

IEB Working Paper 2016/24

BANKING THE UNBANKED: EVIDENCE FROM THE SPANISH BANKING
EXPANSION PLAN

Pere Arqué-Castells, Elisabet Viladecans-Marsal

Cities

IEB Working Paper

**BANKING THE UNBANKED:
EVIDENCE FROM THE SPANISH BANKING EXPANSION PLAN**

Pere Arqué-Castells, Elisabet Viladecans-Marsal

The Barcelona Institute of Economics (IEB) is a research centre at the University of Barcelona (UB) which specializes in the field of applied economics. The IEB is a foundation funded by the following institutions: Applus, Abertis, Ajuntament de Barcelona, Diputació de Barcelona, Gas Natural, La Caixa and Universitat de Barcelona.

The **Cities Research Program** has as its primary goal the study of the role of cities as engines of prosperity. The different lines of research currently being developed address such critical questions as the determinants of city growth and the social relations established in them, agglomeration economies as a key element for explaining the productivity of cities and their expectations of growth, the functioning of local labour markets and the design of public policies to give appropriate responses to the current problems cities face. The Research Program has been made possible thanks to support from the **IEB Foundation** and the **UB Chair in Smart Cities** (established in 2015 by the University of Barcelona).

Postal Address:

Institut d'Economia de Barcelona

Facultat d'Economia i Empresa

Universitat de Barcelona

C/ John M. Keynes, 1-11

(08034) Barcelona, Spain

Tel.: + 34 93 403 46 46

ieb@ub.edu

<http://www.ieb.ub.edu>

The IEB working papers represent ongoing research that is circulated to encourage discussion and has not undergone a peer review process. Any opinions expressed here are those of the author(s) and not those of IEB.

**BANKING THE UNBANKED:
EVIDENCE FROM THE SPANISH BANKING EXPANSION PLAN ***

Pere Arqué-Castells, Elisabet Viladecans-Marsal

ABSTRACT: What are the benefits of lifting structural impediments to banking the unbanked? We address this question by studying the Spanish Banking Expansion Plan 1964-1974, a program aimed at extending banking services into unbanked municipalities after decades of banking status quo. We exploit the quasi-experimental nature of the program to identify its effects. Selected municipalities experienced a 9% increase in the number of workers per inhabitant. This effect was driven by the lending channel, primarily through the provision of liquidity and working capital, though not through the savings channel.

JEL Codes: O16, G21, O43, L26

Keywords: Banks, entrepreneurship, economic development

Pere Arqué-Castells
Northwestern University
(Searle Center on Law, Regulation and Economic
Growth) & Barcelona Institute of Economics (IEB)
E-mail: pere.arque@law.northwestern.edu

Elisabet Viladecans-Marsal
Universitat de Barcelona & IEB
E-mail: eviladecans@ub.edu

* We are grateful to Andreu Arenas, Marta Curto, Raquel Marín and Jordi Orrit for their excellent research support. We also thank Gerard Arqué for facilitating the yearly Banking Expansion Plans from the historical archive of the Bank of Spain. This research has received funding from projects ECO2010-16934, ECO2013-41310-R and ECO2015-69107-R (Ministerio de Educación) and 2009SGR102 and 2014 SGR00420 (Generalitat de Catalunya).

1. Introduction

Recent evidence documents that half the adult world population is unbanked (Chaia et al., 2013) and so it is important to understand the factors that explain financial exclusion, how it can be fought and the benefits that can be gained from overcoming it. A major cause of financial exclusion is the simple fact that the demand for standard financial services is low among low-income individuals. A sizable empirical literature shows that it is, to some extent, possible to reduce financial exclusion in these low-demand regimes by lowering the user costs of financial services through financial innovations such as microcredit (Banerjee et al., 2015; Kaboski and Townsend, 2011), subsidised state-led programs (Burgess and Pande, 2005; Burgess et al., 2005) or sophisticated information collection (Bruhn and Love, 2014). However, there are natural limits to this line of action with take-up being moderate (Banerjee et al., 2015; Dupas et al., 2016) and subsidized state-led programs costly (Burgess and Pande, 2005).

Ultimately, full financial inclusion only seems possible when it is accompanied by the growth needed to generate demand for traditional banking products. But here a new concern emerges. As a country moves up the income distribution, there may well be structural impediments to supply rising to meet demand. These impediments are potentially extremely costly as they deny standard banking products to prototypical customers. In this paper, we focus on this second form of financial exclusion, which has been considerably less studied in the empirical literature. In particular, we are interested in the benefits of letting supply flexibly adjust to meet the unbanked in contexts of burgeoning demand typical of emerging markets in full transition from developing to developed status. A paper providing evidence for a related setting is Fulford (2015).¹

We document a historical instance in the development of the Spanish banking system, namely, the banking *status quo* imposed by the Fascist regime in the aftermath of the Spanish Civil War in 1939, which froze financial growth for more than twenty years. The main consequence of this banking *status quo* was the growing mismatch between the demand for and the supply of financial services as the country transitioned from

¹ Fulford (2015) focuses on the expansion of US national banks in the late XIX century, which was restricted by large minimum size requirements, into unbanked counties. Related papers study the effects of relatively sophisticated forms of lending in already banked and developed countries: Guiso et al. (2004), Pascali (2016), Black and Strahan (2002), Cetorelli and Strahan (2006), Kerr and Nanda (2009) and Samila and Sorenson (2011).

developing to developed status.² This mismatch was particularly problematic in those municipalities that had remained unbanked. Between 1964 and 1974, the Government launched an ambitious program, the Banking Expansion Plan, aimed essentially at banking unbanked municipalities.³ It was to be implemented via nine annual plans in the case of the commercial banks and a further seven in the case of the savings banks, which identified eligible locations for branch openings.⁴ As a result of the program, the number of bank branches doubled as did the percentage of banked municipalities with more than 1,000 inhabitants. As such, the Banking Expansion Plan offers a great opportunity to study the benefits of banking the unbanked when the latter have a naturally high demand for traditional financial services but, due to impediments, the supply has failed to reach them. By studying the benefits of the Banking Expansion Plan, we can also infer the costs of the *status quo*.

To capture the benefits of the Banking Expansion Plan, we focus on two main questions. First, we set out to isolate the overall effect of the plans on local economic activity. The structure of lending and savings services was relatively simple during the unfolding of the plans. Credit basically provided liquidity and working capital via short-term loans and the discounting of trade bills with maturities of up to 90 days. Savings products consisted of traditional savings and term deposits, linked savings deposits and checking accounts. We seek to determine if such lending and savings products had any impact on local economic activity.

Second, we wish to shed light on the mechanisms – lending vs. savings channels – driving this effect. Improved access to credit, for example, may have increased economic activity by lifting investment and consumption constraints.⁵ On the other

² GDP doubled between 1930 (before the outbreak of the Civil War) and 1964 (the end of the *status quo*), but the number of bank branches and banked municipalities remained the same.

³ Unlike most state-led programs in developing countries, the main goal of the Banking Expansion Plan was not to reach the poor. It involved neither a significant element of subsidy nor the refinancing of loss making branches. On the contrary, the banks themselves had to pay to expand into the municipalities listed in the plans.

⁴ Commercial banks are purely profit-driven public limited companies. Savings banks are private limited companies with a board of directors comprising representatives from local public bodies (i.e., the municipalities and autonomous communities). Due to their ownership structure, savings banks often have to meet specific targets set by public authorities.

⁵ Microcredit was found to expand the scale of existing self-employment activities of households in rural areas of Morocco (Crépon et al., 2015) and small business investment and profits of pre-existing businesses in Hyderabad, India, (Banerjee et al., 2015), but it had no effect on business expansion in the Philippines (Karlan and Zinman, 2010).

hand, improved savings services may have allowed individuals to save up for lumpy investments or to set aside some money to consume out of their permanent rather than their temporary income, perhaps boosting local demand or shifting their occupational choices towards riskier jobs, such as entrepreneurship. Disentangling the two channels is complicated because banks typically supply both lending and savings services concurrently. Fortunately, at that time, savings banks primarily provided savings services at the municipality level, but were unable to use these savings to lend locally. This enables us to tease out the importance of the lending and savings channels by comparing the respective effects of the commercial and savings banks' plans. To date, the only papers to have isolated the effects of savings services are Dupas and Robinson (2013a; 2013b) and Dupas et al. (2016).⁶

To analyse the effects of the plans we have created a new data set from the detailed lists of municipalities included in each of the annual plans, consulted in the historical archives of the Bank of Spain and the Ministry of Finance, the two authorities with responsibility for the Banking Expansion Plan. This information was matched to outcome variables (number of workers and business establishments per inhabitant) from the 1970 Census of Establishments and to a rich set of municipality-level characteristics drawn from several sources.⁷ The resulting data set provides a cross-section of nearly 3,000 unbanked municipalities, some of which were incorporated into the plans and some of which were not.⁸

⁶ Dupas and Robinson (2013a) found that alleviating savings constraints through subsidized savings accounts favours microenterprise development among women market vendors (but not men bicycle taxi drivers) in Bumala Town in Kenya, a town with little access to both credit and savings services prior to the experiment. Dupas and Robinson (2013b) documented that providing individuals with simple informal savings technologies can substantially increase investment in preventative health. Dupas et al. (2016) found no discernible effects on savings activity of expanding basic savings accounts in Uganda, Malawi and Chile.

⁷ The Census of Establishments was compiled for the first time in 1970, which means no censuses are available for previous years. Since then it has been published every ten years. It reports the number of establishments and employees by sector of activity for all Spanish municipalities.

⁸ These are virtually all the municipalities larger than 1,000 inhabitants without commercial bank branches (but, perhaps, with savings bank branches) by the beginning of the plans. Most of the control variables are available only for municipalities larger than 1,000 inhabitants, so we restrict the analysis to these municipalities (smaller municipalities had a marginal presence in the plans). We initially retain municipalities with savings bank branches, which had little access to credit due to the savings banks inability to lend locally. However, in further instances of the paper we work with a subsample of totally unbanked municipalities (i.e. municipalities that had neither commercial nor savings bank branches by the beginning of the plans).

Our identification strategy exploits the quasi-experimental design of the program. The number of unbanked municipalities was substantial at the outset.⁹ The authorities could have opted to bank them all at once, but they believed the banks were not ready for such a mammoth undertaking, and so they designed a staggered expansion that would involve no more than a few hundred municipalities each year. Objective and observable rules of preference were established to decide which municipalities should be given priority, with municipality size being by far the most important of these. Conditional on these rules (which are well captured by our set of control variables), inclusion in the plans was as good as random. However, this was most certainly not the case with final branch decisions, as the plans were treated pretty much like a menu, with the banks cherry picking the most desirable municipalities on the plans and even going so far as to lobby for municipalities not included. For this reason, we focus on intent-to-treat (ITT) estimates based on inclusion in the plans.

We report two main findings. First, inclusion in the pre-1970 plans was responsible for a 9% increase in the number of workers per inhabitant in 1970, but had no effect on the number of establishments per inhabitant.¹⁰ This is a fairly large effect considering that we provide ITT estimates with possible spillovers from treated to control municipalities. In a finer breakdown by sector, we find significant extensive margin effects at around 5% for the retail and services sectors. No effects are found for the manufacturing sector, which can geographically dissociate production and sales and which could have adjusted *ex ante* to the local shortage of banking services.

Second, the effects on the intensive and extensive margins are driven entirely by the commercial banks' plans, which indicates the plans increased economic activity essentially via the lending channel. Whether lending was extended for investment or consumption purposes we cannot tell. Given the structure of lending, we would expect investment loans to have played a more prominent role. However, that some of the documented effect might have been caused by an increase in local demand triggered by

⁹ More than 2,000 municipalities with more than 1,000 inhabitants were unbanked by the beginning of the plans. So were the more than 4,000 municipalities with fewer than 1,000 inhabitants.

