

Chapter 2

Does Local Financial Development Matter?[†]

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Abstract We study the effects of differences in *local* financial development within an integrated financial market. We construct a new indicator of financial development by estimating a regional effect on the probability that, *ceteris paribus*, a household is shut off from the credit market. By using this indicator we find that financial development enhances the probability an individual starts his own business, favors entry of new firms, increases competition, and promotes growth. As predicted by theory, these effects are weaker for larger firms, which can more easily raise funds outside of the local area. These effects are present even when we instrument our indicator with the structure of the local banking markets in 1936, which, because of regulatory reasons, affected the supply of credit in the following 50 years. Overall, the results suggest *local* financial development is an important determinant of the economic success of an area even in an environment where there are no frictions to capital movements.

2.1 Introduction

Since the seminal work of (King & Levine, 1993), a large body of empirical evidence has shown that a country's level of financial development impacts its ability to grow.¹ Much of this evidence, however, comes from a period when cross-border capital movements were very limited. In the last decade, international capital mobility has exploded. Does domestic financial development still matters for growth when international capital mobility is high?

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¹See for instance, (Jayaratne & Strahan, 1996; Rajan & Zingales, 1998; Beckert & Harvey, 2001; Levine & Zervos, 1998).

This is a difficult question to answer empirically. The integration of national financial markets is so recent that we lack a sufficiently long time series to estimate its impact in the data. At the same time, the pace of integration is so fast that if we were to establish that national financial development mattered for national growth during the last decade, we could not confidently extrapolate this result to the current decade.

To try and assess the relevance for growth of national financial institutions and markets in an increasingly integrated capital market we follow a different approach. Rather than studying the effect of financial development across countries we study the effect of local financial development within a single country, which has been unified, from both a political and a regulatory point of view, for the last 140 years: Italy. The level of integration reached within Italy probably represents an upper bound for the level of integration international financial markets can reach. Hence, if we find that local financial development matters for growth within Italy, we can safely conclude national financial development will continue to matter for national growth in the foreseeable future. Of course, the converse is not true.

To test this proposition, we develop a new indicator of local financial development, based on the theoretically-sound notion that developed financial markets grant individuals and firms an easier access to external funds. Using this indicator, we find strong effects of local financial development. *Ceteris paribus* an individual's odds of starting a business increases by 5.6% if he moves from the least financially developed region to the most financially developed one. Furthermore, he is able to do so at a younger age. As a result, on average entrepreneurs are 5 years younger in the most financially developed region than in the least financially developed one. Similarly, the ratio of new firms to population is 25% higher in the most financially developed provinces than in the least financially developed, and the number of existing firms divided by population 17% higher. In more financially developed regions firms exceed the rate of growth that can be financed internally by 6 percentage points more than in the least financially developed ones. Finally, in the most financially developed region per capita GDP grows 1.2% per annum more than in the least financially developed one.

To deal with the potential endogeneity of financial development we instrument our indicator with some variables that describe the regional characteristics of the banking system as of 1936. A 1936 banking law, intended to protect the banking system from instability, strictly regulated entry up to the middle 1980s, and differentially so depending on the type of the credit institution (saving banks vs. national banks). As a result, the composition of branches in 1936 greatly influenced the availability of branches in the subsequent 50 years. For this reason, we use the structure of the banking market in 1936 as an instrument for the exogenous variation in the supply of credit in the 1990s, period when the market was fully deregulated.

These results are not driven by the North–South divide, since they hold (even stronger) when we drop Southern regions from the sample. They also do not seem to be driven by a spurious correlation between our instruments and other omitted

factors that foster growth. Was this the case, our instruments should have been positively correlated with economic development in 1936. While we do not have provincial GDP in 1936, we do have provincial GDP in 1951 (about the time when Italy regain the pre-war level of production) and number of vehicles per inhabitants in 1936 (which is a pretty good proxy for GDP per capita in 1936). Within the Center-North of the country there is no positive correlation between our instruments and these two indicators of financial development.

Yet, the most convincing way to rule out possible local omitted factors is to focus on some interaction effect, as done in (Rajan & Zingales, 1998). Under the assumption, backed by both theory and evidence, that dependence on local finance is greater for smaller than for larger firms, the interaction between firm size and our measure of local financial development should have a negative coefficient on growth (the impact of financial development on growth is less important for bigger firms). The advantage of this specification is that we can control for omitted environmental variables through regional fixed effects. That local financial development matters relatively more for smaller firms even after controlling for regional fixed effects suggests our results are not driven by omitted environmental variables.

In sum, all the evidence suggests that local financial development plays an important role even in a market perfectly integrated from a legal and regulatory point of view. Hence, finance effects are not likely to disappear as the world becomes more integrated or as Europe becomes unified.

While there is a large literature on financial development and growth across countries (see the excellent survey by Levine, 1997), the only works we know of that study within country differences are (Jayaratne & Strahan, 1996) and (Dehejia & Lleras-Muney, 2003). Using the de-regulation of banking in different states of the United States between 1972 and 1991 as a proxy for a quantum jump in financial development, (Jayaratne & Strahan, 1996) show that annual growth rates in a state increased by 0.51–1.19 percentage points a year after de-regulation. Dehejia and Lleras-Muney (2003) study the impact of changes in banking regulation on financial development between 1900 and 1940. Both studies show that local financial development matters. They do that, however, in a financial market that was not perfectly integrated yet. In fact, even in (Jayaratne & Strahan, 1996)'s sample period there were still differences in banking regulation across states and interstate branching was restricted. By contrast, during our sample period there was no difference in regulation across Italian regions nor was interregional lending restricted.

The rest of the chapter proceeds as follows. Section 2.2 describes the data. Section 2.3 introduces our measure of financial development and Sect. 2.4 presents and justifies the instruments. Section 2.5 analyzes the effects of financial development on firms' creation and Sect. 2.6 on firms' and aggregate growth. Section 2.7 explores whether the impact of local financial development on firm's mark-up and growth differs as a function of the size of the firm, as predicted by theory. Section 2.8 discusses the relation between our findings and the literature on international financial integration. Conclusions follow.

2.2 Data Description

We use three datasets. First, the Survey of Households Income and Wealth (SHIW), which contains detailed information on demographic, income, consumption, and wealth from a stratified sample of 8,000 households. Table 2.1A reports the summary statistics for this sample.

An interesting characteristic of this dataset is that each household is asked the following two questions: “During the year did you or a member of the household apply for a loan or a mortgage from a bank or other financial intermediary and was your application turned down?” and “During the year did you or a member of the household think of applying for a loan or a mortgage to a bank or other financial intermediary, but then changed your mind on the expectation that the application would have been turned down?” 1% of the sample households were turned down (i.e. answered yes to the first question), while 2% were discouraged from borrowing (i.e. answered yes to the second question). We create the variable “discouraged or turned down” equals to one if a household responds positively to at least one of the two questions reported above and zero otherwise.²

The SHIW also contains information about the profession of different individuals. Table 2.1B reports summary statistics for the individuals in the SHIW household sample.³ About 12% of the individuals in the sample were self-employed and the same percentage had received a transfer from their parents.

We collected the second dataset, containing information at the province level on the number of registered firms, their rate of formation, and the incidence of bankruptcy among them, from a yearly edition of *Il Sole 24 Ore*, a financial newspaper. These are the newspapers’ elaboration of data coming from the Italian Statistical Institute (ISTAT). Table 2.1C reports summary statistics for these data.

The third dataset contains information about firms. It is from *Centrale dei Bilanci* (CB), which provides standardized data on the balance sheets and income statements of a highly representative sample of 30,000 Italian non-financial firms.⁴ Table 2.1D reports summary statistics for these data.

²When asked whether they have been rejected for a loan, households are also given the option to respond “your demand has been partially rejected”. We classify these as *rejected* households.

³Since the sample is stratified by households and not by individuals, when we sample by individuals certain groups are over represented. For example, more people live in the South in this sample than in the household sample, reflecting the fact that the average family size is larger in the south. The age is smaller than the household sample age, because we deliberately truncated age at 60.

⁴A report by (Centrale dei Bilanci, 1992) based on a sample of 12,528 companies drawn from the database (including only the companies continuously present in 1982–1990 and with sales in excess of 1 billion Lire in 1990), states that this sample covers 57% of the sales reported in national accounting data. In particular, this dataset contains a lot of small (less than 50 employees) and medium (between 50 and 250) firms.

