Local Financial Development, Socio-institutional Environment, and Productivity: Evidence from Italy

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ABSTRACT: This paper investigates the effects of local financial development and quality of socio-institutional environment on firms productivity in Italy. We argue that social capital, judicial efficiency, and the presence of criminal organizations might impact the real economy through three channels: a) they have a direct impact through the creation of a business environment; b) they have an indirect impact, as they are among the main determinants of private credit development and lending risk conditions; c) they might act as constraints to the effects of financial development on the real economy through misallocation of credit to highly profitable investments. We study the Italian case, using firm level data for productivity and taking advantage of the variation in terms of banking sector development, judicial efficiency, and social capital among Italian provinces. After controlling for potential endogeneity, our empirical results confirm that the real effects of financial development are conditional on the quality of socio-institutional environment. In particular, we find that a) a larger local banking market has higher positive effects on firm productivity when the socio-institutional environment is sufficiently developed; b) an improvement of lending condition (reduction of lending rates) has higher effects when the socio-institutional environment is not developed. These evidences highlight that an improvement of socio-institutional environment might spur a virtuous cycle.

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1 Introduction and motivation

The effect of local banking market development on the real economy has been widely analyzed in the economic literature, and most of the empirical results confirm the cross- country findings of a causal and positive relationship between finance and economic growth, suggesting the importance of the local banking market as a determinant of within country differences in real economy performance.

Using Italy's NUTS III level data (corresponding to the Italian provinces) for banking market and socio-institutional environment, and firm-level data on productivity, thus exploiting the large differences between Northern and Southern local economic systems, we want to test whether local institutional and social factors not only have an effect on local financial development and, through it, on real sector productivity, but also whether there is a complementary real effect of financial development conditional on the level of local institutions and social capital. To our knowledge, this represents a novel concept in the context of the regional analysis of the finance-growth nexus.

The importance of local banking development and efficiency as instruments for spurring productivity should be interpreted by keeping in mind the large differences that still remain between provincial economies in terms of economic, socio-institutional and financial development, even in a well and long-time integrated market such as Italy.

Our findings may contribute to the policy debates about regional disparities and financial integration in the EU. Numerous contributions in the literature have shown that local financial development is important for several aspects of the real sector and we have found that, in Italy, this effect is conditional on the level of socio-institutional environment. In particular, in provinces with lower levels of social capital, lower institutional efficiency and underdeveloped banking systems (Mezzogiorno), on average only socio-institutional improvement and more efficient banking systems have significant *average* effects on the levels of productivity, while a larger quantity of credit, a higher density of bank branches do not seem to be key factors. In contrast, a, larger quantity of credit and a stronger territorial presence of banks seem to have positive and significant average effects on productivity in those areas with a better socio-institutional environment (Norther and Central areas of Italy). As EU financial integration goes on and local financial and industrial structure changes, policy makers should consider this evidence.

The rest of the paper is structured as follows. In the next section, we briefly review the empirical evidence on the effect of financial development on economic growth, and the determinants of financial development (such as the quality of institutions and regulations and social capital). In Section 3, we briefly review the role of social capital on the real economy. In section 4, we describe our hypothesis, we present the data and the model specifications, and we discuss the econometric strategy for the estimation. In Section 5 we report and comment the estimation results. Section 6 deliver our conclusion.

2 Financial development and economic growth

The importance of local banking market development and structure and how it affects different aspects of local real sector performance have been widely analyzed

in the literature.

The US has often provided useful insights into this context. For example, Petersen and Rajan (1995) looked at the effect of bank concentration on lending relationships and found that young and unknown entrepreneurs (i.e., without previous borrowing records) received more credit in concentrated banking markets. Jayaratne and Strahan (2002) analyzed the effects of US bank and branch deregulation and showed that it was associated with banks' efficiency gains. Black and Strahan (2002) found higher rates of firm incorporation after US branching liberalization and interstate banking; Cetorelli and Strahan (2006) looked at the effects of competition in local US banking markets on the structure of non-financial sectors and found that more competition in the US banking market positively affects the size and number of firms (i.e. it reduces the typical size and increases the number of small and medium firms). However, it should be noted that studies focusing on the US, where the State represents the territorial unity of analysis, might point to different conclusions to those drawn from regional studies within the EU.

Among the studies focusing on Italian regions and provinces, Bonaccorsi di Patti and Dell'Ariccia (2004) found a non-monotonic relationship between banks' market power and firm creation, where banking market concentration can have a varying beneficial effect. They argue that more opaque firms (that is the firms that have a low proportion of physical capital) would benefit more from a concentrated banking market. Guiso et al. (2004a) found that local financial development is positively and causally correlated to firm formation and economic growth. Usai and Vannini (2005) looked at the effect of different types of banks on local economic growth and found that cooperative banks are better in spurring local growth as they have an information advantage over local economy and entrepreneurs. Vaona (2008) showed that financial development leads to growth even when controlling for spatial unobserved heterogeneity. Benfratello et al. (2008) showed that Italian provincial banking development positively affects the probability of firm innovation.

Since empirical evidence shows financial development has a positive impact (although the impact might be non-linear) on the real economy, it is interesting to understand why differences in financial development exist. Economic theory and empirical evidence have shown that among the determinants of the financial development there are institutional, political and social factors.[1]

According to the legal origin view, since finance is run through contracts, better creditor rights and enforcement help to improve the financial system, which, in turn, improve access to sources of external finance and firm performances. Thus, differences between civil law and common law legal systems have been put forward as determinants of a country financial development. The so-called 'political channel' underlines that the protection of private rights and freedom of competition is at the core of financial development. That financial development is higher in common law countries can be explained by the fact that common law systems, for historical reasons, tend to assign larger weights to the role of private rights over the protection of the State, while the opposite occurs in civil law

[1] See Levine (2005) for a review of the literature about the determinants of financial development as well as on the effects of financial development on economic growth.

systems. In addition, the so-called 'adaptability channel' underlines that legal traditions differ in their ability to adapt to the economic and social changes. In countries with French civil law tradition, the interpretation of the law and the jurisprudence is limited, thus changes to the law happen slowly through the legislative system. In contrast, there exists more room for interpretation and jurisprudence in common law countries. Thus, higher levels of financial development in common law countries could be explained by more flexible legal systems, which adapt better and more quickly to the continuous changes of finance and business.[2] There is also empirical evidence to suggest that the adaptability channel can explain the differences in countries' financial development and protection of creditor rights (Beck et al., 2003).

One might argue that different levels of local financial development with-in a country might not be driven by differences in legislative systems. For instance, Italy has been an integrated country since 1861, where financial regulations and creditor rights are the same in any part of the country. However, in Italy, we observe large differences in terms of depth and efficiency of the regional financial systems. As shown by empirical evidence and also argued by Sarno (2009), the quality of enforcement might be another driver of local financial development and might partly explain the differences in terms of economic growth. Better enforcement reduces opportunistic behaviors and improves the firm's capacity to use external finance, through better and more secure relationships between firms and banks (improving banking system development) as well as that between firms (improving the use of trade credit).

Other strands of the literature looks at different drivers of financial development. For instance, some look at social capital as an important determinant of trust and, thus, the use of contracts (including financial transaction). With regard to social capital and financial development in Italy, Guiso et al. (2004b) showed that in areas of Italy with high levels of social capital, households invest less in cash and more in stock, are more likely to use checks, have easier access to institutional credit, and make less use of informal credit, and that the effect of social capital is stronger among less-educated people and where where legal enforcement is weaker. In fact, one might argue that the further away legal enforcement is from functioning perfectly, the effect might be of people's trust in financial transactions.

3 Real effects of social capital

Social capital might also have a direct effect on the real economy. In 1958, Banfield (1958) underlined that social capital is among the determinants of Southern Italy's backwardness. Similarly, Putnam (1993) indicated that, in Italy, local institutions perform better in those areas with civil-minded people. According to Putnam (1993), social capital is a combination of rules, networks, and people's trust which makes it easier to achieve collective goals and the functioning of political institutions.

At the international level, Fukuyama (1995) shows people's trust is the most

[2] See Beck and Levine (2005) for a review of the literature on the legal determinants of financial development.

important cultural factors that can have an impact on economic prosperity and competitiveness. The Organisation of Economic Cooperation and Development (OECD) defines social capital as "networks, together with shared norms, values and understandings which facilitate co-operation within or among groups", while the World Bank underlines that "social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together."

In light of the above definitions, it is straightforward to understand the important role of social environment on transactions and, thus, economic development. We believe that for the objectives of this piece of work, we should include in our definition of social capital not only people's trust but also trustworthiness, which constitutes people's actual behavior for cooperation and the establishment of functioning political institutions and an economic-friendly environment .

4 Financial development, social environment and firm productivity

As described in the introduction, we would like to understand whether the real effects of financial development are conditional upon the quality of the environment in which people engage in social and institutional activities within their community. In particular, we want to understand whether the effects of different measures of local financial development (proxies of banking sector size, efficiency, and ease of access to financial services) on firm productivity (as a measure of real sector performance) depend on our indicator of social and institutional environment. Social capital and quality of institutions are not solely determinants of financial development and have a direct impact on the real economy, but they might provide necessary conditions for the impact of financial development on real economy performance.