¹⁰ The baseline estimates are on a sample of municipalities without commercial bank branches. In subsequent robustness checks we show that the results hold for a subsample of totally unbanked municipalities (i.e. municipalities that had neither commercial nor savings bank branches by the beginning of the plans). The control variables that capture the rules of preference used to elaborate the plans are only available for municipalities with more than 1,000 inhabitants.

consumption loans cannot be ruled out. Our finding that the savings banks' plans had no effect on economic activity does not necessarily mean that the savings channel does not matter. It might just take longer than the time span covered in our setting for the savings channel to generate significant effects, as individuals must first save a reasonable amount of money in order to finance lumpy purchases to establish or expand a business.¹¹

The estimated effects are resistant to a series of placebo and robustness tests. First, conditional on the control variables, the post-1970 plans are uncorrelated with the outcome variables. This suggests that the estimated effect is really driven by increased lending opportunities and not artificially generated by an omitted variables bias. The same does not hold for actual branch openings with both pre- and post-1970 branch openings being correlated with 1970 outcomes. Second, the estimated effect is still present for what is, presumably, a stricter subsample of control municipalities that had received commercial bank branch openings by 1980 (after branching restrictions were lifted in 1974) and which were, therefore, perceived as desirable locations that had simply not been included in the plans. Third, the estimated effect is slightly stronger for a subsample of municipalities that had neither commercial nor savings banks' branches at the beginning of the program and which were likely to be more severely affected by the lack of banking services.

All told, our results stress that allowing the supply of financial services to adjust flexibly to demand is important in contexts of growing demand typical of emerging markets in full transition from developing to developed status. In our specific context, the restrictions imposed by the *status quo* forced unbanked municipalities to operate substantially below their potential for a long period of time. The provision of banking services to unbanked municipalities quickly translated into a substantial increase in economic activity, these gains being essentially triggered by the lending channel through the provision of liquidity and working capital.

¹¹ Given the nature of our data, we can only capture effects that translate into an increased number of workers or establishments. This limits our capacity to study interesting mechanisms that can be better explored with household surveys. For instance, Banerjee et al.'s (2015) main finding is that microfinance helps households make different intertemporal choices in consumption allowing them to sacrifice instantaneous utility for durable goods. Fulford (2013) argues that easier access to credit may reduce precautionary savings and welfare in the long run.

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

2. Historical context, program description and data

2.1. Historical context

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 newly born 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 became known as the banking *status quo* of 1939 to 1964, decades characterised 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 autarky 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 broke the *status quo* and established the foundations for an

ambitious Banking Expansion Plan aimed at promoting the provision of banking services throughout Spain.¹²

The proposals for expanding the branch network were unfolded in nine plans for commercial banks and seven more for savings banks introduced between 1964 and 1974.¹³ In August 1974 branching restrictions were totally lifted for commercial banks, which were allowed to branch nationwide, and only partly for savings banks, which were allowed to branch within their original provinces. Figure 1 shows the evolution in the percentage of banked municipalities and the total number of branches over the period 1950-1980. Both magnitudes remained steady during the *status quo* period and doubled during the Banking Expansion Plan. The number of commercial bank branches took off after the 1974 liberalization. We focus on the impact of the plans on the economic activity of municipalities that had no commercial banks prior to the Banking Expansion Plan period.

[INSERT FIGURE 1]

2.2. Commercial banks vs. savings banks: lending and savings channels

During the Banking Expansion Plans commercial banks served the dual purpose of promoting savings and offering credit. Regarding the latter, they essentially provided short-term credit through discounting of trade bills with maturities of up to 90 days. This also included financial bills of exchange, which were often not based on an underlying commercial transaction, but issued in order to obtain credit in the form of an advance with which to refinance operations, or alternatively were used to obtain a larger amount of funds than involved in the underlying commercial transaction. Commercial banks also provided credit and loans to businesses. Such credits were also generally short-term with maturities up to 90 days. However, they were frequently renewed, such that in practice business credit was extended over longer periods and could even exceed 12 months. The structure of lending described so far implies that commercial banks

¹² For an excellent review of Spain's banking history see Aceña (2005).

¹³ A detailed description of the Banking Expansion Plans for commercial banks can be consulted in Cruz-Roche (1974).

provided mostly working capital and liquidity. Lending suitable for funding the creation of new businesses was scarcer.¹⁴

The savings banks essentially fulfilled a savings function, with their lending role being severely restricted at the municipality level. This was the case because the savings banks were manipulated by the government as a means of financing its policy implemented through the so-called Development Plans. The Development Plans were launched by the government concurrently with the Banking Expansion Plan to rectify the marked economic and social disparities between Spanish regions through the promotion of growth in less developed areas.¹⁵ Mandatory investment requirements of 80% of their deposits were imposed on savings banks to finance the public sector and companies, both public and private, on preferential terms at below-market interest rates. Such mandatory investment coefficients left savings banks with little leeway to provide loans to their traditional customers.¹⁶

2.3. The Banking Expansion Plans

The process that resulted in the drawing up of the plans was similar for commercial and savings banks. Figure 2 summarizes this process which is explained in more detail below.

[INSERT FIGURE 2]

2.3.1. Commercial bank plans

The commercial bank plans were drawn up for each financial year by the Bank of Spain, which determined the number of new branches to be included in the plan, their respective locations and the banking institution that would be responsible for each

¹⁴ More information on the main features of the commercial banks during the described period can be found in Martín-Aceña (2012).

¹⁵ See Pujadas and Font (1998) for a detailed explanation of Spanish regional policy during this period. Unlike the Banking Expansion Plans, which were targeted at a large number of small municipalities, the Development Plans focused on a few relatively large cities most of which are not included in our study as they were already banked at the outset of the plans. 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.

¹⁶ More information on the main features of the savings banks during this period can be found in Comín (2012)

opening. The Bank of Spain first drafted a preliminary plan identifying the number of branches to be opened in each municipality in a given year. A municipality could be included in the plan if it met one of the following conditions: a) it had a total absence of banking services; b) it had an insufficient banking service given its wealth, population and economic activity; c) it had an insufficient banking service given the economic development programs for the municipality and its surroundings; d) it would benefit from more intense banking competition.

The Bank of Spain's main concern was the absence of banking services that afflicted many municipalities. Accordingly, most of the municipalities listed on the plans responded to criteria "a" and "b".¹⁷ However, while in general no more than 300 municipalities were included in each yearly plan, the number of municipalities subject to criteria "a, b, c and d" was considerably larger than that.¹⁸ The Bank of Spain relied on certain objective information sources to decide which municipalities to include first in its plans. These sources, listed in the preface of the First Expansion Plan, were the 1950 and 1960 population censuses, the geographic distribution of bank branches on the introduction of the plans in 1963, the economic outlook of each province, the location of the industrial promotion and development poles included in the Development Plans, the intensity of tourism and the capacity of the banks to expand. The preliminary plan was shared with the banks which could then suggest the addition or removal of certain municipalities. This feedback was factored in the final plan by the Bank of Spain. However, a comparison of the preliminary and final plans indicates that the banks' suggestions did not result in major modifications.

Upon approval by the Ministry of Finance, the final plan was circulated to all banks. The branches listed in the plan were tagged with prices that increased with the number of inhabitants in the municipality. Banks were given one month to choose which branches to bid for. The sum of prices paid for branches by a given bank could not exceed its expansion capacity, which was calculated as the sum of debt plus equity. It was in the banks' interests to use their expansion capacity as productively as possible. If the branches offered in the plan were sited in unappealing locations, banks would lobby

¹⁷ 45% of branch openings responded to criterion "a" and 74% to criteria "a" or "b".

¹⁸ Roughly 55% of the municipalities larger than 1,000 inhabitants were unbanked (about 4,000 municipalities) and so were the totality of municipalities with fewer than 1,000 inhabitants (another 4,000 municipalities).

the Bank of Spain for better locations or leave those proposed empty. Banks would finally inform the Bank of Spain of their choices. Rules of preference were established for the awarding of offices in case several banks made a bid for the same branch.¹⁹

If accepted by the Bank of Spain, banks could then proceed to open the corresponding branch. Although plans were drawn up annually, in most cases openings were phased over a period of two to three years. Inspection of the actual branch openings suggests that banks were, on occasions, able to open branches not included in the plans. This might be either because the Bank of Spain agreed to the opening of some branches that banks had been lobbying for or because banks were able to bypass the Bank of Spain's decisions.

Table 1 describes the number of branches included in each plan as well as the number of branches finally selected by the banks and awarded by the Bank of Spain. The fact that the number of branches awarded is systematically smaller than the total number of branches in the plans suggests that some of the latter were sited in unattractive locations. This is clearly evident in the last two plans. In 1971, the Ministry of Finance established "open access" for 80% of the usable "expansion capacity". Under this new Order, the eighth plan was passed in March 1972, with 172 branch offices, of which just 17 were allocated, whereas 326 were awarded under "open access". This shows that banks preferred to use their expansion capacity to open branches in locations other than those listed in the plans.

[INSERT TABLE 1]

2.3.2. Savings bank plans

The savings banks' plans worked very much in the same way as those of their commercial counterparts. They were drawn up directly by the Ministry of Finance along with the Spanish Confederation of Savings Banks (CECA). Each plan included a list of municipalities selected according to criteria "a, b, c and d" cited above, with 70% of the listings responding to criterion "a" and 99% to criteria "a" or "b". Again, the

¹⁹ Local banks operating in a single province had preference over local banks operating in a banking district, which in turn had preference over local banks operating in several banking districts, which had preference over regional banks, which had preference over national banks.

municipalities subject to criteria “a, b, c and d” were considerably more numerous than the number of municipalities typically included in the plans. The Ministry of Finance would rely on objective information sources similar to those taken into account by the Bank of Spain to decide which municipalities to include in the plans. The plan was then shared with the savings banks who would request their preferred branches subject to their expansion capacity. Only the first four plans and the adjudications from the fifth and sixth plans were found here. The descriptive statistics for these plans are provided in Table 2.

[INSERT TABLE 2]

3. Data and descriptive statistics

3.1. Data and variables

Our dataset is a cross-section of municipalities that draws on several sources. First, the outcomes of interest are drawn from the 1970 Census of Establishments and the 1970 Population Census, both compiled by the INE (Spain’s National Institute of Statistics). Second, the main explanatory variable relies on information taken directly from the expansion plans, accessed via the Bank of Spain and the Ministry of Finance’s historical archives. Third, we draw on the 1950 and 1960 Population Censuses, the 1965-1966 Banesto Yearbooks and georeferenced data to create a comprehensive set of controls. Finally, the 1970 and 1980 Censuses of Establishments and the 1976-1977 Banesto Yearbooks are used to track actual branch openings. We define each of these variable sets below.

Outcome variables – The outcomes of interest are defined as the number of workers per inhabitant and the number of business establishments per inhabitant in 1970 (excluding sectors relating to banking so as to avoid including the expansion of the banks’ branch networks as an outcome).

Treatment variables – We define a dummy variable with a value of one if the municipality is listed in one of the first five plans for commercial banks (the plans leading to branch openings by 1970) and a value of zero otherwise. We also create an alternative dummy variable for placebo tests with a value of one if the municipality is

listed in one of the last four plans for commercial banks and a value of zero otherwise. We define a dummy variable with a value of one if the municipality is listed in one of the first four plans for savings banks (the plans leading to branch openings by 1970) and a value of zero otherwise.

Control variables – Our set of controls seeks to capture all the factors that the Bank of Spain took into account in drawing up the plans. The control variables are measured as of 1963 when appropriate to ensure that they are predetermined with respect to the plans. We use the following set of variables. A) Municipality size is measured as the 1960 number of inhabitants. Variations in municipality size are defined as the increase in the number of inhabitants between the 1960 and 1950 censuses. B) The pre-plans geographic distribution of branches is captured by a dummy variable with a value of one if the municipality was within a 10-km radius of the closest branch.²⁰ We also control for the number of savings bank branches in the municipality in 1963 (from the Banesto Yearbooks). C) The geographical distribution of the industrial promotion and development poles included in the Development Plans is captured by two dummy variables with a value of one if the municipality is within a 10-km radius of the closest industrial promotion and development poles, respectively.²¹ The information used to create this variable is taken from Pujadas and Font (1998). D) The economic importance of the municipality is measured using a series of indicators from the Banesto Yearbooks: the number of commercial licenses, the number of trucks, the number of telephones, the municipal budget and the tax revenue from cultural shows. All these variables are defined in per capita terms. E) Tourism intensity is measured using a tourism index drawn from the Banesto Yearbooks. F) In order to capture the municipalities' geographical traits we use the following variables: surface, distance to the coast, elevation, ruggedness and x-y coordinates. G) The economic outlook of the province to which the municipalities belong is captured by a full set of province dummy variables.