Table 2.1 Summary statistics for the samples used in estimations

A: Households sample (N = 8,119)					
	Mean	Median	Standard deviation	1st percentile	99th percentile
Credit rationed	0.137	0.00	0.344	0	1
Age	45.00	46.27	11.82	25	76
Male	0.85	1.00	0.352	0	1
Years of education	9.69	8.00	4.34	0	18
Net disposable income	47	41	33	6	155
Wealth	243	149	367	−19	1,634
South	0.359	0.00	0.480	0	1
B: Individuals in the Household sample (N = 50,590)					
	Mean	Median	Standard deviation	1st percentile	99th percentile
Entrepreneurs 1	0.14	0.00	0.35	0	1
Entrepreneurs 2	0.03	0.00	0.16	0	1
Age	39	39.00	11.90	16	59
Male	0.49	0.00	0.50	0	1
Years of education	9.70	8.00	4.18	0	18
Wealth	272	158	559	−6	1,893
Have received transfers from their parents? Yes = 1	0.12	0.00	0.33	0	1
Resident in the South	0.39	0.00	0.49	0	1
C: Provincial variables (N = 100)					
	Mean	Median	Standard deviation	1st percentile	99th percentile
GDP per capita (millions liras)	25.35	24.16	10.62	12.17	54.76
GDP per capita in 1951 (millions liras)	3.8	3.7	1.3	2.1	8.4
Judicial inefficiency	3.78	3.52	1.37	1.44	8.32
Firms creation per 100 inhabitants in 1995	1.14	1.12	0.34	0.53	1.95
Infrastructure in 1987	102.20	102.95	29.94	48.5	197.20
Average schooling in 1981	7.36	7.44	0.85	5.75	10.29
Population growth 89–97	0.41	0.00	2.64	−0.96	24.60
Number of firms per 100 inhabitants in 1995	9.18	9.02	1.55	6.17	12.77
Social capital	80.31	83.33	8.27	62.10	91.53
D: Regional variables (N = 19)					
	Mean	Median	Standard deviation	1st percentile	99th percentile
Financial development	0.28	0.32	0.13	0	0.50
Branches per million inhabitants in the region in 1936	193.732	190.992	110.499	57.049	530.548
Fraction of branches owned by local banks in 1936	0.745	0.741	0.167	0.463	0.972
Number of savings banks per million inhabitants in the region: 1936	2.692	1.883	3.194	0.000	10.172
Number of cooperative banks per million inhabitants in the region: 1936	8.207	7.574	6.118	0.000	21.655

Table 2.1 (continued)

E: Firm level data: Firms Balance sheet Database (N = 326,950)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Number of employees	103.33	32.00	1,167	2	970
Sales growth	0.074	0.073	0.25	0.706	−0.685
Assets/sales	1.086	0.768	1.43	0.164	15.40
Mark-up	0.058	0.055	0.095	−0.296	0.335
South	0.134	0.00	0.34	0	1

Panel A reports summary statistics for the households at risk of being rationed in the SHIW. This includes all the households that have received loans and households that have been denied a loan or discouraged from borrowing, Panel B reports summary statistics for the individuals in the SHIW (most households have more than one individual). Panel C reports summary statistics for the controls and instrumental variables used at provincial level. Panel D reports summary statistics for the firms' balance sheet database, Panel E for the Survey of Manufacturing Firms. Credit rationed is a dummy variable equal to one if an household responds positively to at least one of the following questions: "During the year did you or a member of the household think of applying for a loan or a mortgage to a bank or other financial intermediary, but then changed your mind on the expectation that the application would have been turned down?," "During the year did you or a member of the household apply for a loan or a mortgage to a bank or other financial intermediary and your application was turned down?." Age is the age of the household head in the household sample and the age of the individual in the individual sample. Male is a dummy variable equal to one if the household head or the individual is a male. *Years of education* is the number of years a person attended school. Net disposable income is in millions liras. Wealth is financial and real wealth net of household debt in millions liras. South is a dummy equal to one if the household lives in a region south of Rome. Entrepreneurs 1 includes entrepreneurs, both in the industrial and retail sectors, professionals (doctors and lawyers), and artisans. Entrepreneurs 2 includes only entrepreneurs, both in the industrial and retail sectors. Intergenerational transfer is a dummy variable equal to 1 if a household received transfers from their parents. Financial development is our indicator of access to credit (see Table 2.2). Per capita GDP is the per capita net disposable income in the province in millions of liras in 1990. GDP per capita in 1951 is the 1951 per capita value added in the province expressed in 1990 liras. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Firms' creation is the fraction of the new firms registered in a province during a year over the total number of registered firms (average 1992–1998, source ISTAT). Number of firms present per 100 people living in the same area (average of 1996–1998, source ISTAT). Number of employees is the number of employees measured at the firm level (average across years). Sales growth is the growth in nominal sales. Mark-up is profit on sales. South is a dummy equal to one if the firm is located in a region south of Rome. Ownership is a dummy variable equal to one if the firm has a single owner/shareholder. Age is the firm's age

2.3 Our Indicator of Financial Development

2.3.1 Methodology

A good indicator of financial development would be the ease with which individuals in need of external funds can access them and the premium they have to pay for these funds. In practice, both these avenues are quite difficult. We do not

normally observe when individuals or firms are shut off from the credit market, but only whether they borrow or not. Similarly, we do not normally have information on the rate at which they borrow, let alone the rate at which they should have borrowed in absence of any friction. For all these reasons, the studies of the effects of financial development (e.g., King & Levine, 1993; Jayaratne & Strahan, 1996; Rajan & Zingales, 1998a) have used alternative measures.

Fortunately, SHIW asks households whether they have been denied credit or have been discouraged from applying. Hence, it contains information on individuals' access to credit even during normal periods, i.e. outside of a banking crisis. Furthermore, unlike the U.S. Consumer Expenditure Survey, SHIW contains precise information on the location of the respondents. Controlling for individual characteristics, it is possible, thus, to obtain a local indicator of how more likely an individual is to obtain credit in one area of the country, rather than in a different one. This indicator measures how easy it is for an individual to borrow at a local level.

This approach, however, begs the question of what drives differences in financial development across Italian regions. If demand for financial development generates its own supply, the regions with the best economic prospects might have the most financially developed banking system, biasing the results of our analysis. For this reason, we will instrument our indicator of financial development with exogenous determinants of the degree of financial development.

2.3.2 *Does the Local Market Matter?*

One could object that such indicator of financial development is not very useful in so much as it measures a *local* condition of the credit market. If individuals and firms can tap markets other than the local one, local market conditions become irrelevant.⁵

There is a growing literature, however, documenting that distance matters in the provisions of funds, especially for small firms. Petersen and Rajan (2002), for instance, documents the importance of distance in the provision of bank credit to small firms. Bofondi and Gobbi (2003) show more direct evidence of the informational disadvantage of distant lenders in Italy. They find that banks entering in new markets suffer a higher incidence of non performing loans. This increase, however, is more limited if they lend through a newly opened local branch, than if they lend at a distance. Similarly, (Lerner, 1995) documents the importance of distance in the venture capital market.

That distance is an important barrier to lending is very much consistent also with the practitioners' view. The president of the Italian Association of Bankers (ABI)

⁵In Italy, as in the United States, restrictions on lending and branching across geographical areas have been removed in 1990.

declared in a conference that the banker's rule of thumb is to never lend to a client located more than three miles from his office.

Overall, this discussion suggests that distance may segment local markets. Whether it does it in practice, is ultimately an empirical matter. If local market conditions do not matter, then the geographical dummies should not have a statistically significant impact on the probability of being denied a loan, a proposition we will test. Similarly, if markets are not segmented our measure of local financial development should have no impact on any real variable, another proposition we will test.

Finally, the above discussion provides an additional testable implication. If local market conditions matter, they should matter the most for small firms, which have difficulty in raising funds at a distance, than for large firms. Thus, analyzing the effect of our indicator by different size classes will help test whether the effect we find is spurious or not.

2.3.3 *What is the Relevant Local Market?*

Italy is currently divided in 20 regions and 103 provinces.⁶ What is the relevant local market? According to the Italian Antitrust authority the *relevant market* in banking for antitrust purposes is the province, a geographic entity very similar to a US county. This is also the definition the Central Bank used until 1990 to decide whether to authorize the opening of new branches. Thus, from an economic point of view the natural unit of analysis is the province.

There are, however, some statistical considerations. Since we need to estimate the probability of rejection, which is a fairly rare event (3% of the entire sample and 14% in the sample of households who looked for credit), we need a sufficiently large number of observations in each local market. If we divide the 39,827 observations by province, we have *on average* only 387 observations per province and less than 200 observations in almost a third of the provinces. Therefore, we will be estimating each indicator on the basis of very few denials (on average 12). This casts doubt on the statistical reliability of the indicator. In fact, when we estimate the indicator at the provincial level 22% of the provincial indicators are not statistically significant. More importantly, when we divide the sample into two and estimate the provincial effect on the probability of being shut off the credit market prior and after 1994, the correlation between the indicators estimated in the first period and that estimated in the second period is only 0.14 and it is not statistically significant. As a result, we focus on the results at the regional level.

⁶The number of provinces has recently increased. During our sample period there were 95 provinces.

2.3.4 *Description of Our Results*

Our goal is to identify differences in the supply of credit. The probability a household is rejected or discouraged depends both on the frequency with which households demand credit and on the odds a demand for credit is rejected. To isolate this latter effect, we would like to have the set of people who were interested in raising funds. We do not have this information, but we can approximate this set by pooling all the households that have some debt with the household we know have been turned down for a loan or discouraged from applying. This group represents 20% of the entire sample, with an incidence of discouraged/turned down equal to 14%.⁷

For ease of interpretation we estimate a linear probability model of the likelihood a household is shut off from the credit market. Each year we classify a household as shut off if it reports it has been rejected for a loan application or discouraged from applying that year. As control variables we use several households' characteristics: household income, household wealth (linear and squared), household head's age, his/her education (number of years of schooling), the number of people belonging to the household, the number of kids, and indicator variables for whether the head is married, is a male, for the industry in which he/she works, and for the level of job he/she has.⁸ To capture possible local differences in the riskiness of potential borrowers we control in this regression for the percentage of firms that go bankrupt in the province (average of the 1992–1998 period). Since we want to measure financial development (i.e. the ability to discriminate among different quality borrowers and lend more to the good one) and not simply access to credit, we control in the regression for the percentage of non-performing loans on total loans in the province. This control should eliminate the potentially spurious effects of over lending.⁹ Finally, we insert calendar year dummies, an indicator of the size of the town or city where the individual lives, and a dummy for every region.

