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Does local credit matter? The Spanish case

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Abstract

This paper investigates the relationship between financial development and economic growth, using data from Spanish provinces during a period marked by significant financial events: banking deregulation (1988), a credit and housing boom (2001–2007), and a severe banking crisis (2008–2012). The study pursues three key objectives. First, it examines the impact of credit—distinct from the broader financial environment and institutional infrastructure (e.g., property rights enforcement, accounting standards)—on long-term real per capita GDP growth. Second, it analyzes whether this effect diminishes as the level of credit increases. Third, it evaluates the role of mortgage lending in shaping long-term growth.

Our findings indicate that credit exerts a positive influence on both five- and ten-year cumulative growth rates, independent of the broader financial environment, which is largely homogeneous across provinces.At the same time, we observe that the marginal contribution of credit to long-term growth declines as credit levels rise.Despite this diminishing marginal effect, we find no evidence of a "too much of a good thing" effect as: higher credit-to-GDP ratios continue to exert a consistently positive impact. Finally, regarding mortgage credit, we do not find any positive effect of this variable on long-term growth.

1 Introduction

Since the seminal works of Goldsmith (1969) and King and Levine (1993) exploring the relationship between financial development and economic growth, the literature on this subject has been enriched in different ways. New refinements in measuring financial development had appear, additional relevant explanatory variables have been incorporated, and a deeper focus on the financial environment— that accounts for investor protection, contract enforcement, accounting standards, corporate disclosure rules, and auditing requirements— has been taken into account. Furthermore, studies have identified possible non-linearities in this relationship, suggesting the existence of a "too much of a good thing" effect for sufficiently high values of the credit-to-GDP ratio.

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In this rich context, exploring the impact of the availability of loanable funds within a single country the legal, institutional and financial environment is the same for each province can provide a clearer understanding of whether the availability of funds *per se* influences long term growth.. Focusing on a single country offers several advantages, as noted by Guiso et al. (2004a, 2004b). On the one hand, as mentioned, the legal and regulatory framework [1] remains consistent across provinces (though enforcement may vary, as suggested by Jappelli et al., 2005). On the other hand, the country set up reduces the number of external factors such as trade, government expenditure, openness, exchange rate volatility, and inflation, affecting growth and interacting with financial development. Also, the single country approach reduces concerns about difference in banking competition across countries, as banks compete at the national level. Last, but not least, statistical data is homogeneous and consistent.

This study aims to address three core questions:

1. What is the impact of private credit on economic growth at the regional level?
2. Is there "too much of a good thing"? Specifically, is the relationship between credit and growth non-linear, as argued by Arcand et al. (2015) and Cecchetti and Kharroubi (2012)?
3. Is there a specific impact of mortgage loans on long-term growth?

Our results yield several noteworthy insights:

1. Increases in the credit-to-GDP ratio are positively correlated with the cumulative five-year growth rate of real GDP per capita. This occurs independently of the financial environment which is broadly the same for all provinces.
2. While we do find strong evidence of diminishing marginal returns to credit on long-term growth, we reject the "too much credit" hypothesis posited by Arcand et al. (2015) and Cecchetti and Kharroubi (2012, 2019). The levels at which the credit-to-GDP ratio would begin to negatively affect growth are in the range of 300% to 400%, far exceeding the 80% to 100% thresholds identified by Arcand et al. (2015).
3. Finally, when mortgage credit is excluded from total credit, our results indicate that the positive impact of credit on growth is driven entirely by non-mortgage lending

In sum, this study sheds light on the nuanced relationship between financial development and economic growth, emphasizing the importance of credit allocation and the broader economic environment in shaping these dynamics.

2 The Financial Development-Growth Puzzle

Given the extensive body of literature examining the relationship between financial development and economic growth, our focus here is to highlight the key contributions most relevant to our analysis[2].

[1] Although the financial framework has evolved, with the introduction of Basel II and III, all changes in regulation affect the Spanish provinces equally, so that the legal and regulatory framework is irrelevant for the identification of the link between financial development and growth. Thus, it is possible to identify the "pure" effect of the volume of loanable funds, since the financial environment is the same in every province.

[2] See Levine (1997) and Levine (2005). Valickova et al., 2015 analyze 1334 estimates from 67 studies

From a theoretical perspective, the standard neoclassical framework suggests that financial development, by reducing market imperfections, enhances capital allocation and thereby fosters economic growth. Pagano (1993) and Levine (2002) identify five primary channels through which financial development promotes growth: (i) providing ex-ante information on investment opportunities, (ii) monitoring investments, (iii) improving risk management, (iv) mobilizing savings, and (v) facilitating the exchange of goods and services. Contrasting this view, the literature on financial bubbles highlights the inefficiencies caused by excessive investment (Diamond, 1965; Tirole, 2016), emphasizing the need for further evaluation of the complex dynamics between credit, investment, and growth.

The seminal works of King and Levine (1993), corroborated through alternative methodologies by Rajan and Zingales (1998), demonstrate that financial development is a key determinant of long-term economic growth. Numerous subsequent studies, employing diverse measures of financial development and data sets, have reinforced this finding.

In cross-country studies, evidence consistently supports the positive impact of financial infrastructure on economic growth. Foundational works by La Porta et al. (1997, 1998, 1999), Levine et al. (2000), Qian and Strahan (2007), Houston et al. (2010), and Bae and Goyal (2009) emphasize the role of investor protection, while Rajan and Zingales (1998) and Levine (2000) highlight the importance of rigorous accounting standards. Broader institutional factors, such as contract enforcement and social capital, have also been shown to promote growth indirectly by strengthening financial development (Guiso et al., 2004; Jappelli et al., 2005; Bae and Goyal, 2009; Mora-Sanguinetti et al., 2017).

The mechanisms linking financial development to growth are multifaceted. Banking theory points to two critical roles: increasing the availability of capital and improving its allocation by mitigating financial market imperfections. Empirical findings, however, underscore the predominant role of capital allocation, with studies showing that financial development significantly drives total factor productivity (TFP) growth (Beck et al., 2000; Levine, 2000).

While there is substantial evidence supporting the positive impact of financial development on growth, ambiguities remain regarding its definition. For instance, financial development may refer to accounting standards, legal enforcement, investor protection, or simply the volume of loanable funds. This ambiguity motivates our research: even if the development of institutional, legal, and regulatory frameworks is crucial for economic growth, does the availability of credit itself exert an independent effect?

A second motivation for this study arises from the recognized limitations of cross-country analyses. These include:

The complexity of accounting for all potential growth determinants.

Imperfections in the measurement of financial development.

The significant heterogeneity across countries, which can obscure underlying relationships.

Favara (2003) highlights substantial variability in the effects of financial development on growth, while Ciccone and Jarociński (2010), Durlauf et al. (2005), and Durlauf and Quah (1999) caution against overgeneralizing findings from cross-country studies. Although the difficulties may be reduced by considering geographically homogeneous regions rather than countries (Hassan et al. 2011), the issue still remains These challenges underscore the importance of complementary approaches.

Analyzing the relationship between credit and growth within a single country offers several advantages. First, it reduces the number of confounding growth determinants by holding institutional, legal, and regulatory frameworks constant. Second, it allows us to address reverse causation by ex-

amining proxies for banks' expectations of credit growth. Finally, it minimizes heterogeneity by controlling for macroeconomic factors such as exchange rate volatility, interest rates, and monetary policy.

Despite broad support for the positive relationship between credit and growth, several studies have raised important challenges. De Gregorio and Guidotti (1995) and Rousseau and Wachtel (2011) argue that while financial development spurred growth prior to the 1970s, its impact has diminished in subsequent decades. Similarly, Cecchetti and Kharroubi (2012) propose that there may be "too much of a good thing," with Arcand et al. (2015) identifying a threshold where private sector credit exceeding 100% of GDP begins to impede growth[3]. This effect became particularly apparent when data from the 2008 financial crisis were included in empirical analyses.

Moreover, evidence of discontinuities in the effectiveness of financial development has been highlighted by Deidda and Fattouh (2002) and Aghion et al. (2005, 2009), who identify thresholds where financial development's impact shifts. The concept of a "finance curse" has even been proposed, suggesting that an oversized financial sector can harm economic growth (De Gregorio and Guidotti, 1995, for 1970–85). Finally, critiques of the "one-size-fits-all" approach (Arestis and Demetriades, 1997; Arestis et al., 2001) argue for more context-specific analyses.

Thus, by focusing on a single country, this study aims to address many of the limitations inherent in cross-country analyses. It also provides an opportunity to examine the "too much of a good thing" hypothesis in a more controlled setting, shedding light on the nuanced dynamics between financial development and economic growth.

3 Data and Methodology

3.1 The Spanish Macrofinancial Context

We analyze long-term real GDP per capita growth across Spain's 50 provinces using annual data from 1983 to 2023. This period spans markedly different macro-financial environments that must be taken into account.

First, through the period 1983 to 2020 the financial environment, in particular banking regulation, was completely reshaped. Basically, until 1994 the banking industry was heavily regulated, with state owned banks, regulatory limits on competition, subsidized lending, and directed credits. After 1994, however, the regulatory framework was brought into line with European guidelines. As a result, over this period the Spanish financial sector transitioned from a heavily regulated industry to a more competitive, market-oriented system.

Key liberalizing reforms followed in rapid succession once Spain entered the European Community on January 1st 1986. In 1987, interest rate caps on bank deposits were abolished; a unified supervisory framework for all credit institutions, significantly expanding the regulatory powers of the Banco de España was established and the mandatory "investment coefficient," which

[3]Theoretical explanations for the negative impacts of excessive financial development include:

- The cyclical decline in banks' credit standards during booms, reducing the quality of their screening processes (Ruckes, 2003).
- The excessive reallocation of talent toward the financial sector due to high rents, diverting resources from other productive sectors (Tobin, 1984; Bolton et al., 2011; Kneer, 2013).
- The crowding out of business loans by household loans, which stifles firm innovation and slows TFP growth (Mian and Sufi, 2009; Mian et al., 2017).

had required banks to hold low-yield government bonds, was eliminated. A crucial milestone was the implementation of the Second Banking Coordination Directive (89/646/EEC) through Law 3/1994. This legislation introduced the concept of a "single banking license" (or passport), allowing credit institutions licensed in other EU Member States to establish branches in Spain. The law also standardized the regulatory treatment of all deposit-taking institutions—including commercial banks, savings banks (cajas de ahorro), cooperative banks, and specialized credit institutions—while strengthening disclosure and transparency requirements. Thus, it was only after 1994 that the financial environment enabled the emergence of an efficient and competitive banking system.