Branch openings – We define three dummy variables for commercial banks and a further three for savings banks capturing whether the municipality recorded a branch

²⁰ We experimented with other distances as well as with a continuous variable. The results are robust to these different definitions.

²¹ We experimented with other distances as well as with a continuous variable. The results are robust to these different definitions.

opening for the first time from the respective banking institution during the 1963-1970, 1970-1975 and 1975-1980 periods.

3.2. Sample and descriptive statistics

The sample used in the regressions includes all the municipalities with no commercial banks (but, perhaps, with savings banks) by 1963 with non-missing values for the outcomes, explanatory variables and controls. This gives us a total of 2,862 municipalities, which virtually represents the universe of municipalities without a commercial bank branch in 1963 and 75% of all municipalities with at least 1,000 inhabitants.²²

Table 3 reports the descriptive statistics for all the variables described up to this point plus those for some additional variables of interest. Actual branch openings were largely driven by the plans: 71% of the municipalities in the pre-1970 savings banks' plans and 77% of the municipalities both in the pre-1970 savings and commercial banks' plans had received savings bank branch openings by 1970. Similarly, 79% of the municipalities in the pre-1970 commercial banks' plans and 84% of the municipalities both in the pre-1970 commercial and savings banks' plans had received commercial bank branch openings by 1970. Some of the municipalities in the post-1970 commercial banks' plans (about 40%) had also received commercial bank branch openings by 1970. This is mainly because the sixth plan was circulated by the end of 1969 and could have led to some branch openings by 1970. In contrast, the percentage of municipalities excluded from the plans but that received branch openings by 1970 is very small (13% in the case of commercial banks and 19% in that of savings banks).

The average distance to the closest branch fell by about 10 km for municipalities in the plans between 1963 and 1970. Interestingly, the average distance to the closest (commercial or savings bank) branch shifted to virtually zero km for all the municipalities in the pre- and, even, in the post-1970 commercial or savings banks' plans. This implies that all the municipalities in the plans gained access to the savings products described above. In contrast, the average distance to the closest commercial bank branch remained considerable for municipalities excluded from the pre-1970

²² Smaller municipalities are not covered in the Banesto Yearbooks and had little presence in the Expansion Plan

commercial banks' plans. This implies that it was mainly the municipalities in the commercial banks' plans that experienced an improvement in their access to commercial bank branches and, therefore, to credit. The municipalities not included in the plans remained considerably isolated from banking services with an average distance to the closest commercial (commercial or savings) bank branch of 8.7 km (5.7 km). However, it should be noted that municipalities not included in the plans also experienced a non-negligible reduction in their distance to the closest branch. This could have occurred either because they were sited near to locations included in the plans or because they experienced branch openings themselves. Whatever the case, it seems that some spillovers resulted from the execution of the plans, thus improving the banking services of the control municipalities.

[INSERT TABLE 3]

Figure 3 maps the municipalities in the sample (by colour) according to their role in the plans. Importantly, there are no differences in the geographical distribution of the municipalities across these groups. The plans had a broad geographical scope targeting municipalities the length and breadth of the country.

[INSERT FIGURE 3]

4. Research design

We seek to determine whether the unbanked municipalities included in the Banking Expansion Plans experienced a greater increase in their economic activity than the municipalities excluded from the plans. As not all the municipalities included in the plans ended up receiving branch openings, our specification offers intent-to-treat (ITT) estimates, that is, the effect of the intention to open a branch in a given municipality on the economic activity of the municipality. We estimate a regression of the form:

$$y_{i1970} = \beta_1 pre_CB_i + \beta_2 post_CB_i + \beta_3 pre_SB_i + X'_{i1963} \delta + \varepsilon_i \quad (4)$$

where i indexes municipalities, y_{i1970} denotes the number of workers or establishments per inhabitant in 1970, pre_CB_i is a dummy variable with a value of one if the municipality was listed in the pre-1970 plans for commercial banks (i.e. one of the first five plans leading to branch openings before 1970), $post_CB_i$ is a dummy variable with a value of one if the municipality was listed in the post-1970 plans for commercial banks (i.e. one of the last four plans leading to branch openings after 1970), pre_SB_i is a dummy variable with a value of one if the municipality was listed in the pre-1970 plans for savings banks (i.e. one of the first four plans leading to branch openings before 1970), X'_{i1963} is the set of municipality-specific controls which are predetermined with respect to the plans and ε_i is an idiosyncratic error term.

The parameters β_1 and β_3 measure the effect of a municipality being listed in the commercial and savings banks' plans, respectively, on the economic activity of the municipality. The parameter β_1 captures effects potentially generated through both the lending and the savings channels. On the other hand, β_3 captures effects generated mainly through the savings channel. Our identification assumption is that the conditional expectations $E[pre_CB_i \varepsilon_i | X'_{i1963}]$ and $E[pre_SB_i \varepsilon_i | X'_{i1963}]$ are both zero. The set of municipality-specific controls X'_{i1963} includes all the observables that were used in drawing up the plans. Therefore, conditional on such controls, inclusion or otherwise in the plans should be random and our identification assumption should hold. In order to check whether this is the case we use the variable $post_CB_i$ to carry out placebo tests. Given that the outcome variables are taken from the 1970 census, they should be unaffected by whether the municipality is included or not in the post-1970 plans. Positive effects of $post_CB_i$ would strongly suggest that inclusion in the plans is correlated with omitted variables that are in turn correlated with the municipalities' economic development. On the other hand, insignificant effects of $post_CB_i$ would suggest that inclusion in the plans is uncorrelated with unobservable variables. We therefore interpret $\beta_2 = 0$ as evidence that the identification assumption is met. We cannot carry out the same placebo test for savings banks because $post_SB_i$ is not observed.

5. Results

5.1. Main results

Table 4 shows our main results. For sake of clarity, we focus on the coefficients of our main variables of interest. Results are provided for specifications with the dependent variable in both levels and logs. If these estimates diverge, we rely on the log values as they are less severely affected by outliers.

Panel A reports results obtained with the number of workers per inhabitant as the dependent variable. Columns 1 and 2 show the results of a specification that omits the control variables. The pre- and post-1970 plan dummy variables are both strongly significant for commercial banks and present a similar magnitude. The fact that the post-1970 plan variable is significant indicates that the unconditioned estimates are upward biased. The pre-1970 dummy variable is insignificant for savings banks. In columns 3 and 4 we condition on the full set of controls. The coefficient on the pre-1970 commercial banks' plan dummy variable remains significant, albeit substantially smaller than in the specification without controls, and the coefficient on the post-1970 commercial banks' plan dummy variable goes to zero. As discussed above, $\beta_2 = 0$ suggests that the identification condition is met when using the full set of controls. The pre-1970 savings banks' plan dummy variable remains insignificant. Panel B displays the results obtained with the number of establishments per capita as the dependent variable. The identification condition is again met, but inclusion in the plans had no effect on the number of establishments.

[INSERT TABLE 4]

Overall, the results imply that the plans increased economic activity essentially through the lending channel but not through the savings channel. The lending channel had an effect on the intensive margin (i.e. an increase in the size of establishments) but not on the extensive margin (i.e. on the number of establishments). This is not surprising given the structure of lending during the Expansion Plans, which resorted heavily to short-term credit by providing working capital and liquidity in the main. Taking column 4 estimates as the baseline, inclusion in the plans resulted in a 9% increase in the number of workers per inhabitant on average. We interpret this estimate as a lower bound for the

real effect of the plans because some of the municipalities not included in the plans also recorded branch openings prior to 1970 and also because the plans might have had positive externalities on neighbouring controls.

In the subsections that follow, we carry out several robustness checks to test the strength of the results. We include the pre-1970 savings bank dummy variable among the set of controls, but we do not display its coefficient (which always remains insignificant) for reasons of space. We focus instead on the coefficients of the pre-1970 and post-1970 savings banks' variables.

5.2. Alternative samples

In Table 5 we replicate the baseline results for alternative samples. Columns 1 and 2 show results for municipalities that had commercial bank branches by 1980. In 1975, all restrictions on commercial banks as regards where they might open new branches were lifted. It might be argued that the municipalities that were not banked in the years immediately following liberalization were less appealing locations and so make less suitable controls (i.e. municipalities that the Bank of Spain would never have included in its plans). To ensure that this is not driving our results, we re-estimate equation (1) on the subset of municipalities that had received commercial bank openings by 1980. The point estimate is slightly smaller but still significant.

In columns 3 and 4 we focus on municipalities that had neither commercial nor savings banks when the plans were first introduced outset. As explained above, compulsory investment coefficients were imposed on the savings banks, which seriously constrained their lending activity. However, they could still use up to 20% of their deposits for ordinary lending. Therefore, municipalities without savings banks were likely to be more financially constrained and to benefit relatively more from branch openings. The estimated coefficient is higher suggesting that this was indeed the case.

[INSERT TABLE 5]

5.3. Plan-specific dummy variables

Table 6 replicates the baseline regressions using the full set of plan dummies as opposed to the pre-/post-1970 dummy variables. In the workers' regressions all the plan dummy variables are positive and significant in the specification without controls in columns 1 and 2. When adding the controls in columns 3 and 4 only the first four plans remain significant. This is the case no matter whether we define the dependent variable in levels or in logs. In the establishment regressions, the first six plan dummies are significant in the unconditional regressions with inclusion of the controls resulting in only the first plan remaining significant. The plan dummy regressions reinforce the perception that the identification condition is met. None of the plans resulting in openings after 1970 enters the regressions with a positive sign. Even the fifth plan, which was published in late 1968, has no effect on the number of establishments. This makes sense because, as explained above, branch openings were phased in over a period of two to three years, meaning that some of the branches granted in the fifth plan did not become operative until after the 1970 census.

The finding that the fifth and sixth plans (the last two published prior to the 1970 census) have no significant effects is also consistent with relationship lending (Berger and Udell, 1995). It takes some time for commercial banks to solve asymmetric information problems associated with small borrowers by producing and analysing information and by establishing loan contract terms. That relationship lending might have played an important role in determining the speed at which the plans took effect is also suggested by the results of the extensive margin regressions where only the first plan dummy is significant. Loans aimed at financing the creation of new businesses might require a larger amount of information about borrowers than loans for expanding existing businesses, which tend to be lower risk and easier to handle.

[INSERT TABLE 6]

5.4. Results by sectors

Four sectors of activity are present in almost all the municipalities in the sample, namely manufacturing, services, retail and wholesale (henceforth, we refer to the last three as non-manufacturing sectors). It is our contention that the manufacturing sector

would have benefited relatively less from the expansion plans because it could have adjusted *ex ante* to adverse lending shocks. Manufacturing firms' ability to dissociate production and sales should have allowed them to relocate production to banked municipalities long before the plans were introduced. Non-manufacturing firms, which can only serve demand on the spot, would not have been able to tap on other municipalities' branches (not if distance mattered) to seize demand opportunities in their municipality. Table 7 shows separate results by sector. The positive effect of the plans is particularly robust for services and retail where we find not only intensive but also extensive margin effects. Intensive margin effects are also present in the wholesale sector. However, no effects are found in the manufacturing sector.

