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Banking concentration and its determinants at the regional level during the Spanish developmentalism

Pedro Fernández Sánchez[1] (iD) and Juan Luis Santos[2,3] (iD)

[1]Departamento de Economía, Universidad San Pablo-CEU, CEU Universities, Madrid, Spain, [2]Institute of Economics, Polish Academy of Sciences, Warsaw, Poland and [3]Grupo de Sistemas Complejos en Ciencias Sociales, Universidad de Alcalá, Alcalá de Henares, Spain
Corresponding author: Pedro Fernández Sánchez; Email: fersan.fcee@ceu.es

Abstract

In 1962, Spain implemented significant banking law changes to boost competition. This study investigates their impact on provincial banking concentration from 1964 to 1975, utilising novel provincial-level private bank balance sheet data and including savings banks. Results show a substantial decline in concentration across most provinces. Panel data models identify the determinants of banking concentration: larger populations and higher gross domestic product per capita correlate with lower concentration, while agrarian-focused provinces exhibit higher concentration. The provincial financial sector's structure also matters, with a higher number of branches and headquarters per capita associated with reduced banking concentration. These findings refine existing literature and provide new insights into the intricate relationship between banking concentration and regional economies in Spain.

Keywords: banking history; Francoism; concentration; competition

JEL codes: N20; N24; G21; L11

Resumen

En 1962 se realizaron cambios significativos en la ley bancaria española para fomentar la competencia en el sector. Este estudio examina su impacto en la concentración bancaria a nivel provincial utilizando datos inéditos que abarcan los balances de los bancos, e incluyendo cajas de ahorros, para el período comprendido entre 1964 y 1975. El cambio legislativo provocó una disminución sustancial en la concentración en la mayoría de las provincias. Se emplean modelos de panel para identificar los determinantes de la concentración bancaria. Mayores niveles de población y de PIB per cápita, conducen a una menor concentración provincial. Además, las provincias con sectores primarios de mayor tamaño muestran concentraciones bancarias más elevadas. La estructura financiera provincial también es relevante, ya que un mayor número de sucursales y sedes por habitante reduce la concentración bancaria. Estos hallazgos ofrecen nuevas perspectivas sobre la relación entre la concentración bancaria y las economías a nivel regional en España.

Palabras clave: historia bancaria; franquismo; concentración; competencia

1. Introduction

On 14 April 1962, the LBOCB (Law to Promote Competition and Credit Institutions) was enacted, with the aim of disrupting the banking status quo in Spain by removing entry barriers to promote competition and sector growth and compel the specialisation of private banking[1], among other objectives. The Francoist authorities believed that introducing competition into the financial system was essential to continue the nation's economic growth (Oficina de Coordinación y Programación Económica, 1962)[2].

This change in the legislative framework is the main reason why this period has traditionally garnered significant attention for banking historians[3]. However, these analyses have considered banking at the national level, despite the relevant market for banking competition is the regional market, and more specifically, the province market, as pointed out by Maudos (2001), citing the work of Gual and Vives (1992). Most of the studies have examined the evolution of banking competition on a national scale, without considering that provincial markets could be different to the national market. In many provinces and localities, the absence of branches of major banks made regional and local bankers the reference financial intermediaries. In contrast, in the most populous cities, the multitude of financial institutions increased competition.

The reasons for the absence of regional-level studies in Spain during the second Francoism can be attributed to the lack of data disaggregated by provinces so far. The estimation of provincial-level data from national averages and the location of bank branches facilitated the proliferation of studies that consider this regional nature of competition in banking markets since the 1980s (Fuentelsaz, 1996; Maudos, 1998; Fernández de Guevara and Maudos, 2009; Maudos, 2016). However, the absence of information has restricted the study of earlier periods[4].

Furthermore, regional analysis takes on greater significance when establishing the relationships between economic growth and the structure of the economy's financial system. During the period 1986–1998, the more competitive the markets were, the more intermediation costs were reduced, and economic agents, therefore, had access to financial resources at a lower cost (Carbó-Valverde et al., 2003, p. 229). Analysing financial

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[1] The traditional classification of private banks distinguished national, regional and local financial institutions. The new legislation mandated banks to specialise, requiring them to choose between operating as commercial banks and industrial banks. However, this process of specialisation was not successful, and in 1974, this distinction was removed (Tedde de Lorca, 2019).

[2] During most of the 20th century, the Spanish financial system was characterised by the predominance of banking intermediaries over capital markets. Within the banking intermediaries, private banks, and more specifically the large national private banks, played the leading role. However, other financial intermediaries had been operating in Spain since the 19th century, namely the savings banks. Although as charitable entities they were not considered part of the Spanish financial system until 1962, they played a very important role at the regional and local levels. Thus, in the first third of the 20th century they had already established their position within the Spanish financial system (Martínez Soto and Cuevas Casaña, 2004, p. 102). Since then, the rivalry between private banks and savings banks increased. Private banks began implementing new strategies and introducing innovative products to compete with savings banks for a larger share of the retail segment within the financial market (Martínez Soto and Hoyo Aparicio, 2019).

[3] In this regard, mention should be made of the works of Cuervo (1988), Martín Aceña (1996, 2011), Pons Brías (2001a, 2001b, 2002), García Ruiz (2002), Pueyo (2003), Lukauskas (1997) and Pérez (1997) on the effects of regulation in banking operations. Other studies have approached the issue from more specific perspectives, such as Muñoz (1970) and Fanjul and Maravall (1985).

[4] Pueyo (2003) estimated the concentration of the Spanish banking sector (excluding SBs) at the provincial level and presented the results for the years 1926, 1934, 1950, 1960 and 1975. However, since these estimates are derived from national totals, the results may not accurately reflect reality. This issue was addressed by calculating concentration indices between 1964 and 1975 for private bank liabilities operations at the provincial level, using actual data provided by banking institutions (Fernández Sánchez, 2024a).

systems from a regional perspective helps neutralise both legal and cultural factors, which are determining factors in defining their structure. In this way, more precise conclusions can be drawn regarding the determinants of concentration.

From this perspective, a country's financial system is the result of the financial systems operating in each of its regions. By analysing the level of competition and growth in these regions, one can establish to what extent increased competition in the banking sector leads to greater economic growth. Carbó-Valverde *et al.* (2003) employed this approach to establish the relationship between regional banking competition and regional economic growth in Spain for the period 1986–1998[5]. For the North American case, refer to Berger (1995).

The use of disaggregated data at the provincial level for both asset and liability operations of Spanish private banks has provided a better understanding of the functioning of regional banking markets. These data were first partially used by García Ruiz (2003, 2007) to characterise the interregional financial flows of Spanish private banks. More recently, they have been used to study the evolution of Spanish private banking concentration between 1962 and 1975 (Fernández Sánchez, 2024a)[6]. For this study, this source has been used for the first time to calculate private banking market shares for lending transactions. In this manner, the study relies on primary sources and avoids the need to resort to estimates. For studies referring to earlier or later stages (Pueyo, 2003; Maudos, 2016), in the absence of provincial-level data, estimates are made based on the number of branches that each bank had in each province. This assumes uniform business volumes across all branches in all provinces. The use of authentic provincial data in this work mitigates issues arising from estimates that, in some cases, do not accurately reflect reality (Fernández Sánchez, 2024a, p. 44).

This study utilises private banking data to attempt to establish the variables that explain greater or lesser banking concentration at the provincial level. It also includes in the analysis the savings banks (SBs), whose importance at the regional and local levels was undeniable since the 19th century[7]. By operating all of them within the same regulatory framework, the institutional variable is neutralised, allowing for the establishment, and testing of different economic hypotheses to explain the concentration level of the banking sector and its evolution. For this purpose, the research has been divided into four sections. Firstly, the evolution of banking concentration between 1964 and 1975 will be presented[8]. Next, various variables that could explain the provincial market concentration are presented. In the fourth section, different explanatory models of the change in banking concentration are discussed. Finally, based on the results obtained, the primary conclusions of the study are outlined.

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[5] It was shown that there is indeed a positive relationship between competition in the financial system and economic growth at the regional level. The authors conclude that the differences between global financial systems resulting from cultural, legal and historical factors ultimately explain the disparities in the economic growth.

[6] This information is available in Archivo Histórico del Banco de España and covers the period from 1963 to 1975. Throughout these years private banks were obliged to send the Banco de España data broken down by province for all their transactions. The liability operations encompass current accounts, savings accounts, deposits and cash bonds (the latter being exclusive to industrial banking). Meanwhile, asset operations involve commercial paper, rediscounted bills and loans.