Second, regarding the major macroeconomic characteristics of this period, it is worth emphasizing the rapid decrease in inflation rates marked by a steady decline—from 15.6% in 1980 to just 2% by 1997—potentially shifting banks' primary source of profitability from deposit-taking toward credit provision.

Also, the 2000–2007 period witnessed the build-up of a real estate bubble. Real estate prices grew at an average annual rate of 15% between 2002 and 2006, accompanied by a sharp rise in the share of mortgages within total private credit. Credit standards were notably lax, fueled by the aggressive lending practices of the "Cajas de Ahorros" (Savings Banks), whose poor governance led to excessive lending, particularly in regions where they previously had little presence. Economic growth during this phase, averaging 3.49% annually (2002–2006), outpaced the European average but was driven by factor accumulation rather than productivity gains. The influx of immigration and negative total factor productivity (TFP)—a result of declining allocative efficiency across firms (García Santana et al., 2016)—were prominent features of this period, further exacerbated by negative real interest rates.

Finally, the 2008–2012 phase marked the bursting of the real estate bubble and the onset of a deep banking crisis. Real estate prices fell at an average annual rate of -6%, while GDP contracted by -1.8% per year.

To account for these distinct macroeconomic phases, our analysis will introduce the corresponding dummy variables.

Figure 1 illustrates the time dimension of both the national growth and the cross-province average of credit to GDP. During the period under study, private credit went from 40% to 140% of GDP while the 5 years per capita GDP growth that was above 10% before 2000 declined and reached negative values after the banking crisis.

3.2 Empirical Approach

Our objective will be, first, to estimate a growth model augmented for financial development:

$$G_{it} = \alpha_i + \beta F_{it} + \gamma X_{it} + \delta_t + \mu_i + \varepsilon_{it} \tag{1}$$

where i and t denote province and time subscripts; G represents a measure of economic economic growth, F represents a measure of financial development; X is a vector of control variables accounting for other factors considered important in the growth process; δ_t captures a common time-specific effect; δ_i denotes an unobserved province-specific effect; and ε_{it} is an error term. The above equation corresponds to a panel data setting.

To analyze the impact of the two main episodes affecting the allocation of credit we will introduce three dummies and its interaction with the financial development variable:

$$G_{it} = \alpha_i + \alpha_{2i}\xi + \beta_3 \xi * F_{it} + \gamma X_{it} + \delta_t + \mu_i + \varepsilon_{it} \tag{2}$$

where the dummy ξ covers either the banking deregulation period, bubble building years (2002-2007) or the crisis years.

To identify whether the marginal impact of credit is decreasing, we follow the standard literature by hypothesizing that growth is a quadratic concave function of financial development.

$$G_{it} = \alpha_i + \beta F_{it} + \beta_2 (F_{it})^2 + \gamma X_{it} + \delta_t + \mu_i + \varepsilon_{it} \tag{3}$$

The two approaches would be perfectly suited to a world of homogeneous provinces, but it could also be the case that provinces differ in some characteristics, observable or not, that are related to the impact of financial development on economic growth. One may think of the extent of the real estate bubble, the level of credit or the existence of a large city in the province. To control for other possible sources of heterogeneity, we perform a cluster analysis on the ratio of credit to GDP and identify two more homogeneous subsets of provinces and run the regression on the two subsets:

$$G_{itJ} = \alpha_{iJ} + \beta_J F_{it} + \beta_{2J} (F_{it})^2 + \gamma_J X_{it} + \delta_t + \mu_i + \varepsilon_{it} \qquad J = L, H \tag{4}$$

We use the dynamic panel data estimation procedure of Arellano-Bover in order to estimate the different equations.

Regarding our measure of financial development at the provincial level, the legal dimension cannot be used, as it is the same all over Spain. The most natural measure will be based on the amount of outstanding loans. Other measures could be based on branches as a measure of banks' strategy to supply their services reflecting their expectations of the demand for credit at the provincial level.

3.3 Measuring financial development, growth, and its sources

We use data on Spanish provinces' for various indicators and characteristics from 1983 to 2020 from Instituto Nacional de Estadistica (INE), the official Spanish Statistics Institute and from the Bank of Spain for financial data (also at a province level). Unfortunately some of our controls are only available for part of the sample period: mortgage ratios are only available from 1994 and judicial inefficiency from 2001.

We mainly focus on the five years cumulative growth rate of real GDP per capita, as in Cecchetti and Kharroubi (2012). Namely, the long run rate of growth at time t, is measured by the ratio of the real GDP per capita at time $t+5$ ($t+10$ for the ten years growth rate) and its value at time t minus 1. This implies that our explanatory variables cover the 1983-2015 time span (1983-2010 for the ten years growth rate).

Regarding the indicators of financial development, a number of variables that explain cross country differences become irrelevant in the one country set up. This is the case, as mentioned, for all measures associated with the legal and regulatory environment, as it is the same across the different provinces. Also, measures of the depth of market finance are irrelevant at the province level, as security markets are centralized. As a consequence, we use the ratio of credit to the non-financial private sector from depository institutions to GDP, as in Levine(1998), which is quite close to the measure used by Beck et al. (2000)[4]. We use the one year ratio of credit to the non-financial private sector from depository institutions to GDP as explanatory variable, a difference

[4]Beck et al (2000) include in their measure credit by other specialized financial institutions (non-banks) which is not available at the province level. Still, since the share of these institutions in the total national aggregate is small ,(it was 3,63% in 2019), the lack of data on credit granted by specialized financial institutions does not seem to be a major concern.

with Cecchetti and Kharroubi (2012b) who use the five years credit-to-GDP ratio. We do not consider growth volatility directly, an aspect considered in Easterly et al. (2000), but identify the dependency of each province growth on national growth which, at the one country level will be the main determinant of the province's growth volatility.

A second important financial variable is of interest in our analysis of the impact of mortgage lending, that we measure it by the ratio of yearly granted mortgages to GDP. Its impact on long term growth will allow us to contrast our results with the conclusions of Mian and Sufi (2009) and Mian et al. (2017).

We follow the literature main stream in the choice of the controls affecting long term real per capita GDP growth and consider population growth, education and social capital. Still, in the one country case, the main determinant of each province growth will be the national growth, which has no equivalent in the cross-country analyses. We measure social capital by constructing a measure of the turnout at different elections (parliament, regional and municipal) per province and linear interpolation in case no election took place in a particular year.

The different variables are listed in Table 1 where we refer to the sources we have used. The descriptive statistics are presented in Table 2

4 Empirical Results

4.1 The Basic Model

Our findings clearly demonstrate the significant impact of the credit-to-GDP ratio on the five-year cumulative growth rate of real GDP per capita.

As a starting point, we analyze the data using panel regressions with province fixed effects and clustered standard errors. In the absence of any control variables, the findings in column 1 of Table 3, show that the coefficient for the credit-to-GDP variable is negative and significant at the 1% level, thus contradicting the standard results. This result, however, could result from the combined effects of high growth and low credit in the initial years of our sample which is inverted in the following ones. More specifically, Figure 1 shows the evolution of the two variables at the national level. Their correlation of -0.74 implies the credit to GDP ratio may proxy for the GDP per capita growth.

The results reported in columns (2) to (8) of Table 3 underscore the importance of introducing the five-year national growth as a control variable which triggers a reversal in the sign of the private credit coefficient. Column 2 results show, unsurprisingly, that a primary driver of provincial five-year growth rates is the five-year growth rate at the national level. Once we introduce in addition to the lagged 5 years rate of growth for the GDP per capita both the credit-to-GDP ratio and the national five-year growth rate, both are significant at the 1% level. In column 3, we add three additional control variables: (1) the financial development dummy, (2) population growth and (3) election turnover, all of which are significant . Based on column 3 model, a one standard deviation increase in the credit to GDP ratio raises the cumulative five-year real GDP per capita growth rate by 3,5%, equivalent to an annual growth rate increase of 0.69%. This effect is therefore both statistically and economically meaningful even in the absence of the dynamic impact of such an increase.

This implies that, in addition to the decrease in growth that is already reflected in the 5 years National Growth variable there is an additional specific impact of the banking crisis. Notice, though,

that once we introduce these additional controls we observe that the population growth variable is not significant any longer, possibly reflecting cycle related migration movements.

4.2 Bubble Building and the Spanish Crisis

Table 3 columns 4 and 5 highlight the significant impact of the financial crisis and its interaction with private credit on provincial growth.

Both the crisis dummy and its interaction with private credit are statistically significant. Since part of the crisis's effect is already reflected by national growth, the statistical significance of the crisis dummy suggests that the crisis exerted an additional, province-specific impact. This additional effects explains the positive sign of the crisis dummy coefficient which, in the absence of the national growth variable, would have been paradoxical.

The interaction term provides further insight: its negative and significant coefficient points to a financial accelerator mechanism, whereby the banking crisis amplified adverse growth effects across provinces. In particular, the results indicate that provinces with lower levels of private credit experienced the sharpest contractions during the crisis, a result similar to the one obtained by Aghion et al. (2009).

Turning to the bubble-building period preceding the crisis, column 6 shows that the bubble dummy coefficient is negative, which implies an adjustment with regard to the effects of national growth. However, when the bubble dummy and its interaction with private credit are included together (column 7), both become significant and the sign of the bubble dummy turns positive, while the interaction term is negative. This suggests that during the bubble period, provinces with lower levels of private credit were the main losers.

Finally, in column 8, all controls are introduced simultaneously, and the significance of the coefficients is preserved with only minor changes in their values. This allows us to quantify the marginal impact of an increase in the credit-to-GDP ratio. For a given province, an increase in the credit-to-GDP ratio equal to the standard deviation (0.3804) would result in a five-year cumulative growth rate increase of 3.78%, corresponding to an annual growth rate increase of 0.74%.

The Hausman test for the eight different models indicates that fixed effects (FE) model is more accurate, as it takes into account unobserved heterogeneity across provinces.