[INSERT TABLE 7]

5.5. Real openings

Table 8 shows the results obtained with actual branch openings as opposed to the branches listed in the plans. Inclusion in the plans was based on determinants captured by the set of controls. In contrast, final branching decisions were in part the result of the plans, but also of cherry picking among the best locations offered by the plans and of lobbying. The latter openings are unobservable and hard to control for. As such, we would expect regressions based on actual openings to be affected by an omitted variable bias. We replace the pre- and post-1970 plan dummies with three dummy variables indicating whether the municipality received a branch opening between 1963 and 1970, between 1970 and 1975 or between 1975 and 1980. Since the outcome variables are all from the 1970 census, we only expect the first dummy variable to enter the regressions with a positive sign.

The coefficient on the 1963-1970 branch opening dummy variable is indeed positive for commercial banks. It is also significant and substantially larger than in the regressions based on plan listings as opposed to actual openings (being particularly larger in the log specifications). However, the 1970-1975 (i.e. post-1970 plan period) and 1975-1980 (i.e. post-liberalization period) dummy variables are also significant both in the specification with and without controls for commercial banks. This strongly suggests

that actual openings are correlated with omitted variables and cannot be used to obtain well-identified estimates.

[INSERT TABLE 8]

6. Conclusions

In this paper we have studied the importance of lifting the barriers that prevent the supply of financial products reaching unbanked municipalities with a high demand for traditional banking services. We adopt a quasi-experimental approach to our study of a specific program, the Banking Expansion Plan, which put an end to two decades of banking *status quo* in Spain, during which demand for financial services had built up in unserved municipalities. Our identification strategy has relied on the fact that, conditional on certain objective and observable criteria, inclusion in the plans was as good as random. We find that unleashing supply was beneficial to these unbanked municipalities. On average, inclusion in the pre-1970 plans resulted in a 9% increase in the 1970 number of workers per inhabitant. A break down by sector reveals that extensive margin effects were also present in the services and retail sectors, which were likely to be more credit constrained due to their inability to dissociate production and sales. In contrast, no effects were found for the manufacturing sector which could have adjusted *ex ante* to the shortage of local banking services.

The estimated effect is entirely driven by the lending channel, as indicated by the fact that inclusion in the commercial banks' plans mattered whereas inclusion in the savings banks' plans did not. By and large, the most common form of lending in that period was the discounting of trade bills, which essentially provided working capital and liquidity. Our results suggest that this form of lending is important for economic activity. Longer term collateralized loans suitable for capital investments were also common but less frequent during the period under analysis. That some of the documented effect was caused by an increase in local demand triggered by consumption loans cannot be ruled out.

The finding that the savings banks' plans had no effect on economic activity does not necessarily mean that the savings channel does not matter for economic activity. It only

means that it does not matter in our specific context with a relatively short six-year lag between the recording of the outcomes in the 1970 census and the publication of the first plan in 1964. This lag is, of course, even shorter for later plans. It might just take longer than that for the savings channel to generate significant effects. Individuals must first save a reasonable amount of money before being able to make significant investments in indivisible assets.

Our paper is a reminder that failure to extend financial products to the poor is neither the only cause of financial exclusion nor the only financial remedy for development. A second form of financial exclusion, and one that is potentially detrimental to economic development, can also arise in emerging countries with rampant demand for standard banking services if supply cannot keep pace.

References

- Aceña, P.M., 2005. La Conformación histórica de la industria bancaria española, in Caja Rural Intermediterránea (Cajamar), ed., Los retos de la industria bancaria en España. Colección Mediterráneo Económico 8, 21-44.
- Banerjee, A., Duflo, E., Glennerster, R., Kinnan, C., 2015. The miracle of microfinance? Evidence from a randomized evaluation. *American Economic Journal: Applied Economics*, 7(1): 22-53.
- Banerjee, A., Karlan, D., Zinman, J., 2015. Six Randomized Evaluations of Microcredit: Introduction and Further Steps. *American Economic Journal: Applied Economics*, 7(1): 1-21.
- Berger, A., Udell, G., 1995. Lines of credit and relationship lending in small firm finance, *Journal of Business* 68, 351-381.
- Black, S.E., Strahan P.E., 2002. Entrepreneurship and bank credit availability. *The Journal of Finance* 57, 2807-2883.
- Bruhn, M., Love, I., 2014. The Real Impact of Improved Access to Finance: Evidence from Mexico. *The Journal of Finance*, Vol. LXIX, No. 3, pp. 1343-1376.
- Burgess, R., Pande, R., 2005. Can rural banks reduce poverty? Evidence from the Indian Social Banking Experiment. *American Economic Review* 95, 780-795.
- Burgess, R., Wong, G., Pande, R., 2005. Banking for the poor: Evidence from India. *Journal of the European Economic Association*, Vol. 3, No. 2/3, pp. 268-278
- Cetorelli, N., Strahan, P., 2006. Finance as a barrier to entry: Bank competition and industry structure in local U.S. markets. *Journal of Finance* 61 (1), 437-61.

Chaia, A., Dalal, A., Goland, T., Gonzalez, M.J., Morduch, J., Schiff, R., 2013. Half the World Is Unbanked. In *Banking the World. Empirical Foundations of Financial Inclusion*, Cull, R., Demirgüç-Kunt, A., Morduch, J., (eds). MIT Press: Cambridge, MA.

Comín, F., 2012. The Savings Banks: 1900-1975. In *The Spanish financial system. Growth and development since 1900*, Malo de Molina, J.L., Martín-Aceña, P., (eds.). Palgrave Macmillan: UK.

Crépon, B., Devoto, F., Duflo, E., Parienté, W., 2015. Estimating the Impact of Microcredit on Those Who Take It Up: Evidence from a Randomized Experiment in Morocco. *American Economic Journal: Applied Economics*, 7(1):123-50

Cruz-Roche, I., 1974. La política de expansión de la empresa bancaria española. *Revista Española de Financiación y Contabilidad* 10 (3), 671-684.

Dupas, P., Karlan, D., Robinson, J., Ubfal, D., 2016. Banking the unbanked? Evidence from three countries. NBER Working Paper 22463.

Dupas, P., Robinson, J., 2013a. Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya. *American Economic Journal: Applied Economics*, 5(1): 163-192.

Dupas, P., Robinson, J., 2013b. Why Don't the Poor Save More? Evidence from Health Savings Experiments. *American Economic Review*, 103(4): 1138–1171.

Fulford, S., 2013. The effects of financial development in the short and long run. *Journal of Development Economics*, 104, pp. 56-72.

Fulford, S., 2015. How important are banks for development? National banks in the United States 1870--1900. *The Review of Economics and Statistics*, 97(5), pp. 921-938.

Guiso, L., Sapienza, P., Zingales, L. 2004. Does local financial development matter? *The Quarterly Journal of Economics* 119, 929-969.

Kaboski, J.P., Townsend, R.M., 2011. A Structural Evaluation of a Large-Scale Quasi-Experimental Microfinance Initiative. *Econometrica* 79 (5): 1357-1406.

Karlan, D., Zinman, J., 2010. Expanding credit access: Using randomized supply decisions to estimate the impacts. *Review of Financial Studies* 23 (1), 433-464. doi: 10.1093/rfs/hhp092.

Kerr, W., Nanda, R., 2009. Democratizing entry: Banking deregulation, financing constraints, and entrepreneurship. *Journal of Financial Economics* 94, 124–149.

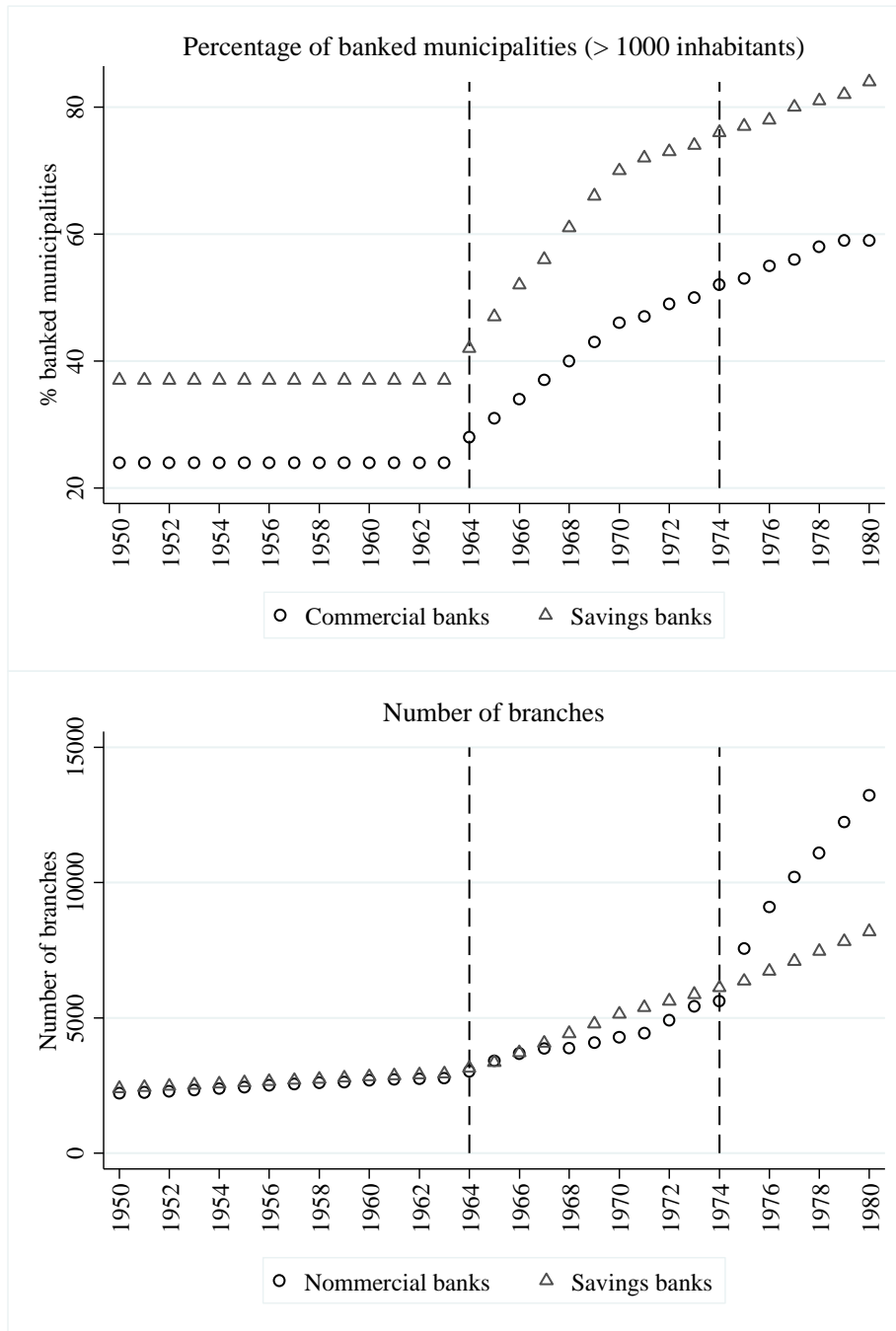
Martín-Aceña, P., 2012. The Spanish banking system from 1900 to 1975. In *The Spanish financial system. Growth and development since 1900*, Malo de Molina, J.L., Martín-Aceña, P., (eds.). Palgrave Macmillan: UK.

Pascali, L., 2016. Banks and development: Jewish Communities in the Italian Renaissance and Current Economic Performance. *The Review of Economics and Statistics*, 98(1), pp. 140-158.

Pujadas, R., Font, J., 1998. *Ordenación y planificación territorial*. Madrid: Síntesis.

Samila, S., Sorenson, O., 2011. Venture capital, entrepreneurship and economic growth. *Review of Economics and Statistics* 93 (1), 338-349.