4.1 Data

4.1.1 Firm level variables

We employ data from the Aida-Bureau Van Dijk database, a comprehensive and harmonized database containing information on firm balance sheet and performance for Italian firms and from which we extract and compute our firm-level variables of interest.[3]

We compute our dependent variable as a measure of labor productivity, given by the (natural log of the) ratio between the firm's real value added and the number of employees ($ln(Y/L)$). From this database, we also extract some firm level control variables which are found to be significant determinants of firm productivity. These variables are the capital labor ratio ($ln(K/L)$, given by the natural log of the ratio between real fixed capital and number of employees), the firm size

[3] We draw our firm-level variables from the extended version of the database, which contains information for almost the entire population of Italian firms.

(*ln(size)*, given by the natural log of number of employees), the (natural log of the) firm age (*ln(age)*), and a measure of firm's leverage (*Leverage*, given by short-term debt plus long-term debt over total asset).

Before computing these variables, we apply some cleaning criteria, given that the original database presents a different number of observations over time and industries as well as a large number of missing or unreliable values for some variables.

First of all, we keep those firms that only report unconsolidated balance sheets and those firms that report consolidated balance sheets only when unconsolidated ones are available. This is to avoid double-counting for firms reporting both consolidated and unconsolidated balance sheets.

Then, we apply a number of filters to exclude firms that have reported unreliable information. Firstly, we drop those firms that have different values for profits in the balance sheet and in the profits & loss heading. Secondly, we drop those firms that have negative values for sales. Thirdly, we drop those firms that report negative values for the total value of production and costs of production, those firms that show very negative values of value added and at the same time costs of production disproportionally high with respect to the value of production, and those firms with costs of production disproportionally low with respect to the value of production.[4]

We also apply an additional filter to detect unreliable information. We drop extreme values (the lower and upper 2.5 percentile of the distribution) for the external finance dependence variable for each firm in each year, which we compute (following Rajan and Zingales, 1998) as capital expenditures minus cash flow over capital expenditures.

The Aida database contains information for the last 10 years. We use the 2009 version of the database but because of the continuous expansion of the sample of included firms as well as delays in the report of the files, we decided to drop information for the years 1998 (which represents a small number of included firms relative to ensuing years) and 2008 (because many firms have not presented their files yet).

We also exclude firms operating in some industries from our sample to prevent identification problems in the finance and growth analysis. In particular, we exclude firms belonging to region-specific industries (i.e., regions may have different natural resources endowments), such as agriculture (NACE code 1), forestry (NACE code 2), fishing (NACE code 5), and mining (NACE codes 10-14); industries that might heavily rely on business support from public financing or tend to be strongly regulated, such as utilities (NACE codes 40-41); financial intermediaries whose balance sheet and performance tend not to be comparable with non-financial sector firms (NACE codes 65-66); and, finally, public sector firms such as the government/public sector, education, health and social sector, activities of organizations, private households, extra-territorial organizations, and firms that cannot be classified (NACE codes 75, 80, 85, 91, 92, 95, and 99), since they heavily rely upon public financing. Thus, we are left with 38 industries belonging to

[4] Given (Filter = Tot#_Val#_of_production / Costs_of_production), we drop: a) Filter >= 0 ; b) (Value_added > -100 OR Filter > 0.001) OR Filter = 0 (excluding Tot#_Val#_of_production = 0); c) Filter < 100.

manufacturing, construction, transport services, tourism, and market services.[5]

The Aida database contains information for different types of corporations: sole proprietorship, partnership, cooperatives, foundations, limited liabilities, and private limited liabilities. In order to ensure the identification of the effects of local financial development on firm's productivity, we focus our attention on limited liabilities and private limited liabilities company.[6]

Finally, we exclude unreliable data and extreme values from our sample. In particular, we drop those observations that show negative values for age, and we exclude the first and last percentile of the firm productivity, capital-labor ratio, firm size, and measure of leverage distributions.

Our final sample contains 590079 observations for 177189 firms. Clearly, the number of firms have varied during the 9 years of analysis, thus we rely on an unbalanced panel.

As expected, summary statistics for firm labor productivity show lower values for firms located in the South of Italy with respect to firms located in the rest of the country (see Table 1 in Appendix). In fact, our objective is to understand whether provincial-level characteristics, such as local financial development and the quality of socio-institutional environment, might explain these differences, or whether those differences might be explained in terms of industrial composition of the areas.

4.1.2 Measures of local banking market development

Our main indicators of local banking development are commonly used in the empirical analysis of the finance-growth nexus. In particular, since one of the objectives of our analysis is to capture different aspects of the local banking system development and structure and show the effects on real sector performance, we employ the following indicators in the main model specification as well as in the robustness checks:

- The ratio of loans to productive sector (i.e. non financial firms as well as family enterprises) to value added at provincial level (*Loans/VA)*. This indicator tells us the cross-provincial differences in terms of credit to the private productive sector by banks relative to the size of the provincial economy, and represents a measure of the depth of the provincial banking market.[7]
- The spread between lending and deposit rates (*Spread*). This index represents a measure of the local banking market efficiency: the lower the

[5] The information on the firm's industry of main activity on the AIDA database are classified according to the Italian ATECO 4-digit code industry classification. We convert this classification into 2-digit code NACE 1.1 classification to use the industry indicator of external finance dependence of Klapper et al. (2006). Due to missing values in the original database for industry of main activity, some firms where dropped from our sample.

[6] These types of company correspond to the Italian Spa (società per azioni) and Srl (società a responsabilità limitata). In the Aida database they roughly represent the 95% of the original sample.
[7] Data refer to the last trimester of the year. Data on loans to productive sector come from the electronic public database (BIP on-line) of the Bank of Italy, while data on value added at regional level are available from ISTAT (Italian National Institute of Statistics).

spread is, the more efficient the relative local banking market is. For lending rates we refer to interest rates for loan facilities available to total resident non-bank sectors; for deposit rates we take into account interest rates on sight current account deposits. Note also that the spread between lending and deposit rates is negatively related to the level of banking efficiency. So, for this two variable we take the complement of 1 for their standardized values.

- The number of bank branches per capita (*Branches*). This indicator is computed as the number of bank branches in a province divided by its population, in thousands. It is an indicator of bank density within the population, which represents a good proxy for ease of access to financial services.[8]

The use of these three indicators allows us to have a clearer picture of the relationship between financial development and real sector performance. In fact, each one disentangles a dimension of the local financial development, where a province to be financially developed should have a sizable credit market with respect to its economy, an efficient management of credit, and the presence of a relatively large number of bank branches per capita.[9]

The territorial disaggregation of these variables at provincial level allows us not only to control for the differences in terms of financial development between the Center-North and South of Italy but also for the within region segmentation of the credit markets. In fact, one might expect that in some particular regions, the provinces within the region possess significantly different levels of loans to value-added ratio. For example in Lazio, one might expect that the province of Rome would have greater values of the loans to value-added ratio. Although this is true (in 2007, the province of Rome had a standardize loans to value-added ratio of 0.67, while in Rieti -another province of Lazio- it was 0.04), there are also significant differences between provinces' financial development in the other regions. For example, in Sardinia in 2007, the province of Sassari had a standardized value of 0.63 of the loans to value added ratio, while the province of Oristano had a value 0.01.[10]

4.1.3 A measure of local social and institutional environment

The choice of the variables as proxies for social capital and institutional environment is not an easy task. Depending on the adopted definition of social capital, many factors could be employed to represent something that is not directly measurable. We employ a synthetic index (*SI*), which is based on the following variables:

- Voter turnout. This is another measure of civiness and is defined

[8] Data refer to the last trimester of the reference year. Data come from the electronic public database (BIP on-line) of the Bank of Italy.

[9] To make an easier comparison between the values these indicator we reduce their values to the interval [0,1], using Llora's standardization approach. This is done also for the indicator of socio-institutional environment. See section 4.1.3 for a detailed description.

[10] See Table 2.a in Appendix for summary statistics on provincial-level variables.

as the percentage of eligible voters who cast a ballot in the elections for the European Parliament. We decided not to use data from the general elections, because in Italy citizens are required to vote by law. Thus, we would like to capture individual's will to participate in the determination of the institution as much as possible. We used data released by the Italian Ministry of the Interior referring to European elections held in 1994 (June 12th), 1999 (June 13th), 2004 (June 12th) and 2009 (June 7th).

- Average length of bankruptcy procedures (in days). This index of judicial efficiency is elaborated by ISTAT on the basis of data collected by the Italian Ministry of Justice. It is well known that the judicial system has different levels of efficiency between Italian regions (i.e. Carmignani and Giacomelli, 2009); in particular, the efficiency is very low in the South when compared to the rest of the country. This variable allows us to capture the differences in terms of enforcement between provinces. Furthermore, we should note that judicial efficiency is highly correlated with social capital. In fact, we tentatively put forward judicial efficiency as a determinant of social capital (the lower the judicial efficiency is, the lower the potential trust in institutions), or as a consequence of social capital (the lower people's trust and co-operation, the more difficult it is for institutions to function effectively). The reference dataset includes data on Italian provinces in a time interval ranging from 1998 to 2007.
- The number of murders and attempted murders per 100,000 inhabitants. This is an index of violence of the province and, in Italy, has important territorial variation and tends to be persistent in time. According to Peri (2004), this is due to territorial presence of criminal organizations (as Mafia, Camorra, and 'Ndrangheta), particularly in the Southern area. It is intuitive that extreme forms of violence negatively affect people's trust, furthermore index is developed on data reported by police to the judicial authorities and collected by the Ministry of the Interior, Department of Public Safety. Data on Italian provinces are analyzed in the time interval ranging from 1999 to 2003.

The synthetic index of local institutional and social environment (*SI*) is built on a provincial basis.[11] All the variables described above are brought together in a single index through the following procedure: a) standardization of the size of the reference dataset; b) imputation for missing alternatively recurring to linear interpolation methods or "nearest neighbor" methods, depending on the stability of the variable.