[7] The new legislation considered Spanish savings banks as part of the Spanish financial system for the first time, although they continued to be prohibited from carrying out some banking operations. Although Spanish SBs were limited to their home provinces, from 1940 onwards some of them expanded into neighbouring provinces. Unlike the case of private banks, for which actual data at the provincial level have been used, in the case of the savings banks there are no disaggregated data, so they have had to be estimated as will be explained below.

[8] While the requirement to submit these reports began in 1963, not all banks complied, so we have chosen to start from 1964 as it provides a more complete dataset. The reason for concluding the study in 1975 is the absence of data for subsequent years.

2. The regional banking concentration in Spain between 1964 and 1975

In this section, the banking concentration is defined and presented for the period under study. For this study, a structural indicator, Herfindahl–Hirschman index (HHI), has been chosen. Although the HHI is often used by the defence of competition authorities as an indicator of competition, it has limitations, which have been apparent since the 1970s (Demsetz, 1973). The underlying idea of these studies is that increases in market concentration, driven by the higher market share of large firms, do not necessarily lead to a reduction in competition[9]. Due to the challenges in estimating non-structural indicators based on bank behaviour models at the provincial level (such as the Panzar–Rosse test, the Lerner index, the Boone competition indicator or the Bresnahan conduct index), we have chosen to utilise the HHI in this paper. In doing so, it also allows us to link up with research that has also used it[10].

The HHI considers all entities operating in the provincial market, giving greater weight to those with a larger market share. It is calculated as the sum of the squares of the market shares (S_i) of the banks operating in each province. It customarily is bounded between 1 and 10,000, as done in the current work[11].

Market shares have been obtained from the three different variables: total liabilities of each bank in the province, total assets of each bank in the province and total assets of each private bank and SBs operating in the province[12]. Each variable is interesting because it provides insight into different operations of the banking system. It can be checked how level of concentration evolved both in assets and liabilities and the effect of adding the SBs to the calculations. SBs experienced high growth during the period under study and most of them positively impacted the banking concentration, as in most provinces there was only one SB that had a higher market share than the average bank.

In the mid-20th century, the Spanish financial system was less developed than that of other European countries. Starting from the mid-1950s, deposits in Spain were growing at a faster pace than the national income, unlike what was happening in other more developed economies in its surroundings, where a process of financial disintermediation and diversification was underway. This lesser diversification of the Spanish financial system was reflected not only in a more limited involvement of the capital market but also in a lower presence of non-banking financial intermediaries. Despite the increasing significance of SBs during that period, in Spain by the year 1965, still 60.8% of the deposits were in the hands of private banks, in contrast to countries like the United Kingdom, where the proportion was 49.7% (Pons Brías, 1999, pp. 96–97)[13].

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[9] For this reason, non-structural indicators are gaining popularity due to their greater reliability in reflecting the level of competition within a sector. In this regard, the research by Dols-Miro *et al.* (2024) stands out, as they employ the Lerner index to assess the market power of the Spanish banking sector from 1971 to 2018.

[10] For a comprehensive review of the existing literature on the measurement of banking competition, see Cruz-García *et al.* (2018, pp. 61–63).

[11] The maximum value means the market has only one competitor (monopoly) and the lowest the values the lowest the concentration in the market. The HHI is used as a benchmark by several U.S. regulatory agencies to characterise the degree of market concentration based on the following references: values above 2,500 are for markets with high concentration, values between 2,500 and 1,500 for markets with moderate concentration and values below 1,500 are found in markets with low concentration.

[12] Total assets of banks and SBs are not included because the liabilities of SBs are not available for the period under study. The assets and liabilities of banks are found in the inspection reports of the Bank of Spain as previously discussed, and the liabilities of SBs can be found in CECA (1988, 1989). Most of the 111 SBs active in 1964–1975 were operating in only one province in the period under study and only eight of them had presence in several provinces. For those cases, the liabilities of the SB are distributed according to the population of each province.

[13] For a more detailed analysis of the evolution of the Spanish financial system over the 20th century from a comparative point of view, see Pons Brías (2001c).
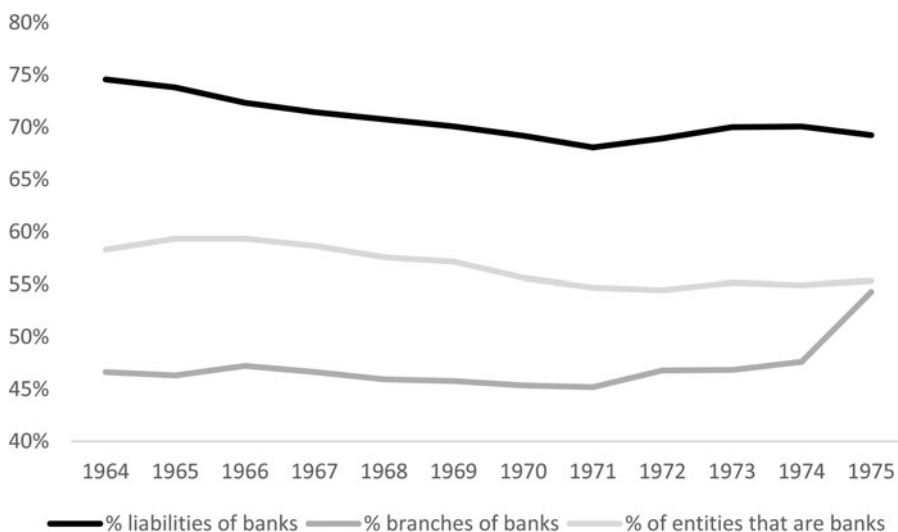
Figure 1. Importance of banks in the Spanish financial system between 1964 and 1975.
Source: Authors' elaboration.

In this context, the law of 1962 (LBOCB) aimed to reduce barriers to entry in the banking sector by promoting competition through the creation of new entities and facilitating their expansion by opening branches[14]. As a result of the new law, both the number of banks and branches increased in the following years.

During the years following the introduction of the LBOCB the financial sector in Spain was divided into banks and SBs as shown in Figure 1. In 1964 banks were responsible of three quarters of the liabilities and the importance of SBs increased steadily until 1970, were these financial institutions rose their participation to 31% of the liabilities. In the following years the market continued to be distributed approximately with that distribution.

The number of branches of banks and SBs grew in the period at a compound annual growth rate of 6.6% for the case of SBs and 9.9% for banks (see Table A9 in the Appendix). However, banks had less than half of the total branches during the period except for 1975. During that year banks grew their network expanded impressively by 34.8% due to the Royal Decree 2245/1974 (9 August 1974) that liberalised the opening of new bank branches. Previously, the number of bank branches went from growing around 5% between 1968 and 1971 to growing at more than 10% in 1972 and 1973 due to the Ministry of Finance Order (15 November 1971) that promoted the flexibilisation of norms for the expansion of private banking.

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[14] Private banks and savings banks were governed by distinct regulations, particularly concerning the establishment of new branches. For private banks, Decree 1312/1963 dated 5th June mandated that the Bank of Spain, upon receiving a report from the CSB (Consejo Superior Bancario), would formulate an Annual Plan for the establishment of new bank offices. As for savings banks, the regulatory framework for their expansion was established by the Ministerial Order of 24th June 1964. Under this regulation, prospective expansion required submission of an application to the Ministry of Finance via the Savings Banks Credit Institute (ICCA), following a report provided by the Spanish Confederation of Savings Banks (CECA) during the initial quarter of each calendar year. For a more in-depth analysis of the legislation to which banks and savings banks were subjected during the period, see Fernández Sánchez (2024b, p. 5–10).

The number of entities was more constant during the period under study: SBs grew from 83 to 88 between 1964 and 1975 and the bank included in the database decreased from 116 to 109 during those years. These figures are slightly lower than other data from the Bank of Spain or the yearbook of the Spanish Banking Association (Asociación Española de Banca) that includes 111 banks for 1975. The maximum number of banks in the database was 124 in 1965 and 1966. Eight new entities were created at the end of 1964, or the beginning of the next year and the database includes their data at the provincial level from 1965 onwards. The impact of acquisitions was higher than the process of new bank creation, so the overall number diminished during the period under study. However, during those years the number of banks was always higher than the SBs.

The importance of SBs with almost half of entities and branches and over a fourth of the total loans makes it necessary to include them in the study to show the evolution of the banking concentration, despite the law of 1962 was focused on banks. During these following years the increase in the expansion of the networks of branches led to a widespread decrease in provincial-level banking concentration, as observed in the maps shown in Figure 2[15].