Figure 1. Financial development over time

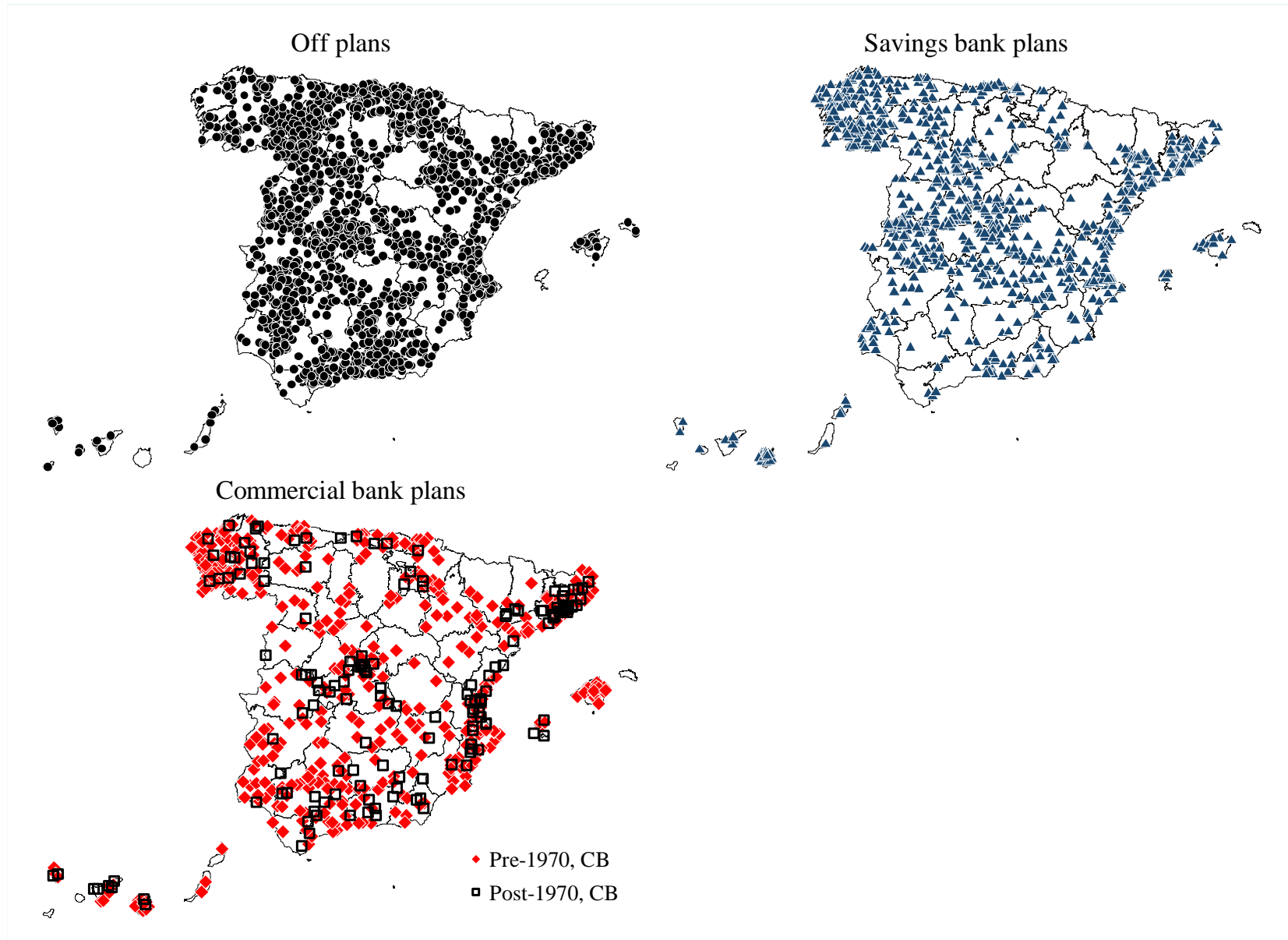


Sources: The first graph is based on the 1965 and 1966 Banesto Yearbooks (providing information for the year 1964), and the 1970 and 1980 Censuses of Establishments. Values for years prior to 1964 have been set equal to the values in 1964 (the first year offering detailed municipality level information). Values for the years between 1964-1970 and 1970-1980 have been calculated by interpolation. The second graph is based on information from the Anuario Estadístico de la Banca Privada (AEBanca) and the Anuario Estadístico de las Cajas de Ahorros Confederadas (CECA).

Figure 2. Unfolding of a Plan

1	The Bank of Spain (or the Ministry of Finance) draws up a preliminary plan with the municipalities eligible for branch openings and the number of branches to be opened in each
2	The preliminary plan is circulated to the banks which then suggest the addition or removal of certain municipalities from the plan. A final plan is drawn up taking these suggestions into
3	Banks bid for the municipalities included in the final plan and also lobby for locations off the final plan. The Bank of Spain (or the Ministry of Finance) accepts or declines such requests.
4	Banks proceed with the branch openings.

Figure 3. Geographical distribution of municipalities by group



Tables

Table 1. Commercial banks' plans

Plan	Approval date	Branches listed in the plan	Branches awarded	Branches awarded under open access
1st	1964, October	210	179	na
2nd	1965, October	399	307	na
3rd	1967, January	218	197	na
4th	1967, December	221	190	na
5th	1968, October	220	210	na
6th	1969, October	224	202	na
7th	1970, October	151	144	na
8th	1972, March	172	17	326
9th	1973, February	154	116	387

Source: Martín-Aceña (2012). Our information from the original plans yields similar figures for the column "Branches listed in the plans". However, we are unable to observe the final adjudications (last two columns).

Table 2. Savings banks' plans

Plan	Approval date	Branches listed in the plan	Branches awarded
1st	1964	346	na
2nd	1965	639	na
3rd	1966	423	na
4th	1968	400	na
5th	1969	na	151
6th	1970	na	157
7th	1971	na	na

Source: Based on information in the plans.

Table 3. Descriptive statistics

	Off plans		Pre-1970, SB		Pre-1970, CB & SB		Pre-1970, CB		Post-1970, CB	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Outcomes										
Workers 1970/inhabitants 1970	0.083	(0.087)	0.092	(0.088)	0.121	(0.100)	0.130	(0.102)	0.124	(0.103)
Establishments 1970/inhabitants 1970	0.037	(0.016)	0.037	(0.015)	0.038	(0.020)	0.041	(0.021)	0.038	(0.016)
Explanatory variables										
pre-1970 commercial bank plans (0,1)	0	(0)	0	(0)	1	(0)	1	(0)	0	(0)
post-1970 commercial bank plans (0,1)	0	(0)	0	(0)	0	(0)	0	(0)	1	(0)
pre-1970 savings bank plans (0,1)	0	(0)	1	(0)	1	(0)	0	(0)	0.4	(0.5)
Branch opening dummy variable										
1963-1970, commercial bank (0,1)	0.13	(0.33)	0.20	(0.40)	0.84	(0.37)	0.79	(0.41)	0.40	(0.49)
1970-1975, commercial bank (0,1)	0.51	(0.50)	0.35	(0.48)	0.07	(0.26)	0.12	(0.33)	0.39	(0.49)
1975-1980, commercial bank (0,1)	0.10	(0.30)	0.16	(0.37)	0.04	(0.21)	0.03	(0.18)	0.09	(0.29)
1963-1970, savings bank (0,1)	0.19	(0.39)	0.71	(0.45)	0.77	(0.42)	0.26	(0.44)	0.48	(0.50)
1970-1975, savings bank (0,1)	0.40	(0.49)	0.15	(0.36)	0.06	(0.23)	0.05	(0.21)	0.11	(0.32)
1975-1980, savings bank (0,1)	0.06	(0.24)	0.01	(0.12)	0.01	(0.11)	0.01	(0.10)	0.02	(0.14)
Distance to closest branch (in km)										
Distance to closest commercial bank branch in 1963	12.7	(7.3)	12.4	(7.2)	13.8	(16.5)	11.3	(6.8)	12.0	(15.6)
Distance to closest commercial bank branch in 1970	8.7	(5.7)	8.0	(6.3)	1.7	(5.0)	2.2	(5.1)	4.6	(5.0)
Distance to closest branch in 1963	10.6	(5.7)	9.9	(5.3)	12.8	(15.1)	10.4	(5.0)	11.6	(17.5)
Distance to closest branch in 1970	5.7	(4.8)	1.5	(3.5)	0.2	(1.5)	0.3	(1.4)	1.1	(2.8)
Number of observations	1,596		628		179		302		157	

Note: The descriptive statistics are split into five samples based on whether the municipality is off the plans (i.e. excluded), in the pre-1970 savings bank plans, in the pre-1970 savings and commercial bank plans, in the pre-1970 commercial bank plans or in the post-1970 commercial bank plans.

Table 3. Descriptive statistics (continuation)

	Off plans		Pre-1970, SB		Pre-1970, CB & SB		Pre-1970, CB		Post-1970, CB	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Control variables										
Number of savings banks 1963	0.274	(0.509)	0.172	(0.633)	0.196	(0.637)	0.725	(0.547)	0.389	(0.527)
10 km distance from closest branch in 1963 (0,1)	0.398	(0.490)	0.532	(0.499)	0.436	(0.497)	0.172	(0.378)	0.408	(0.493)
10 km distance from closest development pole (0,1)	0.010	(0.100)	0.016	(0.125)	0.011	(0.105)	0.010	(0.099)	0.013	(0.113)
10 km distance from closest development zone (0,1)	0.026	(0.160)	0.045	(0.207)	0.084	(0.278)	0.036	(0.188)	0.070	(0.256)
Inhabitants 1960	2,033	(1,198)	2,476	(1,482)	6,046	(4,184)	5,163	(2,957)	4,226	(5,297)
Inhabitants 1960 minus inhabitants 1950	-87	(667)	-27	(432)	634	(1,368)	337	(1,057)	247	(1,125)
Telephones 1963/inhabitants 1960	0.016	(0.029)	0.019	(0.035)	0.042	(0.080)	0.038	(0.084)	0.029	(0.031)
Trucks 1963/inhabitants 1960	0.004	(0.004)	0.004	(0.004)	0.006	(0.005)	0.005	(0.006)	0.005	(0.004)
Commercial licenses 1963/inhabitants 1960	0.012	(0.008)	0.012	(0.006)	0.014	(0.008)	0.015	(0.010)	0.015	(0.008)
Budget 1963/inhabitants 1960	293	(238)	293	(230)	308	(278)	331	(377)	277	(154)
Tourism index 1963	0.34	(11.00)	0.48	(10.01)	21.65	(125.06)	6.32	(46.77)	3.47	(22.89)
Squared kilometres	67	(60)	74	(75)	94	(86)	99	(106)	69	(72)
Distance to coast (in km)	113	(93)	112	(100)	86	(110)	68	(76)	75	(101)
Elevation (mean)	632	(335)	576	(344)	456	(344)	405	(317)	454	(336)
Ruggedness (mean)	70	(56)	67	(51)	66	(48)	60	(45)	71	(55)
x centroid coordinate	441,335	(227,416)	435,665	(268,552)	372,432	(305,908)	467,718	(303,338)	502,382	(325,934)
y centroid coordinate	4,464,653	(231,053)	4,482,932	(209,200)	4,517,976	(262,597)	4,422,617	(250,244)	4,424,846	(248,900)
Number of observations	1,596		628		179		302		157	

Table 4. Main results

	Levels (1)	ln (2)	Levels (3)	ln (4)
A. Dependent variable: workers per inhabitant				
Pre-1970, commercial banks	0.041 ^{***} (0.005)	0.380 ^{***} (0.037)	0.018 ^{***} (0.004)	0.093 ^{***} (0.035)
Post-1970, commercial banks	0.037 ^{***} (0.008)	0.332 ^{***} (0.066)	0.007 (0.007)	0.022 (0.056)
Pre-1970, savings banks	0.004 (0.004)	0.031 (0.030)	0.006 [*] (0.003)	0.035 (0.025)
Control mean	0.086	-2.724	0.086	-2.724
Control SD	(0.088)	(0.701)	(0.088)	(0.701)
R-squared	0.033	0.045	0.395	0.476
B. Dependent variable: establishments per inhabitant				
Pre-1970, commercial banks	0.004 ^{***} (0.001)	0.070 ^{***} (0.022)	0.002 (0.001)	0.022 (0.025)
Post-1970, commercial banks	0.001 (0.001)	0.008 (0.042)	-0.001 (0.001)	-0.026 (0.038)
Pre-1970, savings banks	-0.001 (0.001)	-0.029 (0.018)	-0.000 (0.001)	-0.012 (0.017)
Control mean	0.037	-3.378	0.037	-3.378
Control SD	(0.016)	(0.443)	(0.016)	(0.443)
R-squared	0.006	0.003	0.408	0.356
Full set of control variables	No	No	Yes	Yes
Observations	2,862	2,862	2,862	2,862

Notes: ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively. Robust standard errors are reported in parentheses. The dependent variable in Panel A is the number of workers over the number of inhabitants in 1970. The dependent variable in Panel B is the number of establishments over the number of inhabitants in 1970. The control mean is calculated over all municipalities excluded from the pre-1970 commercial bank plans.