[11] We have built also a slightly different synthetic index of socio-institutional environment, which is based on the three variables descriptive above plus the number of voluntary associations (per 10,000 inhabitants). The latter is a measure of the density of the voluntary associations with respect to the local population and it might be a good indicator for the people's participation to social activities of a province. Data for this variable are disseminated by ISTAT and refer to a survey which is conducted on a provincial basis. The reference dataset includes observations collected in 1995, 1997, 1999, 2001 and 2003. The main estimation results are confirmed when using this alternative synthetic index.

For each variable, any single provincial observation X_i in the distributions is reduced to the range [0,1], using Llora's standardization approach:

$$X_i \text{ stand.} = (X_i - Min_i)/ (Max_i - Min_i), \qquad i = 1.....103 \text{ (n of provinces in the dataset)}$$

where Max_i and Min_i are respectively the maximum and minimum value of the considered variable. In this way, all the three variables are reduced to the range [0,1]. Then, for each province, the index is obtained from the arithmetic mean of the standardized variables described above. Note also that the average length of bankruptcy procedures and the number of murders and attempted murders per 100,000 inhabitants are negatively related to the level of social capital. So, for these two variables we take the complement of 1 for their standardized values.

Similar to the territorial distribution of the indicators of financial development, the index of socio-institutional environment shows large differences between the South and the North of Italy. The provinces with higher social capital, low violence, and more efficient judicial system are located in Trentino Alto Adige, while Reggio Calabria is at the opposite extreme of the distribution. All the other provinces find themselves in the middle of the distribution: Northern and Central provinces are found on the right side whereas provinces located south of Rome are found on the lower side of it.[12]

4.2 Average effects: model specification and estimation approach

We assume that the production function for the economy is represented by a Cobb-Douglas function, which can be specified in per worker term and it can be expressed in logarithmic form:

$$\ln (Y/L) = \ln(K/L)+\alpha$$

where Y is the value added, L is the unit of labor, and K is the stock of capital. For each firm, the productivity of labor (Y/L) is represented as the ratio between value added and employees and the capital per worker (K/L) as the ratio between fixed capital stock and employees. To this function we can add additional firm-level control variables as well as our provincial-level variables of interest to identify the relationship between local financial development variables, social capital and firm productivity. Our estimated model looks as follows:

$$\ln (Y_{cipt}/K_{cipt}) = \beta_0 + \beta_1 \ln (K_{cipt}/L_{cipt}) + \beta_2 C_{cipt} + \beta_3 FD_{pt} + \beta_4 SI_{pt} + \beta_5 FD_{pt} * SI_{pt} + \varepsilon_{cipt}$$

where C is a vector of additional firm level variables (such as age, size, and leverage), FD is the measure of financial development of interest measured at provincial level, SI is the index of socio-institutional environment measured at provincial level, $FD*SI$ is the interaction between financial development and socio-institutional environment to capture the conditional effect of financial development at provincial level.

[12] See Table 2.a in Appendix for summary statistics on provincial-level variables.

The error term captures all the factors that influence productivity of labor but they are not captured by the variables in the model specification and is composed of firm- specific time invariant effects, an idiosyncratic component of time-varying firm-specific effects, and time-varying macro effects that influence all firms.[13]

Our first estimation approach consists of the inclusion of industry, region, and time dummies to control for those effects which might affect productivity in firms with similar production processes, in firms operating within the same region, and to control for those macro shocks that might affect the productivity in a given year. This augmented model is then estimated using a pooled-OLS estimator with clustered standard error at the provincial level, allowing for heteroskedasticity between the error term for firms within the same province.

The second estimation approach tries to control for those time-invariant firm-specific characteristics which affects productivity but are not captured by firm-level control variables and the industry, region, and time dummies. In particular, we exploit the time-dimension of our data and we estimate the model specification using a with-in group estimator.[14] The provincial location of firms is among the firm-specific time-invariant characteristics that this approach allows to control for. This is particularly important since it allows us to reduce any possible bias coming from the correlation between the province-level financial development variable of interest and the error term.

4.2.1 Average effects: endogeneity issues

The regressors might be correlated with the firm-specific time-varying idiosyncratic component of the error term. This might be a source of endogeneity. For instance, a shock at the provincial level might affect both firm productivity and the decision to open new bank branches or increasing banks' efficiency. We deal with this potential endogeneity problem using a 2SLS pooled estimator and a GMM estimator.

In order to test for potential endogeneity of the banking market variables, the Durbin- Wu-Hausman test is performed in its regression-based form, using all the exogenous explanatory variables of the model and some additional instruments as instrumental variables.[15] In particular, in the 2SLS estimator we follow Benfratello et al. (2008), who used the original instruments set of Guiso et al. (2004): the values of the banking market in 1936 at provincial level as instruments for the current level of provincial financial development. Guiso et al. (2004a) explained in detail the reasons and the advantages of those instruments for the current values of Italian local banking markets. The idea is that, in Italy, the rules of regulation imposed by the "Legge bancaria" of 1936, shaped the banking system until a process of deregulation at the end of the '80s. Thus these rules shaped the banking system for over 50 years by imposing constraints on opening new branches in different types of

[13] See Beck (2008) and Levine (2005) for extensive reviews of the empirical approaches to the finance- growth nexus.
[14] When estimating this model we require firms to be present at least for three years in our unbalanced panel sample.
[15] See Wooldridge (2002), pp.118-122.

banks (national banks were more tightly regulated, and among local banks, cooperative banks faced tighter constraints). Guiso et al. (2004a) also illustrated the quality of those instruments by showing that these rules were unrelated to the level of economic development in each region in 1936, and that they are only political by nature.

In particular, we use the 1936 values of branches per inhabitant, the share of bank branches owned by local banks over total branches, the number of saving banks, and the number of cooperative banks per capita, all interacted with year dummies, are used as instruments for the values of bank loans-to-value added ratio, bank spread, and branches per inhabitant; the same set of instruments interacted with the socio- insitutional indicator are used as instruments for the values of the interaction terms between the banking market variable of reference (bank loans-to-value added ratio, bank spread, and branches per inhabitant) and the socio-institutional indicator.[16]

In the first-difference GMM estimator, developed by Arellano-Bond (1991) and Arellano and Bover (1995), variables are first-differenced (to eliminate firm-specific time- invariant effects) and then the first-differences of endogenous variables are instrumented using suitable lags of their levels (to deal with simultaneity). In this case, the estimated model is slightly different since we introduce the lagged value of productivity as a regressor, thus we assume that firm productivity follows a persistent process.

4.3 Differential effects: model specification and estimation approach

To test for the effect of local financial development on productivity, we also propose an alternative approach, which looks at the differential effects between industries. In particular, we build a test similar to the one proposed by Fisman and Love (2007), who assume that exogenous shocks create new opportunities for growth in some industries, and show that a higher level of financial development is a determinant for the exploitation of these industries' growth.[17]

This test allows us to identify one of the channels through which finance has an impact on the real economy, and thus it reduces the endogeneity problems which might affect our estimated relationship.

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[16] See Table 2.b in Appendix for summary statistics on provincial-level instrumental variables.

[17] The idea is a variant of the Rajan and Zingales's (1998) original approach, which is widely used in the context of finance and growth literature. Rajan and Zingales's (1998) idea is to estimate the differential effect of financial development on firms growth across industries, assuming that industries differ from each other in terms of external financial dependence. In other words, firms operating in different industries typically differ in their needs of external finance because of technological reasons. Thus, firms that usually need more external finance would benefit more than firms that rely less on external finance from better conditions in the credit markets (i.e. cheaper and easier access to finance). The financial system variable of interest therefore interacts with an industry-specific indicator that indicates the industry's dependence from sources of external finance, thus it indicates the intensity of the relationship between a median firm in each industry and the financial markets.

Following Fisman and Love (2007), our measure of growth opportunities is defined as the median firm average real growth rate of sales for each industry in the benchmark economy, with the Lombardia (the Italian region with the most developed banking market) acting as a benchmark economy.[18]

We thus use our main estimation sample of Italian firms (excluding firms operating in Lombardia, to ensure exogeneity of the industry specific indicator of growth opportunity) and we estimate a model specification including an interaction term between the measure of financial development of interests and an industry-specific dummy of growth opportunities (*GO*). We average data over the period 1999-2007 and we estimate a cross-section, since our measure of industry growth opportunity and instrumental variables (as in Guiso et al., 2004a) do not have a time dimension.[19] The estimated model looks as follows:

$$\ln (Y_{cip}/K_{cip}) = \beta_0 + \beta_1 \ln (K_{cip}/L_{cip}) + \beta_2 C_{cip} + \beta_3 FD_p * GO_i + \beta_4 FD_{pt} * SI_{pt} * GO_i + \varphi I_i \gamma P_p + \varepsilon_{cipt}$$

If financial development (*FD*) contributes to the higher value of productivity in those industries that, in our benchmark economy (Lombardia), are experiencing higher growth rates (i.e. they have more growth opportunities, *GO*), we would expect to find a positive and statistically significant sign for the coefficient of the interaction term between financial development and growth opportunity indicator (*FD*GO*). Similarly, if the effect of financial development is conditional on the quality of the socio-institutional environment, we will find a statistically significant coefficient of the interaction term between financial development, the index of the socio-institutional environment and the growth opportunity indicator (*FD*SI*GO*).