Table 2.2 reports the coefficient estimates of these regional dummies in ascending order. We drop the smallest region (Valle d'Aosta) because it has only 10 households in the sample at risk and none rationed. In all the other regions the local dummy is positive and statistically significant at the 1% level. The magnitude of these coefficients, however, covers a wide range. The region with the lowest conditional rate of rejection (Marche) has a rejection rate that is less than half of

⁷Note that any residual demand effect will only bias us against finding any real effect of financial development. In fact, demand is likely to be higher in more dynamic regions. Thus, if we do not perfectly control for demand we will have that more dynamic regions are incorrectly classified as more constrained. This distortion will reduce the correlation between financial development and any measure of economic performance.

⁸Household wealth includes the equity value of the household's house.

⁹If in certain areas banks lend excessively (i.e., even to non creditworthy individuals), our measure of financial development (access to credit) would be higher, but we can hardly claim the system is more financially developed. The percentage of non performing loans should eliminate this potential spurious effect.

Table 2.2 The indicator of financial development

Region	Coefficient on regional dummy	Normalized measure of financial development
Marche (Center)	0.118	0.587
Liguria (North)	0.118	0.586
Emilia (North)	0.136	0.523
Veneto (North)	0.138	0.516
Piemonte (North)	0.151	0.472
Trentino (North)	0.155	0.457
Lombardia (North)	0.161	0.435
Friuli ven. (North)	0.168	0.410
Umbria (Center)	0.172	0.398
Sardegna (South)	0.179	0.374
Toscana (Center)	0.183	0.360
Abruzzo (South)	0.183	0.359
Basilicata (South)	0.187	0.347
Molise (South)	0.215	0.248
Sicilia (South)	0.225	0.214
Puglia (South)	0.238	0.165
Lazio (South)	0.266	0.067
Campania (South)	0.278	0.027
Calabria (South)	0.286	0.000
F test for regional effects = 0	4.95	
(p-value): F(19, 8060)		
Prob > F	0.0000	

The table illustrates our indicator of financial development. The coefficient on the regional dummies is obtained from an OLS regression estimated using a subset of the household in SHIW. This subset includes (a) households that have received a loan, (b) households that have been turned down for a loan and, (c) households that are discouraged from borrowing. The left hand side variable is a dummy equal to 1 if a household is credit constrained (i.e. declares it has been turned down for a loan or discouraged from applying) and zero otherwise. Besides including a full set of regional dummies, the regression, includes a number of demographic characteristics to controls for individual effects that affect access to the credit market (age, gender, type of job, income, family size, number of income recipients in the household), a control for the percentage of bankruptcies in the province, and a control for the percentage of non-performing loans in the province. North is north of Florence, Center between Florence and Rome, and South is south of Rome. The normalized measure is defined as $1 - \text{Regional effect} / \text{Max \{Regional effect\}}$ and is thus equal to zero in the region with the maximum value of the coefficient on the regional dummy – i.e. the region less financially developed, and varies between zero and 1

the rejection rate of the least financially developed region (Calabria). As one can see from Table 2.2, financially underdeveloped regions tend to be in the South. The correlation is not perfect (0.64). This will allow us to separate the effect of a pure South dummy from the effect of financial underdevelopment. This might be over controlling, because the backwardness of the South, we will argue, can at least in part be attributed to its financial underdevelopment. Nevertheless, it is useful to show that the effects we find are not entirely explained by a South dummy. We will use this conditional probability of being rejected as a measure of financial underdevelopment. For ease of interpretation, however, we transform this variable,



Fig. 2.1 Financial development by region

so that becomes an indicator of financial development, not underdevelopment. Therefore, we compute:

1 – Conditional Probability of Rejection/Max {Conditional Probability of Rejection}. This normalized measure of financial development, which we will use in the rest of the work, is reported in the third column of Table 2.2 and in Fig. 2.1.

2.4 Our Instruments

If demand for financial development generates its own supply, the regions with the best economic prospects might have the most financially developed banking system, biasing the results of our analysis. For this reason, we need to instrument our indicator of financial development with exogenous determinants of the degree of financial development. We find such determinants in the history of Italian banking regulation.

In response to the 1930–1931 banking crisis, in 1936 the Italian Government introduced a banking law intended to protect the banking system from instability and market failure, through strict regulation of entry. Credit institutions were divided into four categories and each category was given a different degree of freedom in opening new branches and extending credit outside the city/province where they were located. National banks (mostly State-owned) could open branches only in the main cities; cooperative and local commercial banks could only open branches within the boundaries of the province they operated in 1936; while Savings Banks could expand within the boundaries of the region they operated in 1936. Furthermore, each of these banks was required to try shut down branches located outside of its geographical boundaries. Finally, any lending done outside the geographic boundaries determined by the law needed to be authorized by the Bank of Italy. This regulation remained substantially unchanged until 1985.

This regulation severely constrained the growth of the banking system: between 1936 and 1985 the total number of bank branches in Italy grew 87 vs. 1,228% in the United States.¹⁰ The effect of these restrictions was not homogenous: local banks' branches grew on average 138 vs. the 70% of big national banks. Among local banks Savings Banks had more latitude to grow and so they did: 152 vs. the 120% of the cooperatives and the mere 37% of the other banks (although this category is a mix of local and national banks). Can these differences explain the regional variation in the availability of credit 60 years later?

To test this hypothesis we estimate how much access to credit in the 1990s can be explained by the level and composition of the supply of credit in 1936. As dependent variable we use our measure of financial development and as explanatory variables we use the number of total branches (per million inhabitants) present in a region in 1936, the fraction of branches owned by local vs. national banks, the number of savings banks, and the number of cooperative banks per million inhabitants. As Table 2.3 shows, all the variables have the expected sign and this simple specification explains 72% of the cross sectional variation in the availability of credit in the 1990s.¹¹

¹⁰See <http://www2.fdic.gov/hsob/>

¹¹In the 1990s there were no restrictions to lending across regions, nor restrictions to entry. Hence, this result implies that entry takes time to occur and that distance lending is not a perfect substitute for local lending.

Table 2.3 Determinants of financial development

	Financial development
Branches per million inhabitants in the region in 1936	0.0006* (0.0003)
Fraction of branches owned by local banks in 1936	0.6121*** (0.1758)
Number of savings banks per million inhabitants in the region: 1936	0.0182* (0.0088)
Number of cooperative banks per million inhabitants in the region: 1936	−0.0186*** (0.0049)
Constant	−0.1230 (0.1172)
Observations	19
R-squared	0.720

The table illustrates the determinants of financial development. The regression is an OLS. All the RHS variables describe the local structure of the banking system (at the regional level) as of 1936. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

These results suggest that our instruments are correlated with the variable of interest (local access to credit); can we also argue that they are uncorrelated with the error in our regressions relating economic performance to financial development? To do so we need to show that the number and composition of banks in 1936 is not linked to some characteristics of the region that affect the ability to do banking in that region and of firms to exist and grow and that this regulation was not designed with the needs of different regions in mind, but it was *random*.

2.4.1 Why Regions Differ in Their Banking Structure in 1936?

There are two reasons – unrelated to economic development – that explains why regions differ in their banking structure in 1936.

First, the regional diffusion of different types of banks reflects the interaction between the different waves of bank creation and the history of Italian unification. Savings banks were the first to be established in the first half of the nineteenth century (Polsi, 1996). They started first in the regions that were under the domination of the Austrian Empire (Lombardia and the North East) as an attempt to transplant the experience of Austrian and German charitable institutions. Only later did they expand to nearby states, especially Tuscany and the Papal States, and only very gradually. The 1936 distribution of Savings Banks deeply reflects this history, with high concentration in the North East and in the Center.

Second, the number of bank branches in 1936 was deeply affected by the consolidation in the banking sector that took place between 1927 and 1936. In

1927 there were 4,055 banks with 11,837 branches located in roughly 5,000 different towns. In 1936 the total number of branches was only 7,656 covering just 3,920 towns (Bank of Italy, 1977). This consolidation was orchestrated by the Government who, during the 1930–1933 crisis, bailed out the major national banks and the Savings Banks, but chose to let smaller commercial banks and cooperative ones fail. Hence, between 1931 and 1933 stock-company banks went from 737 to 484 and cooperative banks from 625 to 473, while Savings Banks went from 100 to 91.

As a result, the number of bank branches per inhabitants in 1936 is not very highly correlated with the level of economic development of the region. The highest concentration was in Veneto, a region at the time very underdeveloped. Unfortunately, data on GDP per capita by province are not available in 1936, so we use the number of cars per capita in a province as a proxy for the degree of economic development. Table 2.4, Panel A, shows the correlation between number of bank branches per inhabitants in 1936 and the number of cars per capita in the same year. If we do not control for a North–South divide, the number of cars per capita is positively and statistically significantly correlated with number of bank branches, but the R-squared is only 0.116. When we control for South, however, the correlation between number of bank branches and the proxy for economic development of the area becomes very small and statistically insignificant. Thus, if we control for South we can say that the number of bank branches per inhabitants in 1936 is not positively correlated with unobserved factors that drive economic development.

The same can be said for the other characteristics of the 1936 banking system that we use in our analysis. The diffusion of local banks vs. national banks tends to be negatively correlated with economic development at that time. As shown in Table 2.4, the fraction of local branches that are controlled by local banks is positively but not significantly correlated with the number of cars per capita, but when we control for the North–South divide, the correlation becomes *negative* and statistically significant. The correlation between number of Savings Banks and 1951 GDP per capita is positive, but after we control for South this positive correlation disappears. Similarly, the number of cooperative banks per inhabitants is negatively and statistically significantly correlated with the measure of economic development but if we controls for the North–South divide the correlation is no longer statistically significant. In Panel C and D we check these results using as a proxy for economic development at the time of the banking law the level of GDP per capita in a province in 1951, the earliest available date. Essentially the same conclusions hold when we use GDP per capita to measure economic development in 1936.

