with (a) a time trend, (b) a post 1971 time trend, (c) a post 1975 time trend, (d) a post-1971 dummy and (e) a post-1975 dummy for the trend break specification. Other controls include population, telephones per capita (all measured in 1963) and enter the regression in the same way as branches per capita in 1963. The trend break specification always includes a 1965-1987 time trend, a post-1971 dummy interacted with a 1971-1987 time trend and a post-1975 dummy interacted with a 1975-1987 time trend.

Table 5 – Bank branch expansion and entrepreneurship: Instrumental variables evidence

	All municipalities				Municipalities included in the plans			
	Interaction terms specification		Trend break specification		Interaction terms specification		Trend break specification	
	FE	IV	FE	IV	FE	IV	FE	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
B_{it}	0.49***	5.32***	0.50***	6.75***	0.98***	5.00***	0.99***	6.12**
	(0.09)	(1.31)	(0.09)	(2.62)	(0.13)	(1.30)	(0.13)	(3.05)
$B_{i1963} \times [t - 1965]$			0.04	-0.14			0.49***	0.19
			(0.06)	(0.10)			(0.11)	(0.21)
$B_{i1963} \times P_{71}$			-1.87***	-0.82			-4.38***	-3.13***
			(0.32)	(0.56)			(0.59)	(0.97)
$B_{i1963} \times P_{75}$			-0.26	0.13			-1.85***	-1.49**
			(0.36)	(0.42)			(0.66)	(0.73)
Fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES	YES	YES
Number of municipalities	2,343	2,343	2,343	2,343	1,375	1,375	1,375	1,375
Observations	28,116	28,116	28,116	28,116	16,500	16,500	16,500	16,500

Notes: ***, ** and * indicate significance at a 1%, 5% and 10% level respectively. The dependent variable is the number of commercial licenses per capita in year t+1. The explanatory variable of interest is the cumulative number of new bank branches per capita opened since 1963. The other explanatory variables reported are bank branches per capita in the year 1963 interacted with (a) a 1965-1987 time trend, (b) a post-1971 dummy and (c) a post-1975 dummy. Other controls include population, telephones per capita (all measured in 1963) and enter the regression in the same way as branches per capita in 1963. The trend break specification also includes a 1965-1987 time trend, a post-1971 dummy interacted with a 1971-1987 time trend and a post-1975 dummy interacted with a 1975-1987 time trend. In the IV regressions of columns (2) and (6) the instruments are the number of bank branches per capita in the year 1963 interacted with the year-pair dummies. Table 2, columns (2) and (6) report the corresponding first-stage regressions. In the IV regressions of columns (4) and (8) the instruments are the number of bank branches per capita in the year 1963 interacted with a post 1971 time trend and a post 1975 time trend. Table 2, columns (4) and (8) report the corresponding first-stage regressions.

Table 6 – Bank branch expansion and entrepreneurship: Commercial banks vs. savings banks. Instrumental variables evidence

	All municipalities				Municipalities included in the plans			
	Interaction terms specification		Trend break specification		Interaction terms specification		Trend break specification	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
B_{it} commercial banks	-6.82***		32.84		-3.52**		14.89	
	(1.90)		(23.37)		(1.55)		(33.14)	
B_{it} savings banks		9.13***		8.47***		14.61***		6.26**
		(1.37)		(3.21)		(2.01)		(3.08)
Fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES	YES	YES
Number of municipalities	2,343	2,343	2,343	2,343	1,375	1,375	1,375	1,375
Observations	28,116	28,116	28,116	28,116	16,500	16,500	16,500	16,500