The estimated fixed effects (μ_i) capture province-specific, time-invariant unobserved characteristics that represent each province's contribution to the expected value of D5 growth. These fixed effects reflect persistent structural features—such as capital city status, long-standing specialization in tourism, or the presence of superior infrastructure—that remain constant over time and differentiate provinces in a stable manner.

Figure 2 shows the inverse relationship between province average Private Credit and its fixed effects estimates, implying that provinces with a lower average Private Credit have a higher fixed effect estimate representing an additional contribution to expected D5 Growth.

4.3 Correcting for endogeneity

As it is well known, a panel data regression with lagged dependent variable yields endogeneity problems that produces biased estimators. However, our time series consisting of 33 years is sufficiently long, it reduces the biased making the ranking of μ_i (fixed effects) informative. whenever lagged dependence variables.

A second, even more far-reaching issue in our context is the bias due to the inverse causality, as credit may be affected by growth.

Because of these possible biases, it is important to corroborate our results by using the Arellano–Bover / Blundell–Bond System GMM estimator, which combines equations in differences and in levels to correct these biases through the use of internal instruments. This approach makes more efficient use of the available information and yields consistent and more precise estimates.

Table 4 shows the corresponding results. With the exception of the Turnover variable there is no major difference in the significance of the different variables. The coefficient of the Private Credit variables increases in the Arellano-Bover estimation and produces a much more stable coefficient across models: once the 5 year national growth rate and the financial development dummy for 95 are included, the coefficient of the credit variable varies only between 0.103 and 0.118.

Thus, in what follows we use the Arellano-Bover system estimation so as to avoid endogeneity issues.

4.4 Is There Too Much of a Good Thing?

The relative homogeneity of our data compared to cross-country analyses provides an opportunity to revisit the "too much finance" hypothesis. To address this, we adopt two complementary approaches: a quadratic standard method and an analysis based on two subsets of provinces, classified by their level of private credit. The results of these two approaches highlight that in a financially developed economy, the marginal impact of credit drastically decreases with its amount.

4.4.1 Classical Approach: Testing Concavity and the "Too Much Finance" Hypothesis

In what we refer to as the classical approach, we follow Arcand et al. (2015) and Cecchetti and Kharroubi (2012) by including the square of the credit-to-GDP ratio to account for the concavity of credit's impact on growth.

Table 5A presents results without the financial development dummy, showing that neither the credit-to-GDP ratio nor its square is significant in the full sample from 1983 onward. However, once the financial development dummy is introduced in Table 5B, the results shift significantly: both the credit-to-GDP ratio and its square become statistically significant at the 1% level, with the quadratic term showing the expected negative sign.[5]. Thus, our results corroborate the decreasing marginal return of private credit of Arcand et al. (2015) and Cecchetti and Kharroubi (2012), albeit with an important caveat: it applies only to provinces with a sufficiently developed banking industry.

Although our analysis demonstrates clear evidence of concavity, indicating that the marginal effect of additional credit diminishes over time, we do not observe the "too much finance" phenomenon in which credit negatively impacts growth. According to our coefficients, the threshold for a negative impact would require a credit-to-GDP ratio exceeding 350%, far above any value observed in our sample.

[5]Notice all coefficients for the credit-to-GDP ratio are much higher than the ones appearing in Table 3, but once we take into account the whole impact of a marginal increase in the credit-to-GDP for a credit-to-GDP ratio close to one, the resulting coefficient is in line with the one in Table 3.

4.4.2 High vs. Low Financial Development Provinces

To further examine the "too much finance" hypothesis, we conducted a classification analysis of the 50 provinces using the hierarchical clustering method, taking as variables the private credit ratios for each year between 1983 and 2020.

Since these ratios are persistent over time, the variables are not independent, and the classification could give more weight to the temporal trend than to the actual differences between provinces. In other words, Euclidean distances calculated on the absolute year-by-year values tend to group high values together and low values together, even if their trajectories are not similar.

To avoid this bias, the variables were standardized and a principal component analysis (PCA) was performed to reduce dimensionality and filter out the noise generated by the large number of variables. Subsequently, the classification method was applied to the first two principal components, which are independent of each other and retain 91.23% of the total variance.

The method calculates the Euclidean distance between the 50 provinces based on these two principal components and follows an agglomerative approach, starting with each province as an independent group and, at each step, merging the two groups that are most similar (i.e., those with the smallest distance between them), until all provinces are grouped into a single cluster.

The clustering analysis identified two homogeneous groups: Group H (high financial development) with 15 provinces, including major cities, and Group L (low financial development) with 35 provinces. Figure 1 illustrates this classification, while Table 6 lists the provinces in each group. Notably, the geographic distribution of these groups shows no strong correlation with other variables such as population density or proximity to the Mediterranean coast, where the bubble's worst effects were concentrated. Interestingly, with the exception of Sevilla, all provinces in the H-group have negative fixed effects as reported in Figure 2. Conversely, most of the provinces in the L-group have positive fixed effects. Also Figure 2 shows all provinces in the H-group to have an average credit-to-GDP larger than 0.8, with the exception of Malaga.

As shown in Table 7A, for Group H provinces, neither the credit-to-GDP ratio nor its quadratic term is statistically significant. The results for Group L, presented in Table 7B, contrast sharply with those for Group H. The credit-to-GDP ratio is highly significant (1% level) with a positive coefficient, while the quadratic term is also significant at the 1% level with a negative coefficient, confirming the concavity observed in the full sample. Moreover, as in earlier results, the threshold for a negative impact of additional credit remains above 300%, well beyond observed values.

The differing results between the two groups align with cross-country evidence on the varying roles of financial development in more and less developed economies. For provinces with lower levels of financial development, the credit-to-GDP ratio exerts a positive but diminishing effect on growth. Conversely, in provinces with high financial development, this effect is absent, supporting the hypothesis of diminishing returns to credit expansion in advanced financial systems. Thus, our findings confirm the hypothesis advanced by Arcand et al. (2015) and Cecchetti and Kharroubi (2012): while financial development promotes growth in less developed regions, excessive credit in already advanced systems does not yield further benefits.

4.5 Banks' Branch Growth and Its Impact on Provincial Growth

A possible explanation for our earlier results is that banks might have anticipated an increased demand for credit, spurred by higher economic growth rates. To explore this hypothesis, we analyze banks' strategies regarding branch creation. It is reasonable to assume that a higher growth rate in the number of branches (or a smaller decline in branch numbers) within a province reflects

banks' expectations of future credit demand at the provincial level. However, since the growth rate of branches at the national level can vary significantly over time, we construct a more refined measure of anticipated future credit demand by subtracting the national growth rate in the number of branches from the corresponding provincial growth rate.

4.5.1 Bank Branch Growth and Long-Run Growth

Table 8A examines the relationship between provincial branch growth and long-run economic growth by substituting the branch growth variable for private credit in the previous analyses from Table 4. The findings reveal that branch growth consistently has a negative and statistically significant impact on long-term growth. This suggests that banks' decisions regarding branch creation do not result from their economic growth forecast.

4.5.2 The Combined Effect of Bank Branches Creation and Credit.

To further validate these findings, we include the branch growth variable as a control in the original regressions. Table 8B presents the results of this analysis, incorporating a financial development control to account for differences in the banking sector's maturity over time. Specifically, the role of bank branches is likely to differ in underdeveloped banking systems—where banks often competed by opening more branches—compared to more advanced systems with mature financial infrastructure.

The results confirm our earlier conclusions. The inclusion of the branch growth variable does not alter the fundamental findings regarding private credit's impact on economic growth. Notably, the sign of the branch growth variable, which was in Table 8A, becomes positive and statistically significant when bubble-related controls (i.e., the bubble dummy and its interaction with private credit) are introduced.

This shift suggests that during the bubble period, banks' branch policies played a more constructive role. However, the core conclusion remains robust: banks' branch creation policies alone do not adequately explain future economic growth, and their expectations regarding credit demand are often misaligned with actual economic outcomes.

4.6 Banks' Deposits and Its Impact on Provincial Growth

The amount of deposits constitutes an alternative measure for a province's financial development . When considering Levine's five channels through which financial development promotes growth, deposits appear to be more related to savings mobilization while credit focuses on screening and monitoring investments. It is usually thought that, in comparison with credit, deposits are a poorer measure of financial development because they consider the amount of intermediation without taking into account the allocation of credit. Still, for the sake of completeness we extend our analysis so as to consider the impact of deposits. Our results show that the impact of deposits and credit on growth may depend upon the level of financial infrastructure. In the Spanish case, their effect varies dramatically pre and post 1995, reflecting the impact of the improvement in banking regulation.

4.6.1 The Effect of Deposits on Long term growth.

Table 9A presents the results of the impact of deposits on long term growth, absent the private credit variable. The coefficients are consistently positive and significant at the 1% level, indicating a comparable impact to that of private credit.

In Table 9B, both deposits and credit are included. The results show that while private credit remains consistently significant at the 1% level, the coefficient on deposits loses significance once the 1995 financial development dummy is introduced, suggesting that their effects differ before and after banking deregulation. From a theoretical standpoint, this pattern is plausible: deposits, through their role in mobilizing savings, may have been critical during the pre-deregulation period in mobilizing savings, whereas credit allocation becomes more important in a more developed banking system.

4.6.2 A Pre-deregulation Explanation.

Tables 9C and 9D examine the effects of financial regulation during two distinct time periods: before 1995 and after 1995. I

Table 9C results show that once the national growth rate is introduced, the private credit variable loses its significance. A symmetrical pattern emerges for the post-deregulation period. Table 9D reveals that after 1995, the deposit variable becomes insignificant once the national growth rate is included. Columns 3 to 8 confirm that additional controls do not alter this result. Taken together, the findings suggest a structural shift: in the pre-deregulation period, growth was largely deposit-driven, while in the post-deregulation era, credit emerged as the main driver of growth

4.7 Credit and the Ten-Year Cumulative Growth Rate

To further investigate the relationship between credit and long-term economic growth, we analyze the ten-year growth rate using the same set of explanatory variables as before.

The results presented in Table 10 corroborate the key role of the credit-to-GDP ratio which coefficient is significant at the 1% level. Interestingly, the increase in population, D Pop, and our proxy for social capital, Turnout, which coefficients were not significant in the analysis of the five year growth rate become significant for all different models with the expected positive signs. This underscores the growing importance of population growth and social capital in influencing longer term growth dynamics.