In sum, the 1936 law froze the Italian banking system at a very peculiar time. If we exclude the South, the structure of the banking industry in 1936 was the result of historical accidents and forced consolidation, with no connection to the level of economic development at that time.

Table 2.4 1936 banking structure and economic development

Panel A				
	Bank branches per 1,000 inhabitants in the region in 1936		Fraction of bank branches owned by local banks in 1936	
Number of cars per capita in a province in 1936	0.0119*** (0.003)	0.0050 (0.0037)	0.0031 (0.0059)	−0.0135** (0.048)
South dummy	—	−0.0904*** (0.0264)	—	−0.2156*** (0.0442)
Observations	95	95	95	95
R-squared	0.116	0.211	0.003	0.197
Panel B				
	N. of savings banks per 1000 Inhabitants in the region in 1936		N. of cooperative banks per 1000 inhabitants in the region in 1936	
Number of cars per capita in a province in 1936	0.0002 (0.0001)	2.0e-5 (1.36e-5)	−0.0006*** (0.0002)	−0.0003 (0.0025)
South dummy	—	−0.0026*** (0.001)	—	0.0033* (0.0017)
Observations	95	95	95	95
R-squared	0.028	0.095	0.067	0.094
Panel C				
	Bank branches per 1,000 inhabitants in the region in 1936		Fraction of bank branches owned by local banks in 1936	
Log of provincial value added pro capita in 1951	0.1110** (0.045)	−9.16e-06*** (1.48e-06)	0.076 (0.047)	−0.135*** (0.048)
South dummy	—	−0.174** (0.066)	—	−0.238*** (0.033)
Observations	95	95	95	95
R-squared	0.095	0.407	0.027	0.381
Panel D				
	N. of savings banks per 1,000 Inhabitants in the region in 1936		N. of cooperative banks per 1,000 inhabitants in the region in 1936	
Log of provincial value added pro capita in 1951	0.003*** (0.001)	0.0010 (0.001)	−0.004** (0.002)	−0.006*** (0.002)
South dummy	—	−0.003*** (0.001)	—	−0.002* (0.001)
Observations	95	95	95	95
R-squared	0.126	0.271	0.050	0.079

The dependent variables describe the regional banking structure in 1936. In Panel A and B economic development as of 1936 is measured with the number of vehicles per capita in a province; in panels C and D with the level of GDP per capita in 1951. Standard errors, which are reported in brackets, are adjusted for clustering at the regional level. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

2.4.2 *Why Did the 1936 Law Favor Savings Banks?*

Establishing that the initial conditions were *random* is not sufficient to qualify the 1936 law as the perfect instrument. We also need to make sure that the differential treatment imposed by the law is not driven by different regional needs. Why did the 1936 banking law favor Savings Banks and penalize the National Banks?

Savings Banks were created and controlled by the local aristocracy. In 1933, for instance, 16% of the Savings Banks' directors were noble (Polsi, 2003). Traditionally, nobles were big land owners, who strongly supported the Fascist regime. This political connection is also demonstrated by the fact that 65% of Savings Banks' directors had the honorific title of *Cavaliere* (knight). This title was granted by the King and was awarded to local notables who were well politically connected. Hence, the first reason why the Fascism regime heavily supported Savings Banks both during the crisis and in the drafting of the 1936 law is that Savings Banks were controlled by strong allies of the regime.

This alliance, and possibly the main reason for the regime's support, is also shown in the destination of its profits. By statute, Savings Banks were non-profit organizations, which had to distribute a substantial fraction of their net income to *charitable activities*. Until 1931 these donations were spread among a large number of beneficiaries. Subsequently, however, the donations became more concentrated toward political organizations created by the Fascists, such as the Youth Fascist Organization (Opera Balilla) and the Women Fascist Organization (OMNI), (Polsi, 2003). Not surprisingly, the Fascist regime found convenient to protect its financial supporters!

Only apparently more complex is the position of the regime towards the large commercial banks. During the 1931–1932 crises, the regime was forced to bail them out (an example of the too-big-to-fail rule). Having experienced first hand the threat posed by big banks to the stability of the entire financial system, the Regime chose to balance the system by limiting the growth of the largest players. To these restrictions, however, might have contributed the lack of sympathy between the Fascist regime and Banca Commerciale (the biggest one), which remained a hot bed of political opposition even after being nationalized. In fact, its research department became the breeding ground of what will become the Italian anti-Fascist intelligentsia after World War II.

In sum, we think that the level and composition of bank branches in 1936 is a valid instrument to capture the exogenous variation in the supply of credit at the regional. Since the above analysis suggests this is particularly true when we exclude the South, we will test the robustness of all our results to the omissions of Southern regions.

2.5 Effects of Financial Development on Firms' Creations

Our first interest is the impact of financial development on economic mobility. We start from a very micro level: how does the degree of financial development affect the probability an individual start his own business? We then complement this

evidence with more aggregate data on the rate of firms' creation in a province. Finally, we look at whether differences in the ease of entry induced by differences in financial development have also impact on the degree of competition. Since in all these regressions our main variable of interest (financial development) varies only at the regional level, we correct the standard errors for the possible dependence of the residuals within regional clusters.

2.5.1 *Effects on the Probability of Starting a Business*

The SHIW contains information about people's occupation. In particular, it identifies individuals who are self-employed. This is a broad category that includes bona fide entrepreneurs, both in the industrial and the retail sectors, professionals (doctors and lawyers), artisans, plumbers, electricians, etc. While the financing needs of these different occupations differ wildly, it is safe to say that all of them require access to financing more than working as an employee. For this reason we start our analysis focusing on the broader category. We exclude from the population *at risk* to become self-employed students, pre-school children, retirees (people older than 60), people unable to work because invalid, and military.

Besides calendar year dummies, as control variables we use a combination of both individuals' characteristics and regional characteristics. As individual characteristics we use a person's age, his level of education, his sex, and a dummy variable equal to 1 if a household received an intergenerational transfer.¹² We also insert three local characteristics, both measured at the provincial level.

First, we use the level of per capita GDP, as a measure of economic development of the area. Since higher level of per capita income is also associated with higher level of per capita capital, this latter variable can also be interpreted in the context of Lucas' (1978) model of occupational choice and size of firms. Higher level of per capita capital boosts the productivity of employees, making it relatively more attractive for an individual to be employed. Thus, we expect the sign of per capital GDP to be negative.

Second, we try to control for the efficiency of the local court system by inserting the average number of years it takes to have a first-degree judgment in the province.¹³

Third, we control for the level of *social capital* in the province. As (Putnam, 1993) has shown, Italian regions differ widely in their level of trust, mutual cooperation, and civicness. Higher levels of trust and mutual cooperation foster both financial development (since Guiso, Sapienza, & Zingales, 2004) and

¹²We do not control for the level of wealth because this is endogenous. In spite of this objection, we tried inserting it and the results were very similar.

¹³In Italy judicial decisions are routinely appealed and a case is not considered closed until all the appeals have been decided upon. This takes much longer. The number we report here is the average amount of time to the end of the first-level trial.

economic activity. The first effect is already captured by our indicator of financial development, but the direct effect not. Hence, we insert a measure of social capital in the regression. Following (Putnam, 1993) and (Guiso, Sapienza, & Zingales, 2004), as a measure of social capital we use electoral participation in referenda.¹⁴

Table 2.5 presents the results. Column I reports the probit estimates of the impact of these variables on the probability an individual is self-employed. In more financially developed regions the probability a person becomes self-employed is indeed higher, and this effect is statistically different from zero at the 1% level. The effect is also economically significant. Moving from Calabria (the most financially underdeveloped region according to our indicator) to Marche (the most financially developed) increases a person's probability to start his own business by 5.6 percentage points, equal to 40% of the sample mean. This result is also consistent with the literature on liquidity constraints and entrepreneurship.¹⁵ By contrast, social capital does not appear to have an independent effect.

The individual characteristics have mostly the expected effect. Older people and males are more likely to start their own business. Not surprisingly, a transfer also significantly raises the probability of starting a business. More surprising is the negative and statistically significant impact of education. This result, however, is coherent with what (Evans & Jovanovic, 1989) find for the United States.

Column II re-estimates the same specification inserting a dummy variable equal to one for regions located in the South of Italy. While this is over controlling (part of what is different about the South is the lower level of financial development), it is important to ascertain the effect we found is not simply a North-South difference. And column II shows it is not. Individuals located in the South are significantly less likely to start their own business, but only marginally so (a 0.1% drop in the probability, equal to 1% of the sample mean). Introducing a Southern region dummy only minimally impacts the size of the coefficient of financial development.

One possible objection is that our indicator of financial development is measured with noise or, alternatively, is correlated with some unobserved determinant of entrepreneurship. To address this problem in Columns IV we estimate a linear probability model and instrument our indicator with a set of instruments describing the provincial banking structure in 1936: number of branches per million inhabitants in the region, share of branches of local banks, number of savings banks per million inhabitants, and number of cooperative banks per million inhabitants. For ease of comparison, column III reports the corresponding OLS estimates.

¹⁴We also experimented with voluntary blood donation, the alternative measure of social capital used in (Guiso et al. 2004), and obtained similar results.

¹⁵For example, (Evans & Jovanovic, 1989) find that individuals with more assets are more likely to become self-employed. (Holtz et al. 1994a, b) find that individuals that receive intergenerational transfers from their parents are more likely to succeed in running small businesses. (Bonaccorsi di Patti, & Dell'Ariccia, 2001) find that firm creation is higher in local markets with more bank competition, a result consistent with competition among intermediaries easing liquidity constraints.