Notes: ***, ** and * indicate significance at a 1%, 5% and 10% level respectively. The dependent variable is the number of commercial licenses per capita in year t+1. The explanatory variables of interest are the cumulative number of new commercial and savings bank branches per capita opened since 1963. All the regressions include fixed effects, time dummies and the following controls: number of inhabitants, telephones per capita (all measured in 1963) and enter the regression in the same way as branches per capita in 1963. The trend break specification also includes bank branches per capita in the year 1963 interacted with (a) a 1965-1987 time trend, (b) a post-1971 dummy and (c) a post-1975 dummy; a 1965-1987 time trend, a post-1971 dummy interacted with a 1971-1987 time trend and a post-1975 dummy interacted with a 1975-1987 time trend. In the IV regressions corresponding to the interaction terms specification (columns 1, 2, 5 and 6) the instruments are the number of bank branches per capita in the year 1963 interacted with the year-pair dummies. In the IV regressions corresponding to the trend break specifications (columns 3, 4, 7 and 8) the instruments are the number of bank branches per capita in the year 1963 interacted with a post 1971 time trend and a post 1975 time trend.

Table 7 – Bank branch expansion and entrepreneurship: Instrumental variables evidence. Robustness checks

	(1)	(2)	(7)	(4)	(5)	(6)
B_{it}	5.64***	5.65***	5.67***	7.02***	6.29***	8.40***
	(1.32)	(1.37)	(1.31)	(1.37)	(1.39)	(1.52)
Regional plans	0.00***					0.00***
	(0.00)					(0.00)
Per capita capital stock in education		0.01***				0.01***
		(0.00)				(0.00)
Per capita capital stock in health			-0.02***			-0.01***
			(0.00)			(0.00)
Per capita capital stock in toll highways				-0.00***		-0.00***
				(0.00)		(0.00)
Per capita capital stock in other road infrastructure					-0.01***	-0.01***
					(0.00)	(0.00)
Fixed effects	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES
Other controls	YES	YES	YES	YES	YES	YES
Number of municipalities	2,343	2,343	2,343	2,343	2,343	2,343
Observations	28,116	28,116	28,116	28,116	28,116	28,116

Notes: ***, ** and * indicate significance at a 1%, 5% and 10% level respectively. The dependent variable is the number of commercial licenses per capita in year t+1. The explanatory variable of interest is the cumulative number of new bank branches per capita opened since 1963. Other controls include population, telephones per capita (all measured in 1963) and enter the regression in the same way as branches per capita in 1963. The instruments are the number of bank branches per capita in the year 1963 interacted with the year-pair dummies. In all columns we run regressions based on the interaction terms specification of the form described in equation (13)

Appendix A

Cancelling the term $r\left(l_j + z_j\right)$ from both sides of (6) and substituting the optimal k (from (4) for the unconstrained and from $\lambda_i l_j + (\lambda_i - 1)z_j$ for the constrained) gives the following selection conditions:

Selection condition 1 (unconstrained):

$$\theta_j \leq \left(\lambda_i l_j + (\lambda_i - 1)z_j\right)^{1-\alpha}\left(\frac{r}{\alpha}\right) \tag{1A}$$

$$\theta_j^{1/1-\alpha}\left(\frac{\alpha}{r}\right)^{\alpha/1-\alpha} - r\left(\frac{\alpha}{r}\right)^{1/1-\alpha}\theta_j^{1/1-\alpha} \geq w \tag{2A}$$

where (2A) can be written as

$$\theta_j \geq w_j^{1-\alpha}\left(\frac{r}{\alpha}\right)^{\alpha}(1-\alpha)^{\alpha-1} \tag{3A}$$

Selection condition 2 (constrained):

$$\theta_j > \left(\lambda_i l_j + (\lambda_i - 1)z_j\right)^{1-\alpha}\left(\frac{r}{\alpha}\right) \tag{4A}$$

$$\theta_j(\lambda_i l_j + (\lambda_i - 1)z_j)^{\alpha} - r(\lambda_i l_j + (\lambda_i - 1)z_j) \geq w_j \tag{5A}$$

where (5A) can be written as

$$\theta_j \geq w_j(\lambda_i l_j + (\lambda_i - 1)z_j)^{-\alpha} + r(\lambda_i l_j + (\lambda_i - 1)z_j)^{1-\alpha} \tag{6A}$$