Table 5. Alternative samples

Sample	Commercial bank branch by 1980		No savings bank branch in 1960	
	Levels (1)	ln (2)	Levels (3)	ln (4)
A. Dependent variable: workers per inhabitant				
Pre-1970, commercial banks	0.014 ^{***} (0.005)	0.069 [*] (0.041)	0.025 ^{***} (0.006)	0.112 ^{**} (0.048)
Post-1970, commercial banks	0.006 (0.009)	0.033 (0.057)	0.002 (0.009)	-0.006 (0.075)
Control mean	0.113	-2.459	0.085	-2.748
Control SD	(0.110)	(0.723)	(0.089)	(0.719)
R-squared	0.413	0.532	0.374	0.461
B. Dependent variable: establishments per inhabitant				
Pre-1970, commercial banks	0.001 (0.001)	0.005 (0.028)	0.003 ^{**} (0.001)	0.033 (0.035)
Post-1970, commercial banks	-0.001 (0.001)	-0.014 (0.035)	-0.001 (0.002)	-0.034 (0.050)
Control mean	0.041	-3.272	0.036	-3.390
Control SD	(0.016)	(0.409)	(0.016)	(0.453)
R-squared	0.497	0.405	0.372	0.337
Full set of control variables	Yes	Yes	Yes	Yes
Observations	1,328	1,328	2,100	2,100

Notes: ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively. Robust standard errors are reported in parentheses. The dependent variable in Panel A is the number of workers over the number of inhabitants in 1970. The dependent variable in Panel B is the number of establishments over the number of inhabitants in 1970. Columns 1-2 report estimates for the subsample of municipalities with a commercial bank branch by 1980. Columns 3-4 report estimates for the sample of municipalities that had neither commercial nor savings banks in 1963. The control mean is calculated over all municipalities excluded from the pre-1970 commercial bank plans.

Table 6. Plan dummy variables

Dependent variable:	Workers per inhabitant				Establishments per inhabitant			
	Levels (1)	ln (2)	Levels (3)	ln (4)	Levels (5)	ln (6)	Levels (7)	ln (8)
Plan 1	0.039 ^{***} (0.010)	0.367 ^{***} (0.066)	0.019 ^{**} (0.008)	0.089 [*] (0.052)	0.004 ^{**} (0.002)	0.087 ^{**} (0.038)	0.004 ^{**} (0.001)	0.072 ^{**} (0.034)
Plan 2	0.023 ^{***} (0.006)	0.274 ^{***} (0.054)	0.010 ^{**} (0.005)	0.041 (0.046)	0.004 ^{***} (0.002)	0.087 ^{**} (0.036)	0.002 (0.001)	0.026 (0.032)
Plan 3	0.079 ^{***} (0.013)	0.706 ^{***} (0.086)	0.024 ^{**} (0.011)	0.180 ^{***} (0.068)	0.008 ^{***} (0.003)	0.174 ^{***} (0.055)	0.001 (0.002)	0.032 (0.046)
Plan 4	0.053 ^{***} (0.014)	0.411 ^{***} (0.096)	0.024 ^{**} (0.010)	0.145 ^{**} (0.064)	0.002 (0.002)	0.025 (0.053)	0.000 (0.002)	-0.002 (0.045)
Plan 5	0.043 ^{**} (0.017)	0.320 ^{**} (0.141)	0.017 (0.012)	0.088 (0.084)	-0.005 ^{**} (0.002)	-0.171 ^{**} (0.076)	-0.002 (0.002)	-0.073 (0.063)
Plan 6	0.031 [*] (0.016)	0.332 ^{***} (0.105)	0.011 (0.017)	0.096 (0.103)	0.006 [*] (0.003)	0.115 (0.079)	0.004 (0.003)	0.074 (0.067)
Plan 7	0.021 (0.019)	0.277 [*] (0.152)	-0.014 (0.023)	-0.057 (0.176)	-0.003 (0.002)	-0.062 (0.072)	-0.002 (0.004)	-0.043 (0.107)
Plan 8	0.043 ^{***} (0.016)	0.250 [*] (0.135)	0.012 (0.012)	-0.033 (0.104)	-0.001 (0.002)	-0.085 (0.085)	-0.002 (0.002)	-0.087 (0.075)
Plan 9	0.045 ^{***} (0.013)	0.475 ^{***} (0.105)	0.005 (0.011)	0.064 (0.082)	0.001 (0.002)	0.047 (0.059)	-0.002 (0.002)	-0.024 (0.058)
Full set of control variables	No	No	Yes	Yes	No	No	Yes	Yes
Observations	2,862	2,862	2,862	2,862	2,862	2,862	2,862	2,862
R-squared	0.040	0.052	0.396	0.478	0.014	0.011	0.411	0.358

Notes: ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively. Robust standard errors are reported in parentheses. The dependent variable in columns 1-4 is the number of workers over the number of inhabitants in 1970. The dependent variable in columns 5-8 is the number of establishments over the number of inhabitants in 1970. The explanatory variables for which the coefficients are reported included a full set of plan dummy variables with a value of one if the municipality was included in the corresponding plan. The pre-1970 dummy variable for inclusion in the savings banks plans (Pre-1970, SB) is included among the set of controls.

Table 7. Results by sector

	Services		Retail		Wholesale		Manufacturing	
	Levels (1)	ln (2)	Levels (3)	ln (4)	Levels (5)	ln (6)	Levels (7)	ln (8)
A. Dependent variable: workers per inhabitant								
Pre-1970, commercial banks	0.0035** (0.0017)	0.1212*** (0.0370)	0.0029*** (0.0006)	0.0838*** (0.0304)	0.0012 (0.0009)	0.1185** (0.0600)	0.0094** (0.0039)	0.0676 (0.0570)
Post-1970, commercial banks	-0.0005 (0.0019)	-0.0312 (0.0541)	0.0006 (0.0007)	0.0200 (0.0434)	0.0016 (0.0015)	0.0828 (0.0841)	0.0047 (0.0055)	0.0661 (0.0763)
Control mean	0.025	-3.905	0.015	-4.349	0.006	-5.590	0.039	-4.005
Control SD	0.027	0.599	0.010	0.587	0.014	0.959	0.072	1.176
R-squared	0.2604	0.2447	0.3526	0.3747	0.2045	0.3221	0.3215	0.4713
B. Dependent variable: establishments per inhabitant								
Pre-1970, commercial banks	-0.0002 (0.0004)	0.0560** (0.0261)	0.0014*** (0.0003)	0.0502* (0.0274)	0.0002 (0.0002)	0.0429 (0.0452)	0.0002 (0.0002)	-0.0248 (0.0323)
Post-1970, commercial banks	-0.0007* (0.0004)	-0.0371 (0.0387)	0.0008* (0.0004)	0.0122 (0.0410)	0.0002 (0.0002)	-0.0051 (0.0617)	-0.0001 (0.0003)	-0.0271 (0.0461)
Control mean	0.013	-4.420	0.011	-4.607	0.003	-5.941	0.007	-5.037
Control SD	0.007	0.449	0.005	0.449	0.003	0.750	0.005	0.650
R-squared	0.3868	0.3319	0.4320	0.3863	0.2278	0.3556	0.3308	0.4038
Full set of control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,852	2,852	2,819	2,819	2,284	2,284	2,801	2,801

Notes: ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively. Robust standard errors are reported in parentheses. The dependent variable in columns 1-4 is the number of workers over the number of inhabitants in 1970. The dependent variable in columns 5-8 is the number of establishments over the number of inhabitants in 1970. The explanatory variables for which the coefficients are reported include a dummy variables with a value of one if the municipality received a branch opening for the first time during the indicated period. These dummy variables are defined for commercial banks (CB) and savings banks (SB).

Table 8. Real openings

Dependent variable:	Workers per inhabitant				Establishments per inhabitant			
	Levels (1)	ln (2)	Levels (3)	ln (4)	Levels (5)	ln (6)	Levels (7)	ln (8)
Between 1963 and 1970, CB	0.044*** (0.005)	0.483*** (0.038)	0.015*** (0.004)	0.162*** (0.035)	0.010*** (0.001)	0.266*** (0.023)	0.005*** (0.001)	0.155*** (0.023)
Between 1970 and 1975, CB	0.013*** (0.005)	0.193*** (0.038)	0.004 (0.004)	0.088*** (0.031)	0.006*** (0.001)	0.175*** (0.025)	0.003*** (0.001)	0.089*** (0.022)
Between 1975 and 1980, CB	0.022*** (0.008)	0.236*** (0.052)	0.007 (0.007)	0.088** (0.042)	0.004*** (0.001)	0.132*** (0.030)	0.001 (0.001)	0.054** (0.026)
Between 1963 and 1970, SB	0.011** (0.004)	0.079** (0.031)	0.007 (0.005)	0.081** (0.038)	0.001* (0.001)	0.048*** (0.018)	0.002* (0.001)	0.064** (0.025)
Between 1970 and 1975, SB	-0.014*** (0.005)	-0.209*** (0.038)	-0.006 (0.005)	-0.051 (0.044)	-0.002* (0.001)	-0.071*** (0.026)	-0.001 (0.001)	-0.042 (0.031)
Between 1975 and 1980, SB	-0.000 (0.007)	0.040 (0.067)	-0.005 (0.007)	0.024 (0.065)	-0.000 (0.001)	0.003 (0.040)	0.001 (0.001)	0.021 (0.041)
Full set of control variables	No	No	Yes	Yes	No	No	Yes	Yes
Observations	2,862	2,862	2,862	2,862	2,862	2,862	2,862	2,862
R-squared	0.049	0.090	0.397	0.483	0.052	0.056	0.421	0.372

Notes: ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively. Robust standard errors are reported in parentheses. The dependent variable in columns 1-4 is the number of workers over the number of inhabitants in 1970. The dependent variable in columns 5-8 is the number of establishments over the number of inhabitants in 1970. The explanatory variables for which the coefficients are reported include a dummy variables with a value of one if the municipality received a branch opening for the first time during the indicated period. These dummy variables are defined for commercial banks (CB) and savings banks (SB).