In terms of the quantitative impact, private credit affects the ten-year growth rate in a manner similar to its effect on the five-year rate. Specifically, an increase of one standard deviation in the credit-to-GDP ratio leads to a 6.8% increase in the ten-year cumulative growth rate, equivalent to an annual growth increase of 0.67%, as shown in the fully controlled specification in Column 8.

These results confirms the consistent role of private credit in fostering economic growth.

5 The effect of mortgages

Due to the lack of mortgage data prior to 1994, our sample is here restricted to a shorter period during which the banking industry was already well-developed. The results, summarized in Table 11, vary depending on the inclusion of controls and do not seem to exhibit a consistent pattern.

In Column 1, we examine the impact of private credit and the mortgages-to-GDP ratio, finding a negative coefficient for the mortgage variable that is significant at the 1% level. Yet, once the

five-year national growth rate (Column 2) is included its effect varies widely depending on the controls and reflecting the correlation of mortgages with the other regressors.

In summary, our (shorter) sample indicates that contrarily to the impact of credit, the mortgage credit part does not affect long term growth. .

5.1 Robustness Checks

To ensure the robustness of our findings, we address two additional issues.

First, given the central importance of the results in Table 4, we test whether our conclusions hold when the financial development dummy is excluded, thereby treating the entire sample period as homogeneous. The results, reported in Table 12, confirm that once the national growth variable is included, the coefficient on private credit remains consistently positive and significant at the 1% level, as in Table 4. However, the magnitudes of the coefficients in Table 12 are systematically smaller than those in Table 4, reflecting the fact that five-year real GDP per capita growth was considerably higher before 1995 than afterward. This difference explains the negative correlation between the dummy variable and growth observed in Table 4.

Second, we examine the potential role of initial GDP per capita, a factor often found to be critical in cross-country analyses. The results, presented in columns 3 to 9 of Table 13, indicate that initial GDP per capita is not statistically significant. This outcome is not unexpected: developmental disparities across countries are far more substantial than those across Spanish provinces. Whereas in cross-country studies the differences in development levels strongly shape financial environments—through legal, institutional, and regulatory channels—within Spain the financial environment is broadly uniform, and thus initial GDP per capita does not appear to exert a significant influence.

6 Conclusion

This paper has examined the relationship between financial development and long-term economic growth across Spanish provinces from 1983 to 2023, a period characterized by major shifts in the financial environment. Our findings indicate that credit has a consistently positive effect on provincial growth, with diminishing marginal returns as credit deepens. Importantly, we do not find evidence of a 'too much finance' effect: higher credit-to-GDP ratios continue to foster growth. At the same time, the role of deposits appears to be more relevant in the pre-deregulation period, while credit allocation emerges as the key driver once the banking system became more competitive and integrated into European markets.

The results also highlight the amplifying effect of financial crises: provinces with weaker credit access experienced sharper contractions during the 2008–2012 banking crisis, consistent with a financial accelerator mechanism. Overall, the evidence underscores the central role of financial development in supporting sustained growth, while also pointing to the importance of institutional and regulatory frameworks in shaping the channels through which finance affects the real economy.

Taken together, these findings suggest that policies fostering sound credit expansion, strengthening bank intermediation, and ensuring financial stability remain crucial for sustaining long-term growth. Moreover, the Spanish experience illustrates that as financial systems evolve, the sources of growth also shift—from savings mobilization to credit allocation—underscoring the dynamic interaction between financial development and economic performance.

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Table 1: Variables definition and sources

Variable	Description	Source
D5 Growth	5 years cumulative growth rate of real GDP per-capita.	INE
D10 Growth	10 years cumulative growth rate of real GDP per-capita.	INE
Nal Growth	Spain's 5 and 10 year cumulative growth rate of real GDP per capita at the national level .	Bank of Spain for private credit, INE for GDP
D Pop	Annual percentage increase in population.	INE
Private Credit	Private Credit granted by deposit money banks divided by GDP	Bank of Spain for private credit; INE for GDP
Private Credit^2	Private Credit square	Bank of Spain for private credit; INE for GDP
Private Credit Excluding Mortgages (PCEM)	Private Credit granted by deposit money banks net of residential mortgages divided by GDP .	Bank of Spain for private credit; INE for GDP
Mortgage	Residential mortgage credit divided by GDP.	INE
Turnout	Index of participation in elections.	Ministerio del interior, Author's own analysis and computation
Bubble	Dummy variable for the bubble building period. Takes the value 1 from 2002 to 2007	
Crisis	Dummy variable for the banking crisis. Takes the value 1 from 2008 to 2011.	Laeven and Valencia (2010).
Fin_Dev_95	Dummy variable. Takes the value 1 from year > 1995	
Branches	Provincial branches growth rate$_i$ net of branches national growth rate, 2002 to 2007	Banco de España

Table 2: Descriptive Statistics

Table 2A. Growth variables

	D5 Growth (t, t+5)	D5 National Growth (t, t+5)	D10 Growth (t, t+10)	D10 National Growth (t, t+10)	D Pop
Mean	0.1138	0.1165	0.2365	0.2463	0.0038
Median	0.1310	0.1344	0.3019	0.3856	0.0023
Std	0.1378	0.1258	0.2345	0.2242	0.0098
Max	0.7112	0.2901	0.9494	0.5110	0.0558
Min	-0.2709	-0.1721	-0.2577	-0.0959	-0.0236
Obs	1800	1800	1550	1550	2550

Table 2B. Explanatory variables (yearly)

	Private Credit	Private Credit^2	Private Credit Excluding Mortgages (PCEM)
Mean	0.7698	0.7373	0.8465
Median	0.6816	0.4646	0.7776
Std	0.3804	0.7442	0.3387
Max	2.2332	4.9870	2.1673
Min	0.1611	0.0260	0.2911
Obs	1900	1900	1350

	Turnout	Mortgages	Branches	Deposits
Mean	0.7119	0.0620	-0.0079	0.8271
Median	0.7152	0.0459	0.0000	0.7989
Std	0.0514	0.0538	0.0508	0.2268
Max	0.8661	0.3830	0.1854	1.6961
Min	0.4136	0.0079	-0.2640	0.3752
Obs	2250	1350	2150	1750

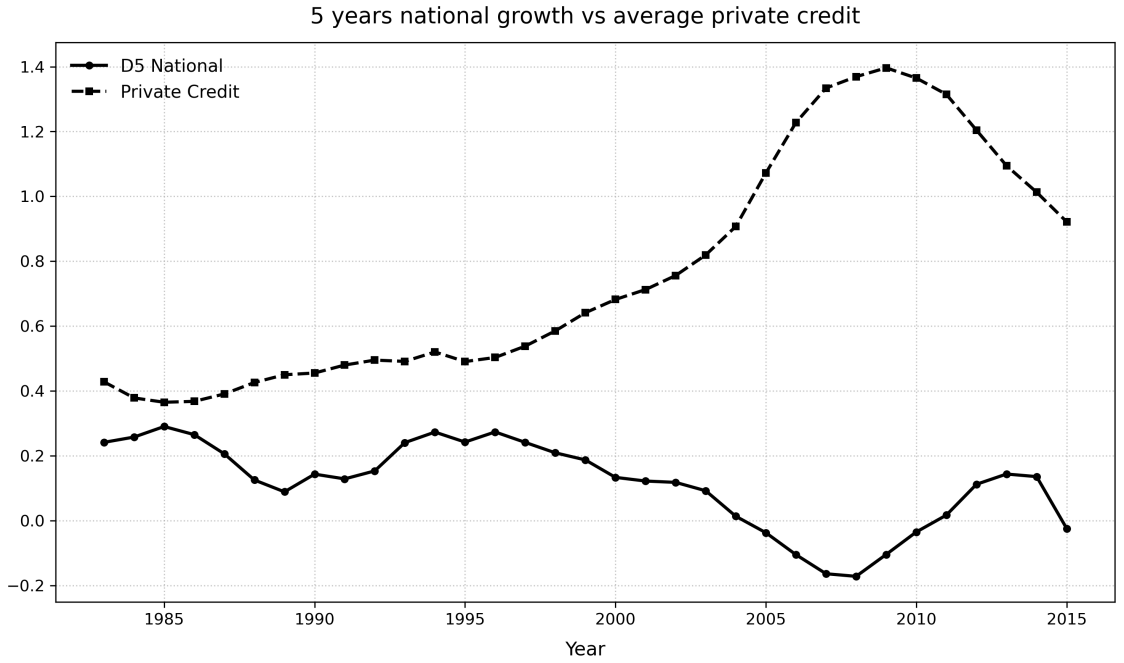

Figure 1: The Pearson correlation coefficient between D5 Nal Growth and private credit is -0.74 ($p < 0.001$).

Table 3 : Panel Regressions with Province Fixed Effects and Clustered Standard Errors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.784***	0.517***	0.542***	0.581***	0.584***	0.554***	0.561***	0.581***
	(0.0157)	(0.0361)	(0.0327)	(0.0308)	(0.0309)	(0.0321)	(0.0319)	(0.0316)
Private Credit	-0.0468***	0.0635***	0.0924***	0.0772***	0.0871***	0.0904***	0.0981***	0.0994***
	(0.00701)	(0.00727)	(0.00954)	(0.00847)	(0.00944)	(0.00911)	(0.00927)	(0.0111)
D5 Nal Growth		0.653***	0.635***	0.632***	0.643***	0.615***	0.608***	0.644***
		(0.0253)	(0.0246)	(0.0225)	(0.0205)	(0.0248)	(0.0236)	(0.0195)
Fin Dev 95			-0.0260***	-0.0222***	-0.0251***	-0.0239***	-0.0278***	-0.0302***
			(0.00518)	(0.00502)	(0.00504)	(0.00518)	(0.00530)	(0.00539)
D Pop			-0.476**	-0.314	-0.310	-0.151	0.138	-0.153
			(0.216)	(0.203)	(0.200)	(0.266)	(0.226)	(0.208)
Turnout			0.112***	0.0888**	0.102***	0.113***	0.0824**	0.0852**
			(0.0381)	(0.0354)	(0.0353)	(0.0376)	(0.0362)	(0.0344)
Crisis				0.0385***	0.0977***			0.109***
				(0.00451)	(0.0154)			(0.0166)
Crisis*Private Credit					-0.0452***			-0.0593***
					(0.0107)			(0.0126)
Bubble						-0.0129***	0.0476***	0.0512***
						(0.00322)	(0.00960)	(0.00973)
Bubble*Private Credit							-0.0633***	-0.0515***
							(0.0102)	(0.0122)
Constant	0.0542***	-0.0741***	-0.158***	-0.142***	-0.159***	-0.157***	-0.139***	-0.152***
	(0.00713)	(0.00803)	(0.0273)	(0.0255)	(0.0262)	(0.0272)	(0.0267)	(0.0261)
N	1650	1650	1650	1650	1650	1650	1650	1650
R^2 within	0.779	0.881	0.885	0.890	0.891	0.886	0.889	0.892
R^2 between	0.773	0.509	0.472	0.549	0.554	0.412	0.391	0.539
R^2 overall	0.779	0.873	0.875	0.882	0.883	0.874	0.877	0.885