For notational convenience let's define

$$A = w_j^{1-\alpha}\left(\frac{r}{\alpha}\right)^{\alpha}(1-\alpha)^{\alpha-1} \tag{7A}$$

$$B = \left(\lambda_i l_j + (\lambda_i - 1)z_j\right)^{1-\alpha}\left(\frac{r}{\alpha}\right) \tag{8A}$$

$$C = w_j\left(\lambda_i l_j + (\lambda_i - 1)z_j\right)^{-\alpha} + r\left(\lambda_i l_j + (\lambda_i - 1)z_j\right)^{1-\alpha} \tag{9A}$$

These two selection conditions imply that the individual will become an entrepreneur if

$$A \leq \theta_j \leq B \tag{10A}$$

Or

$$\theta_j \geq C \; and \; \theta_j > B \tag{11A}$$

The threshold $\tilde{\theta}$ that defines selection into entrepreneurship is given by the minimum value of θ that meets these two inequalities. Since we are interested in how financial development affects selection into entrepreneurship we will study how $\tilde{\theta}$ reacts to variations in λ.

If $A > B$ condition one cannot hold, so only constrained individuals satisfying the second selection condition will become entrepreneurs and $\tilde{\theta}$ is given by C. Notice that C is convex in λ with a minimum at $\lambda_j^* = \frac{\alpha}{1-\alpha}\frac{1}{r}\frac{w_j}{l_j+z_j} + \frac{z_j}{l_j+z_j}$. Evaluated at this minimum $C(\lambda^*) = B(\lambda^*) = A$. Given that B is increasing in λ while A simply does not depend on λ we have that (i) for $\lambda \leq \lambda^*$: $A > B$ and $\tilde{\theta}$ is given by C and (ii) for $\lambda > \lambda^*$: $A < B$ and $\tilde{\theta}$ is given by A:

$$\tilde{\theta}_j = \begin{cases} C & if \quad \lambda_i \leq \lambda_j^* \\ A & if \quad \lambda_i > \lambda_j^* \end{cases} \tag{12A}$$

Notice that $\partial\,\tilde{\theta}_j/\partial\lambda_i < 0$ if and only if $\lambda_i \leq \lambda_j^*$. In words, financial development only increases the propensity to start a business for individuals with $\lambda_i \leq \lambda_j^*$. This inequality can only hold if $\lambda_j^* > 1$ (because $\lambda_i \geq 1$ by definition) or, what amounts to the same, if $\frac{l_j}{w_j} < \frac{\alpha}{1-\alpha}\frac{1}{r}$. Intuitively, this means that only individuals with low liquid assets benefit from financial development. On the other hand, individuals with high liquid assets are unconstrained even in the absence of borrowing so financial development is irrelevant for them.

Appendix B

All the variables used in the paper are taken from the Banesto Yearbooks except for the population variable which is drawn from the decennial Censuses from the INE (1960, 1970, 1981 and 1991 censuses) and the province-level variables which come from the IVIE-BBVA Foundation. We use data drawn from the 1965 (the first available yearbook) to the 1993 yearbooks (the last available yearbook). Year t yearbooks generally report information relative to year t-2, but this is not always the case: on occasions, variables in the same yearbook are misaligned and refer to different years (Table A1 gives detailed information on the specific year each variable refers to in the different yearbooks). In order to build the panel, we first aligned information within yearbooks and made every variable from a year t yearbook refer to year t-2 (except for the 1991, 1992 and 1993 yearbooks which were used to create information for the year 1990). To fill in missing values we assumed constant yearly growth rates between two available years. For instance, to obtain the number of bank branches in 1980 we assumed a constant growth in the number of bank branches between 1979 and 1982 (Table A2 provides details on the exact provenance of each variable).