2012

- 2012/1, **Montolio, D.; Trujillo, E.:** "What drives investment in telecommunications? The role of regulation, firms' internationalization and market knowledge"
- 2012/2, **Giesen, K.; Suedekum, J.:** "The size distribution across all "cities": a unifying approach"
- 2012/3, **Foremny, D.; Riedel, N.:** "Business taxes and the electoral cycle"
- 2012/4, **García-Estévez, J.; Duch-Brown, N.:** "Student graduation: to what extent does university expenditure matter?"
- 2012/5, **Durán-Cabré, J.M.; Esteller-Moré, A.; Salvadori, L.:** "Empirical evidence on horizontal competition in tax enforcement"
- 2012/6, **Pickering, A.C.; Rockey, J.:** "Ideology and the growth of US state government"
- 2012/7, **Vergolini, L.; Zanini, N.:** "How does aid matter? The effect of financial aid on university enrolment decisions"
- 2012/8, **Backus, P.:** "Gibrat's law and legacy for non-profit organisations: a non-parametric analysis"
- 2012/9, **Jofre-Monseny, J.; Marín-López, R.; Viladecans-Marsal, E.:** "What underlies localization and urbanization economies? Evidence from the location of new firms"
- 2012/10, **Mantovani, A.; Vandekerckhove, J.:** "The strategic interplay between bundling and merging in complementary markets"
- 2012/11, **García-López, M.A.:** "Urban spatial structure, suburbanization and transportation in Barcelona"
- 2012/12, **Revelli, F.:** "Business taxation and economic performance in hierarchical government structures"
- 2012/13, **Arqué-Castells, P.; Mohnen, P.:** "Sunk costs, extensive R&D subsidies and permanent inducement effects"
- 2012/14, **Boffa, F.; Piolatto, A.; Ponzetto, G.:** "Centralization and accountability: theory and evidence from the Clean Air Act"
- 2012/15, **Cheshire, P.C.; Hilber, C.A.L.; Kaplanis, I.:** "Land use regulation and productivity – land matters: evidence from a UK supermarket chain"
- 2012/16, **Choi, A.; Calero, J.:** "The contribution of the disabled to the attainment of the Europe 2020 strategy headline targets"
- 2012/17, **Silva, J.I.; Vázquez-Grenno, J.:** "The ins and outs of unemployment in a two-tier labor market"
- 2012/18, **González-Val, R.; Lanaspa, L.; Sanz, F.:** "New evidence on Gibrat's law for cities"
- 2012/19, **Vázquez-Grenno, J.:** "Job search methods in times of crisis: native and immigrant strategies in Spain"
- 2012/20, **Lessmann, C.:** "Regional inequality and decentralization – an empirical analysis"
- 2012/21, **Nuevo-Chiquero, A.:** "Trends in shotgun marriages: the pill, the will or the cost?"
- 2012/22, **Piil Damm, A.:** "Neighborhood quality and labor market outcomes: evidence from quasi-random neighborhood assignment of immigrants"
- 2012/23, **Ploeckl, F.:** "Space, settlements, towns: the influence of geography and market access on settlement distribution and urbanization"
- 2012/24, **Algan, Y.; Hémet, C.; Laitin, D.:** "Diversity and local public goods: a natural experiment with exogenous residential allocation"
- 2012/25, **Martinez, D.; Sjögren, T.:** "Vertical externalities with lump-sum taxes: how much difference does unemployment make?"
- 2012/26, **Cubel, M.; Sanchez-Pages, S.:** "The effect of within-group inequality in a conflict against a unitary threat"
- 2012/27, **Andini, M.; De Blasio, G.; Duranton, G.; Strange, W.C.:** "Marshallian labor market pooling: evidence from Italy"
- 2012/28, **Solé-Ollé, A.; Viladecans-Marsal, E.:** "Do political parties matter for local land use policies?"
- 2012/29, **Buonanno, P.; Durante, R.; Prarolo, G.; Vanin, P.:** "Poor institutions, rich mines: resource curse and the origins of the Sicilian mafia"
- 2012/30, **Anghel, B.; Cabrales, A.; Carro, J.M.:** "Evaluating a bilingual education program in Spain: the impact beyond foreign language learning"
- 2012/31, **Curto-Grau, M.; Solé-Ollé, A.; Sorribas-Navarro, P.:** "Partisan targeting of inter-governmental transfers & state interference in local elections: evidence from Spain"
- 2012/32, **Kappeler, A.; Solé-Ollé, A.; Stephan, A.; Väilä, T.:** "Does fiscal decentralization foster regional investment in productive infrastructure?"
- 2012/33, **Rizzo, L.; Zanardi, A.:** "Single vs double ballot and party coalitions: the impact on fiscal policy. Evidence from Italy"
- 2012/34, **Ramachandran, R.:** "Language use in education and primary schooling attainment: evidence from a natural experiment in Ethiopia"
- 2012/35, **Rothstein, J.:** "Teacher quality policy when supply matters"
- 2012/36, **Ahlfeldt, G.M.:** "The hidden dimensions of urbanity"
- 2012/37, **Mora, T.; Gil, J.; Sicras-Mainar, A.:** "The influence of BMI, obesity and overweight on medical costs: a panel data approach"
- 2012/38, **Pelegrín, A.; García-Quevedo, J.:** "Which firms are involved in foreign vertical integration?"

2012/39, **Agasisti, T.; Longobardi, S.:** "Inequality in education: can Italian disadvantaged students close the gap? A focus on resilience in the Italian school system"

2013

2013/1, **Sánchez-Vidal, M.; González-Val, R.; Viladecans-Marsal, E.:** "Sequential city growth in the US: does age matter?"

2013/2, **Hortas Rico, M.:** "Sprawl, blight and the role of urban containment policies. Evidence from US cities"

2013/3, **Lampón, J.F.; Cabanelas-Lorenzo, P.; Lago-Peñas, S.:** "Why firms relocate their production overseas? The answer lies inside: corporate, logistic and technological determinants"

2013/4, **Montolio, D.; Planells, S.:** "Does tourism boost criminal activity? Evidence from a top touristic country"

2013/5, **García-López, M.A.; Holl, A.; Viladecans-Marsal, E.:** "Suburbanization and highways: when the Romans, the Bourbons and the first cars still shape Spanish cities"

2013/6, **Bosch, N.; Espasa, M.; Montolio, D.:** "Should large Spanish municipalities be financially compensated? Costs and benefits of being a capital/central municipality"

2013/7, **Escardíbul, J.O.; Mora, T.:** "Teacher gender and student performance in mathematics. Evidence from Catalonia"

2013/8, **Arqué-Castells, P.; Viladecans-Marsal, E.:** "Banking towards development: evidence from the Spanish banking expansion plan"

2013/9, **Asensio, J.; Gómez-Lobo, A.; Matas, A.:** "How effective are policies to reduce gasoline consumption? Evaluating a quasi-natural experiment in Spain"

2013/10, **Jofre-Monseny, J.:** "The effects of unemployment benefits on migration in lagging regions"

2013/11, **Segarra, A.; García-Quevedo, J.; Teruel, M.:** "Financial constraints and the failure of innovation projects"

2013/12, **Jerrim, J.; Choi, A.:** "The mathematics skills of school children: How does England compare to the high performing East Asian jurisdictions?"

2013/13, **González-Val, R.; Tirado-Fabregat, D.A.; Viladecans-Marsal, E.:** "Market potential and city growth: Spain 1860-1960"

2013/14, **Lundqvist, H.:** "Is it worth it? On the returns to holding political office"

2013/15, **Ahlfeldt, G.M.; Maennig, W.:** "Homevoters vs. leasevoters: a spatial analysis of airport effects"

2013/16, **Lampón, J.F.; Lago-Peñas, S.:** "Factors behind international relocation and changes in production geography in the European automobile components industry"

2013/17, **Guío, J.M.; Choi, A.:** "Evolution of the school failure risk during the 2000 decade in Spain: analysis of Pisa results with a two-level logistic model"

2013/18, **Dahlby, B.; Rodden, J.:** "A political economy model of the vertical fiscal gap and vertical fiscal imbalances in a federation"

2013/19, **Acacia, F.; Cubel, M.:** "Strategic voting and happiness"

2013/20, **Hellerstein, J.K.; Kutzbach, M.J.; Neumark, D.:** "Do labor market networks have an important spatial dimension?"

2013/21, **Pellegrino, G.; Savona, M.:** "Is money all? Financing versus knowledge and demand constraints to innovation"

2013/22, **Lin, J.:** "Regional resilience"

2013/23, **Costa-Campi, M.T.; Duch-Brown, N.; García-Quevedo, J.:** "R&D drivers and obstacles to innovation in the energy industry"

2013/24, **Huisman, R.; Stradnic, V.; Westgaard, S.:** "Renewable energy and electricity prices: indirect empirical evidence from hydro power"

2013/25, **Dargaud, E.; Mantovani, A.; Reggiani, C.:** "The fight against cartels: a transatlantic perspective"

2013/26, **Lambertini, L.; Mantovani, A.:** "Feedback equilibria in a dynamic renewable resource oligopoly: pre-emption, voracity and exhaustion"

2013/27, **Feld, L.P.; Kalb, A.; Moessinger, M.D.; Osterloh, S.:** "Sovereign bond market reactions to fiscal rules and no-bailout clauses – the Swiss experience"

2013/28, **Hilber, C.A.L.; Vermeulen, W.:** "The impact of supply constraints on house prices in England"

2013/29, **Revelli, F.:** "Tax limits and local democracy"

2013/30, **Wang, R.; Wang, W.:** "Dress-up contest: a dark side of fiscal decentralization"

2013/31, **Dargaud, E.; Mantovani, A.; Reggiani, C.:** "The fight against cartels: a transatlantic perspective"

2013/32, **Saarimaa, T.; Tukiainen, J.:** "Local representation and strategic voting: evidence from electoral boundary reforms"

2013/33, **Agasisti, T.; Murtinu, S.:** "Are we wasting public money? No! The effects of grants on Italian university students' performances"

2013/34, **Flacher, D.; Harari-Kermadec, H.; Moulin, L.:** "Financing higher education: a contributory scheme"

2013/35, **Carozzi, F.; Repetto, L.:** "Sending the pork home: birth town bias in transfers to Italian municipalities"

2013/36, Coad, A.; Frankish, J.S.; Roberts, R.G.; Storey, D.J.: "New venture survival and growth: Does the fog lift?"

2013/37, Giulietti, M.; Grossi, L.; Waterson, M.: "Revenues from storage in a competitive electricity market: Empirical evidence from Great Britain"

2014

2014/1, Montolio, D.; Planells-Struse, S.: "When police patrols matter. The effect of police proximity on citizens' crime risk perception"

2014/2, García-López, M.A.; Solé-Ollé, A.; Viladecans-Marsal, E.: "Do land use policies follow road construction?"

2014/3, Piolatto, A.; Rablen, M.D.: "Prospect theory and tax evasion: a reconsideration of the Yitzhaki puzzle"

2014/4, Cuberes, D.; González-Val, R.: "The effect of the Spanish Reconquest on Iberian Cities"

2014/5, Durán-Cabré, J.M.; Esteller-Moré, E.: "Tax professionals' view of the Spanish tax system: efficiency, equity and tax planning"

2014/6, Cubel, M.; Sanchez-Pages, S.: "Difference-form group contests"

2014/7, Del Rey, E.; Racionero, M.: "Choosing the type of income-contingent loan: risk-sharing versus risk-pooling"

2014/8, Torregrosa Hetland, S.: "A fiscal revolution? Progressivity in the Spanish tax system, 1960-1990"

2014/9, Piolatto, A.: "Itemised deductions: a device to reduce tax evasion"

2014/10, Costa, M.T.; García-Quevedo, J.; Segarra, A.: "Energy efficiency determinants: an empirical analysis of Spanish innovative firms"

2014/11, García-Quevedo, J.; Pellegrino, G.; Savona, M.: "Reviving demand-pull perspectives: the effect of demand uncertainty and stagnancy on R&D strategy"

2014/12, Calero, J.; Escardíbul, J.O.: "Barriers to non-formal professional training in Spain in periods of economic growth and crisis. An analysis with special attention to the effect of the previous human capital of workers"

2014/13, Cubel, M.; Sanchez-Pages, S.: "Gender differences and stereotypes in the beauty"

2014/14, Piolatto, A.; Schuett, F.: "Media competition and electoral politics"

2014/15, Montolio, D.; Trillas, F.; Trujillo-Baute, E.: "Regulatory environment and firm performance in EU telecommunications services"

2014/16, Lopez-Rodriguez, J.; Martinez, D.: "Beyond the R&D effects on innovation: the contribution of non-R&D activities to TFP growth in the EU"

2014/17, González-Val, R.: "Cross-sectional growth in US cities from 1990 to 2000"

2014/18, Vona, F.; Nicolli, F.: "Energy market liberalization and renewable energy policies in OECD countries"

2014/19, Curto-Grau, M.: "Voters' responsiveness to public employment policies"

2014/20, Duro, J.A.; Teixidó-Figueras, J.; Padilla, E.: "The causal factors of international inequality in CO₂ emissions per capita: a regression-based inequality decomposition analysis"

2014/21, Fleten, S.E.; Huisman, R.; Kilic, M.; Pennings, E.; Westgaard, S.: "Electricity futures prices: time varying sensitivity to fundamentals"

2014/22, Afcha, S.; García-Quevedo, J.: "The impact of R&D subsidies on R&D employment composition"

2014/23, Mir-Artigues, P.; del Río, P.: "Combining tariffs, investment subsidies and soft loans in a renewable electricity deployment policy"

2014/24, Romero-Jordán, D.; del Río, P.; Peñasco, C.: "Household electricity demand in Spanish regions. Public policy implications"

2014/25, Salinas, P.: "The effect of decentralization on educational outcomes: real autonomy matters!"