The maps show a widespread decrease in the level of concentration during the studied period for the three considered variables. In the case of bank assets, in 1964 there were seventeen provinces with high banking concentration and only nine provinces with low concentration. By 1975, there were only six provinces with high concentration, and twenty-nine of them, more than half, had low concentration. There were only five provinces that increased their level of bank concentration during the period, which represents 10% of the total. This increase, while not very significant at the overall level, occurred in the late 1960s due to operational decisions made by some banks that significantly increased their loans in certain regions where they operated.

The results are similar for concentration measured using the HHI based on bank liabilities. Provinces with high banking concentration decreased from fifteen to four, while provinces with low concentration increased from nine to thirty-one. In this case, only two provinces increased their level of concentration during the period[16].

When adding the liabilities of SBs, the maps in the lower part of Figure 2 illustrate a comparatively smaller change in the level of bank concentration. In 1964, there were eight provinces with a high level of concentration, and 11 years later, there were seven. The provinces with a low concentration level went from thirteen to twenty-three during that period. There were fourteen provinces that had a higher level of concentration at the end of the period than at the beginning, which represents 28% of the total.

In Figure A1 in the Appendix, the evolution of concentration by province is represented for each variable of the balance sheet of financial institutions. Both in the case of the HHI according to bank assets and to liabilities, there is a progressive decline in the average

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[15] In a scenario where interest rates were regulated by the Ministry of Finance, opening new branches emerged as the preferred strategy for financial institutions to expand their market share. However, this was not the sole approach. Offering specialised financial products, such as those pioneered by savings banks, and executing targeted marketing campaigns to attract specific demographics, such as married women (Comín, 2008, pp. 278–280, 323–325, 338–341; Martínez-Rodríguez and Bátiz-Lazo, 2023), were also tactics developed during the 1960s and 1970s to compete effectively. It is worth noting that despite interest rates being set by regulatory authorities, it was customary for banks to pay extra rates (Comín, 2008, p. 312; García Ruiz, 2002).

[16] The two provinces that increased the level of banking concentration are Huesca and Teruel. This increase was due to the merger by absorption of Banco de Aragón by Banco Central in 1970 (see Table A5 in the Appendix). It is also worth noting the limited decrease in the HHI of the province of Santander measured with the three variables. At the end of the period, it remained the one of the most concentrated provincial banking markets in Spain. In this case, the explanation lies in the strategy deployed by Banco de Santander, the leading bank in the province, which never neglected its original banking market (Martín Aceña, 2007).
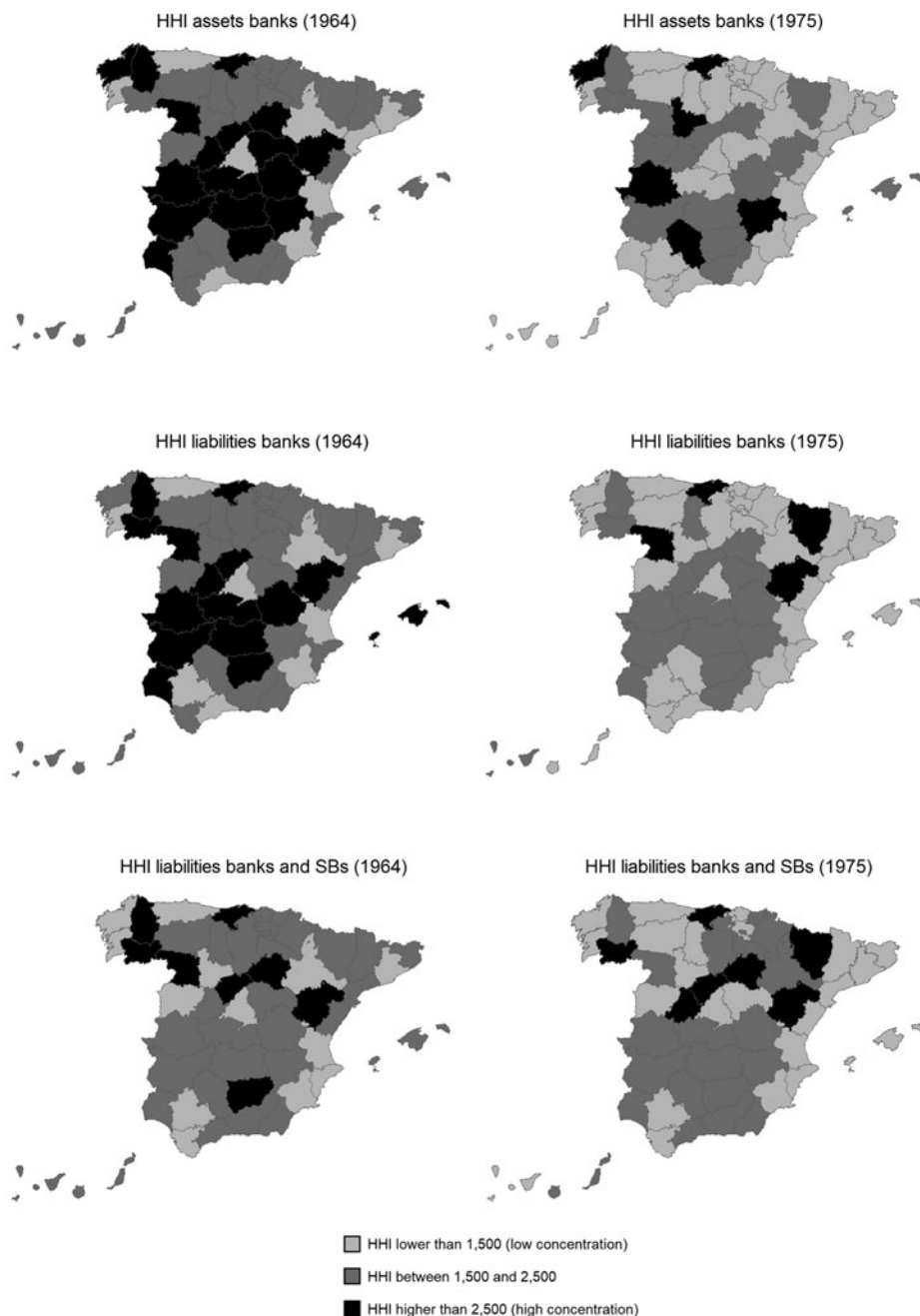
Figure 2. Provinces according to their HHI in 1964 and 1975.
Source: Authors' elaboration.

level of concentration over the 12 years for which data are available except for 1970. That year Central and Bilbao banks had several acquisitions that impacted banking concentration in several provinces (see Table A5 in the Appendix). When adding the liabilities of SBs to represent provincial financial markets as comprehensively as possible, the initial

average level of concentration is lower because many SBs had a market share lower than the average bank in the province. However, the significant increase in their operations during those years led SBs to become the main financial entity in over half of the provinces. This explains why the HHI for bank and SB liabilities decreased to a lesser extent during the period.

3. Possible explanatory variables for banking concentration

After characterising the level of provincial bank concentration and its evolution, it is essential to understand the determinants that could explain the changes in provincial banking concentration following the regulatory change. Next, and before proposing explanatory models, we will present the potential explanatory variables and their sources.

Providing an answer to what the determinants of concentration evolution during the period is crucial for understanding the financial intermediation business during this period. It involves explaining the motivations behind a decision taken both by private banks and SBs, who decided how and to what extent and where they expanded their location, and by banking customers, who deposited their funds in any of the financial institutions located in each province based on their preferences.

Banking concentration at the regional level can be influenced by various factors or determinants. Here are the key ones highlighted in the literature:

- *Population density and demographics*: Population density and demographic factors such as age distribution and urbanisation can influence banking needs and preferences, which in turn affect concentration levels (Savage and Humphrey, 1979; Fohlin and Jaremski, 2020; Memarian *et al.*, 2023). This factor is discussed in section 3.1.
- *Economic factors*: Economic conditions such as gross domestic product (GDP) growth, income levels and industry composition can impact bank concentration. Regions with strong economic growth and diverse industries may have lower concentration levels due to higher demand for banking services from a variety of businesses and consumers (Pastor *et al.*, 2017; Rakshit and Bardhan, 2019). These factors are discussed in sections 3.2 and 3.3.
- *Market structure*: The number and size distribution of banks operating in a region significantly affect concentration. In a region dominated by a few large banks, concentration tends to be higher compared to regions with numerous smaller banks (Burgstaller, 2013; Corbae and D'Erasmo, 2020). This is included in section 3.4.
- *Regulatory environment*: Regulatory policies can influence the level of concentration by either encouraging or discouraging mergers and acquisitions among banks (Boschma and Hartog, 2014). Regulatory barriers to entry or expansion can also contribute to concentration (Barth *et al.*, 2004; Bernad *et al.*, 2008; González, 2009; Fernández *et al.*, 2010). The main regulatory change affecting banking was the previously discussed Law 2/1962 and to a lesser degree the Royal Decree 2245/1974 that increased the expansion in the last year under study. Then, the regulatory constraints are assumed to be similar during the period.
- *Technological advancements*: The adoption of technology in banking, such as online banking and mobile applications, can reduce barriers to entry and enhance competition, potentially lowering concentration levels (Tadesse, 2006; Vives and Ye, 2021). Technological change is assumed low relevant for Spanish banking during 1964–1975 despite the biggest financial entities could have had access to technologies unavailable to the smaller banks and SBs, and that could have contributed to different efficiency ratios, growth rate and therefore banking concentration.