Odd-year yearbooks cover municipalities with more than 3,000 inhabitants while even-year yearbooks cover municipalities with between 1,000 and 3,000 inhabitants (except for the last two available yearbooks that cover all the municipalities with more than 1,000 inhabitants). Consecutive odd- and even-year yearbooks provide comprehensive information on the full spectrum of municipalities with more than 1,000 inhabitants. For this reason we pair the "aligned" yearbooks and let our time variable be a year-pair indicator standing for the years 1965-1966, 1966-1967, ..., 1987-1988 (a total of 12 panel periods).[37] Information on the year-pair 1963-1964 is only used to construct some initial conditions such as the number of bank branches per capita in 1963-1964, the number of inhabitants in 1963-1964 and the number of telephones per capita in 1963-1964. To create the per capita variables we constructed a yearly population variable by assuming a constant yearly growth between any two censuses from the INE.

[INSERT TABLES A1 AND A2]

[37] The 1990 information comes from the 1993 yearbook which covers all municipalities with more than 1,000 inhabitants.

Appendix B Tables

Table A1. Description of the Banesto Yearbooks: year to which each variable corresponds in the different yearbooks.

Yearbook	Bank branches	Savings bank branches	Commercial licenses	Telephones
1965	1963	1963	1963	1963
1966	1964	1964	1964	1964
1967	1965	1965	1965	1965
1968	1966	1966	1966	1966
1969	1967	1967	1967	1967
1970	1968	1968	1968	1968
1971	1969	1969	1969	1969
1972	1970	1970	1970	1970
1973	1971	1971	1970	1971
1974	1972	1972	1972	1972
1975	1973	1973	1973	1973
1976	1974	1974	1974	1974
1977	1975	1975	1975	1975
1978	1976	1976	1976	1976
1979	1977	1977	1976	1976
1980	1978	1978	1978	1978
1981	1979	1979	1978	1978
1982	1979	1980	1980	1980
1983	1981	1982	1980	1981
1984	1982	1982	1982	1982
1985	1983	1984	1983	1983
1986	1984	1984	1984	1984
1987	1985	1985	1985	1985
1988	1986	1986	1986	1986
1989	1987	1987	1987	1987
1990	1988	1988	1988	1988
1991	1990	1990	1989	1990
1992	1991	1991	1989	1991
1993	1992	1992	1990	1992

Table A2. Description of the "aligned yearbooks"

Yearbook year	Real year	Number of commercial bank branches	Number of savings bank branches	Number of commercial licenses
1965	1963	1965 yearbook	1965 yearbook	1965 yearbook
1966	1964	1966 yearbook	1966 yearbook	1966 yearbook
1967	1965	1967 yearbook	1967 yearbook	1967 yearbook
1968	1966	1968 yearbook	1968 yearbook	1968 yearbook
1969	1967	1969 yearbook	1969 yearbook	1969 yearbook
1970	1968	1970 yearbook	1970 yearbook	1970 yearbook
1971	1969	1971 yearbook	1971 yearbook	1971 yearbook
1972	1970	1972 yearbook	1972 yearbook	1972 yearbook
1973	1971	1973 yearbook	1973 yearbook	1973 and 1975 yearbooks (d)
1974	1972	1974 yearbook	1974 yearbook	1974 yearbook
1975	1973	1975 yearbook	1975 yearbook	1975 yearbook
1976	1974	1976 yearbook	1976 yearbook	1976 yearbook
1977	1975	1977 yearbook	1977 yearbook	1977 yearbook
1978	1976	1978 yearbook	1978 yearbook	1978 yearbook
1979	1977	1979 yearbook	1979 yearbook	1979 and 1981 yearbooks (e)
1980	1978	1980 yearbook	1980 yearbook	1980 yearbook
1981	1979	1981 yearbook	1981 yearbook	1981 and 1983 yearbooks (f)
1982	1980	1982 and 1984 yearbooks (a)	1982 yearbook	1982 yearbook
1983	1981	1983 yearbook	1981 and 1983 yearbooks (b)	1983 and 1985 yearbooks (g)
1984	1982	1984 yearbook	1984 yearbook	1984 yearbook
1985	1983	1985 yearbook	1985 and 1983 yearbooks (c)	1985 yearbook
1986	1984	1986 yearbook	1986 yearbook	1986 yearbook
1987	1985	1987 yearbook	1987 yearbook	1987 yearbook
1988	1986	1988 yearbook	1988 yearbook	1988 yearbook
1989	1987	1989 yearbook	1989 yearbook	1989 yearbook
1990	1988	1990 yearbook	1990 yearbook	1990 yearbook