This model specification and the interaction term between our measures of financial development and the industry-specific index of growth opportunity (computed using a benchmark economy) might reduce, in part, the endogeneity problems in the relationship between real economy performance and financial development. In particular, by using the estimated model specification (which is now a cross-section and does not have a time dimension) we reduce the omitted variable problems by including industry and provincial fixed effects without introducing identification problems. In fact, the effect of financial development is still identified, since it is interacted with a industry-specific index of growth opportunity.

However, in order to test for potential endogeneity of *FD*GO* and *FD*SI*GO* variables, the Durbin-Wu-Hausman test is performed in its regression-based form, using all the exogenous explanatory variables of the model and some additional instruments as instrumental variables.[20] In particular, in this analysis, following Benfratello et al. (2008) and Guiso et al. (2004), we use the 1936 values of branches per inhabitant and the share of bank branches owned by local banks over total

[18] Firm-level data firm real growth rate of sales in Lombardia come from the Aida dataset for the period 1999-2007. We apply to this sub-sample of firms the same cleaning criteria illustrated in section 4.1.1. In Table 3 in Appendix, we report the value of the computed growth opportunity indicator for each industry.

[19] However, we tried to build a industry-year index of growth opportunity and interact it with province- year measures of financial dependence; we obtain similar results.

[20] See Wooldridge (2002), pp. 118-122.

branches as instruments for the banking market variables.[21]

5 Estimation results

5.1 Average effects estimation results

As described in Section 4.2 we first estimate the model specification which includes the direct effects of financial development and socio-institutional environment on firm productivity. For each employed measure of local financial development (*Loans/VA*, *Spread,* and *Branches*; Table 4, Table 5, and Table 6, respectively) and for each employed estimator (pooled OLS and within group; columns 1-3 and 4-6, respectively),[22] we first estimate a model specification including the linear effects of financial development (*FD*) and social-institutional indicator (*SI*) on firm productivity (columns 1 and 4), then we introduce the interaction term *FD*SI* (columns 2 and 5), and finally we introduce both the interaction term *FD*SI* and the squared values of SI (*SI^2,* columns 3 and 6).

This last specification is particularly helpful to understand both the non-linearity of financial development (*FD*) and socio-institutional environment (*SI*) on firm productivity. In fact, suppose that both *FD* and *SI* have non-linear effects on firm productivity, and suppose that *FD* has a higher impact on firm productivity for a higher level of *SI*, while the impact of *SI* on firm productivity have a non-monotonic form: higher for a lower level of *SI* and lower for a higher level of *SI*. Checking for these non- linearities seems reasonable, but introducing only one interaction term (*FD*SI*) in the model specification might not show the actual impact of these two variables. In fact, if *FD* has a higher impact on firm productivity for a higher level of *SI*, we would expect a positive and statistically significant coefficient of the interaction term (*FD*SI*). But, given that *SI* and *FD* are highly and positively correlated, if the impact on firm productivity of *SI* is lower for higher levels of *SI* (or simply linear), we might expect to find a negative (or non significant) coefficient of the interaction term (*FD*SI*). These opposing forces captured only by one interaction term (*FD*SI*) might result in a non- statistically significant coefficient of this interaction term. Thus, the inclusion of another interaction term (*SI^2*) might allows us to capture both the opposing effects. In fact, if *FD* has a higher impact on firm productivity for a higher level of *SI*, we would expect a positive and statistically significant coefficient of the interaction term (*FD*SI*) and, at the same time, if the impact on firm productivity of *SI* is lower for higher levels of *SI*, we might expect to find a negative and statistically significant coefficient of the squared term (*SI^2*).

Clearly, this is necessary only when the non-linear effects of *FD* and *SI* contrast each other. For instance, if *FD* has a higher impact on firm productivity for lower levels of *SI* and the impact on firm productivity of *SI* is lower for higher levels of *SI*, we might expect to find a negative coefficient of the interaction term *FD*SI*, which might capture both of these non-linearities.

As described in Section 4.2, in all the model specification that we employ for

[21] See section 4.2.1.

[22] When we use the within group fixed effect estimator, we employ a restricted sample with any firm required to be present at least for two years.

the estimation of the average effects of *FD* and *SI*, we control for firm level time-varying variables that might influence firm productivity (such as the natural log of fixed capital per employee – *ln(K/L)* -, the natural log of the size of the firm – *ln(size)* - , a measure of leverage – *leverage* -, its squared value – *leverage^2* -, and the natural log of the age of the firm – *ln(age)* -) as well as for region, industry and time fixed effects.

Estimation results in any model specification show that fixed capital per employee (*ln(K/L)*) as a positive and statistically significant effect; the coefficient of the size (*ln(size)*) is statistically significant and negative (rejecting the presence of constant returns to scale);[23] the coefficient of the measure of leverage (*leverage*) is positve and statistically significant, while the coefficient of its squared value (*leverage^2*) is negative and statistically significant, indicating that a low level of debt relative to total assets might be useful for firm performance, while higher levels might reduce firms growth opportunity; finally, the coefficient of age (*ln(age)*) is positive and statistically significant (showing the presence of a leaning-by-doing process).

To gauge the average effect of provincial *FD* as well as the average effects of *SI* on firm productivity, we have to take the partial derivative of these variables with respect to firm productivity.

Table 4 show the estimated results when we use the ratio loans to provincial value added (*Loans/VA*) as a proxy of local financial development (*FD*). Pooled OLS estimation (Table 4, columns 1-3) show the presence of a non-linear effect of *Loans/VA* on firm productivity, with a higher effect for a higher level of *SI* as well as a non-linear effect of the *SI*.

These results are confirmed also by within group estimations (Table 4, columns 4-6). On the basis of estimated coefficients in Table 4 column 6, let's conduct the following exercise of comparative statics to give a clearer idea of the effect of *Loans/VA* and *SI* on firm productivity. Suppose an increase of the variable *Loans/VA* in all the provinces from their actual values to the highest values (i.e., Milano in 2007).[24] This improvement will increase of 0.7% the average productivity in the province with the value of the socio- institutional indicator at the 25th percentile of its distribution (i.e., Salerno in 2007). While, this improvement will increase of around 3.5% the average productivity in the province with the value of the socio-institutional indicator at the 75th of its distribution (i.e., Siena in 2007).

One might also be interest in understanding the effect of *SI* on productivity. Evidence show that the effect of an increase in *SI* is positive and is non-linear both for its own levels as well as the levels of *Loans/VA*.[25]

Clearly, given that the effect of SI is non-linear both in *SI* and *Loans/VA*, it is

[23] This result is in line with some studies on productivity in Italy, but in contrast to others. See Aquino et al. (2008) for a brief discussion on this point.

[24] Our standardization approach helps us to conduct this exercise.

[25] The improvement of *SI* to its highest value will increase the average productivity of 8% in the representative province-year of Centre-North (i.e., Lecco in 2001). While it will increase the average productivity of 9.1% in the representative province-year of the South (i.e., Napoli in 2000).

difficult to interpret this effects in terms of South-North differences. The finding to be underlined for the objective of this work is that improvements in *SI* have greater impact than improvements in *Loans/VA* in Southern provinces, while improvements in *Loans/VA* are more effective in the North when compared to the South.

In Table 5, we show the estimation results when we use the spread between lending and deposit rates (*Spread*, calculated as one minus the standardized value of the difference between lending and deposit rates, so an increase of it has to be interpreted as an increase in banking efficiency) as a proxy of financial development. Again Pooled OLS (Table 5, columns 1-3) and within group (Table 5, columns 4-6) estimations show that the effect of this measure of financial development is conditional on the level of socio- institutional environment. In particular, on the basis of estimated coefficients in Table 5 column 5, given the values of the provincial *SI*, evidence show that on average the lower the difference between lending and deposit rates is, the higher firm productivity is. This effect is higher when the province has relatively lower levels of socio- institutional environment. Thus, an increase in the efficiency of the banking system as well as an increase in the socio-institutional environment seem to be important for an increase in productivity for provinces with lower levels of socio-institutional environment.

Suppose an increase of the variable *Spread* in all the provinces from their actual values to the highest values (i.e., provinces of Emilia-Romagna in 2000). This improvement will increase of 7% the average productivity in the province with the value of the socio- institutional indicator at the 25^{th} percentile of its distribution (i.e., Salerno in 2007). While, it will increase of around 1% the average productivity in the province with the value of the socio-institutional indicator at the 75^{th} of its distribution (i.e., Siena in 2007).

One might also argue that differences in lending and deposit rates merely reflect the risk associated with credit in the province, so that our indicator is not a pure measure of bank efficiency. This might reasonable, however our estimation results confirm that an important determinant of productivity, in those provinces with lower levels of socio- institutional environment, is an increase in the level of socio-institutional environment itself.

Finally, Table 6 shows the estimated results when we use the bank branches density (*Branches*) as a proxy of financial development (*FD*). Pooled OLS estimations (Table 6, columns 1-3) show the presence of a non-linear effects of *Branches* on firm productivity, with a higher effect for a higher level of socio-institutional environment (*SI*) as well as a non linear effects of *SI* on firm productivity. However, the statistical significance of those effects seem to be weaker when using the within group estimator.

5.1.1 Average effects results: controlling for endogeneity

As described in Section 4.2.1, the regressors might be correlated with the firm-specific time-varying idiosyncratic component of the error term. We control for this potential endogeneity problem by using both a 2SLS pooled and difference GMM

estimator.[26]

Estimation results (Tables 7-9) confirm the main results obtained with the pooled OLS and panel with-in group estimators, even if some results turn out to be slightly weaker.