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

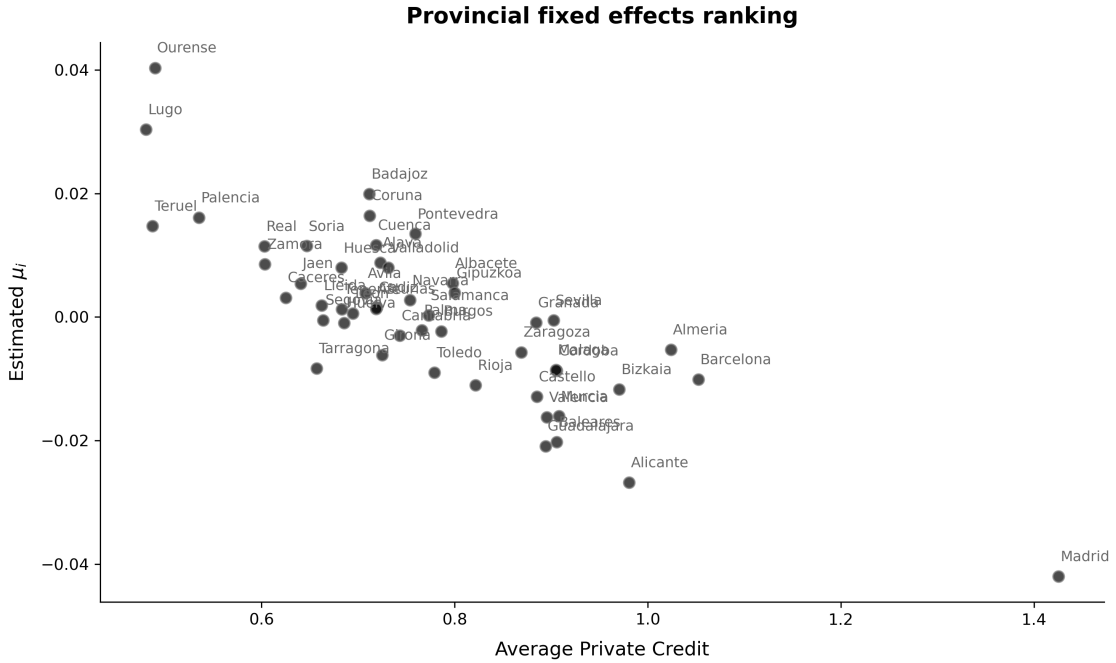

Figure 2:

Estimated μ_i resulting from:

$$D5Growth_{ij} = \alpha + \beta_1 L.D5Growth_{ij} + \beta_2 Private\ Credit_{ij} + \beta_3 D5NalGrowth_{ij}$$
$$+\beta_4 Fin\ Dev\ 95_j + \beta_5 DPop_{ij} + \beta_6 Turnout_{ij} + \beta_7 Crisis_j + \beta_8 Crisis_j * Private\ Credit_{ij} + \beta_9 Bubble_j$$
$$\beta_{10} Bubble_j * Private\ Credit_{ij} + \mu_i + \epsilon_{ij}$$

Table 4: **Long Term Cumulative Growth and Private Credit**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.878***	0.445***	0.489***	0.525***	0.527***	0.507***	0.517***	0.529***
	(0.0201)	(0.0459)	(0.0428)	(0.0433)	(0.0437)	(0.0430)	(0.0422)	(0.0435)
Private Credit	-0.0149*	0.0677***	0.115***	0.103***	0.106***	0.112***	0.118***	0.117***
	(0.00832)	(0.0107)	(0.0130)	(0.0117)	(0.0123)	(0.0123)	(0.0121)	(0.0127)
D5 Nal Growth		0.735***	0.732***	0.718***	0.721***	0.707***	0.693***	0.706***
		(0.0291)	(0.0258)	(0.0249)	(0.0242)	(0.0268)	(0.0263)	(0.0262)
Fin Dev 95			-0.0374***	-0.0338***	-0.0348***	-0.0350***	-0.0382***	-0.0387***
			(0.00582)	(0.00565)	(0.00567)	(0.00582)	(0.00581)	(0.00583)
D Pop			-0.167	-0.0303	-0.0307	0.240	0.448*	0.273
			(0.202)	(0.201)	(0.201)	(0.253)	(0.235)	(0.236)
Turnout			0.0532	0.0323	0.0387	0.0537	0.0181	0.0190
			(0.0495)	(0.0483)	(0.0478)	(0.0496)	(0.0479)	(0.0467)
Crisis				0.0251***	0.0645***			0.0748***
				(0.00449)	(0.0188)			(0.0197)
Crisis*Private Credit					-0.0294**			-0.0453***
					(0.0126)			(0.0147)
Bubble						-0.0138***	0.0396***	0.0417***
						(0.00383)	(0.00931)	(0.0110)
Bubble*Private Credit							-0.0537***	-0.0480***
							(0.00960)	(0.0135)
Constant	0.0188**	-0.0782***	-0.132***	-0.117***	-0.124***	-0.131***	-0.108***	-0.113***
	(0.00859)	(0.0129)	(0.0347)	(0.0334)	(0.0333)	(0.0349)	(0.0340)	(0.0330)
Overal test Statistic χ^2	17357.7	4310.4	3509.3	5703.0	9957.5	4109.6	5103.2	11700.4
RSS	9.165	4.070	4.192	4.407	4.416	4.264	4.337	4.413
N	1650	1650	1650	1650	1650	1650	1650	1650

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5A : **Long Term Cumulative Growth and Private Credit with quadratic term.**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP and its square. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
L.D5 Growth	0.452***	0.450***	0.494***	0.495***	0.481***	0.497***	0.498***
	(0.0446)	(0.0452)	(0.0464)	(0.0468)	(0.0453)	(0.0469)	(0.0468)
D5 Nal Growth	0.728***	0.716***	0.707***	0.707***	0.674***	0.702***	0.691***
	(0.0269)	(0.0260)	(0.0248)	(0.0248)	(0.0280)	(0.0262)	(0.0267)
Private Credit	0.0224	0.0213	0.0533*	0.0422	0.0362	0.0453	0.0238
	(0.0274)	(0.0272)	(0.0276)	(0.0296)	(0.0300)	(0.0317)	(0.0345)
Private Credit2	0.0243*	0.0243*	0.00212	0.00911	0.0173	0.00792	0.0220
	(0.0135)	(0.0133)	(0.0136)	(0.0154)	(0.0143)	(0.0162)	(0.0176)
Turnout	-0.0320	-0.00493	-0.0365	-0.0282	-0.0316	-0.0264	-0.0298
	(0.0470)	(0.0531)	(0.0530)	(0.0519)	(0.0527)	(0.0516)	(0.0511)
D Pop		-0.346	-0.151	-0.162	0.368	-0.0631	0.0732
		(0.221)	(0.224)	(0.221)	(0.265)	(0.262)	(0.239)
Crisis			0.0317***	0.0590***		0.0559***	0.0749***
			(0.00489)	(0.0194)		(0.0206)	(0.0224)
Crisis*Private Credit				-0.0211		-0.0206	-0.0405**
				(0.0129)		(0.0131)	(0.0160)
Bubble					0.0183*	-0.00374	0.0197
					(0.00991)	(0.00457)	(0.0133)
Bubble*Private Credit					-0.0376***		-0.0266**
					(0.00934)		(0.0134)
Constant	-0.0389	-0.0543	-0.0483	-0.0510	-0.0398	-0.0528*	-0.0422
	(0.0307)	(0.0332)	(0.0323)	(0.0319)	(0.0330)	(0.0320)	(0.0318)
Overall test statistic χ^2	3867.0	4008.8	8769.5	10765.0	6000.0	10967.1	11413.3
RSS	4.145	4.144	4.396	4.403	4.289	4.400	4.405
N	1650	1650	1650	1650	1650	1650	1650

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Tabla 5B: **Long Term Cumulative Growth and Private Credit with quadratic term.**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP and its square. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period witht the addition of the 1995 financial deregulation dummy (Fin Dev 95)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
L.D5 Growth	0.485***	0.484***	0.528***	0.528***	0.508***	0.516***	0.529***
	(0.0422)	(0.0426)	(0.0430)	(0.0433)	(0.0426)	(0.0420)	(0.0432)
D5 Nal Growth	0.746***	0.742***	0.732***	0.733***	0.712***	0.700***	0.721***
	(0.0244)	(0.0241)	(0.0231)	(0.0231)	(0.0255)	(0.0248)	(0.0241)
Private Credit	0.184***	0.183***	0.216***	0.226***	0.207***	0.196***	0.210***
	(0.0356)	(0.0357)	(0.0342)	(0.0378)	(0.0369)	(0.0364)	(0.0424)
Private Credit2	-0.0330**	-0.0327**	-0.0556***	-0.0613***	-0.0455***	-0.0383**	-0.0502**
	(0.0149)	(0.0149)	(0.0149)	(0.0177)	(0.0159)	(0.0154)	(0.0196)
Fin Dev 95	-0.0444***	-0.0441***	-0.0445***	-0.0451***	-0.0437***	-0.0451***	-0.0449***
	(0.00701)	(0.00697)	(0.00661)	(0.00672)	(0.00679)	(0.00674)	(0.00673)
Turnout	0.0324	0.0416	0.00980	0.00499	0.0393	0.0101	0.00316
	(0.0450)	(0.0505)	(0.0503)	(0.0492)	(0.0512)	(0.0494)	(0.0482)
D Pop		-0.124	0.0756	0.0860	0.440*	0.591**	0.252
		(0.203)	(0.206)	(0.203)	(0.266)	(0.250)	(0.237)
Crisis			0.0322***	0.0143			0.0281
			(0.00465)	(0.0213)			(0.0243)
crisis_Pivate_Credit				0.0139			-0.00208
				(0.0147)			(0.0174)
Bubble					-0.0187***	0.0285***	0.0168
					(0.00437)	(0.00932)	(0.0129)
Bubble*Private Credit						-0.0467***	-0.0215*
						(0.00889)	(0.0131)
Constant	-0.143***	-0.148***	-0.143***	-0.142***	-0.154***	-0.130***	-0.134***
	(0.0350)	(0.0371)	(0.0357)	(0.0357)	(0.0374)	(0.0361)	(0.0357)
Overall test statistic χ^2	6081.9	6151.3	11980.1	11343.2	9305.0	10208.8	12620.0
RSS	4.155	4.153	4.413	4.413	4.242	4.307	4.409
N	1650	1650	1650	1650	1650	1650	1650

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: **Classification of Provinces Based on Financial Development Levels: High (H-Group) and Low (L-Group).**
The H-Group represents highly developed provinces, while the L-Group represents less developed provinces. The hierarchical classification was derived using Ward's agglomeration method, with data standardized beforehand using the Whitening method via singular value decomposition.