Table 2.5 Entrepreneurship and financial development

	Probit	Probit	OLS	IV	IV	IV-no south
Financial Development	0.0957*** (0.0342)	0.0947*** (0.0356)	0.0977*** (0.0337)	0.0879** (0.0382)	0.0904** (0.0412)	0.1072* (0.0542)
Per Capita GDP/1,000	-0.1608 (0.2389)	-0.2107 (0.2519)	-0.2321 (0.2542)	-0.2346 (0.2487)	-0.272 (0.3860)	0.0739 (0.4278)
Judicial inefficiency	0.0072** (0.0033)	0.0077** (0.0033)	0.0081** (0.0034)	0.0079** (0.0032)	0.0064** (0.0030)	-0.0009 (0.0071)
Social capital	0.0007 (0.0007)	0.0004 (0.0012)	0.0004 (0.0012)	0.0005 (0.0011)	0.0001 (0.0011)	0.0003 (0.0020)
Intergenerational transfers	0.0797*** (0.0115)	0.0800*** (0.0115)	0.0879*** (0.0119)	0.0879*** (0.0116)	0.0873*** (0.0118)	0.0684*** (0.0161)
Male	0.1000*** (0.0099)	0.1000*** (0.0100)	0.1015*** (0.0095)	0.1015*** (0.0092)	0.1015*** (0.0092)	0.0876*** (0.0058)
Years of education	-0.0072*** (0.0010)	-0.0072*** (0.0010)	-0.0073*** (0.0010)	-0.0073*** (0.0010)	-0.0072*** (0.0010)	-0.0069*** (0.0011)
Age	0.0015*** (0.0003)	0.0015*** (0.0003)	0.0015*** (0.0003)	0.0016*** (0.0003)	0.0016*** (0.0003)	0.0015*** (0.0005)
South		-0.0085 (0.0200)	-0.0050 (0.0198)	-0.0051 (0.0197)	-0.0168 (0.0204)	
Per Capita GDP/1,000 in 1951					-0.0049 (0.0037)	-0.0059 (0.0041)
Observations	13,908	13,908	13,908	13,908	13,908	8,134
Pseudo R squared	0.0646	0.0646	0.049	0.0490	0.0490	0.035
p-values of financial development after collapsing the data			[0.019]	[0.234]	[0.146]	[0.017]

The left hand-side variable is a dummy equal to 1 if the individual is self-employed. This category includes entrepreneurs, both in the industrial and retail sectors, professionals (doctors and lawyers), and artisans. IV uses as instrument a set of variables that describes the banking market as of 1936 (see Table 2.3). Financial development is our indicator of access to credit (see Table 2.2). Per capita GDP is the per capita net disposable income in the province in million liras. Intergenerational transfer is a dummy variable equal to 1 if a household received transfers from their parents. Male is a dummy equal to one if the individual is a male. Years of education are the number of years a person attended school. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Age is the age of the individual. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. GDP per capita in 1951 is the 1951 per capita value added in the province expressed in 1990 liras. Standard errors, which are reported in brackets, are adjusted for clustering at the regional level. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

The IV coefficient is almost identical to the OLS counterpart and remains statistically different from zero. One problem with using the 1936 data as instruments is that there might be some omitted factor that is correlated with the level and the composition of the local banking industry and with the ability of a certain region to grow. One possible way to address this concern is to insert a proxy for the potentially omitted factor. This is what we do in the last column. If the instruments are only picking up the level of economic development at the time, then we should find no effect after inserting the level of per capita GDP in 1936. Since the first date for which provincial GDP numbers are available is 1951, we use GDP at this date. The results are virtually unchanged, suggesting that our instruments are valid instruments. Since we have seen that our instruments are uncorrelated with GDP per capita if we exclude the South, in the last column we re-estimate the IV coefficient excluding observations from the South. The coefficient is virtually unchanged and remains significant at the 10% level.

In all these estimates we used standard errors that are clustered at the regional level. While this procedure is efficient in large sample, there are some questions on its finite sample properties (Bertrand, Duflo, & Mullainathan, (2004)). An alternative technique suggested in this study is to collapse the data at the regional level, after partialling out the individual effects. We report the p-values obtained using this technique in the last row of Table 2.5 (and of all subsequent tables). The OLS estimate is significant at the 2% level, the IV one at the 15% and the IV without South at the 2%. As (Bertrand et al., (2004)) recognize, this technique lacks power, thus that the results are significant or close to significant at conventional levels is extremely encouraging.

2.5.2 Effects on the Age at Which People Become Entrepreneurs

Another way to test whether the improved access to funds brought by financial development affects the opportunity to become an entrepreneur is to look at the average age of entrepreneurs in different areas. Better access to funds should allow people to become entrepreneurs at a younger age; hence in more financially developed regions the average age of existing entrepreneurs should be lower.

In Table 2.6 we test this proposition. We restrict our attention to a more narrow definition of entrepreneur: we exclude from the sample all professionals (doctors and lawyers), artisans, plumbers, electricians, etc. Therefore, this definition includes only pure entrepreneurs. This category is the least distorted by subsidies. For instance, there are a lot of subsidies to encourage younger generations to become artisans and these subsidies are not homogenous across different regions. By using this definition, we compute the average age of entrepreneurs in each province and then we regress this average on the level of economic and financial development of each province. As column I shows, more financially developed regions have younger entrepreneurs on average, and this effect is statistically significant. Moving from the least financially developed region to the most

Table 2.6 Self employed age and local financial development

	OLS	OLS	IV	IV	IV-no south
Financial	-8.3117**	-8.2923**	-5.8957	-6.0256	-11.4730**
Development	(3.2015)	(3.2449)	(4.8297)	(4.5803)	(4.6583)
Per Capita	124.1770**	136.3543**	132.2601***	148.2946***	134.6580**
GDP/1000	(44.1353)	(47.9748)	(45.9894)	(43.2360)	(56.4051)
Judicial inefficiency	-0.4637	-0.5191	-0.4921	-0.6157*	-0.9670
	(0.3471)	(0.3411)	(0.3095)	(0.3271)	(0.7122)
Social capital	-0.0744	0.0144	-0.0144	-0.0147	0.1343
	(0.0961)	(0.1518)	(0.1415)	(0.1386)	(0.1957)
South		2.0242	2.0302	1.3773	
		(2.5451)	(2.5146)	(2.6273)	
Per Capita				-0.6965	-0.4765
GDP/1,000				(0.4509)	(0.5142)
in 1951					
Observations	92	92	92	92	59
R-squared	0.093	0.102	0.0987	0.123	0.145
p-values of financial	[0.022]	[0.019]	[0.234]	[0.146]	[0.017]
development					
after collapsing					
the data					

The dependent variable is the average age of the self employed in the province, calculated only including the entrepreneurs, both in the industrial and retail sectors. Financial development is our indicator of access to credit (see Table 2.2). Per capita GDP is the per capita net disposable income in the province in million liras. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. IV uses as instrument a set of variables that describes the banking market as of 1936. GDP per capita in 1951 is the 1951 per capita value added in the province expressed in 1990 liras. Standard errors are reported in brackets. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

financially developed one decreases the average age of entrepreneurs by 5 years. This effect is robust to controlling for Southern regions (column II), but it becomes smaller (3 years) and marginally insignificant when we use instrumental variables (columns III and IV). However, when we exclude the South the IV estimate becomes bigger than the OLS one and returns to be statistically significant. It is also significant when we collapse the data at the regional level.

2.5.3 Effects on the Entry on New Firms

If financial development increases the likelihood an individual starts a business, it should also increase the aggregate rate of firms' formation and, overall, the number of existing firms. Table 2.7 tests these predictions.

Table 2.7 Firms' creation and local financial development

Panel A: Entry of new firms					
	OLS	OLS	IV	IV	IV- no south
Financial Development	49.057** (17.83)	49.084** (20.61)	44.149*** (16.79)	44.481*** (16.25)	42.048** (19.92)
Per capita GDP/1,000	-1.221*** (0.31)	-1.155*** (0.34)	-1.150*** (0.32)	-1.036*** (0.27)	-1.245*** (0.23)
Judicial inefficiency	-2.424 (2.71)	-2.648 (2.53)	-2.716 (2.40)	-3.475 (2.49)	-4.757 (4.44)
Social capital	0.788 (0.54)	1.165 (0.86)	1.229 (0.75)	1.203 (0.76)	1.816* (1.10)
South	—	8.803 (11.50)	8.799 (11.07)	5.395 (12.10)	
Per Capita GDP/1,000 in 1951	—	—	—	-0.004** (0.00)	-0.003* (0.00)
Observations	100	100	100	100	65
R-squared	0.187	0.190	0.1894	0.203	0.222
p-values of financial development after collapsing the data	[0.007]	[0.014]	[0.048]	[0.103]	[0.090]
Panel B: Number of firms per capita in the region					
	OLS	OLS	IV	IV	IV- no south
Financial Development	2.595** (1.09)	2.595** (1.05)	2.926* (1.51)	2.960** (1.42)	2.037 (1.25)
Per capita GDP/1,000	-0.012 (0.02)	-0.013 (0.02)	-0.013 (0.02)	-0.008 (0.02)	-0.006 (0.02)
Judicial inefficiency	0.042 (0.11)	0.047 (0.11)	0.052 (0.11)	0.018 (0.11)	0.06 (0.19)
Social capital	0.082*** (0.02)	0.073** (0.03)	0.069*** (0.03)	0.068** (0.03)	0.058 (0.04)
South		-0.198 (0.51)	-0.198 (0.48)	-0.352 (0.48)	
Per Capita GDP/1,000 in 1951	2.595** (1.09)	2.595** (1.05)	2.926* (1.51)	2.960** (1.42)	2.037 (1.25)
Observations	100	100	100	100	65
R-squared	0.377	0.378	0.377	0.392	0.100
p-values of financial development after collapsing the data	[0.011]	[0.008]	[0.011]	[0.013]	[0.074]