- *Credit market conditions*: The availability and cost of credit in a region can influence the demand for banking services and the competitive landscape among banks, thus affecting concentration (Staikouras and Koutsomanoli-Fillipaki, 2006; Coccorese *et al.*, 2021). Despite the importance of these factors, there is a lack of provincial-level or financial entity data that allows for studying the impact of contestability, price competition and efficiency on banking competition during Spain during the period under study.
- *Financial stability and crisis events*: Financial stability or instability, as well as the occurrence of financial crises, can lead to changes in bank concentration as weaker banks may be acquired or forced out of the market, resulting in increased concentration (Caminal and Matutes, 1997; Beck *et al.*, 2003; Pérez Montes, 2014). The period 1964–1975 was expansionary and there is not required to incorporate this factor.
- *Globalisation and integration*: Increasing globalisation and integration of financial markets can lead to the expansion of multi-national banks into regional markets, potentially altering concentration levels (Laeven and Claessens, 2003; Yin, 2021). This factor is not included in the analysis because the Spanish banking system had not significant international competition during the period under study: in 1975 there were only four foreign banks with operations in Spain according to the annual report of the Spanish Banking Association, and they had 25 out of the 7,559 branches of banks.

3.1. Population

Population level is a variable that explains the potential demand for goods and services, especially in the sector under consideration and the period analysed. During this time, the provision of banking services required the physical presence of banks to carry out their activities. The attraction of funds in the form of deposits required the opening of branches as an essential condition for conducting financial intermediation activities.

Therefore, the larger the population in the nearby area where services were provided, the greater the potential demand, and consequently the volume of funds that a financial institution could attract from savers. Furthermore, once the sector was liberalised, banks had incentives to establish themselves in provinces with a higher potential demand to which they had not previously had access. Hence, a higher population level should be associated with a lower initial level of banking concentration. Also, a greater reduction in concentration is expected in the most populated regions.

Alternative variables to measure the impact of population are population density and percentage of population in urban or rural areas. Due to the provincial configuration of Spain, typically with one main urban centre and the territory divided not very unequally among provinces, the correlation between population and density of population is high so both explanatory variables cannot be included in the same econometric models to avoid multi-correlation. In addition, there is a high correlation among population density, percentage of rural population and the primary sector percentage in economic activity, a variable included in section 3.3. Therefore, the population for each province is included only at level for each year between 1964 and 1975.

For this study, annual provincial population series are required. The homogeneous population series as of 1st July have been used, sourced from the Fundación BBV (1999, pp. 436–437).

3.2. GDP per capita

There is a positive relationship between income and savings, meaning that when income increases, per capita savings tend to grow. It can be inferred that the higher the GDP per

capita of an economy, the more resources financial intermediaries can collect in the form of deposits from these savers. Furthermore, banks that provide their services in regions with higher income levels tend to have better profitability, lower default rates and higher solvency than those operating in less developed regional markets (Carbó-Valverde *et al.*, 2000, p. 268). From this perspective, one of the variables that should be taken into consideration to explain the level of banking concentration is the provincial GDP per capita. Higher income levels should correspond to lower banking concentration, and this variable could also impact its evolution, promoting its reduction.

GDP growth can also contribute to explaining the banking concentration in the period. However, it is tested, and the variable is not significant at both the level of banking concentration and the annual differences. Moreover, GDP growth at the province level has high correlation with other variables included in the analysis such as population, GDP per capita and sector activity distribution. Therefore, it is not included in the analysis, but it might have an impact on the banking concentration in other timeframes and locations.

To find data of the GDP at the province level before 1980 it is necessary to use the studies carried out by the former research department of Banco de Bilbao (later Fundación BBV and currently Fundación BBVA). Specifically, the Regional Gross Domestic Product at market prices in millions of constant pesetas for the year 1986 is available for the period under study (Fundación BBV, 1999, pp. 508–509). The series is biennial with data for odd years, so the data for even years have been interpolated considering the provincial and national evolution with annual data available from the same source. Using these data, along with the population series, the provincial GDP per capita is calculated.

3.3. Production structure by sectors

Both depositors in banks and clients seeking loans can be individuals or companies. Therefore, in addition to variables like population or GDP per capita, the productive structure can play a significant role in both the level of bank concentration and its evolution. Provinces with a strong presence of the industry and construction sectors, both capital-intensive activities, may demand more financial services compared to provinces with a higher prevalence of services or agriculture, therefore the banking concentration might be lower in those regions. The primary sector is likely the economic activity that incentivised banking activity the least during the period under consideration so regions specialised in agriculture would have higher levels of banking concentration.

Additionally, sector distribution could have an impact on the evolution of banking concentration, not just its level. For example, provinces with a high concentration of construction may have experienced a higher number of financial institutions opening branches in territories where they hadn't previously operated. Consequently, in these regions, the level of concentration may decrease at a faster rate.

Production structure at the province level for the period 1964–1975 in Spain can be studied with three different variables: employment measured as the number of workers, gross value added (GVA) and labour income, both measured in monetary units. Each of the three variables is taken as a percentage of each sector over the total for the province. Employment measured as the number of workers is obtained from Fundación BBV (1999, pp. 236–297), GVA at factor cost in millions of 1986 peseta is obtained from Fundación BBV (1999, pp. 496–503) and labour income from Fundación BBV (1999, pp. 364–369). In the same way as provincial GDP, data for even years of the considered period have been calculated using the same interpolation methodology.

3.4 Variables of the financial system

The strategy of opening of bank branches became a fundamental for Spanish financial institutions between 1941 and 1975 to absorb a larger volume of savers' funds in the form of deposits, aiming to gain a greater market share. All of this occurred in the context of strict interest rate regulation by the government. It was paradoxical to have the coexistence of local markets with very few financial institutions and others where numerous entities competed, such as in the cases of Madrid and Barcelona.

The banking business presents significant barriers to entry, which can be distinguished between structural and behavioural barriers (Myers, 1993, pp. 124–130). Structural barriers arise in the market due to external factors and are related to sector regulation. Therefore, banking regulation throughout the 20th century and up to the LBOCB of 1962 was crucial in shaping the sector and acted as a significant entry barrier.

Behavioural barriers, on the other hand, are endogenous in nature and arise from the conduct of economic agents participating in the market, both suppliers and clients. Traditionally, distance has been a significant entry barrier of this kind (Moore and Siems, 1998, p. 3). In fact, proximity of suppliers to clients provides a clear competitive advantage over banks with branches located further. From this perspective, proximity to customers becomes an important source of monopolistic power[17]. In the financial sector, banks that did not have a presence in local markets were not a viable alternative for most consumers, which significantly reduced competition.

It is, therefore, important to consider the number of branches in each province to test the hypothesis that a lower number of branches could result in higher market concentration and less competition. The LBOCB of 1962 aimed, at least theoretically, to introduce greater competition in the sector. This was reflected, among other things, in new regulations on bank expansion[18]. From a long-term perspective, the new regulation led to a significant increase in the number of branches opened by banks. This was not only due to the emergence of new specialised entities, such as industrial or local commercial banks, but also to the removal of restrictions that had previously existed and hindered real competition among financial institutions. The larger banks increased their commercial network faster than most of the smaller financial entities. Therefore, at the national level branch liberalisation has an expected increase in the level of concentration during the period. However, when measured at the provincial level, during the period under study new branches were opened by banks with small or no presence in the provinces where they decided to expand. In this way, the overall effect of the branch expansion should be a decrease in concentration despite the larger banks experiencing a relatively greater increase in size.