Notes: The column "Real year" denotes the year every variable refers to in the aligned yearbooks (yearbook year-2).
(a) 1980 commercial bank branches=1979 branches+(1982 branches-1979 branches)/3
(b) 1981 savings bank branches=1979 branches+2*(1982 branches-1979 branches)/3
(c) 1983 savings bank branches=1982 branches+(1984 branches-1982 branches)/2
(d) 1971 commercial licenses=1970 licenses+(1973 licenses-1970 licenses)/3
(e) 1977 commercial licenses=1976 licenses+(1978 licenses-1976 licenses)/2
(f) 1979 commercial licenses=1978 licenses+(1980 licenses-1978 licenses)/2
(g) 1981 commercial licenses=1980 licenses+(1983 licenses-1980 licenses)/3

2011

2011/1, Oppedisano, V; Turati, G.: "What are the causes of educational inequalities and of their evolution over time in Europe? Evidence from PISA"
2011/2, Dahlberg, M; Edmark, K; Lundqvist, H.: "Ethnic diversity and preferences for redistribution "
2011/3, Canova, L.; Vaglio, A.: "Why do educated mothers matter? A model of parental help"
2011/4, Delgado, F.J.; Lago-Peñas, S.; Mayor, M.: "On the determinants of local tax rates: new evidence from Spain"
2011/5, Piolatto, A.; Schuett, F.: "A model of music piracy with popularity-dependent copying costs"
2011/6, Duch, N.; García-Estévez, J.; Parellada, M.: "Universities and regional economic growth in Spanish regions"
2011/7, Duch, N.; García-Estévez, J.: "Do universities affect firms' location decisions? Evidence from Spain"
2011/8, Dahlberg, M.; Mörk, E.: "Is there an election cycle in public employment? Separating time effects from election year effects"
2011/9, Costas-Pérez, E.; Solé-Ollé, A.; Sorribas-Navarro, P.: "Corruption scandals, press reporting, and accountability. Evidence from Spanish mayors"
2011/10, Choi, A.; Calero, J.; Escardíbul, J.O.: "Hell to touch the sky? private tutoring and academic achievement in Korea"
2011/11, Mira Godinho, M.; Cartaxo, R.: "University patenting, licensing and technology transfer: how organizational context and available resources determine performance"
2011/12, Duch-Brown, N.; García-Quevedo, J.; Montolio, D.: "The link between public support and private R&D effort: What is the optimal subsidy?"
2011/13, Breuillé, M.L.; Duran-Vigneron, P.; Samson, A.L.: "To assemble to resemble? A study of tax disparities among French municipalities"
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2011/17, Lin, C.: "Give me your wired and your highly skilled: measuring the impact of immigration policy on employers and shareholders"
2011/18, Bianchini, L.; Revelli, F.: "Green polities: urban environmental performance and government popularity"
2011/19, López Real, J.: "Family reunification or point-based immigration system? The case of the U.S. and Mexico"
2011/20, Bogliacino, F.; Piva, M.; Vivarelli, M.: "The impact of R&D on employment in Europe: a firm-level analysis"
2011/21, Tonello, M.: "Mechanisms of peer interactions between native and non-native students: rejection or integration?"
2011/22, García-Quevedo, J.; Mas-Verdú, F.; Montolio, D.: "What type of innovative firms acquire knowledge intensive services and from which suppliers?"
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