In Panel A the dependent variable is the fraction of the new firms registered in a province during a year scaled by population. It is an average for the period 1992–1998. In Panel B the dependent variable is the number of firms located in a province per 100 people living in the same area. It is an average for the period 1996–1998. Per capita GDP is the per capita net disposable income in the province in million liras. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. IV uses as instrument a set of variables that describes the structure of the local banking markets as of 1936 (see Table 2.3). Standard errors, reported in brackets, are adjusted for regional clustering. (***): coefficient significant at less than 1%; (**): coefficient significant at the 1%; (*): coefficient significant at the 5%. A constant is also included in the regressions (coefficient not reported)

Table 2.7A analyzes the creation of new firms. The dependent variable is the fraction of new firms registered in a province during a year scaled by the number of inhabitants. It is an average for the period 1992–1998. The explanatory variables are: our indicator of financial development in the region, the per capita GDP in the province, the level of economic delinquency, and our measure of social capital. As column 1 shows, financial development favors the formation of new firms and this effect is statistically significant at the 1% level (even when collapse the data at the regional level). Moving from the least financially developed region to the most financially developed one increases the ratio of new firms to population by 25%, roughly one firm every 400 inhabitants. This result is consistent with (Black & Strahan, 2003) that find that in the U.S. competition in the banking market is associated with higher level of new incorporations because banking competition leads to more credit availability. Our result provides evidence of the direct link between credit availability and firms' creation.

Interestingly, unlike the result of the micro regression the effect of per capita GDP is negative and statistically significant, as predicted by Lucas's (1978) model. Judicial inefficiency has a negative effect on firm creation, but this is not statistically different from zero.

Inserting the South dummy (column II) does not alter the results. The dummy itself has a negative coefficient, but statistically insignificant. Finally, in columns III we instrument our indicator of financial development with a set of variables that describes the structure of the local banking market as of 1936. The magnitude of the coefficient of financial development remains similar in level and retains statistical significance at the 1% level. The same is true if we drop observation from the Southern regions (column V).

Table 2.7B analyzes the number of firms present in a province per 100 people living in the same area. Our dependent variable is an average of this indicator for the period 1996–1998. As column I shows, more financially developed areas have more firms. The difference between the most and the least financially developed region can explain a difference of 2.8 firms per 100 people, equal to almost two standard deviations in numbers of registered firms. Interestingly, here the level of social capital is statistically and economically significant. One standard deviation in social capital leads to a 0.44 standard deviation increase in the number of firms per inhabitant.

Column II inserts a dummy for the Southern regions. This dummy has a negative and statistically significant impact on the level of firms. Once we account for Southern regions, the magnitude of the impact of financial development drops by 30% but it remains statistically significant. The estimates obtained using instrumental variables are similar (Column III), even when we drop the South (column V).

2.5.4 Effects on the Degree of Competition in the Local Market

Thus far, we have shown that in financially developed regions people can more easily start a business and this leads to a higher rate of entry of new firms and also a higher number of firms overall. Does this have any major economic consequence?

The obvious place to look at is profit margins. Does this higher rate of entry lead to lower profit margins?

To answer this question we use our third dataset, containing firms' balance sheets information. Since we have information only where a firm is located and not where it sells its product, we need to assume that there is some degree of correlation between its location and the market it operates in. This assumption is fairly realistic given we are mostly talking about small firms.

We measure the mark up as earnings before interest, taxes, depreciation and amortization divided by sales. We regress this measure on our indicator of financial development and a series of control variables. To control for industry specific characteristics we insert eighteen industry dummies. Then, we control for firm size, calendar year dummies, per capita GDP, and level of economic delinquency. The results are contained in Table 2.8.

As column I shows, firms in more financially developed regions have, *ceteris paribus*, a smaller mark up. According to this estimate, firms in the most financially developed region have a mark up 1.3 percentage points lower than in the least financially developed region, i.e. 23% below the sample mean. Thus, the effect is both statistically significant and economically relevant. This effect is robust to inserting a dummy for Southern regions (column II), and to instrumenting financial development (columns III) and also to instrumenting and dropping Southern regions at the same time (column V).

In principles, these differences in the entry of new firms and the degree of competition could also be attributed to geographical clustering in industry specialization. Suppose that certain areas of the country are specialized in industries or segment of industries where the optimal firm size is small. Then, in these areas we would observe more firms, more competition, and also more entry, since barriers to entry are smaller when the optimal size of a firm is smaller. This could explain why these characteristics are positively correlated in the data, but why are they positively correlated with financial development? If this is the direction of causation we should find a strong negative correlation between financial development and firm's size.

To test this we regress the logarithm of firms' sales on our indicator of financial development, eighteen industry dummies, calendar year dummies, per capita GDP, and level of judicial inefficiency, and firms' profitability. This latter variable is obviously endogenous. Removing it, however, does not change our results. In all specifications (not reported) the estimated coefficient of financial development is negative, but is statistically insignificant. Thus, geographical clustering in optimal firm size is unlikely to be the driving force behind our results.

In sum, we have looked at the effect of financial development on entry from very different points of views: from the micro point of view – the occupational choice; from the macro point of view – the number of new and existing firms; and from the industrial organization point of view – lower profits margins. From all these different angles a consistent picture emerges: financial development facilitates entry.

Table 2.8 Firms market power and financial development

	OLS	OLS	IV	IV	IV-no-South
Financial development	−0.0228** (0.0091)	−0.0230** (0.0096)	−0.0201** (0.0092)	−0.0207** (0.0091)	−0.0300*** (0.0090)
Per capita GDP/ 1,000,000	0.0055 (0.0049)	0.0060 (0.0044)	0.0060 (0.0044)	0.0061 (0.0050)	0.0069 (0.0046)
Judicial inefficiency	0.0004 (0.0005)	0.0002 (0.0005)	0.0003 (0.0005)	0.0003 (0.0005)	0.0004 (0.0010)
Log (size)	−0.0021*** (0.0003)	−0.0021*** (0.0003)	−0.0021*** (0.0003)	−0.0021*** (0.0003)	−0.0021*** (0.0003)
Social capital	−0.0003* (0.0001)	−0.0002 (0.0002)	−0.0003 (0.0002)	−0.0003 (0.0002)	−0.0002 (0.0002)
South	−	0.0014 (0.0037)	0.0013 (0.0040)	0.0013 (0.0041)	0.0014 (0.0037)
Per Capita GDP/ 1,000 in 1951	−	−	−	1.32e-08 (4.14e-07)	1.79e-07 3.67e-07
N. Obs.	296,846	296,846	296,846	296,846	258,016
Adj. R-square	0.0224	0.0224	0.0224	0.0224	0.0248
p-values of financial development after collapsing the data	[0.014]	[0.038]	[0.104]	[0.078]	[0.029]

The left hand-side variable is a measure of the market power of the firm. Following (Domowitz et al. 1986) we compute the firm's profit margin on unit price as (value added - labor costs)/(total income + change in stocks); for a price-setting firm with constant returns to scale, the lower the elasticity of demand the higher the margin and thus its market power. Per capita GDP is the per capita net disposable income in the province in million liras. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Firm size is measured with the number of employees. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. All regressions include a full set of time and industry dummies. IV uses as instrument a set of variables that describes the structure of the local banking markets as of 1936. GDP per capita in 1951 is the 1951 per capita value added in the province expressed in 1990 liras. Standard errors, reported in brackets, are adjusted for regional clustering. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

2.6 Effects of Financial Development on Firms' Growth

Finally, we explore whether the local level of financial development affects firms' rate of growth. Existing firms can, at least in part, finance growth via internally generated cash. Thus, we expect financial development to have an impact only on the growth in excess of the one that could be internally financed. Following (Demirgüç-Kunt & Maksimovic, 1998), we compute the maximum rate of internally financed growth and then use it as a control variable in the regression. This rate is obtained following the *percentage of sales* approach to financial planning

(Higgins, 1977). Under reasonable assumptions, the maximum rate of growth internally financed is:

$$\text{Max } g = \text{ROA}/(1 - \text{ROA})$$

where ROA is the return on assets.¹⁶

The dependent variable is the annual nominal rate of growth in sales. Besides the maximum rate of growth that could be internally financed, our explanatory variables include: firm's size, a dummy for the industry a firm belongs to, GDP per capita in the province, our measure of courts inefficiency, our measure of social capital and, of course, our regional indicator of financial development. A full set of calendar year dummies account for any aggregate shock to nominal sales growth, including inflation.

As Table 2.9 shows, local financial development has a positive and statistically significant effect on firm's growth (which remains significant even when we collapse the data at the regional level). *Ceteris paribus*, a firm located in the most financially developed region grows 5.7 percentage points faster than a firm located in the least financially developed region, i.e. 77% faster than the average firm. Thus, the effect is very sizeable also from an economic point of view. When we insert a dummy for Southern regions (column II) the economic magnitude of this effect is unchanged. When we instrument the indicator of financial development (column III), the magnitude of the coefficient slightly decreases, but remains highly statistically significant. If we control for 1951 per capita GDP or exclude Southern regions, the IV estimates returns to be almost the same as the OLS one and retains its statistical significance.