Two sources have been used for the series of bank branches in each province. First, the data published in the "Mapa Bancario Español", published by the Bank of Spain, which disaggregates the number of bank offices by province from 1964 to 1973 (Banco de España, 1964–1973). For the last 2 years, the "Anuario Estadístico de la Banca Privada" published by the Consejo Superior Bancario (1974–1975) was used. SBs are not included in this variable because annual data are not available for this period.

In addition to the number of branches, the number of different financial institutions in each province plays a significant role in bank concentration. A very limited number of different entities typically leads to a higher level of concentration. For example, if there were a province with only one bank operating in the territory, it would have constituted a

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[17] Technology diminishes the significance of geographical distance and amplifies competition, yet historical records show limited substantial impact, at least up to the beginning of the 21st century (Bátiz-Lazo and Wood, 2002, p. 203).

[18] As explained above, the regulations on branch expansion were different for banks and SBs.

monopoly, and the HHI would have reached its maximum value. Like the number of branches, the number of different financial institutions in each province tended to increase over the study period, contributing to the reduction of the concentration.

Headquarters can also affect banking concentration. This variable is highly correlated with the number of financial institutions (0.88) and the rationale its equivalent: provinces with more financial institutions headquartered would have a lower concentration.

Another variable that can influence bank concentration and its evolution is the importance of SBs at the provincial level. During the second half of the 1960s, the median percentage of SB liabilities as a share of the total financial system's liabilities increased from 25% in 1963 to nearly 40% in 1970 and stayed at this level until 1975. Furthermore, there was considerable variability among provinces that persisted throughout the study period. As of 1970, some provinces had no SBs while in others, over half of the financial system's liabilities were held by SBs.

SBs were often larger than the average bank in the same province, and in most cases were the financial institution with more liabilities. Thus, it can be assumed that regions where SBs were more significant would experience higher bank concentration.

Finally, there were bank acquisitions during the period. Not all of them are considered important for banking concentration because in the case the acquiring bank did not have activity in that province prior to the acquisition the HHI is not affected. Then, a binary variable is calculated, that is 1 in the year of the acquisition for the provinces where both the acquirer and the acquiree banks have at least 3% of the provincial assets or liabilities and 0 otherwise. There are a total of six acquisitions during the period that could have a notable effect in the concentration in thirteen provinces presented in Table A5 in the Appendix.

4. Methodology

The dependent variable is the HHI at the provincial level, for each province of Spain excluding Ceuta and Melilla ($n = 50$) and there is information for each year between 1964 and 1975 ($t = 12$). Therefore, the panel is perfectly balanced. In this section, the specification of the panel data models presented in section 5 is discussed according to the structure of the data and the results of the conducted econometric tests.

Firstly, the dependent variables are checked for stationarity with the Levin, Lin, and Chu unit root test. The HHI measured with liabilities of banks and SBs is considered the most relevant variable and the results are presented in the text, while panel data models with the dependent variable HHI measured with assets of banks and HHI measured with liabilities of banks are presented in the Appendix. Despite there are only 12 years in the panel, following Baltagi (2005) suggestions, the stationarity is checked because the length of time periods is not the only factor to consider in deciding whether to examine panels stationarity or not, and the models are for level data instead of year differences during a period of changes in banking. While the median concentration decreased in the period, considering the panel of provincial data reveals that the three variables are stationary with a P-value lower than 1% in the test. Therefore, panel data models can be done for the dependent variables at level, and there is no necessity to apply differences.

Additionally, given the limited number of years with available information (only twelve), the Lagrange multiplier test proposed by Breusch and Pagan is executed to ensure that panel models are indeed appropriate in this case and that ordinary regressions can be ruled out. Based on the results of the Hausman test, fixed effects panel models are chosen, indicating no correlation between errors and regressors. The Wooldridge test confirms the presence of first-order autocorrelation, and the modified Wald test for heteroscedasticity

reveals its existence. Consequently, feasible generalised least squares (FGLS) models are constructed to correct the identified heteroscedasticity and autocorrelation.

The FGLS regression allows the estimation of the parameters of a linear regression model with panel data using a variance–covariance matrix that is estimated, as it is unknown. It assumes first-order autocorrelation and corrects for the identified heteroscedasticity. FGLS provides more precise estimates of regression coefficients and their standard errors, which can be useful for hypothesis testing and forecasting. However, the R^2 cannot be used to assess the explanatory power of each model since it encounters difficulties in its calculation, and it is not bounded in the range from zero to the unit. Alternatively, the Wald χ^2 test can be presented to assess the global significance of each model.

Another possibility would be Driscoll–Kraay panel data models. The key feature of the Driscoll–Kraay estimator is that it employs a kernel-weighted average of observations in both the cross-sectional and time-series dimensions. This approach allows for more efficient estimation by giving less weight to observations that are far away in terms of time or cross section, which helps mitigate the effects of heteroscedasticity and autocorrelation. While the Driscoll–Kraay panel data model is widely used and robust for estimating panel data models, its performance in short panels may be limited. In short panels, there may be insufficient data points to effectively capture the dynamics of the relationships between variables, leading to potential issues such as biased estimates, high standard errors and poor model fit. With only 12 years, FGLS seems to be a more suitable option and it is also a standard solution in the literature to deal with autocorrelation and heteroscedasticity due to its flexibility and general applicability.

5. Results

This section sheds light on how the various potential determinants discussed in the previous section influenced the evolution of banking concentration at the provincial level over the period under study, measuring the change in both annual growth rates and differences.

In the first instance the effect of the sector distribution of the economic activity at the provincial level is analysed with the three available variables discussed in section 3.3. These models allow us to understand if the sector distribution at the province level is important for the HHI index and which variable of the three possibilities explains better the banking concentration in that period.

Table 1 shows panel data models that analyse the interplay between the level of bank concentration and the provincial-level sector distribution, with manufacturing as omitted variable to avoid perfect multicollinearity. To provide additional context, Table A1 in the Appendix displays the correlations among the variables. Notably, a pronounced positive correlation exists between the construction and services sectors in terms of employment, while substantial and negative correlations emerge between agriculture and these two sectors. This indicates the potential presence of multicollinearity issues in the models featured in the first column of Table 1, and they are presented primarily only for illustrative purposes.

The same analysis is implemented for assets and liabilities of banks, excluding SBs, in Table A6 in the Appendix as robustness checks. Across all scenarios, irrespective of the variable used to represent sector distribution, a consistent trend emerges: a higher percentage of agricultural activity corresponds to larger levels of banking concentration. In the case of the construction sector, a significant relationship is detected solely when assessing sector distribution based on salaries and measuring concentration through the HHI of bank liabilities and in the remaining cases its effect on banking concentration is equivalent to manufacturing. Provinces characterised by a higher percentage of services

Table 1. Panel data models of the effect of regional sector distribution on HHI level of liabilities of banks and SBs

	% Employment	% GVA	% Labour income
Agriculture	1,809.9***	3,033.9***	1,883.5***
	(253.7)	(305.0)	(330.6)
Construction	929.3	−256.6	−448.6
	(738.3)	(562.3)	(395.7)
Services	−722.7	−135.0	−64.3
	(396.9)	(307.5)	(308.5)
Constant	1,099.2***	1,231.2***	1,377.5***
	(239.8)	(200.4)	(219.0)
Wald χ^2	236.28	124.87	84.30

Note: In the table, coefficients (standard errors in parentheses) represent the estimated effects of the variables.
* Denotes significance at 5%; ** at 1% and *** at 0.1% levels.
Source: Authors' elaboration.

exhibit a higher degree of bank concentration when measured via the HHI of bank assets, although no significant relationship is identified when considering liabilities.

In Table 2 there are panel models that explore individually three variables capturing the provincial-level structure of the financial sector. These variables include the number of financial institutions operating within the region, the number of financial institutions with their headquarters located in the region and the number of bank branches.

Additionally, these variables are also presented on a per capita basis, calculated per million inhabitants. Adopting this per capita approach is necessary because the substantial correlation observed in Table A2 in the Appendix when population is not considered. Furthermore, these variables exhibit notable correlations with the population level of each province. Conversely, when used per capita, only a negative high correlation is found with financial institutions per capita and the population level.

It is observed that a greater presence of financial institutions operating within a province has a detrimental effect on the level of concentration, as assessed across the three variables derived from the balance sheets of these institutions. Similarly, a higher number of financial institutions per capita corresponds to reduced levels of banking concentration. This happens when the HHI is studied with the liabilities of both banks and SBs and with assets and liabilities of banks (models presented in Table A7 in the Appendix).

Likewise, we find that a higher count of financial institution headquarters within a province has an adverse impact on banking concentration. However, when evaluating headquarters per capita, this relationship remains statistically significant only in the case of HHI based on the liabilities of banks and SBs. For the other two dependent variables, the *P*-value slightly exceeds 0.05.