2014/26, Solé-Ollé, A.; Sorribas-Navarro, P.: "Does corruption erode trust in government? Evidence from a recent surge of local scandals in Spain"

2014/27, Costas-Pérez, E.: "Political corruption and voter turnout: mobilization or disaffection?"

2014/28, Cubel, M.; Nuevo-Chiquero, A.; Sanchez-Pages, S.; Vidal-Fernandez, M.: "Do personality traits affect productivity? Evidence from the LAB"

2014/29, Teresa Costa, M.T.; Trujillo-Baute, E.: "Retail price effects of feed-in tariff regulation"

2014/30, Kilic, M.; Trujillo-Baute, E.: "The stabilizing effect of hydro reservoir levels on intraday power prices under wind forecast errors"

2014/31, Costa-Campi, M.T.; Duch-Brown, N.: "The diffusion of patented oil and gas technology with environmental uses: a forward patent citation analysis"

2014/32, Ramos, R.; Sanromá, E.; Simón, H.: "Public-private sector wage differentials by type of contract: evidence from Spain"

2014/33, Backus, P.; Esteller-Moré, A.: "Is income redistribution a form of insurance, a public good or both?"

2014/34, Huisman, R.; Trujillo-Baute, E.: "Costs of power supply flexibility: the indirect impact of a Spanish policy change"

- 2014/35, Jerrim, J.; Choi, A.; Simancas Rodríguez, R.: "Two-sample two-stage least squares (TSTSLS) estimates of earnings mobility: how consistent are they?"
- 2014/36, Mantovani, A.; Tarola, O.; Vergari, C.: "Hedonic quality, social norms, and environmental campaigns"
- 2014/37, Ferraresi, M.; Galmarini, U.; Rizzo, L.: "Local infrastructures and externalities: Does the size matter?"
- 2014/38, Ferraresi, M.; Rizzo, L.; Zanardi, A.: "Policy outcomes of single and double-ballot elections"

2015

- 2015/1, Foremny, D.; Freier, R.; Moessinger, M-D.; Yeter, M.: "Overlapping political budget cycles in the legislative and the executive"
- 2015/2, Colombo, L.; Galmarini, U.: "Optimality and distortionary lobbying: regulating tobacco consumption"
- 2015/3, Pellegrino, G.: "Barriers to innovation: Can firm age help lower them?"
- 2015/4, Hémet, C.: "Diversity and employment prospects: neighbors matter!"
- 2015/5, Cubel, M.; Sanchez-Pages, S.: "An axiomatization of difference-form contest success functions"
- 2015/6, Choi, A.; Jerrim, J.: "The use (and misuse) of Pisa in guiding policy reform: the case of Spain"
- 2015/7, Durán-Cabré, J.M.; Esteller-Moré, A.; Salvadori, L.: "Empirical evidence on tax cooperation between sub-central administrations"
- 2015/8, Batalla-Bejerano, J.; Trujillo-Baute, E.: "Analysing the sensitivity of electricity system operational costs to deviations in supply and demand"
- 2015/9, Salvadori, L.: "Does tax enforcement counteract the negative effects of terrorism? A case study of the Basque Country"
- 2015/10, Montolio, D.; Planells-Struse, S.: "How time shapes crime: the temporal impacts of football matches on crime"
- 2015/11, Pioletto, A.: "Online booking and information: competition and welfare consequences of review aggregators"
- 2015/12, Boffa, F.; Pingali, V.; Sala, F.: "Strategic investment in merchant transmission: the impact of capacity utilization rules"
- 2015/13, Slemrod, J.: "Tax administration and tax systems"
- 2015/14, Arqué-Castells, P.; Cartaxo, R.M.; García-Quevedo, J.; Mira Godinho, M.: "How inventor royalty shares affect patenting and income in Portugal and Spain"
- 2015/15, Montolio, D.; Planells-Struse, S.: "Measuring the negative externalities of a private leisure activity: hooligans and pickpockets around the stadium"
- 2015/16, Batalla-Bejerano, J.; Costa-Campi, M.T.; Trujillo-Baute, E.: "Unexpected consequences of liberalisation: metering, losses, load profiles and cost settlement in Spain's electricity system"
- 2015/17, Batalla-Bejerano, J.; Trujillo-Baute, E.: "Impacts of intermittent renewable generation on electricity system costs"
- 2015/18, Costa-Campi, M.T.; Paniagua, J.; Trujillo-Baute, E.: "Are energy market integrations a green light for FDI?"
- 2015/19, Jofre-Monseny, J.; Sánchez-Vidal, M.; Viladecans-Marsal, E.: "Big plant closures and agglomeration economies"
- 2015/20, Garcia-López, M.A.; Hémet, C.; Viladecans-Marsal, E.: "How does transportation shape intrametropolitan growth? An answer from the regional express rail"
- 2015/21, Esteller-Moré, A.; Galmarini, U.; Rizzo, L.: "Fiscal equalization under political pressures"
- 2015/22, Escardíbul, J.O.; Afcha, S.: "Determinants of doctorate holders' job satisfaction. An analysis by employment sector and type of satisfaction in Spain"
- 2015/23, Aidt, T.; Asatryan, Z.; Badalyan, L.; Heinemann, F.: "Vote buying or (political) business (cycles) as usual?"
- 2015/24, Albæk, K.: "A test of the 'lose it or use it' hypothesis in labour markets around the world"
- 2015/25, Angelucci, C.; Russo, A.: "Petty corruption and citizen feedback"
- 2015/26, Moriconi, S.; Picard, P.M.; Zanj, S.: "Commodity taxation and regulatory competition"
- 2015/27, Brekke, K.R.; Garcia Pires, A.J.; Schindler, D.; Schjelderup, G.: "Capital taxation and imperfect competition: ACE vs. CBIT"
- 2015/28, Redonda, A.: "Market structure, the functional form of demand and the sensitivity of the vertical reaction function"
- 2015/29, Ramos, R.; Sanromá, E.; Simón, H.: "An analysis of wage differentials between full-and part-time workers in Spain"
- 2015/30, Garcia-López, M.A.; Pasidis, I.; Viladecans-Marsal, E.: "Express delivery to the suburbs the effects of transportation in Europe's heterogeneous cities"
- 2015/31, Torregrosa, S.: "Bypassing progressive taxation: fraud and base erosion in the Spanish income tax (1970-2001)"

- 2015/32, Choi, H.; Choi, A.: "When one door closes: the impact of the hagwon curfew on the consumption of private tutoring in the republic of Korea"
- 2015/33, Escardíbul, J.O.; Helmy, N.: "Decentralisation and school autonomy impact on the quality of education: the case of two MENA countries"
- 2015/34, González-Val, R.; Marcén, M.: "Divorce and the business cycle: a cross-country analysis"
- 2015/35, Calero, J.; Choi, A.: "The distribution of skills among the European adult population and unemployment: a comparative approach"
- 2015/36, Mediavilla, M.; Zancajo, A.: "Is there real freedom of school choice? An analysis from Chile"
- 2015/37, Daniele, G.: "Strike one to educate one hundred: organized crime, political selection and politicians' ability"
- 2015/38, González-Val, R.; Marcén, M.: "Regional unemployment, marriage, and divorce"
- 2015/39, Foremny, D.; Jofre-Monseny, J.; Solé-Ollé, A.: "'Hold that ghost': using notches to identify manipulation of population-based grants"
- 2015/40, Mancebón, M.J.; Ximénez-de-Embún, D.P.; Mediavilla, M.; Gómez-Sancho, J.M.: "Does educational management model matter? New evidence for Spain by a quasiexperimental approach"
- 2015/41, Daniele, G.; Geys, B.: "Exposing politicians' ties to criminal organizations: the effects of local government dissolutions on electoral outcomes in Southern Italian municipalities"
- 2015/42, Ooghe, E.: "Wage policies, employment, and redistributive efficiency"

2016

- 2016/1, Galletta, S.: "Law enforcement, municipal budgets and spillover effects: evidence from a quasi-experiment in Italy"
- 2016/2, Flatley, L.; Giulietti, M.; Grossi, L.; Trujillo-Baute, E.; Waterson, M.: "Analysing the potential economic value of energy storage"
- 2016/3, Calero, J.; Murillo Huertas, I.P.; Raymond Bara, J.L.: "Education, age and skills: an analysis using the PIAAC survey"
- 2016/4, Costa-Campi, M.T.; Daví-Arderius, D.; Trujillo-Baute, E.: "The economic impact of electricity losses"
- 2016/5, Falck, O.; Heimisch, A.; Wiederhold, S.: "Returns to ICT skills"
- 2016/6, Halmenschlager, C.; Mantovani, A.: "On the private and social desirability of mixed bundling in complementary markets with cost savings"
- 2016/7, Choi, A.; Gil, M.; Mediavilla, M.; Valbuena, J.: "Double toil and trouble: grade retention and academic performance"
- 2016/8, González-Val, R.: "Historical urban growth in Europe (1300–1800)"
- 2016/9, Guio, J.; Choi, A.; Escardíbul, J.O.: "Labor markets, academic performance and the risk of school dropout: evidence for Spain"
- 2016/10, Bianchini, S.; Pellegrino, G.; Tamagni, F.: "Innovation strategies and firm growth"
- 2016/11, Jofre-Monseny, J.; Silva, J.I.; Vázquez-Grenno, J.: "Local labor market effects of public employment"
- 2016/12, Sanchez-Vidal, M.: "Small shops for sale! The effects of big-box openings on grocery stores"
- 2016/13, Costa-Campi, M.T.; García-Quevedo, J.; Martínez-Ros, E.: "What are the determinants of investment in environmental R&D?"
- 2016/14, García-López, M.A.; Hémet, C.; Viladecans-Marsal, E.: "Next train to the polycentric city: The effect of railroads on subcenter formation"
- 2016/15, Matas, Anna; Raymond, José-Luis; Dominguez, Andrés: "Changes in fuel economy: An analysis of the Spanish car market"
- 2016/16, Leme, Alfonso; Escardíbul, Josep-Oriol: "The effect of a specialized versus a general upper secondary school curriculum on students' performance and inequality. A difference-in-differences cross country comparison"
- 2016/17, Scandurra, Rosario Ivano; Calero, Jorge: "Modelling adult skills in OECD countries"
- 2016/18, Fernández-Gutiérrez, Marcos; Calero, Jorge: "Leisure and education: insights from a time-use analysis"
- 2016/19, Del Rio, Pablo; Mir-Artigues, Pere; Trujillo-Baute, Elisa: "Analysing the impact of renewable energy regulation on retail electricity prices"
- 2016/20, Taltavull de la Paz, Paloma; Juárez, Francisco; Monllor, Paloma: "Fuel Poverty: Evidence from housing perspective"
- 2016/21, Ferraresi, Massimiliano; Galmarini, Umberto; Rizzo, Leonzio; Zanardi, Alberto: "Switch towards tax centralization in Italy: A wake up for the local political budget cycle"
- 2016/22, Ferraresi, Massimiliano; Migali, Giuseppe; Nordi, Francesca; Rizzo, Leonzio: "Spatial interaction in local expenditures among Italian municipalities: evidence from Italy 2001-2011"
- 2016/23, Daví-Arderius, Daniel; Sanin, María-Eugenia; Trujillo-Baute, Elisa: "CO2 content of electricity losses"



UNIVERSITAT DE
BARCELONA

 **IEB**
Institut
d'Economia
de Barcelona

ieb@ub.edu
www.ieb.edu

Cities

IEB Working Paper