2.6.1 *Effects on Aggregate Growth*

Since we have seen that financial development fosters the entry of new firms and the growth of the existing ones, it should also have an impact on the aggregate rate of growth. We test this prediction in Table 2.10. We measure growth as the rate of growth of per capita GDP in a province between 1989 and 1997. In the tradition of the growth regressions (see Barro, 1991), we control for several factors: the beginning of the period (1989) GDP per capita; the quality of infrastructure present in a province at the beginning of the period (measured as the availability of infrastructure in the province as of 1987); the level of human capital, measured as the average years of schooling in the province in 1981; the population growth

¹⁶The assumptions are: (1) the ratio of assets used in production to sales is constant; (2) the firm's profit rate for unit of sales is constant; (3) the economic depreciation of assets equals that reported in the financial statements; (4) all the profits are reinvested.

Table 2.9 The effect of financial development on firms' growth

	OLS	OLS	IV	IV	IV-no-South
Financial development	0.0754*** (0.0168)	0.0762*** (0.0191)	0.0703*** (0.0216)	0.0768*** (0.0209)	0.0710** (0.0240)
Internally financed growth	0.0971*** (0.0085)	0.0969*** (0.0086)	0.0971*** (0.0087)	0.0970*** (0.0086)	0.0985*** (0.0098)
Per capita GDP/1000000	-0.1210 (0.0739)	-0.1390 (0.0900)	-0.1390 (0.0892)	-0.2030** (0.0990)	-0.1350 (0.0850)
Judicial inefficiency	0.0017 (0.0017)	0.0022 (0.0013)	0.0020 (0.0012)	0.0012 (0.0014)	0.0011 (0.0016)
Size	0.0149*** (0.0021)	0.0149*** (0.0021)	0.0145*** (0.0021)	0.0149*** (0.0021)	0.0137*** (0.0021)
Social capital	0.0015*** (0.0003)	0.0013* (0.0006)	0.0014* (0.0006)	0.0012* (0.0006)	0.0017* (0.0008)
South	—	-0.0053 (0.0096)	-0.0049 (0.0101)	-0.0073 (0.0104)	—
Per Capita GDP/1,000 in 1951	—	—	—	-1.7e-06 (1.4e-06)	-2.36e-06 (1.58e-06)
N. Obs.	252,101	252,101	252,101	252,101	217,834
Adj. R-square	0.0608	0.0608	0.0608	0.0609	0.0617
p-values of financial development after collapsing the data	[0.001]	[0.009]	[0.001]	[0.042]	[0.001]

The left hand-side variable is the annual rate of growth in sales. The maximum rate of growth internally financed is $\text{Max } g = \text{ROA}/(1 - \text{ROA})$, where ROA is the return on assets. Per capita GDP is the per capita net disposable income in the province in million liras. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Firm size is measured with the number of employees. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. All regressions include industry and time dummies. IV uses as instrument a set of variables that describes the structure of the local banking markets as of 1936. GDP per capita in 1951 is the 1951 per capita value added in the province expressed in 1990 liras. Standard errors, reported in brackets, are adjusted for regional clustering. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

between 1989 and 1997; our measure of courts inefficiency and our measure of social capital.

After controlling for all these variables, the level of financial development has a positive and statistically significant impact on growth (column I). The effect is also economically sizeable. Moving from the least to the most financially developed region boosts the growth rate by 1.2 percentage point a year. When we insert a control for Southern regions (column II) the effect remains substantially unchanged.

Interestingly, when we instrument our indicator of financial development, the effect increases by 30% (column III). This seems to suggest that the noisiness of our

Table 2.10 Local growth and financial development

	OLS	OLS	IV	IV	IV-no-south
Financial	0.0209**	0.0233***	0.0377***	0.0377***	0.0232**
Development	(0.0081)	(0.0073)	(0.0092)	(0.0092)	(0.0098)
Per capita GDP/ 1,000 in 1989	-0.0030***	-0.0031***	-0.0031***	-0.0031***	-0.0030***
	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Infrastructures in 1987	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Average schooling in 1981	0.0053**	0.0022	0.0018	0.0018	-0.0004
	(0.0024)	(0.0022)	(0.0022)	(0.0022)	(0.0028)
Population growth	0.0002	0.0003	0.0005	0.0005	0.0004
	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Judicial Inefficiency	-0.0011	-0.0010	-0.0009	-0.0010	-0.0029**
	(0.0008)	(0.0008)	(0.0007)	(0.0007)	(0.0012)
Social capital	0.0007***	0.0000	-0.0001	-0.0001	-0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0003)
South		-0.0176***	-0.0182***	-0.0182***	
		(0.0037)	(0.0036)	(0.0037)	
Per Capita GDP/ 1,000 in 1951				-0.0001	-0.0000
				(0.0007)	(0.0008)
Observations	93	93	93	93	57
R-squared	0.552	0.647	0.6308	0.6309	0.7555
p-values of financial development after collapsing the data	[0.431]	[0.039]	[0.047]	[0.048]	[0.166]

The dependent variable is the rate of growth of per capita GDP between 1989 and 1997. Financial development is our indicator of access to credit (see Table 2.2). Per capita GDP is the per capita net disposable income in the province in million liras. Infrastructure is an indicator of the level of infrastructure at the provincial level in 1987. Average schooling is the average years of schooling in the province in 1981. Population growth is the growth of population between 1989 and 1997. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. IV uses as instrument a set of variables that describes the structure of the local banking markets as of 1936. GDP per capita in 1951 is the 1951 per capita value added in the province expressed in 1990 liras. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

indicator of financial development tends to bias downward our estimate of the impact of financial development on growth. If we instrument and exclude the South at the same time (column V), the coefficient returns to be similar to the OLS one, but remains statistically significant at the 5% level.

In sum, the data seems to confirm that the micro effects we have documented have also an impact at the macro level. An interesting and unexplored question is how much these differences in financial development can explain regional differences in economic development. To assess the potential important of this factor in an unreported regression we relate the level of per capita GDP in a province to the

local level of financial development, instrumented with the 1936 banking structure variables. Not only local financial development has a positive and statistically significant effect, its magnitude is also economically very relevant: 60% of the difference in per capita income between Milan and Rome – about 50% – could be explained by the difference in their local levels of financial development. Of course, many other factors play a role. Nevertheless, this is further evidence that local financial development matters.

2.7 Testing the Differential Effect of Local Financial Development

Since our measure of financial development is regional, there is always the fear that some other local factors, correlated with financial development, could drive the results. To overcome this problem we use a technique similar to the one introduced by (Rajan & Zingales, 1998) in the cross country context. If we make an assumption on which firms rely more heavily on the local sources of finance, then we can test whether firms that depend more heavily on local sources benefit more of being located in more financially developed regions, while controlling for fixed local characteristics. Hence, we can separate whether the effect is really driven by financial development or by some other local characteristics.

From a theoretical point of view, we do not expect all firms to be equally affected by local financial development. Both (Berger, Miller, Petersen, Rajan, & Stein, 2001) and (Petersen & Rajan, 2003) find that small firms are less likely to borrow at a distance making them more dependent from the level of local financial development. Reliance on local finance, thus, should be inversely related to size. Hence, the effect of local financial development should be stronger for smaller firms. We test this proposition in Table 2.11, with the two firm-level variables we have: firms' growth and firms' mark-up. In these regressions we can control for regional fixed effects, which absorb the effect of any local characteristic.

In the first two columns the dependent variable is growth in firms' sales. Besides all the variables present in the basic specification used in Table 2.9, here we insert regional fixed effects and the product of financial development and firm size.¹⁷ If the previously estimated effect of financial development is not spurious, we expect that the product of local financial development and firm size has a negative coefficient: bigger firms benefit proportionately less of it. This is indeed what we find, and the coefficient is statistically significant at the 1% level (5% level when we collapse the data at the regional level). The same is true when we instrument financial development with the 1936 banking structure variables.

¹⁷The level of financial development is obviously absorbed by the regional fixed effects. We are still able to estimate the coefficient of judicial inefficiency because these data vary at the provincial level.

Table 2.11 Interacting financial development and firm size: regional fixed effects estimates

	Firm's growth		Firm's markup	
	OLS	IV	OLS	IV
Financial development \times (size/1,000)	-0.0105*** (0.0015)	-0.0092*** (0.0015)	-0.0061*** (0.0022)	0.1600** (0.07)
Internally financed growth	0.0930*** (0.0058)	0.0931*** (0.0058)	0.0930*** (0.0058)	—
Per capita GDP/1,000,000	0.3500*** (0.0590)	-0.3630*** (0.0577)	-0.3630*** (0.0577)	0.1030*** (0.0492)
Judicial inefficiency	0.0035*** (0.0009)	*** (0.0008)	0.0037*** (0.0009)	-0.0010* (0.0006)
Size	0.0159*** (0.0040)	0.0155*** (0.0004)	-0.0019*** (0.0004)	-0.0073*** (0.0025)
Social capital \times (size/1,000)	—	—	—	-7.96e-05* (3.99e-05)
Regional fixed effects	Yes	Yes	Yes	Yes
F test for regional effects = 0 (p-value)	57.37 (0.0000)	57.29 (0.000)	8.0e + 05 (0.0000)	1.0e + 07 (0.000)
N. Obs.	252,101	252,101	296,846	296,846
Adjusted R-square	0.062	0.0619	0.062	0.0241
p-values of financial development after collapsing the data	[0.080]	[0.041]	[0.591]	[0.096]

The left hand-side variable is the annual rate of growth in sales (columns 1 and 2) and a measure of the market power of the firm (columns 3 and 4). Firm size is measured with the number of employees. The maximum rate of growth internally financed is $\text{Max } g = \text{ROA}/(1 - \text{ROA})$, where ROA is the return on assets. Per capita GDP is the per capita net disposable income in the province in million liras. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. All regressions include regional fixed effects. IV uses as instrument a set of variables that describes the structure of the local banking markets as of 1936. Standard errors, reported in brackets, are adjusted for regional clustering. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

This methodology also allows us to separate better the effects of financial development by those of social capital. To this purpose in column III we insert the interaction between social capital and firm size. This interaction is negative and significant, suggesting that in areas with more social capital small firms grow relatively faster. The effect of financial development is reduced by a third, but it is still significant at the 1% level.