In the context of bank branches, the trend is consistent: a higher number of branches negatively influences provincial-level concentration, regardless of whether the variable is taken as-is or adjusted for population size.

Table 3 presents the panel data models for each of the explanatory variables that were not discussed individually yet: population level, GDP per capita and the percentage of liabilities in SBs. Additionally, in the final column, a comprehensive model that incorporates all potential determinants of bank concentration is provided.

For all three HHI-dependent variables, the findings show that a higher population level has a negative impact on bank concentration, as expected. Furthermore, a higher GDP per

Table 2. Panel data models of the effect of regional bank structure on HHI level of liabilities of banks and SBs

	Fin. institutions	Fin. institutions per capita	Headquarters	Headquarters per capita	Branches	Branches per capita
Coefficient	−14.93***	−3.18***	−29.14***	−17.12***	−0.70***	−1.20***
	(1.27)	(0.59)	(4.32)	(4.37)	(0.13)	(0.16)
Constant	1,879.0***	1,666.1***	1,687.7***	1,725.9***	1,671.6***	1,841.1***
	(35.63)	(53.65)	(48.01)	(41.63)	(38.85)	(33.47)
Wald χ^2	138.24	28.97	45.43	15.34	31.53	56.49

Note: In the table, coefficients (standard errors in parentheses) represent the estimated effects of the variables.
* Denotes significance at 5%; ** at 1% and *** at 0.1% levels.
Source: Authors' elaboration.

Table 3. Panel data models of the effect of the most relevant variables on HHI level of liabilities of banks and SBs

	Population	GDP per capita	% Liabilities in SBs	Complete model
Log population	−526.9***			−421.0***
	(24.7)			(23.7)
Log GDP per capita		−85.9***		−23.1
		(20.6)		(15.3)
% Liabilities in SBs			19.81***	15.33***
			(1.58)	(1.35)
% Labour income agriculture				1,169.6***
				(194.7)
% Labour income construction				−680.4
				(374.4)
% Labour income services				43.3
				(187.6)
Headquarters per capita				−22.79***
				(4.02)
Branches per capita				−0.90***
				(0.15)
Constant	8,593.6***	2,826.9***	860.8***	7,184.7***
	(342.6)	(271.3)	(94.3)	(417.7)
Wald χ^2	454.37	17.39	156.30	742.85

Note: In the table, coefficients (standard errors in parentheses) represent the estimated effects of the variables.
* Denotes significance at 5%; ** at 1% and *** at 0.1% levels.
Source: Authors' elaboration.

capita is associated with lower bank concentration too, whether measured by bank assets, bank liabilities or the liabilities of all financial institutions.

It is important to emphasise the results on the variable "Percentage of Liabilities in SBs". When SBs are not included in the HHI calculation, it exhibits a negative and significant coefficient. However, when SBs are considered, the coefficient becomes positive and remains significant. This phenomenon occurs because a higher share of SBs in the provincial financial market tends to increase concentration, as SBs often have a larger size compared to banks. When concentration is calculated solely based on the bank's balance sheet, excluding SBs, the coefficient turns negative because provinces with a greater share of SBs tend to be less populated[19].

After confirming the individual significance of the potential determinants, a model is constructed to collectively account for the possible determinants for each of the three

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[19] As evidenced in Table A3 in the Appendix, the correlation between the logarithm of the population and the percentage of liabilities in SBs is −0.33.

dependent variables of HHI. It is crucial to ensure that there is no multicollinearity, which is why variables with low intercorrelations are included[20].

To represent the sector distribution, the percentage of salaries is selected as the preferred option because the other two alternatives show a high level of correlation with variables such as the logarithm of the population and the logarithm of GDP per capita.

However, as observed in Table A3 in the Appendix, the percentage of salaries by sectors exhibits low correlations with the other variables, except for the percentage of salaries in the industry, which is omitted from the model.

As mentioned earlier, variables describing the structure of the financial sector at the provincial level must be considered on a per capita basis to avoid high correlations with other model variables. The variable "Financial institutions per capita" is excluded due to its high correlation with the population and GDP per capita.

In the complete model, the significance of the population variable persists irrespective of the variable used to calculate the HHI level (liabilities of banks and SBs in Table 3 and liabilities and assets of banks in Table A8 in the Appendix). A larger population in the province exhibits a negative correlation with banking concentration, whether assessed by bank assets, bank liabilities, or the combined liabilities of banks and SBs. However, GDP per capita is no longer statistically significant for the three dependent variables, despite retaining a negative coefficient in all three instances. The percentage of liabilities in SBs maintains its statistical significance, with the sign of the coefficient previously discussed.

The sector distribution measured with the percentage of the provincial labour income has varying effects on bank concentration, depending on the measurement method. A larger presence of agriculture is consistently associated with higher levels of bank concentration across all three measurement approaches. However, a greater share of services is linked to reduced concentration, but this effect is only significant when measured without the involvement of SBs. On the other hand, the weight of the construction sector has a lower impact on banking concentration than manufacturing, specifically in the case of HHI calculated using bank liabilities.

Ending the analysis of the effect of the most relevant variables on banking concentration, a higher number of headquarters per capita negatively influences banking concentration, except when measured using bank assets where its effect is not significant. Conversely, branches per capita have a significant impact in all three scenarios, as an increased number of branches results in a lower banking concentration.

Furthermore, in addition to quantifying the influence of potential determinants on the level of banking concentration at the provincial level during the 1964–1975 period, it is possible to investigate whether these variables also impact the change in concentration, measured through annual differences in the HHI. It is important to note that the required models are the same as those used for concentration levels (FGLS), with the exception that in this case, no autocorrelation is detected when conducting the Wooldridge test.

The models of annual differences in the HHI are presented in Table A4 in the Appendix. They analyse the effect of the potential determinants on the evolution of banking concentration instead of studying the effect at its level. Models are conducted for individual explanatory variables and in for all of them in a single model, mirroring the approach used in the models for the concentration level. It is worth noting that the Wald χ^2 values are notably smaller in the models for the differences, and, in some cases, certain variables do not reach statistical significance. This is because these variables explain the level of banking concentration in the period under study, but not its evolution during those years.

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[20] In Table A3 in the Appendix, all the variables included in the comprehensive model have correlations of less than 0.5 in absolute value among themselves. Other variables included in Tables A1 and A2 are not in the complete model to avoid potential multicollinearity.

A larger population is associated with an increase in concentration or a slower decrease when measuring the HHI without SBs. In contrast, GDP per capita does not appear to have a significant impact on changes in banking concentration. On the other hand, the percentage of liabilities in SBs is only significant when measuring the HHI using the liabilities of banks and SBs. In this case, a higher share of SBs is linked to increasing banking concentration or leads to a slower decrease. This is due to the notably higher growth of SBs during the period, measured in terms of the liabilities the different entities held in their balances. Also, SBs were bigger than most of the banks with presence in their province, so a higher presence of SBs in a province is related to a positive evolution of the banking concentration.

The influence of sector distribution exhibits substantial disparities for the evolution of the three concentration variables utilised. A greater weight on the construction sector tends to accelerate the decline in concentration more than in provinces with more manufacturing. Moreover, a bigger share of the services could either increase concentration or slow down its decrease less than in the provinces with a higher specialisation in manufacturing.

The influence of financial institution headquarters per capita and bank branches per capita is not statistically significant when measuring concentration based on the combined liabilities of banks and SBs. A higher number of bank branches per capita seems to accelerate the decline in concentration, whereas an increased number of financial institution headquarters per capita tends to either increase concentration or, at the very least, decelerates its decline.

In the panel data models that explain changes in banking concentration over time, an additional variable is introduced, which is not relevant when explaining the initial level of concentration. This variable is a binary variable that includes bank acquisitions. It takes on a value of 1 the year a bank in a specific province with at least 3% of the provincial assets or liabilities acquires another bank with the same constraint in the market share in that province. The list of these acquisitions, which are considered more significant ones, is provided in Table A5 in the Appendix. Notably, in all cases, the acquiring bank was either Bilbao or Central. As expected, this variable is statistically significant in explaining the changes in bank concentration, and it consistently exerts a positive effect.

6. Conclusions

The Francoist authorities believed that introducing competition into the financial system was crucial for the nation's economic growth, leading to significant changes in banking regulations in 1962. Historical analyses of this historical banking period have traditionally centred on the national level. However, during that era, the provincial market was the key arena for banking competition.