5.2 Differential effects estimation results

In table 10, we report OLS and 2SLS estimation of our measures of banking development for different level of socio-institutional environment, differencing the effects between industries according to their growth opportunities.[27]

As described in Section 4.3, following Fisman and Love (2007), we use an industry-specific measure of growth opportunity, computed onto a benchmark economy (Lombardia, which is then excluded from the estimated sample), and we average our data over the period 1999-2007. After controlling for province, industry fixed effects, and firm level determinants of productivity, we are still able to identify our terms of interests *FD*GO* and *FD*SI*GO*. Those terms allows us to test whether firms operating in industries with higher growth opportunities might be able to capture these previously-mentioned opportunities (and thus increase their productivity) when they are located in more financially developed provinces.

OLS estimation results (Table 10, columns 1-3) show that firms operating in industries with higher growth opportunities are associated with higher productivity if they are located in provinces with higher levels of financial development and socio-institutional environment.

However, we check whether our estimation results might be affected by endogeneity problems (Table 10 columns 4-6). As described in Section 4.3, we instrument our suspected endogenous regressors *FD*GO* and *FD*SI*GO* with measures of the 1936 banking market structure in the same province. In particular, we use the 1936 bank branches and share of branches owned by local banks over the total number of branches (interacted by *GO* as instruments for *FD*GO*, and interacted by *SI* and *GO* as instruments for *FD*SI*GO*).[28] These instruments always show a statistically significant sign in first-stage regressions. The regression-based form of the Durbin-Wu-Hausman test for exogeneity indicates that both the interaction terms *FD*GO* and *FD*SI*GO* might be endogenous and we might prefer to use a 2SLS estimator, as the error term of the first-stage regressions are not jointly equal to 0 when we included them in the model specification with both *FD*GO* and *FD*SI*GO*.

Let's conduct the following exercises to better understand the estimated coefficients. For instance, the magnitude of the coefficients of *Loans/VA*GO* and

[26] In the first-difference GMM estimation, we use as instruments the five lagged values of all the regressors except the time dummies and the index of socio-institutional environment (which are used as instruments). The Sargan test in all the model specification does not indicates the presence of important model misspecifications.

[27] In these model specifications we used the alternative version of the synthetic index of socio-institutional environment, which include also a measure of violence. However, when using the previous version we obtain similar estimation results.

[28] This is similar to assume that old structure of the provincial banking system has differential effects on the current structure, depending on the quality of socio-institutional environment.

*Loans/VA*SI*GO* (Table 10, column 1) implies that an improvement in the level of *Loans/VA* to the highest value (i.e., the average level of Parma in 1999-2007), productivity of firms operating in the industry at the 75th percentile of the growth opportunity indicator would be 0.2% higher than firms operating in the 25th percentile of the same distribution when the socio- institutional environment is at the 25th percentile of its distribution (i.e., the average level of Sassari in 1999-2007), while productivity of firms operating in the industry at the 75th percentile of the growth opportunity indicator would be 0.4% higher than firms operating in the 25th percentile of the same distribution when the socio-institutional environment is at the 75th percentile of its distribution (i.e., the average level of Treviso in 1999-2007). This confirms that larger sized local banking system helps to exploit growth opportunities, but this advantage is larger when the quality of socio- institutional environment is better.[29]

Then, we show interesting (and tricky) results of the differential effect of a decrease in the difference between lending and deposit rates (higher values of the variable *Spread*). In fact, if in Section 5.1 we have seen that *average* effects of better *Spread* conditions are positive and decreasing for higher levels of socio-institutional environment, estimation results in Table 10 column 3 indicates that better *Spread* conditions do not help to exploit growth opportunities, and in particular *differential* effects between industries with different growth opportunities are negatively larger for lower levels of socio- institutional environment. In other words, in the Southern area of the country, the average effect of an increase in the efficiency of the banking market on productivity is larger and positive, but firms operating in high-growth opportunities industries need an improvement of the quality of the socio-institutional environment to exploit their potential; at the opposite, in the rest of the country the average effect of an increase in the efficiency of the banking market is lower than in the South, but it helps firms operating in high-growth opportunities industries to exploit their potential and to have higher productivity levels than firms in low-growth opportunities industries.

6 Conclusions

The Italian banking market is highly segmented: Northern and Central provinces have more developed markets when compared with Southern provinces, in terms of dimension, efficiency, and density of the banking services. In this study we tested whether the local banking markets' characteristics are among the determinants of the differences of productivity between Northern and Central provinces. In particular, we test whether socio-institutional environment is not just a determinant of local financial development, but whether the real effects of local banking market characteristics are conditional on the quality of socio-institutional environment.

We found that larger local banking markets are associated with higher labor productivity when the socio-institutional environment is developed, that is in the Northern and Central areas of the country. Furthermore, an increase in

[29] When controlling for exterme values of the averaged dependent variable and when we employ a dummy variable (instead of a continuous variable) as indicator of growth opportunities (taking value 1 for industries growing above the median value and 0 otherwise), we obtain similar results.

banking market efficiency has a larger effect on productivity in those areas characterized by low levels of trust, low participation to the determination of political institutions, presence of criminal organizations, and low levels of enforcement (that in the Mezzogiorno). Finally, we showed that, in the Mezzogiorno, the effect of a better quality of the socio- institutional environment dominates the effect of the local financial development on productivity.

References

Aquino A. & Mannarino L. & Pupo V. & Ricotta F. & Succurro M. (2008). "La dinamica della produttività in Italia: aspetti empirici e teorici", *Economia Italiana*, 3, 677-712.

Arellano M. & Bond S. (1991). "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations", *Review of Economic Studies,* 58, 2, 277– 297.

Arellano M. & Bover O. (1995). "Another Look at the Instrumental-Variable Estimation of Error-Components Model", *Journal of Econometrics,* 68, 1, 29– 52.

Banfield E. C. (1958). *The moral basis of a backward society*. New York: Free Press.

Beck T. & Demirguc-Kunt A. & Levine R. (2003). "Law and finance: why does legal origin matter*?," Journal of Comparative Economics*, 31, 4, 653-675.

Beck T. & Levine R. (2005). "Legal Institutions and Financial Development", in *Handbook for New Institutional Economics*, Eds: Claude Menard & Mary M. Shirley, Norwell MA: Kluwer Academic Publishers.

Beck T. (2008). "The econometrics of finance and growth," Policy Research Working Paper Series 4608, The World Bank.

Benfratello L. & Sembenelli A. & Schiantarelli F. (2008). "Banks and Innovation: Microeconometric Evidence on Italian Firms." *Journal of Financial Economics*, 90, 2, 197-217.

Black S.E. & Strahan P.E. (2002). "Entrepreneurship and Bank Credit Availability." *Journal of Finance*, 57, 6, 2807-2833.

Bonaccorsi di Patti E. & Dell'Ariccia G. (2004). "Bank Competition and Firm Creation." *Journal of Money, Credit, and Banking*, 36, 2, 225-251.

Carmignani A. & Giacomelli S. (2009), "La Giustizia Civile in Italia: i Divari Territoriali", Bank of Italy Occasional Paper no. 40.

Cetorelli N. & Strahan P.E. (2006). "Finance as a Barrier to Entry: Bank Competition and Industry Structure in Local U.S. Markets." *Journal of Finance*, 61, 1, 437-461.

Fisman R. & Love I. (2007). "Financial Dependence and Growth Revisited", *Journal of the European Economic Association*, 5, 2-3, 470-479.

Fukuyama F. (1995). *Trust: the social virtues and the creation of prosperity*. Free Press.

Guiso L. & Sapienza P. & Zingales L. (2004a). "Does Local Financial Development Matter?." *The Quarterly Journal of Economics*, 119, 3, 929-969.

Guiso L. & Sapienza P. & Zingales L. (2004b). "The Role of Social Capital in Financial Development," *American Economic Review*, 94, 3, 526-556.

Jayaratne J. & Strahan P.E. (1998). "Entry Restrictions, Industry Evolution, and Dynamic Efficiency: Evidence from Commercial Banking. *Journal of Law &*

Economics, 41, 1,239-273.

Klapper L. & Laeven L. & Rajan R. (2006). "Entry Regulation as a Barrier to Entrepreneurship," *Journal of Financial Economics*, 82, 3, 591-629.

La Porta R. & Lopez-de-Silanes F. & Shleifer A. & Vishny R.W. (1997). "Legal Determinants of External Finance," *Journal of Finance*, 52, 3, 1131-50.

La Porta R. & Lopez-de-Silanes F. & Shleifer A. & Vishny R.W. (1998). "Law and Finance," *Journal of Political Economy*, 106, 6, 1113-1155.

Levine R. (2005). "Finance and Growth: Theory and Evidence," in: P. Aghion & S. Durlauf (ed.), *Handbook of Economic Growth*, Elsevier, 865-934.

OECD (2000). *Human and social capital and sustained growth and development: reconciling new economies and societies: the role of human and social capital*. Paris, France: Directorate for Education, Employment and Labour and Social Affairs.

Peri G. (2004). "Socio Cultural Variables and Economic Success: Evidence from Italian Provinces 1951-1991", *B.E. Journal of Macroeconomics*, 0, 1.

Petersen M.A. & Rajan R. (1995). "The Effect of Credit Market Competition on Lending Relationships." *Quarterly Journal of Economics*, 110, 2, 407-443.

Rajan R. & Zingales L. (1998). "Financial Dependence and Growth."*American Economic Review*, 88, 3, 559-586.

Sarno D, 2009. *Sviluppo finanziario e crescita economica nel Mezzogiorno*, ed. Franco Angeli.