In columns IV, V, and VI of Table 2.11 we repeat the same experiment using mark-up as a dependent variable. Since the average effect of financial development on mark-up (which is captured by the regional fixed effect) is negative and bigger firms should be less affected by it, we expect the coefficient of the product of regional financial development and firm size to be positive. In fact, in the OLS regression the coefficient is negative, albeit not statistically different from zero. When we instrument with the 1936 banking structure variables, however, the coefficient of the interaction between regional financial development and firm size becomes positive and statistically significant. The same is true when we insert the interaction between social capital and size. Thus, using both dependent variables, the effect of local financial development is robust to the insertion of regional fixed effects.

To have a better sense of the quantitative importance of local finance for firms of different sizes, in Table 2.12 we split the sample in four. The first group is composed of small firms, with less than 67 employees. We chose this cut off because it represents the 75th percentile of firm's distribution. The second group is composed of what in Italy we would call medium firms, with a number of employees between 67 and 275 (the 95th percentile of the distribution). Large firms, those with more than 275 employees, form the third group. Finally, we isolate a group of really large firms, more than 500 employees.

Table 2.12A reports the mark-up regressions. As expected, the effect of financial development on mark up seems to be present only among small and medium firms. The effect is quantitatively much smaller (only one third) and not statistically significant for large and very large firms.

Table 2.12B reports the sample splits for the growth regressions. Not surprisingly, small firms, which represent 75% of the sample, behave as the sample as a whole (column I). The impact on medium firms is similar (column II). More interestingly, the impact of financial development on growth in large firms is one third of that in medium firms. As to be expected, the impact of financial development on very large firms is zero, both economically and statistically.

That the effects of *local* financial development are limited to small firms is important from a political economy point of view (see Rajan & Zingales, 2003). Large and established firms do not get any benefit from local financial development; in fact they are hurt, because it increases the competition at the local level. Thus, they are not very likely to push for it. The real beneficiaries are small firms and would be entrepreneurs, a group who is hardly very influential at the political level.

Table 2.12 Sample splits by firm size

Panel A: firm's mark up				
	Small	Medium	Large	Very large
Financial development	−0.0181* (0.0112)	−0.0289*** (0.0053)	−0.0120 (0.0142)	−0.011 (0.0168)
Per capita GDP/1,000,000	0.0691 (0.0516)	0.0562 (0.0306)	0.0979** (0.0462)	0.0464*** (0.0063)
Judicial inefficiency	0.00003 (0.0005)	0.0015 (0.0011)	0.0011 (0.0024)	0.0005 (0.0033)
Log (size)	−0.0031*** (0.009)	−0.0018 (0.0012)	−0.0069*** (0.0014)	−0.0065* (0.0025)
Social capital	−0.00035* (0.00018)	−3.23e-06 (0.0002)	0.0002 (0.0004)	0.0003 (0.0007)
South	0.0009 (0.0045)	0.0032 (0.0036)	0.0032 (0.0036)	−0.0062 (0.0067)
N. Obs.	224,579	58,168	14,099	6,294
Adj. R-square	0.0250	0.0241	0.0317	0.0467
p-values of financial development after collapsing the data	[0.069]	[0.002]	[0.745]	[0.987]
Panel B: firm's growth				
	Small firms	Medium firms	Large firms	Very large firms
Financial development	0.0660** (0.0258)	0.0865*** (0.0229)	0.0276 (0.0351)	−0.0072 (0.0446)
Internally financed growth	0.0857*** (0.0093)	0.0787*** (0.0097)	0.0971*** (0.0233)	0.0991*** (0.0201)
Per capita GDP/1,000,000	0.02490 (0.1090)	−0.4050*** (0.0659)	−0.4360*** (0.1220)	−0.4140*** (0.1910)
Judicial inefficiency	0.0018 (0.0012)	0.0045** (0.0019)	0.0040 (0.0033)	0.0030 (0.0055)
Social capital	0.0014** (0.0006)	0.0007 (0.0008)	0.0012 (0.0011)	0.0019 (0.0017)
Size	0.0306*** (0.0023)	0.0005 (0.0029)	0.0020 (0.0022)	0.0041 (0.0041)
South	−0.0040 (0.0113)	−0.0096 (0.0121)	−0.0167 (0.0152)	−0.0078 (0.0213)
N. Obs.	187,454	51,032	13,615	6,397
Adj. R-square	0.0626	0.0643	0.0687	0.0787
p-values of financial development after collapsing the data	[0.069]	[0.002]	[0.745]	[0.225]

In panel A the left hand-side variable is a measure of the market power of the firm (see notes to Table 2.6). In Panel B it is the average collection period, defined as the average level of account receivables (sum of beginning of period and end of period stock divided by 2) scaled by sales and multiplied by 365. Small firms have less than 67 employees; medium firms between 67 and 275; large firms more than 275 and very large firms more than 500. The maximum rate of growth internally financed is $\text{Max } g = \text{ROA}/(1 - \text{ROA})$, where ROA is the return on assets. Per capita GDP is the per capita net disposable income in the province in million liras. Judicial inefficiency is the number of years it takes to have a first-degree judgment in the province. Social capital is measured by average voter turnout at the province level for all the referenda on the period between 1946 and 1987. South is a dummy equal to one for regions south of Rome. Regressions include industry dummies, time dummies (where appropriate). All regressions are IV estimates using as instrument a set of variables that describes the structure of the local banking markets as of 1936. Standard errors, reported in brackets, are adjusted for regional clustering. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

2.8 Financial Integration

We started our analysis on the premise that Italy represented a market perfectly integrated from a legal and regulatory point of view, i.e. Italy had no regulatory barriers that prevented capital to move freely across regions.¹⁸ Nevertheless, our evidence points to some type of frictions. Firms in Naples are more starved for funds than firms in Milan. How can this be an integrated market?

To confirm this impression, in Table 2.13 we compute the correlation between savings and investments across Italian regions. Since (Feldstein & Horioka, 1980), this is the traditional way to measure market segmentation. As Table 2.13 shows, there exists a positive and statistical significant relation between savings and investment even across Italian regions (albeit this correlation is smaller in magnitude than the one found across countries). This correlation persists unchanged even after all the restrictions to banking are lifted (column II). How can we explain this? Doesn't this make Italy a de facto non-integrated market, non suitable to analyze the effects of an integrated international market?

To explain this apparent contradiction it is useful to distinguish between two types of mobility. There is mobility of a dollar (actually a lira) between two financial intermediaries located in different regions/countries and the mobility from a local intermediary to a local borrower. If any of these two types of mobility is impaired, local investments will be correlated with local savings. In particular, even if a lira can be easily moved from a bank in Milan to a bank in Naples, it cannot go to finance an investment project in Naples without the help of a local intermediary who screens the good from the bad projects. If that local expertise is missing, it would appear as if there are no profitable investment opportunities in Naples, even when firms are starved for cash. The truth is that there are no investable profit opportunities, i.e. investment opportunities that can be profitably exploited.

Table 2.13 Feldstein-Horioka test

	1970–1995	1990–1995
Savings/GDP	0.2526*** (0.0461)	0.2400 (0.1367)
Constant	0.3029*** (0.0123)	0.0394*** (0.0279)
Regional dummies	Yes	Yes
Year dummies	Yes	Yes
N. Obs.	19	19

Left-hand side is the ratio of gross regional investment to gross regional product. Savings/GDP is the ratio of gross regional saving to gross regional product. Regional and year fixed effects are included in the regressions but not reported. Standard deviations are in brackets. (***): coefficient significant at less than 1%; (**): coefficient significant at the 5%; (*): coefficient significant at the 10%

¹⁸In fact, during our sample period even the restrictions to bank location and bank lending were removed.

Hence, even in a world where funds can freely flow from place to place, the quality of local financial intermediaries will continue to matter. Since international financial market integration has reduced regulatory barriers and made it easier to move money from country to country, but it does not have changed the importance of this *last mile* in the money network, our work can legitimately be interpreted as concluding that local financial development will continue to matter for the foreseeable future.

2.9 Conclusions

Financial markets are becoming increasingly integrated throughout the world. Does this mean that domestic financial institutions become irrelevant? Our work suggests not. We show that even in a country (Italy) that has been fully integrated for the last 140 years, local financial development still matters. Therefore, domestic financial institutions are likely to remain important in a financially integrated Europe and, more broadly, in a financially integrated world for time to come.

Our evidence also suggests that, as predicted by theory, local financial development is differentially important for large and small firms. Not only does this result support the existence of a causal link between local financial development and real economic variables, but it also raises some questions on the economic effects of financial integration. As Europe and the world are becoming more integrated, large firms will become increasingly uninterested of the conditions of the local financial system, while small firms will continue to rely on it. Hence, depending on the initial size distribution of firms and the minimum threshold to access foreign capital markets, the political support in favor of domestic financial markets might vanish or strengthen as the world becomes more financially integrated. Policy makers working at the European integration should seriously consider this effect, which might explain the persistent underdevelopment of vast areas in Italy 140 years after unification.

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