The absence of province-level data has been a limiting factor in prior studies. However, currently there is availability of data on private bank balances at the provincial level. The availability of these data facilitates the study of banking concentration in each province from 1964 to 1975. Examining regional banking competition allows for more precise conclusions about the factors influencing concentration in the banking sector.

The role of the SBs has also been considered due to its importance in the financial system, making it necessary to include both banks and SBs to depict faithfully the evolution of banking concentration. Despite competing with private banks in practice, they had not been considered part of the Spanish financial system until the 1962 law.

The HHI is chosen as the structural indicator to measure banking concentration during the study period given its widespread use in market concentration studies, including the banking sector. Market shares are determined using three different variables: total

liabilities of each bank in the province, total assets of each bank in the province and total assets of both banks and SBs operating in the province. Each variable provides insight into different aspects of the banking system's operations.

The study's findings underscore a decrease in banking concentration over the specified period. This is manifested by a decline in the number of provinces exhibiting high banking concentration, coupled with an increase in the provinces characterised by lower concentration levels.

Key determinants that influence the level and evolution of banking concentration during that period include population, GDP per capita, sector production structure and various financial system variables. These variables include the number of branches, the number of different financial entities within a province, the count of headquarters and the participation of SBs in each province.

To address the identified issues of heteroscedasticity and autocorrelation, we construct models using FGLS. These models reveal that a larger population in the province is linked to lower banking concentration and a slower decrease in concentration over the period. Higher GDP per capita is correlated with lower banking concentration, in line with the hypotheses and previous findings in the literature. However, this relationship lacks statistical significance in models that incorporate all the tested determinants. The analysis of sector distribution unveils a consistent association, wherein a higher percentage of agricultural activity is linked to higher levels of banking concentration. The effect of services and construction is not statistically different from the effect of manufacturing in all cases tested.

A heightened presence of financial institutions and bank branches within a province is inversely correlated with banking concentration, as expected and in accordance with the expectations and the findings in the literature. After adjusting these variables for population size (per capita), the trend remains consistent. A higher number of financial institution headquarters within a province also has an adverse impact on banking concentration.

The impact of SBs on banking concentration varies depending on their inclusion in the HHI calculation. When SBs are excluded, a higher percentage of SB liabilities is associated with a reduced banking concentration. However, when SBs are included, the coefficient becomes positive, as SBs tend to increase concentration in provinces because most of them are larger than the average bank. This highlights the importance of introducing all the financial entities to study banking concentration.

Finally, the introduction of a binary variable representing major bank acquisitions consistently shows a positive impact on changes in banking concentration during the relevant occurrences. Acquisitions increase banking concentration as expected. However, during the period under study bank takeovers did not have a permanent large enough effect to be significant in the models, and these corporate buyouts only had a significant effect the year they took place.

Financial institutions were subject to managerial decisions than involved agreements among the biggest banks and smaller local and regional ones (Tortella and García Ruíz, 2013). These agreements probably had great importance in the expansion of banks during the period, but they are not included due to the lack of evidence of the complete network of agreements among the banks and its evolution during the period under study. However, its inclusion would increase the explanatory power of the models and it is a research focus that should be explored in future extensions of this study.

This research, by considering the main financial institutions of the period (private banking and SBs) and using real data from provincial banking markets, provides a better understanding of the functioning of this sector during Franco's regime. It also allows us to link with more recent works that analyse the regional dimension of the banking market in

Spain, such as those of Fernández de Guevara and Maudos (2009), Maudos (2016) and Cruz-García *et al.* (2018). This provides a long-term view of this sector from a regional perspective.

After characterising the reasons behind the levels of provincial banking concentration during the years of Spanish developmentalism (1964–1975), future work should examine the role played by financial institutions in this development. In other words, to what extent the decrease in concentration might suggest greater competition even though interest rates were fixed by the authority. This might have contributed to greater regional development.

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Appendix

Table A1. Correlation between regional sector distribution variables

	% Employment agriculture	% Employment construction	% Employment services	% Labour inc. agriculture	% Labour inc. construction	% Labour inc. services	% GVA agriculture	% GVA construction	% GVA services
% Employment agriculture	1								
% Employment construction	−0.63	1							
% Employment services	−0.78	0.69	1						
% Labour inc. agriculture	*0.53*	−0.29	−0.29	1					
% Labour inc. construction	0.19	*0.48*	−0.01	−0.11	1				
% Labour inc. services	0.17	0.09	*0.35*	−0.16	0.30	1			
% GVA agriculture	*0.86*	−0.59	−0.69	*0.60*	0.08	0.04	1		
% GVA construction	0.09	*0.55*	0.14	0.12	*0.70*	0.22	−0.08	1	
% GVA services	−0.22	0.31	*0.68*	0.09	0.04	*0.62*	−0.31	0.23	1

Note: The correlations between the same sector percentage measured with different variables marked in bold and italics.
Source: Authors' elaboration.

Table A2. Correlation between regional bank structure variables

	Log population	Log GDP pc	Fin. institutions	Fin. institutions pc	Headquarters	Headquarters pc	Branches	Branches pc
Log population	1							
Log GDP pc	0.25	1						
Financial institutions	0.75	0.53	1					
Financial institutions pc	−0.69	0.25	−0.13	1				
Headquarters	0.69	0.37	0.88	−0.24	1			
Headquarters pc	−0.22	0.20	0.11	0.48	0.28	1		
Branches	0.76	0.44	0.93	−0.28	0.84	0.01	1	
Branches pc	−0.10	0.36	0.28	0.55	0.04	0.21	0.25	1

Source: Authors' elaboration.

Table A3. Correlation between variables included in the complete model

	Log population	Log GDP pc	% Labour inc. agriculture	% Labour inc. industry	% Labour inc. construction	% Labour inc. services	% Liabilities in SBs	Headquarters pc	Branches pc
Log population	1								
Log GDP pc	0.25	1							
% Labour inc. agriculture	−0.03	−0.43	1						
% Labour inc. industry	0.12	0.52	−0.62	1					
% Labour inc. construction	−0.22	0.04	−0.11	−0.39	1				
% Labour inc. services	−0.05	−0.08	−0.16	−0.63	0.30	1			
% Liabilities in SBs	−0.33	0.21	−0.28	0.20	0.14	−0.05	1		
Headquarters pc	−0.22	0.20	−0.28	0.20	−0.07	0.06	0.27	1	
Branches pc	−0.10	0.36	−0.43	0.32	0.09	−0.03	0.33	0.21	1

Source: Authors' elaboration.

Table A4. Panel data models of the effect of the most relevant variables on HHI annual difference

	Population	GDP per capita	% Liabilities in SBs	% Labour income	Headquarters per capita	Branches per capita	Acquisitions	Complete model
Dependent variable: HHI assets banks								
Log population	16.37**							20.94**
	(4.81)							(7.54)
Log GDP per capita		25.18*						−18.71
		(12.90)						(22.06)
% Liabilities in SBs			−0.51					0.13
			(0.32)					(0.46)
% Labour income agriculture				−94.14				2.37
				(57.14)				(92.15)
% Labour income construction				−294.29*				−109.8
				(149.49)				(167.9)
% Labour income services				143.05*				125.96
				(62.36)				(68.66)
Headquarters per capita					0.14			0.93
					(1.32)			(1.64)
Branches per capita						0.09		0.197
						(0.09)		(0.114)
Acquisitions							330.88***	335.53***
							(40.05)	(39.65)

Constant	−269.99***	−372.52*	−32.01**	−70.04*	−50.99***	−63.09***	−56.08***	−171.6
	(65.34)	(172.40)	(11.48)	(33.38)	(9.17)	(13.55)	(4.47)	(280.9)
Wald χ^2	11.55	3.51	2.53	10.59	0.01	1.03	68.23	91.82
Dependent variable: HHI liabilities banks								
Log population	9.41**							11.83**
	2.73							4.03
Log GDP per capita		6.14						−6.17
		6.70						10.41
% Liabilities in SBs			−0.135					0.266
			0.190					0.237
% Labour income agriculture				−56.51*				−4.97
				27.37				41.32
% Labour income construction				−415.09***				−227.73*
				92.51				105.54
% Labour income services				65.91*				66.75
				29.63				38.71
Headquarters per capita					0.700			0.948
					0.755			0.881
Branches per capita						−0.024		−0.014
						0.054		0.064
Acquisitions							264.53***	262.69***
							19.50	19.87
Constant	−174.24***	−128.65	−43.11***	−18.17	−52.04***	−43.87***	−52.90***	−143.18
	37.23	88.99	6.36	18.51	5.16	7.73	2.51	130.03

(Continued)