H-Group	L-Group	
Alicante/Alacant	Álava/Araba	Albacete
Almería	Ávila	Badajoz
Illes Balears	Burgos	Cáceres
Barcelona	Cádiz	Ciudad Real
Castellón/Castellǿ	A Coruña	Cuenca
Cǿrdoba	Girona	Gipuzkoa
Granada	Huelva	Huesca
Guadalajara	Jaén	León
Madrid	Lleida	La Rioja
Málaga	Lugo	Navarra
Murcia	Ourense	Asturias
Sevilla	Ourense	Asturias
València	Palencia	Las Palmas
Bizkaia	Pontevedra	Salamanca
Zaragoza	Sta. Cruz de Tenerife	Cantabria
	Segovia	Soria
	Tarragona	Teruel
	Toledo	Valladolid
	Zamora	

Table 7A. **Long Term Cumulative Growth and Private Credit in Highly Developed Provinces.**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)
L.D5 Growth	0.578***	0.552***	0.560***	0.576***
	(0.0798)	(0.0830)	(0.0813)	(0.0798)
D5 Nal Growth	0.794***	0.777***	0.762***	0.793***
	(0.0375)	(0.0400)	(0.0369)	(0.0372)
Private Credit	0.0400	0.0309	0.0170	0.0205
	(0.0344)	(0.0438)	(0.0482)	(0.0469)
Private Credit2	0.0267*	0.0341*	0.0417**	0.0364*
	(0.0147)	(0.0185)	(0.0211)	(0.0217)
Fin Dev 95	-0.0297***	-0.0289***	-0.0305***	-0.0297***
	(0.00975)	(0.0105)	(0.0103)	(0.00990)
D Pop	0.261	0.361	0.424*	0.172
	(0.276)	(0.258)	(0.256)	(0.223)
Turnout	0.0623	0.105*	0.0758	0.0592
	(0.0621)	(0.0599)	(0.0603)	(0.0620)
Crisis	0.145**			0.168***
	(0.0618)			(0.0643)
Crisis Private Credit	-0.0639*			-0.0789**
	(0.0358)			(0.0386)
Bubble		-0.0138***	0.0383***	0.0266
		(0.00426)	(0.0142)	(0.0165)
Bubble*Private Credit			-0.0409***	-0.0178
			(0.0116)	(0.0164)
Constant	-0.150***	-0.171***	-0.144***	-0.140***
	(0.0455)	(0.0488)	(0.0506)	(0.0471)
Overall test statistic χ^2	17908.7	4979.3	5385.6	21035.4
RSS	1.025	0.946	0.961	1.027
N	495	495	495	495

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7B. **Long Term Cumulative Growth and Private Credit in Less Developed Provinces.**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)
L.D5 Growth	0.513***	0.506***	0.514***	0.518***
	(0.0432)	(0.0455)	(0.0444)	(0.0433)
D5 Nal Growth	0.703***	0.681***	0.669***	0.687***
	(0.0250)	(0.0284)	(0.0279)	(0.0275)
Private Credit	0.329***	0.295***	0.279***	0.324***
	(0.0595)	(0.0542)	(0.0541)	(0.0717)
Private Credit2	-0.129***	-0.0992***	-0.0870***	-0.122***
	(0.0333)	(0.0286)	(0.0285)	(0.0406)
Fin Dev 95	-0.0494***	-0.0474***	-0.0483***	-0.0491***
	(0.00827)	(0.00811)	(0.00802)	(0.00832)
D Pop	0.206	0.676**	0.696**	0.460
	(0.206)	(0.300)	(0.287)	(0.282)
Turnout	-0.0161	0.0122	0.00440	-0.00775
	(0.0514)	(0.0518)	(0.0516)	(0.0509)
Crisis	-0.0137			-0.00859
	(0.0287)			(0.0367)
Crisis Private Credit	0.0369			0.0256
	(0.0241)			(0.0332)
Bubble		-0.0199***	0.0219*	0.000919
		(0.00489)	(0.0125)	(0.0194)
Bubble*Private Credit			-0.0454***	-0.0112
			(0.0119)	(0.0207)
Constant	-0.143***	-0.149***	-0.138***	-0.145***
	(0.0402)	(0.0419)	(0.0420)	(0.0432)
Overall test statistic χ^2	10738.3	10115.2	10605.7	11670.3
RSS	3.339	3.284	3.324	3.348
N	1155	1155	1155	1155

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8A: **Long Term Cumulative Growth and Banks' Branching.**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the rate of growth of branches in each province minus its national weighted average. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)	(5)	(6)
L.D5 Growth	0.941***	0.388***	0.390***	0.454***	0.413***	0.457***
	(0.00712)	(0.0455)	(0.0462)	(0.0481)	(0.0479)	(0.0492)
Branches	-0.324***	-0.0891**	-0.136***	-0.213***	-0.254***	-0.226***
	(0.0317)	(0.0402)	(0.0514)	(0.0489)	(0.0539)	(0.0501)
D5 Nal Growth		0.639***	0.597***	0.620***	0.593***	0.646***
		(0.0415)	(0.0399)	(0.0313)	(0.0384)	(0.0324)
Fin Dev 95			-0.0120***	-0.00713	-0.00670	-0.00816
			(0.00437)	(0.00490)	(0.00521)	(0.00505)
D Pop			-0.506*	0.360	0.745**	0.0437
			(0.298)	(0.262)	(0.342)	(0.275)
Turnout			0.158***	-0.0359	-0.0216	-0.0237
			(0.0446)	(0.0604)	(0.0632)	(0.0568)
Crisis				0.0166		0.0188
				(0.0176)		(0.0178)
Crisis*Private Credit				0.0142		0.0201
				(0.0115)		(0.0131)
Bubble					-0.00150	-0.0132
					(0.0127)	(0.0136)
Bubble*Private Credit					-0.0140	0.0249*
					(0.0109)	(0.0151)
Constant	0.00538***	-0.00628***	-0.106***	0.00978	0.0129	-0.00360
	(0.000691)	(0.00226)	(0.0303)	(0.0384)	(0.0415)	(0.0366)
Overal test Statistic χ^2	20110.8	8513.7	12317.7	12472.6	10862.1	10728.2
RSS	11.02	4.740	4.803	4.595	4.367	4.625
N	1750	1750	1750	1650	1650	1650

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8B. **Long Term Cumulative Growth and Private Credit: the Effect of Banks' Branching**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the rate of growth of branches in each province minus its national weighted average. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period with the addition of the Private Credit variable

	(1)	(2)	(3)	(4)	(5)	(6)
L.D5 Growth	0.941***	0.388***	0.488***	0.526***	0.516***	0.527***
	(0.00712)	(0.0455)	(0.0423)	(0.0431)	(0.0415)	(0.0426)
Branches	-0.324***	-0.0891**	0.0187	0.0554	0.120***	0.139***
	(0.0317)	(0.0402)	(0.0439)	(0.0452)	(0.0426)	(0.0448)
D5 Nal Growth		0.639***	0.734***	0.728***	0.705***	0.717***
		(0.0415)	(0.0261)	(0.0243)	(0.0262)	(0.0259)
Private Credit			0.116***	0.111***	0.129***	0.132***
			(0.0142)	(0.0137)	(0.0132)	(0.0143)
Fin Dev 95			-0.0374***	-0.0349***	-0.0388***	-0.0401***
			(0.00584)	(0.00571)	(0.00590)	(0.00595)
D Pop			-0.223	-0.195	0.156	-0.0160
			(0.215)	(0.208)	(0.236)	(0.235)
Turnout			0.0527	0.0380	0.0113	0.0127
			(0.0498)	(0.0481)	(0.0489)	(0.0478)
Crisis				0.0674***		0.0847***
				(0.0196)		(0.0211)
Crisis*Private Credit				-0.0312**		-0.0548***
				(0.0130)		(0.0160)
Bubble					0.0474***	0.0533***
					(0.00900)	(0.0112)
Bubble*Private Credit					-0.0627***	-0.0627***
					(0.00956)	(0.0140)
Constant	0.00538***	-0.00628***	-0.133***	-0.127***	-0.111***	-0.118***
	(0.000691)	(0.00226)	(0.0342)	(0.0329)	(0.0342)	(0.0333)
Overal test Statistic χ^2	20110.8	8513.7	3488.1	9664.4	4962.5	10855.1
RSS	11.02	4.740	4.183	4.391	4.314	4.375
N	1750	1750	1650	1650	1650	1650