Putnam R., 1993. *Making democracy work: civil traditions in modern Italy.* Princeton University Press.

Usai S. & Vannini M. (2005). "Banking Structure and Regional Economic Growth: Lessons from Italy." *The Annals of Regional Science*, 39, 4, 691-714.

Vaona A. (2008). "Regional Evidence on Financial Development, Finance Term Structure and Growth." *Empirical Economics*, 34,1, 185-201.

Wooldridge J. M. (2002), *Econometric Analysis of Cross Section and Panel Data*, MIT press.

APPENDIX

TABLE 1. Summary statistics of firm level variables.

variable	N	mean	sd	p25	p75	p50
FULL SAMPLE						
ln(Y/L)	590079	3.905212	.5513385	3.558428	4.176996	3.828428
ln(K/L)	590079	3.02038	1.44733	2.050682	3.978921	3.049379
ln(leverage	590079	.6548845	.2665037	.5215963	.8590418	.730979
ln(size)	590079	2.640314	1.288958	1.791759	3.496508	2.639057
ln(age)	590079	2.591524	.7868213	2.079442	3.135494	2.70805
CENTRE & NORTH						
ln(Y/L)	497864	3.922255	.5474601	3.57259	4.190133	3.841104
ln(K/L)	497864	2.966076	1.43204	2.009407	3.908414	2.994187
ln(leverage	497864	.6527187	.2675109	.5194207	.8572192	.7299747
ln(size)	497864	2.700298	1.282232	1.791759	3.526361	2.70805
lage	497864	2.632892	.7764006	2.197225	3.178054	2.772589
MEZZOGIORNO						
ln(Y/L)	92215	3.813199	.5629844	3.47992	4.102031	3.758717
ln(K/L)	92215	3.313565	1.493517	2.309861	4.33594	3.37694
ln(leverage)	92215	.6665778	.26069	.5331876	.8691854	.7364507
ln(size)	92215	2.316462	1.276907	1.386294	3.178054	2.302585
ln(age)	92215	2.368177	.8049346	1.791759	2.944439	2.484907

TABLE 2.a Summary statistics of province level variables.

FULL SAMPLE

variable	N	mean	sd	min	p25	p50	p75	Max
Loans/VA	927	.3257605	.1857564	0	.18	.32	.45	1
Spread	927	.6418878	.2157948	0	.53	.66	.83	1
Branches	927	.4114132	.2254323	0	.2	.44	.58	1
SI	927	.7239051	.1082387	.17	.67	.75	.8	.93

CENTRE & NORTH

variable	N	mean	sd	min	p25	p50	p75	Max
Loans/VA	603	.4065008	.1636407	.01	.3	.39	.49	1
Spread	603	.7266335	.1581457	.31	.61	.71	.86	1
Branches	603	.5363516	.1548355	.09	.44	.53	.64	1
SI	603	.7751741	.0598566	.6	.74	.78	.82	.93

MEZZOGIORNO

variable	N	mean	sd	min	p25	p50	p75	Max
Loans/VA	324	.1754938	.119138	0	.08	.15	.24	.63
Spread	324	.4841667	.220293	0	.31	.53	.66	.87
Branches	324	.1788889	.1327979	0	.08	.155	.235	.62
SI	324	.6284877	.1134453	.17	.55	.64	.72	.87

TABLE 2.b Summary statistics of province level variables. Instrumental variables (values for the year 1936)

FULL SAMPLE

variable	N	mean	sd	min	p25	p50	p75	max
Branches	103	.1974875	.106944	.0366772	.1141454	.1817117	.2462688	.6177727
Share local banks	103	.7635067	.1836945	.2608696	.6363636	.7959183	.9421487	1
Cooperative banks	103	.0332545	.0649719	0	.004784	.0131329	.0375495	.4288732
Saving banks	103	.0026179	.003612	0	0	.001115	.0041975	.0161191

CENTRE & NORTH

variable	N	mean	sd	min	p25	p50	p75	max
Branches	67	.243747	.1002043	.081215	.1769665	.2244793	.2867709	.6177727
Share local banks	67	.8278671	.1609589	.3559322	.7384155	.8864865	.9607843	1
Cooperative banks	67	.0409055	.0777261	0	.005979	.0210674	.0419818	.4288732
Saving banks	67	.0036718	.0039054	0	0	.0028393	.0054623	.0161191

MEZZOGIORNO

variable	N	mean	sd	min	p25	p50	p75	max
Branches	36	.1113934	.0517304	.0366772	.0799732	.1034384	.1445496	.3020688
Share local banks	36	.6437247	.1636976	.2608696	.502849	.6400862	.8055222	.8684211
Cooperative banks	36	.0190151	.0242766	0	.0046102	.0093661	.0246583	.1012907
Saving banks	36	.0006564	.0017823	0	0	0	0	.008015

TABLE 3. Mean of firm labour productivity by industry and value of industry specific inducator of growth opportunity.

Nace	mean(ln(Y/L)) FULL SAMPLE	Nace	mean(ln(Y/L)) CENTRE & NORTH	Nace	mean(ln(Y/L)) MEZZOGIORNO	Nace	go
15	3.981183	15	4.014858	15	3.886145	15	.0271046
16	3.974363	16	4.100301	16	3.588679	16	NA
17	3.771023	17	3.779536	17	3.616666	17	-.0049705
18	3.769495	18	3.805309	18	3.608274	18	-.0149374
19	3.74241	19	3.759051	19	3.613123	19	.0288099
20	3.770737	20	3.785424	20	3.68929	20	.0321791
21	3.861999	21	3.868557	21	3.816399	21	.0156532
22	3.866428	22	3.874297	22	3.788621	22	.0045556
23	4.249011	23	4.330135	23	4.046352	23	.047968
24	4.068234	24	4.080186	24	3.965534	24	.0344492
25	3.841571	25	3.848599	25	3.783442	25	.0296914
26	3.894303	26	3.920963	26	3.795451	26	.0415356
27	3.945696	27	3.954212	27	3.850816	27	.0704481
28	3.806435	28	3.823066	28	3.669	28	.0404722
29	3.857621	29	3.864115	29	3.748672	29	.0308557
30	3.860887	30	3.873977	30	3.756838	30	.0287282
31	3.821812	31	3.831779	31	3.705661	31	.0355485
32	3.8604	32	3.876671	32	3.676504	32	.0233529
33	3.869344	33	3.871076	33	3.844436	33	.016114
34	3.825608	34	3.835255	34	3.770073	34	.0314234
35	3.854914	35	3.884246	35	3.724843	35	.0399472
36	3.715006	36	3.722871	36	3.626186	36	.0182729
45	3.892139	45	3.923986	45	3.785198	45	.0556861
50	3.897295	50	3.904203	50	3.872842	50	.0235678
51	4.046633	51	4.068463	51	3.932733	51	.0270889
52	3.804877	52	3.824597	52	3.74881	52	.0074001
55	3.701491	55	3.71372	55	3.661526	55	.0129663
60	3.989166	60	4.008206	60	3.917307	60	.0281047
61	4.313754	61	4.252862	61	4.366395	61	NA
62	4.214428	62	4.227025	62	4.068864	62	.0834728
63	4.03757	63	4.04154	63	4.01628	63	.0230101
64	4.039818	64	4.080016	64	3.822748	64	.0213583
70	4.226587	70	4.245428	70	3.995214	70	.0308571
71	4.208301	71	4.242745	71	4.052568	71	.0308878
72	3.795902	72	3.806528	72	3.725595	72	.0178331
73	4.013442	73	4.048704	73	3.759417	73	.0580317
74	3.929904	74	3.955516	74	3.744445	74	.0298684
93	3.736344	93	3.746306	93	3.681054	93	.0060767
Total	3.905212	Total	3.922255	Total	3.813199	Total	.0287059

TABLE 4. Bank loans-to-value added ratio and firm productivity. Pooled OLS (columns 1-3) and Panel Fixed Effects (columns 4-6) estimations.

	(1) OLS	(2) OLS	(3) OLS	(4) FE	(5) FE	(6) FE
Loans/VA	0.2265***	0.0443	-0.3642	0.0855**	-0.3972**	-0.4666**
	(0.0372)	(0.2415)	(0.2533)	(0.0426)	(0.1774)	(0.1970)
SI	-0.0864	-0.1745	1.4898***	0.0800*	-0.1439*	0.4510**
	(0.0625)	(0.1193)	(0.3203)	(0.0444)	(0.0853)	(0.1975)
(Loans/VA)*SI		0.2364	0.7605**		0.6211***	0.7106***
		(0.3148)	(0.3352)		(0.2222)	(0.2503)
SI^2			-1.3075***			-0.4638***
			(0.2715)			(0.1618)
ln(K/L)	0.1275***	0.1275***	0.1277***	0.1155***	0.1154***	0.1155***
	(0.0041)	(0.0041)	(0.0041)	(0.0019)	(0.0019)	(0.0019)
ln(size)	-0.0979***	-0.0979***	-0.0977***	-0.4890***	-0.4888***	-0.4885***
	(0.0053)	(0.0053)	(0.0053)	(0.0062)	(0.0062)	(0.0062)
leverage	0.4118***	0.4120***	0.4105***	0.2479***	0.2477***	0.2470***
	(0.0368)	(0.0368)	(0.0368)	(0.0357)	(0.0358)	(0.0357)
leverage^2	-0.5554***	-0.5556***	-0.5545***	-0.3244***	-0.3242***	-0.3235***
	(0.0409)	(0.0409)	(0.0409)	(0.0394)	(0.0394)	(0.0394)
ln(age)	0.0038	0.0039	0.0037	0.1683***	0.1688***	0.1695***
	(0.0064)	(0.0065)	(0.0065)	(0.0091)	(0.0092)	(0.0092)
N	590079	590079	590079	477768	477768	477768
r2	0.2534	0.2534	0.2539	0.4365	0.4366	0.4367

* p<0.10, ** p<0.05, *** p<0.01
Standard errors robust to within province heteroskedasticity in parentheses.
Equations in columns (1-3) include region, industry, and time dummies. Equations in columns (4-6) include time dummies.
Estimation samples in equations (4-6) are restricted to firms with at least three observations.