Table A4. (*Continued.*)

	Population	GDP per capita	% Liabilities in SBs	% Labour income	Headquarters per capita	Branches per capita	Acquisitions	Complete model
Wald χ^2	11.83	0.84	0.51	30.12	0.86	0.21	183.91	204.96
Dependent variable: HHI liabilities banks and SBs								
Log population	−3.87							6.20
	2.42							3.56
Log GDP per capita		−9.66						−16.61
		5.52						10.10
% Liabilities in SBs			1.371***					1.764***
			0.184					0.219
% Labour income agriculture				−29.55				−9.12
				23.74				36.30
% Labour income construction				−127.56				−117.93
				84.50				91.85
% Labour income services				13.96				78.71
				23.47				32.34
Headquarters per capita					1.392*			1.343*
					0.552			0.671
Branches per capita						−0.052		−0.153**
						0.046		0.056
Acquisitions							125.83***	128.81***
							16.04	15.95

Constant	29.77	106.11	−66.01***	−9.43	−32.28***	−15.60*	−24.62***	47.70
	32.93	73.64	5.97	14.88	4.13	6.53	1.71	127.63
Wald χ^2	2.56	3.06	55.09	4.56	6.35	1.27	61.51	148.77

Note: In the table, coefficients (standard errors in parentheses) represent the estimated effects of the variables.

* Denotes significance at 5%; ** at 1% and *** at 0.1% levels.

Source: Authors' elaboration.

Table A5. Most significant acquisitions of banks during 1964–1975 for the level of banking concentration at province level

Year	Acquirer bank	Acquiree bank	Province	Acquirer (%)		Acquiree (%)	
				Assets	Liab.	Assets	Liab.
1970	Bilbao	Banco Asturiano de Industria y Comercio	Asturias	16.1	10.2	5.3	3.5
		Banco Castellano	Palencia	9.5	6.0	12.7	9.9
			Valladolid	21.6	22.6	4.0	8.1
			Zamora	7.9	8.7	13.5	13.5
		Banco de La Coruña	La Coruña	18.7	4.0	19.6	4.6
			Pontevedra	11.4	8.0	10.7	5.2
1969	Central	Banco de Tolosa	Guipúzcoa	4.4	2.4	3.9	4.7
1970		Banco de Aragón	Guadalajara	10.1	6.9	15.7	16.5
			Huesca	24.5	31.3	13.2	19.0
			Lérida	17.9	8.4	12.5	28.9
			Teruel	37.8	18.8	19.9	27.2
			Zaragoza	16.7	12.3	8.0	14.3
1971		Banco de Canarias	Las Palmas	7.1	10.2	5.6	7.1

Note: The percentage of assets and liabilities correspond to the year prior to the acquisition.
Source: Authors' elaboration.

Table A6. Panel data models of the effect of regional sector distribution on HHI level (without SBs)

	% Employment	% GVA	% Labour income
Dependent variable: HHI assets banks			
Agriculture	1,916.0***	5,308.0***	3,562.6***
	(352.6)	(460.1)	(365.4)
Construction	−1,544.4	−33.4	−421.3
	(1,361.8)	(1,034.8)	(571.1)
Services	−1,347.6**	651.6	−885.3*
	(518.3)	(433.8)	(384.1)
Constant	1,586.6***	558.0*	1,674.4***
	(322.5)	(282.9)	(234.8)
Wald χ^2	274.94	143.71	135.04
Dependent variable: HHI liabilities banks			
Agriculture	2,387.8***	5,571.7***	3,405.9***
	(252.5)	(310.9)	(361.8)
Construction	−470.1	87.3	−1,212.5**
	(894.8)	(673.4)	(462.0)
Services	−1,236.5**	18.7	−653.2
	(378.2)	(323.0)	(352.6)
Constant	1,282.0***	822.1***	1,638.1***
	(237.0)	(206.3)	(242.4)
Wald χ^2	609.17	369.06	229.61

Note: In the table, coefficients (standard errors in parentheses) represent the estimated effects of the variables.
* Denotes significance at 5%; ** at 1% and *** at 0.1% levels.
Source: Authors' elaboration.

Table A7. Panel data models of the effect of regional bank structure on HHI level (without SBs)

	Fin. institutions	Fin. institutions per capita	Headquarters	Headquarters per capita	Branches	Branches per capita
Dependent variable: HHI assets banks						
Coefficient	−22.21***	−7.04***	−29.63***	−14.06	−1.04***	−2.38***
	(1.93)	(1.15)	(5.53)	(8.67)	(0.21)	(0.30)
Constant	2,027.4***	1,859.2***	1,710.9***	1,677.5***	1,711.6***	2,028.5***
	(54.92)	(64.88)	(62.68)	(75.88)	(54.32)	(56.93)
Wald χ^2	132.24	37.17	28.65	2.63	25.55	64.57
Dependent variable: HHI liabilities banks						
Coefficient	−25.38***	−7.05***	−28.04***	−10.73	−0.89***	−2.32***
	(1.49)	(0.64)	(4.78)	(6.00)	(0.14)	(0.21)
Constant	2,103.5***	1,801.7***	1,690.8***	1,505.1***	1,668.6***	2,046.0***
	(37.08)	(78.12)	(62.02)	(190.32)	(60.17)	(41.43)
Wald χ^2	287.18	123.22	34.31	3.20	40.42	121.8

Note: In the table, coefficients (standard errors in parentheses) represent the estimated effects of the variables.
* Denotes significance at 5%; ** at 1% and *** at 0.1% levels.
Source: Authors' elaboration.

Table A8. Panel data models of the effect of the most relevant variables on HHI level (without SBs)

	Population	GDP per capita	% Liabilities in SBs	Complete model
Dependent variable: HHI assets banks				
Log population	−465.8***			−410.6***
	(54.0)			(33.4)
Log GDP per capita		−240.6***		−22.3
		(42.1)		(30.2)
% Liabilities in SBs			−15.06***	−5.18*
			(2.93)	(2.05)
% Labour income agriculture				2,455.1***
				(353.5)
% Labour income construction				−839.5
				(534.1)
% Labour income services				−569.8*
				(282.5)
Headquarters per capita				7.65
				(6.20)
Branches per capita				−1.05***
				(0.26)
Constant	7,756.9***	4,875.8***	2,116.7***	7,733.7***
	(734.9)	(557.7)	(111.5)	(666.1)
Wald χ^2	74.40	32.67	26.36	491.40
Dependent variable: HHI liabilities banks				
Log population	−573.1***			−485.0***
	(60.4)			(29.2)
Log GDP per capita		−173.9***		−13.4
		(27.8)		(12.9)
% Liabilities in SBs			−10.66***	−4.26**
			(2.06)	(1.56)
% Labour income agriculture				1,754.3***
				(260.3)
% Labour income Construction				−1,158.9**
				(425.1)
% Labour income services				−671.9**
				(236.3)

(Continued)

Table A8. (*Continued.*)

	Population	GDP per capita	% Liabilities in SBs	Complete model
Headquarters per capita				−16.66**
				(4.82)
Branches per capita				−1.20***
				(0.18)
Constant	9,193.6***	3,998.1***	1,910.4***	8,894.1***
	(838.4)	(367.6)	(95.8)	(499.6)
Wald χ^2	90.00	39.00	26.56	657.15

Note: In the table, coefficients (standard errors in parentheses) represent the estimated effects of the variables.
* Denotes significance at 5%; ** at 1% and *** at 0.1% levels.
Source: Authors' elaboration.

Table A9. Evolution of entities and branches of banks and SBs

	SBs			Banks		
	Entities	Branches		Entities	Branches	
Year	Number	Number	Annual growth (%)	Number	Number	Annual growth (%)
1964	83	3,157		116	2,758	
1965	85	3,425	8.5	124	2,954	7.1
1966	85	3,795	10.8	124	3,395	14.9
1967	86	4,194	10.5	122	3,666	8.0
1968	87	4,530	8.0	118	3,849	5.0
1969	87	4,804	6.0	116	4,054	5.3
1970	87	5,152	7.2	109	4,274	5.4
1971	87	5,359	4.0	105	4,418	3.4
1972	87	5,558	3.7	104	4,887	10.6
1973	87	6,123	10.2	107	5,392	10.3
1974	87	6,169	0.8	106	5,606	4.0
1975	88	6,365	3.2	109	7,559	34.8
Average growth	*0.5%*	*6.6%*		*−0.6%*	*9.6%*	

Source: Authors' elaboration.

Figure A1. Evolution of the average HHI at the province level in 1964–1975.
Source: Authors' elaboration.