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9A.**Long Term Cumulative Growth and Banks' Deposits**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of deposits to GDP. The analysis employs the Arellano-Bover /Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; xxxFin Dev 95 for the 1995 financial deregulation dummy; xxxD Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.951***	0.398***	0.405***	0.462***	0.462***	0.418***	0.423***	0.460***
	(0.00901)	(0.0367)	(0.0373)	(0.0389)	(0.0388)	(0.0391)	(0.0389)	(0.0397)
Deposits	0.153***	0.130***	0.152***	0.134***	0.134***	0.146***	0.152***	0.137***
	(0.0167)	(0.0248)	(0.0291)	(0.0262)	(0.0261)	(0.0278)	(0.0278)	(0.0255)
D5 Nal Growth		0.652***	0.646***	0.641***	0.641***	0.628***	0.616***	0.657***
		(0.0355)	(0.0325)	(0.0299)	(0.0300)	(0.0343)	(0.0340)	(0.0304)
Fin Dev 95			-0.0109**	-0.0104*	-0.0104*	-0.00924	-0.0108*	-0.0123**
			(0.00557)	(0.00537)	(0.00537)	(0.00574)	(0.00568)	(0.00549)
D Pop			0.279	0.431	0.436	0.547*	0.722**	0.209
			(0.302)	(0.277)	(0.274)	(0.324)	(0.305)	(0.291)
Turnout			0.0118	-0.0208	-0.0227	0.0128	-0.0172	-0.0339
			(0.0431)	(0.0413)	(0.0409)	(0.0433)	(0.0416)	(0.0387)
Crisis				0.0303***	0.0121			0.0196
				(0.00473)	(0.0164)			(0.0169)
Crisis*Private Credit					0.0135			0.0125
					(0.0116)			(0.0127)
Bubble						-0.0102**	0.0280**	0.0160
						(0.00454)	(0.0116)	(0.0121)
Bubble*Private Credit							-0.0385***	-0.00544
							(0.00979)	(0.0117)
Constant	-0.127***	-0.116***	-0.136***	-0.109***	-0.108***	-0.132***	-0.114***	-0.104***
	(0.0120)	(0.0207)	(0.0314)	(0.0287)	(0.0283)	(0.0313)	(0.0314)	(0.0287)
Overal test Statistic χ^2	12527.0	8832.7	8835.3	12326.3	10902.7	10863.6	12699.3	11535.5
RSS	7.571	2.869	2.861	3.141	3.143	2.925	2.972	3.150
N	1500	1500	1500	1500	1500	1500	1500	1500

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9B. **Long Term Cumulative Growth and Private Credit: the Effect of Banks' Deposits.**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of deposits to GDP. The analysis employs the Arellano-Bover /Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; xxxFin Dev 95 for the 1995 financial deregulation dummy; xxxD Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period with the addition of the Private Credit variable

Table 1: tabla 9B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.805***	0.432***	0.478***	0.518***	0.520***	0.495***	0.505***	0.520***
	(0.0224)	(0.0400)	(0.0378)	(0.0385)	(0.0388)	(0.0387)	(0.0380)	(0.0388)
Deposits	0.269***	0.0631***	0.0373**	0.0319*	0.0272	0.0289*	0.0296*	0.0245
	(0.0258)	(0.0166)	(0.0174)	(0.0167)	(0.0169)	(0.0171)	(0.0163)	(0.0160)
Private Credit	-0.0851***	0.0473***	0.0964***	0.0887***	0.0929***	0.0976***	0.103***	0.103***
	(0.0131)	(0.0108)	(0.0112)	(0.0104)	(0.0110)	(0.0109)	(0.0106)	(0.0115)
D5 Nal Growth		0.707***	0.715***	0.706***	0.709***	0.695***	0.683***	0.698***
		(0.0290)	(0.0272)	(0.0261)	(0.0251)	(0.0282)	(0.0275)	(0.0265)
Fin Dev 95			-0.0324***	-0.0302***	-0.0312***	-0.0307***	-0.0339***	-0.0347***
			(0.00632)	(0.00617)	(0.00610)	(0.00634)	(0.00634)	(0.00627)
D Pop			-0.127	0.0279	-0.000214	0.183	0.401	0.202
			(0.246)	(0.235)	(0.236)	(0.279)	(0.248)	(0.240)
Turnout			0.0775*	0.0459	0.0528	0.0794*	0.0423	0.0373
			(0.0426)	(0.0403)	(0.0407)	(0.0431)	(0.0400)	(0.0379)
Crisis				0.0244***	0.0568***			0.0676***
				(0.00400)	(0.0177)			(0.0185)
Crisis*Private Credit					-0.0242**			-0.0389***
					(0.0122)			(0.0141)
Bubble						-0.0120***	0.0394***	0.0399***
						(0.00375)	(0.00920)	(0.0104)
Bubble*Private Credit							-0.0517***	-0.0437***
							(0.00917)	(0.0118)
Constant	-0.137***	-0.109***	-0.166***	-0.142***	-0.146***	-0.162***	-0.138***	-0.136***
	(0.0163)	(0.0177)	(0.0326)	(0.0301)	(0.0305)	(0.0327)	(0.0318)	(0.0305)
Overal test Statistic χ^2	9576.5	6998.9	4862.7	6287.6	9239.6	5724.2	6618.8	10707.1
RSS	6.694	2.924	3.029	3.223	3.232	3.090	3.157	3.233
N	1500	1500	1500	1500	1500	1500	1500	1500

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9C. **Long Term Cumulative Growth and Private Credit: the Effect of Banks' Deposits pre-deregulation.** The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of deposits to GDP. The analysis employs the Arellano-Bover /Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period on the subsample 1983-1995

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.727***	0.442***	0.439***	0.439***	0.439***	0.439***	0.439***	0.439***
	(0.0387)	(0.0654)	(0.0646)	(0.0646)	(0.0646)	(0.0646)	(0.0646)	(0.0646)
Deposits	0.532***	0.254***	0.269***	0.269***	0.269***	0.269***	0.269***	0.269***
	(0.0934)	(0.0776)	(0.0690)	(0.0690)	(0.0690)	(0.0690)	(0.0690)	(0.0690)
Private Credit	0.198**	0.104	0.0977	0.0977	0.0977	0.0977	0.0977	0.0977
	(0.0941)	(0.0860)	(0.0736)	(0.0736)	(0.0736)	(0.0736)	(0.0736)	(0.0736)
D5 Nal Growth		0.595***	0.600***	0.600***	0.600***	0.600***	0.600***	0.600***
		(0.0539)	(0.0618)	(0.0618)	(0.0618)	(0.0618)	(0.0618)	(0.0618)
D Pop			0.531	0.531	0.531	0.531	0.531	0.531
			(1.684)	(1.684)	(1.684)	(1.684)	(1.684)	(1.684)
Turnout			-0.0848	-0.0848	-0.0848	-0.0848	-0.0848	-0.0848
			(0.0934)	(0.0934)	(0.0934)	(0.0934)	(0.0934)	(0.0934)
Constant	-0.435***	-0.249***	-0.197***	-0.197***	-0.197***	-0.197***	-0.197***	-0.197***
	(0.0513)	(0.0467)	(0.0583)	(0.0583)	(0.0583)	(0.0583)	(0.0583)	(0.0583)
Overal test Statistic χ^2	603.9	569.9	613.1	613.1	613.1	613.1	613.1	613.1
RSS	2.232	1.290	1.295	1.295	1.295	1.295	1.295	1.295
N	450	450	450	450	450	450	450	450

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9D. **Long Term Cumulative Growth and Private Credit: the Effect of Banks' Deposits post-deregulation.** The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of deposits to GDP. The analysis employs the Arellano-Bover /Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period on the subsample [1995-2015]

Table 2: tabla3:dep sin DEV- dede el 95 Set of panel regressions aimed at estimating the effect of credit on economic growth. All regressions of 5-year overlapping growth from 1980-2015 are using Arellano-Bover /Blundell-Bond method.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.934***	0.367***	0.352***	0.446***	0.445***	0.386***	0.406***	0.443***
	(0.0319)	(0.0323)	(0.0294)	(0.0327)	(0.0332)	(0.0292)	(0.0301)	(0.0324)
Deposits	0.234***	-0.0134	-0.0315*	-0.0279*	-0.0271*	-0.0364**	-0.0390**	-0.0288*
	(0.0232)	(0.0136)	(0.0169)	(0.0143)	(0.0143)	(0.0169)	(0.0167)	(0.0151)
Private Credit	-0.0169	0.0958***	0.100***	0.107***	0.106***	0.107***	0.114***	0.108***
	(0.0205)	(0.0150)	(0.0155)	(0.0141)	(0.0137)	(0.0150)	(0.0145)	(0.0134)
D5 Nal Growth		0.830***	0.827***	0.806***	0.806***	0.810***	0.793***	0.803***
		(0.0261)	(0.0278)	(0.0265)	(0.0262)	(0.0261)	(0.0269)	(0.0274)
D Pop			-0.508*	-0.0515	-0.0506	-0.150	0.00528	-0.0637
			(0.267)	(0.263)	(0.265)	(0.303)	(0.266)	(0.267)
Turnout			0.181***	0.120**	0.119**	0.173***	0.142**	0.114**
			(0.0584)	(0.0553)	(0.0548)	(0.0594)	(0.0602)	(0.0542)
Crisis				0.0211***	0.0153			0.0202
				(0.00394)	(0.0203)			(0.0213)
Crisis*Private Credit					0.00423			-0.000637
					(0.0144)			(0.0159)
Bubble						-0.00871***	0.0218**	0.0130
						(0.00308)	(0.0103)	(0.0113)
Bubble*Private Credit							-0.0315***	-0.0126
							(0.00998)	(0.0123)
Constant	-0.186***	-0.0977***	-0.212***	-0.190***	-0.189***	-0.210***	-0.193***	-0.186***
	(0.0149)	(0.0205)	(0.0513)	(0.0482)	(0.0475)	(0.0512)	(0.0522)	(0.0481)
Overal test Statistic χ^2	11113.7	4441.5	5414.1	6335.4	6275.7	5686.4	6685.4	6921.1
RSS	3.471	0.977	0.982	1.083	1.083	1.002	1.027	1.082
N	1000	1000	1000	1000	1000	1000	1000	1000