TABLE 5. Bank spread and firm productivity. Pooled OLS (columns 1-3) and Panel Fixed Effects (columns 4-6) estimations.

	(1) OLS	(2) OLS	(3) OLS	(4) FE	(5) FE	(6) FE
Spread	0.3229***	1.1873***	1.1848***	0.0882***	0.5290***	0.5727***
	(0.0778)	(0.2049)	(0.1956)	(0.0281)	(0.1063)	(0.1212)
SI	-0.0298	0.8662***	0.8759**	0.0979**	0.4911***	0.2474
	(0.0855)	(0.1562)	(0.3587)	(0.0451)	(0.1034)	(0.1975)
Spread*SI		-1.3050***	-1.3013***		-0.6356***	-0.6978***
		(0.2478)	(0.2410)		(0.1385)	(0.1615)
SI^2			-0.0086			0.2087
			(0.2691)			(0.1813)
ln(K/L)	0.1266***	0.1268***	0.1268***	0.1154***	0.1155***	0.1155***
	(0.0044)	(0.0044)	(0.0044)	(0.0019)	(0.0019)	(0.0019)
ln(size)	-0.0977***	-0.0973***	-0.0973***	-0.4888***	-0.4875***	-0.4875***
	(0.0053)	(0.0053)	(0.0053)	(0.0061)	(0.0062)	(0.0062)
leverage	0.4166***	0.4144***	0.4144***	0.2479***	0.2460***	0.2462***
	(0.0377)	(0.0372)	(0.0372)	(0.0356)	(0.0353)	(0.0353)
leverage^2	-0.5580***	-0.5568***	-0.5568***	-0.3240***	-0.3224***	-0.3225***
	(0.0419)	(0.0415)	(0.0415)	(0.0394)	(0.0391)	(0.0391)
ln(age)	0.0043	0.0042	0.0041	0.1693***	0.1713***	0.1712***
	(0.0064)	(0.0064)	(0.0064)	(0.0088)	(0.0089)	(0.0089)
N	590079	590079	590079	477768	477768	477768
r2	0.2516	0.2528	0.2528	0.4365	0.4369	0.4369

* p<0.10, ** p<0.05, *** p<0.01
Standard errors robust to within province heteroskedasticity in parentheses.
Equations in columns (1-3) include region, industry, and time dummies. Equations in columns (4-6) include time dummies.
Estimation samples in equations (4-6) are restricted to firms with at least three observations.

TABLE 6. Bank branches and firm productivity. Pooled OLS (columns 1-3) and Panel Fixed Effects (columns 4-6) estimations.

	(1) OLS	(2) OLS	(3) OLS	(4) FE	(5) FE	(6) FE
Branches	-0.0458	0.0092	-0.5403**	0.0273	0.1633	0.0337
	(0.0559)	(0.2109)	(0.2523)	(0.0832)	(0.1568)	(0.1619)
Branches*SI		-0.0708	0.6616**		-0.1850	-0.0434
		(0.2733)	(0.3179)		(0.2060)	(0.2047)
SI	-0.0068	0.0235	1.7966***	0.1072**	0.1823**	0.5760***
	(0.0845)	(0.1525)	(0.4953)	(0.0470)	(0.0787)	(0.1904)
SI^2			-1.4722***			-0.3341**
			(0.4189)			(0.1462)
ln(K/L)	0.1267***	0.1267***	0.1269***	0.1154***	0.1154***	0.1154***
	(0.0044)	(0.0044)	(0.0044)	(0.0019)	(0.0019)	(0.0019)
ln(size)	-0.0977***	-0.0977***	-0.0975***	-0.4892***	-0.4892***	-0.4890***
	(0.0053)	(0.0053)	(0.0053)	(0.0061)	(0.0061)	(0.0061)
leverage	0.4129***	0.4128***	0.4117***	0.2475***	0.2475***	0.2471***
	(0.0364)	(0.0363)	(0.0362)	(0.0354)	(0.0354)	(0.0353)
leverage^2	-0.5547***	-0.5546***	-0.5540***	-0.3241***	-0.3241***	-0.3237***
	(0.0409)	(0.0408)	(0.0407)	(0.0393)	(0.0393)	(0.0392)
ln(age)	0.0042	0.0041	0.0039	0.1682***	0.1682***	0.1686***
	(0.0064)	(0.0065)	(0.0064)	(0.0088)	(0.0087)	(0.0088)
N	590079	590079	590079	477768	477768	477768
r2	0.2507	0.2507	0.2513	0.4363	0.4363	0.4364

* p<0.10, ** p<0.05, *** p<0.01
Standard errors robust to within province heteroskedasticity in parentheses.
Equations in columns (1-3) include region, industry, and time dummies. Equations in columns (4-6) include time dummies.
Estimation samples in equations (4-6) are restricted to firms with at least three observations.

TABLE 7. Bank loans-to-value added ratio and firm productivity. Pooled 2SLS (columns 1-3) and Difference GMM (columns 4-6) estimations.

	(1) Pooled 2SLS	(2) Pooled 2SLS	(3) Pooled 2SLS	(4) GMM	(5) GMM	(6) GMM
Loans/VA	0.4956***	-0.7542***	-0.5227**	0.2796*	-0.3324	-0.4718
	(0.0850)	(0.2861)	(0.2425)	(0.1525)	(0.3050)	(0.3264)
SI	-0.1674**	-0.7976***	1.3515***	0.0040	-0.2564*	0.6329***
	(0.0841)	(0.1969)	(0.3397)	(0.0349)	(0.1445)	(0.2410)
(Loans/VA)*SI		1.6642***	1.2495***		0.8494*	0.9874**
		(0.4139)	(0.3254)		(0.4449)	(0.4505)
SI^2			-1.3847***			-0.6695***
			(0.3062)			(0.2446)
ln(K/L)	0.1286***	0.1285***	0.1285***	0.2847***	0.2905***	0.2896***
	(0.0041)	(0.0042)	(0.0042)	(0.0742)	(0.0725)	(0.0716)
ln(size)	-0.0982***	-0.0982***	-0.0978***	-0.6900***	-0.6347***	-0.6418***
	(0.0052)	(0.0052)	(0.0052)	(0.1540)	(0.1489)	(0.1460)
leverage	0.4103***	0.4113***	0.4096***	-1.9302**	-1.9746**	-2.1374**
	(0.0359)	(0.0362)	(0.0360)	(0.9637)	(0.9419)	(0.9548)
leverage^2	-0.5558***	-0.5571***	-0.5551***	0.9607	1.0363	1.1631
	(0.0406)	(0.0408)	(0.0406)	(0.8227)	(0.8048)	(0.8153)
ln(age)	0.0034	0.0038	0.0035	0.2986***	0.2911***	0.3037***
	(0.0065)	(0.0064)	(0.0065)	(0.0590)	(0.0548)	(0.0558)
N	590079	590079	590079	193359	193359	193359
r2	0.2523	0.2529	0.2529			
Exogeneity	0.000	0.000	0.000			
AR(1)				0.000	0.000	0.000
AR(2)				0.653	0.423	0.335
Sargan				0.401	0.187	0.283

* p<0.05, ** p<0.01, *** p<0.001

Standard errors robust to within province heteroskedasticity in parentheses.

Equations in columns (1-3) include region, industry, and time dummies. Equations in columns (4-6) include time dummies.

In columns (1-3) the 1936 values of branches per inhabitant, the share of bank branches owned by local banks over total branches, the number of saving banks, and the number of cooperative banks per capita, all interacted with time dummies, are used as instruments for the values of bank loans-to-value added ratio; the same set of instruments interacted with the socio-institutional indicator are used as instruments for the values of the interaction terms between bank loans-to-value added ratio and the socio-institutional indicator.

In columns (4-6), results are obtained with the one step first difference GMM estimator with robust standard errors. Instrument sets include lagged values of loans-to-value added ratio, lagged values of loans-to-value added ratio interacted with the socio-institutional indicator (only in columns 5-6), lagged values of fixed capital per employee, lagged values of size, and lagged values of leverage and its squared values. Values of age, year dummies, and values of socio- institutional indicator, and squared values of institutional indicator (only in column 6) are also used as instruments.

Exogeneity is the regression-based form of the Durbin-Wu-Hausman test: if the null hypothesis is not rejected OLS estimations are preferred. P-values are reported.

Sargan is a Sargan test of the validity of the overidentifying orthogonality conditions.

AR(1) and AR(2) test the presence of first and second order serial correlation in the transformed error.

TABLE 8. Bank spread and firm productivity. Pooled 2SLS (columns 1-3) and Difference GMM (columns 4-6) estimations.

	(1) Pooled 2SLS	(2) Pooled 2SLS	(3) Pooled 2SLS	(4) GMM	(5) GMM	(6) GMM
Spread	0.4606***	1.1365***	0.8611**	-0.3223*	0.3922**	0.4955**
	(0.1357)	(0.2426)	(0.3896)	(0.1927)	(0.1717)	(0.2040)
SI	-0.0348	0.7774***	1.1331**	0.0377	0.9499***	0.4315**
	(0.0857)	(0.2003)	(0.5529)	(0.0358)	(0.2518)	(0.2104)
Spread*SI		-1.1775***	-0.6980		-1.2818***	-1.5154***
		(0.2751)	(0.4646)		(0.3470)	(0.4295)
SI^2			-0.4830			0.4935*
			(0.5890)			(0.2625)
ln(K/L)	0.1266***	0.1268***	0.1268***	0.3272***	0.3504***	0.3603***
	(0.0044)	(0.0044)	(0.0044)	(0.0826)	(0.0749)	(0.0743)
ln(size)	-0.0977***	-0.0974***	-0.0974***	-0.6035***	-0.5737***	-0.5398***
	(0.0053)	(0.0053)	(0.0053)	(0.1737)	(0.1451)	(0.1478)
leverage	0.4181***	0.4150***	0.4155***	-1.3685	-2.1913**	-2.1984**
	(0.0363)	(0.0362)	(0.0361)	(0.9697)	(0.9936)	(0.9933)
leverage^2	-0.5592***	-0.5572***	-0.5575***	0.4448	1.1170	1.1259
	(0.0407)	(0.0407)	(0.0405)	(0.8295)	(0.8461)	(0.8458)
ln(age)	0.0043	0.0042	0.0041	0.2321***	0.2774***	0.2666***
	(0.0064)	(0.0065)	(0.0065)	(0.0592)	(0.0546)	(0.0560)
N	590079	590079	590079	193359	193359	193359
r2	0.2510	0.2514	0.2515			
Exogeneity	0.351	0.187	0.843			
AR(1)				0.000	0.000	0.000
AR(2)				0.917	0.125	0.107
Sargan				0.118	0.463	0.482

* p<0.05, ** p<0.01, *** p<0.001

Standard errors robust to within province heteroskedasticity in parentheses.

Equations in columns (1-3) include region, industry, and time dummies. Equations in columns (4-6) include time dummies.

In columns (1-3) the 1936 values of branches per inhabitant, the share of bank branches owned by local banks over total branches, the number of saving banks, and the number of cooperative banks per capita, all interacted with time dummies, are used as instruments for the values of bank spread; the same set of instruments interacted with the socio-institutional indicator are used as instruments for the values of the interaction terms between bank spread and the socio-institutional indicator.

In columns (4-6), results are obtained with the one step first difference GMM estimator with robust standard errors. Instrument sets include lagged values of bank spread, lagged values of bank spread interacted with the socio-institutional indicator (only in columns 5-6), lagged values of fixed capital per employee, lagged values of size, and lagged values of leverage and its squared value. Values of age, year dummies, and values of socio-institutional indicator, and squared values of institutional indicator (only in column 6) are also used as instruments.

Exogeneity is the regression-based form of the Durbin-Wu-Hausman test: if the null hypothesis is not rejected OLS estimations are preferred. P-values are reported.

Sargan is a Sargan test of the validity of the overidentifying orthogonality conditions.

AR(1) and AR(2) test the presence of first and second order serial correlation in the transformed error.

TABLE 9. Bank branches and firm productivity. Pooled 2SLS (columns 1-3) and Difference GMM (columns 4-6) estimations.

	(1) Pooled 2SLS	(2) Pooled 2SLS	(3) Pooled 2SLS	(4) GMM	(5) GMM	(6) GMM
Branches	-0.5683***	-0.6685	-2.0728***	2.5970***	1.7974***	1.9628***
	(0.1441)	(0.4924)	(0.5768)	(0.8826)	(0.6356)	(0.7508)
SI	0.1222	0.0709	1.8425***	0.0137	0.1841	0.0408
	(0.0927)	(0.2324)	(0.4066)	(0.0347)	(0.1850)	(0.3264)
Branches*SI		0.1223	1.9422***		-0.4742	-0.6549
		(0.5376)	(0.6519)		(0.4854)	(0.5406)
SI^2			-1.7978***			0.1517
			(0.4184)			(0.3586)
ln(K/L)	0.1278***	0.1278***	0.1281***	0.3228***	0.3448***	0.3413***
	(0.0041)	(0.0041)	(0.0041)	(0.0840)	(0.0818)	(0.0793)
ln(size)	-0.0971***	-0.0971***	-0.0970***	-0.5935***	-0.5398***	-0.5501***
	(0.0054)	(0.0054)	(0.0054)	(0.1829)	(0.1742)	(0.1681)
leverage	0.4114***	0.4116***	0.4114***	-2.1268**	-2.1807**	-2.1223**
	(0.0362)	(0.0362)	(0.0361)	(1.0019)	(0.9950)	(0.9959)
leverage^2	-0.5508***	-0.5509***	-0.5512***	1.1603	1.2051	1.1595
	(0.0404)	(0.0404)	(0.0403)	(0.8620)	(0.8571)	(0.8559)
ln(age)	0.0036	0.0036	0.0035	0.2850***	0.2782***	0.2775***
	(0.0065)	(0.0065)	(0.0065)	(0.0602)	(0.0567)	(0.0567)
N	590079	590079	590079	193359	193359	193359
r2	0.2518	0.2518	0.2524			
Exogeneity	0.000	0.001	0.001			
AR(1)				0.000	0.000	0.000
AR(2)				0.481	0.238	0.254
Sargan				0.235	0.224	0.221

* p<0.05, ** p<0.01, *** p<0.001

Standard errors robust to within province heteroskedasticity in parentheses.

Equations in columns (1-3) include region, industry, and time dummies. Equations in columns (4-6) include time dummies.

In columns (1-3) the 1936 values of branches per inhabitant, the share of bank branches owned by local banks over total branches, the number of saving banks, and the number of cooperative banks per capita, all interacted with time dummies, are used as instruments for the values of bank branches; the same set of instruments interacted with the socio-institutional indicator are used as instruments for the values of the interaction terms between bank branches and the socio- institutional indicator.

In columns (4-6), results are obtained with the one step first difference GMM estimator with robust standard errors. Instrument sets include lagged values of bank branches, lagged values of bank branches interacted with the socio-institutional indicator (only in columns 5-6), lagged values of fixed capital per employee, lagged values of size, and lagged values of leverage and its squared values. Values of age, year dummies, values of socio-institutional indicator, and squared values of institutional indicator (only in column 6) are also used as instruments.

Exogeneity is the regression-based form of the Durbin-Wu-Hausman test: if the null hypothesis is not rejected OLS estimations are preferred. P-values are reported. Sargan is a Sargan test of the validity of the overidentifying orthogonality conditions.

AR(1) and AR(2) test the presence of first and second order serial correlation in the transformed error.

TABLE 10. Differential effects of measures of financial development on firm productivity. OLS (columns 1-3) and 2SLS estimations (columns 4-6).

	(1) OLS	(2) OLS	(3) OLS	(4) 2SLS	(5) 2SLS	(6) 2SLS
(Loans/VA)*GO	-4.7382			-11.7913**		
	(3.0940)			(4.8294)		
(Loans/VA)*SI*GO	9.6460**			16.5682***		
	(4.2673)			(5.1574)		
Spread*GO		-1.9323			-13.9607***	
		(3.4634)			(5.2638)	
Spread*SI*GO		5.3799			15.7372***	
		(3.2744)			(4.7543)	
Branches*GO			-4.0527			-6.6977***
			(2.5961)			(2.4305)
Branches*SI*GO			7.8481**			10.8079***
			(3.7182)			(3.1833)
ln(K/L)	0.1442***	0.1442***	0.1442***	0.1443***	0.1442***	0.1442***
	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)
ln(size)	-0.1019***	-0.1020***	-0.1019***	-0.1020***	-0.1020***	-0.1020***
	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0041)
leverage	0.4647***	0.4651***	0.4649***	0.4641***	0.4633***	0.4644***
	(0.0365)	(0.0365)	(0.0364)	(0.0365)	(0.0365)	(0.0365)
leverage^2	-0.4747***	-0.4751***	-0.4749***	-0.4741***	-0.4733***	-0.4745***
	(0.0435)	(0.0435)	(0.0434)	(0.0434)	(0.0434)	(0.0434)
ln(age)	-0.0101**	-0.0101**	-0.0101**	-0.0101**	-0.0101**	-0.0101**
	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)
N	23713	23713	23713	23713	23713	23713
r2	0.3520	0.3520	0.3520	0.3521	0.3521	0.3521
Exogeneity				0.0239	0.1217	0.0372

Standard errors robust to within province heteroskedasticity in parentheses. All equations include province and industry dummies.

The 1936 values of bank branches per inhabitant, the 1936 share of branches owned by local banks over total number of branches, the 1936 values of bank branches per inhabitant interacted with the socio-institutional indicator, and the 1936 share of branches owned by local banks over total number of branches interacted with the socio-institutional indicator are used as instruments for: in column 4, the 1999-2007 average loans to value added ratio and loans to value added ratio interacted with the socio-institutional indicator, respectively; in column 5, the 1999-2007 average bank spread and bank spread interacted with the socio- institutional indicator, respectively; in column 6, the 1999-2007 average values bank branches and bank branches interacted with the socio-institutional indicator, respectively.

The GO industry specific indicator of growth opportunities is computed on Lombardia. Firms located in Lomabardia are excluded from this sample. This sample is restricted to 36 NACE sectors because of missing value for the GO indicator.

Exogeneity is the regression-based form of the Durbin-Wu-Hausman test: if the null hypothesis is not rejected OLS estimations are preferred. P-values are reported.