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 10. **Ten Years Cumulative Growth and Private Credit .**
The dependent variable, the ten-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D10 Nal Growth for the national ten-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D10 Growth	1.024***	0.549***	0.646***	0.644***	0.649***	0.659***	0.657***	0.647***
	(0.00801)	(0.0581)	(0.0529)	(0.0521)	(0.0533)	(0.0526)	(0.0524)	(0.0489)
Private Credit	0.0236***	0.0718***	0.0674***	0.0889***	0.0961***	0.0840***	0.0914***	0.179***
	(0.00541)	(0.0119)	(0.00981)	(0.0138)	(0.0164)	(0.0119)	(0.0127)	(0.0448)
D10 Nal Growth		0.543***	0.409***	0.418***	0.418***	0.441***	0.458***	0.496***
		(0.0484)	(0.0431)	(0.0415)	(0.0410)	(0.0384)	(0.0378)	(0.0333)
Fin Dev 95			-0.0405***	-0.0420***	-0.0428***	-0.0371***	-0.0358***	-0.0436***
			(0.00721)	(0.00724)	(0.00719)	(0.00680)	(0.00690)	(0.00699)
D Pop			1.562***	1.240***	1.162***	1.022***	1.149***	1.110***
			(0.324)	(0.305)	(0.298)	(0.327)	(0.329)	(0.327)
Turnout			0.447***	0.452***	0.461***	0.404***	0.368***	0.352***
			(0.0681)	(0.0674)	(0.0702)	(0.0639)	(0.0636)	(0.0604)
Crisis				-0.0181***	0.0268			0.0988**
				(0.00535)	(0.0232)			(0.0390)
Crisis*Private Credit					-0.0347*			-0.116**
					(0.0190)			(0.0471)
Bubble						0.0220***	0.0498***	0.110***
						(0.00520)	(0.0110)	(0.0311)
Bubble*Private Credit							-0.0265***	-0.112***
							(0.00871)	(0.0417)
Constant	-0.0401***	-0.0867***	-0.382***	-0.398***	-0.409***	-0.377***	-0.361***	-0.400***
	(0.00551)	(0.0140)	(0.0561)	(0.0571)	(0.0612)	(0.0540)	(0.0530)	(0.0613)
Overal test Statistic χ^2	32194.3	10245.7	19822.7	20758.1	22282.4	26639.8	30740.8	25123.8
RSS	12.10	5.509	6.161	6.075	6.100	6.155	6.133	5.905
N	1400	1400	1400	1400	1400	1400	1400	1400

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11. **Long Term Cumulative Growth and Private Credit: The Effect of Mortgage Lending**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP and the ratio of Mortgage Lending to GDP. The analysis employs the Arellano-Bover /Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period. The data covers the period 1994-2015, so the Fin Dev 95 dummy is irrelevant.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.732***	0.460***	0.485***	0.540***	0.545***	0.495***	0.503***	0.542***
	(0.0186)	(0.0271)	(0.0273)	(0.0269)	(0.0255)	(0.0278)	(0.0272)	(0.0250)
Mortgage	-0.774***	-0.00630	-0.101**	0.0396	0.0398	-0.0558	0.0468	0.0502
	(0.0558)	(0.0372)	(0.0515)	(0.0588)	(0.0579)	(0.0628)	(0.0875)	(0.0854)
[a]PCEM	-0.0155*	0.0974***	0.110***	0.108***	0.114***	0.111***	0.115***	0.115***
	(0.00886)	(0.0108)	(0.0122)	(0.0116)	(0.0110)	(0.0123)	(0.0118)	(0.0104)
D5 Nal Growth		0.720***	0.721***	0.731***	0.736***	0.716***	0.716***	0.743***
		(0.0300)	(0.0300)	(0.0298)	(0.0287)	(0.0298)	(0.0290)	(0.0276)
D Pop			0.832**	0.465	0.508	0.835**	0.621	0.387
			(0.374)	(0.393)	(0.369)	(0.391)	(0.432)	(0.383)
Turnout			0.132**	0.0920*	0.101**	0.133**	0.112**	0.0898*
			(0.0525)	(0.0496)	(0.0502)	(0.0529)	(0.0547)	(0.0502)
Crisis				0.0254***	0.0675***			0.0744***
				(0.00358)	(0.0151)			(0.0159)
Crisis*PCEM					-0.0332***			-0.0375***
					(0.0122)			(0.0141)
Bubble						-0.00643*	0.0197*	0.0173
						(0.00343)	(0.0113)	(0.0124)
Bubble*PCEM							-0.0350**	-0.0151
							(0.0150)	(0.0184)
Constant	0.0794***	-0.103***	-0.209***	-0.197***	-0.209***	-0.213***	-0.206***	-0.204***
	(0.0107)	(0.0130)	(0.0460)	(0.0434)	(0.0434)	(0.0461)	(0.0469)	(0.0429)
Overal test Statistic χ^2	6839.0	6256.0	6707.0	6917.7	11248.6	6649.9	7954.6	12929.4
RSS	4.026	1.605	1.625	1.759	1.761	1.641	1.658	1.763
N	1100	1100	1100	1100	1100	1100	1100	1100

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[a] Private Credit Excluding Mortgages (PCEM)

Tabla 12. **Long Term Cumulative Growth and Private Credit**
The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP and the ratio of Mortgage Lending to GDP. The analysis employs the Arellano-Bover /Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
L.D5 Growth	0.878***	0.445***	0.442***	0.494***	0.494***	0.475***	0.479***	0.496***
	(0.0201)	(0.0459)	(0.0459)	(0.0467)	(0.0469)	(0.0461)	(0.0459)	(0.0470)
Private Credit	-0.0149*	0.0677***	0.0661***	0.0575***	0.0580***	0.0676***	0.0684***	0.0605***
	(0.00832)	(0.0107)	(0.0109)	(0.00960)	(0.00999)	(0.0102)	(0.0102)	(0.0102)
D5 Nal Growth		0.735***	0.723***	0.707***	0.708***	0.685***	0.676***	0.697***
		(0.0291)	(0.0274)	(0.0259)	(0.0254)	(0.0282)	(0.0285)	(0.0284)
D Pop			-0.352	-0.156	-0.157	0.288	0.420*	0.0338
			(0.227)	(0.222)	(0.222)	(0.258)	(0.249)	(0.251)
Turnout			-0.0166	-0.0346	-0.0333	-0.00929	-0.0350	-0.0371
			(0.0532)	(0.0503)	(0.0497)	(0.0518)	(0.0519)	(0.0496)
Crisis				0.0320***	0.0434**			0.0432**
				(0.00462)	(0.0187)			(0.0193)
Crisis*Private Credit					-0.00846			-0.0125
					(0.0125)			(0.0145)
Bubble						-0.0211***	0.0117	0.00602
						(0.00393)	(0.0107)	(0.0121)
Bubble*Private Credit							-0.0334***	-0.0121
							(0.0104)	(0.0142)
Constant	0.0188**	-0.0782***	-0.0618*	-0.0514	-0.0529	-0.0668*	-0.0487	-0.0500
	(0.00859)	(0.0129)	(0.0348)	(0.0327)	(0.0322)	(0.0345)	(0.0349)	(0.0329)
Overal test Statistic χ^2	17357.7	4310.4	4662.2	8149.8	10121.9	5448.3	6204.3	10868.9
RSS	9.165	4.070	4.085	4.395	4.395	4.226	4.263	4.390
N	1650	1650	1650	1650	1650	1650	1650	1650

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 13. **Long Term Cumulative Growth and Private Credit: the effect of the initial GDP per capita level.** The dependent variable, the five-year real GDP per capita growth rate, is regressed against the ratio of private credit to GDP. The analysis employs the Arellano-Bover/Blundell-Bond panel data method, with L D5 for the lagged dependent variable and the following controls: D5 Nal Growth for the national five-year real GDP per capita growth rate; Fin Dev 95 for the 1995 financial deregulation dummy; D Pop for the working age population increase; Turnout for the turnout percentage in the elections, as a proxy for social capital; GDP 1980 for the province real GDP per capita in 1980; Crisis is a dummy for the 2008 to 2011 period; Bubble is a dummy for the 2002 to 2007 period.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
L.D5 Growth	1.037***	0.461***	0.477***	0.503***	0.527***	0.483***	0.504***	0.543***	0.541***
	(0.0194)	(0.0280)	(0.0275)	(0.0282)	(0.0291)	(0.0274)	(0.0276)	(0.0261)	(0.0256)
[a]PCEM	0.0707***	0.0982***	0.114***	0.112***	0.105***	0.109***	0.114***	0.112***	0.114***
	(0.00942)	(0.0103)	(0.0125)	(0.0120)	(0.0114)	(0.0121)	(0.0119)	(0.0108)	(0.0105)
D5 Nal Growth		0.723***	0.757***	0.721***	0.738***	0.731***	0.724***	0.746***	0.749***
		(0.0246)	(0.0296)	(0.0298)	(0.0282)	(0.0304)	(0.0296)	(0.0293)	(0.0282)
Turnout			0.0911**	0.0462	0.0301	0.0711	0.0460	0.0372	0.0306
			(0.0441)	(0.0479)	(0.0430)	(0.0458)	(0.0478)	(0.0448)	(0.0451)
GDP 1980			-1.157***	-1.405***	-1.348***	-1.289***	-1.397***	-1.314***	-1.269***
			(0.417)	(0.473)	(0.459)	(0.454)	(0.477)	(0.464)	(0.445)
D Pop			0.557**	1.012***	0.747**	1.097***	0.911**	0.769**	0.660*
			(0.269)	(0.327)	(0.296)	(0.376)	(0.444)	(0.366)	(0.390)
Bubble*PCEM				-0.0308***			-0.0352**		-0.0158
				(0.0114)			(0.0151)		(0.0188)
Bubble				0.0151			0.0174		0.0152
				(0.00997)			(0.0117)		(0.0130)
Crisis*PCEM					0.0173***			-0.0311**	-0.0352**
					(0.00316)			(0.0127)	(0.0148)
Mortgage						-0.126**	0.0370	0.0169	0.0407
						(0.0523)	(0.0866)	(0.0569)	(0.0854)
Crisis								0.0653***	0.0705***
								(0.0156)	(0.0167)
Constant	-0.0742***	-0.105***	-0.0633	-0.00124	0.00158	-0.0228	-0.00492	-0.0175	-0.0207
	(0.0107)	(0.0113)	(0.0502)	(0.0569)	(0.0536)	(0.0569)	(0.0591)	(0.0591)	(0.0574)
Overal test Statistic χ^2	11827.9	5458.6	4846.7	6990.0	5219.8	6507.1	7894.8	10804.8	13098.1
RSS	4.889	1.604	1.585	1.660	1.734	1.622	1.659	1.758	1.758
N	1100	1100	1100	1100	1100	1100	1100	1100	1100

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[a]Private Credit Excluding Mortgages (PCEM)