CREDIT AND ECONOMIC DEVELOPMENT: STRUCTURAL DIFFERENCES AMONG THE ITALIAN REGIONS

Mattoscio Nicola, Colantonio Emiliano, Odoardi Iacopo, Perrucci Antonella
Department of Philosophical, Pedagogical and Economic-Quantitative Sciences, University of Chieti-Pescara, Italy
mattoscio@unich.it
colantonio@unich.it
iacopo.odoardi@unich.it
antonella.perrucci@unich.it

Abstract: *The international economic crisis of 2007 has had long-lasting negative effects on the financial markets and the real economy of many countries. The occurred uncertainty and the complications of the balance sheets of many banks, due to the strong international connections, particularly impacted on the ability and willingness of financial market, on granting credit to consumer households and companies. Credit, and the financial system in general, represent according to the economic literature, one of the determinants of economic development and, particularly, its efficiency determines the speed of growth and the potential level. The difficulties in the transmission of monetary policy and the structural inefficiency have worsened the negative effects of the economic crisis in many European countries, including Italy, where large differences in the socio-economic context of the various macro-areas still persist. The role of banks is to exploit tools and knowledge to the best addressing of funds, by subjects in excess to those in deficit, or towards who may exploit them for productive purposes. In addition, banks are locally a guidance to entrepreneurs and an entity aware of the local needs and potentials. In this paper we combine several variables on the credit and the quality of banking contracts, in addition to real economic and R&D variables, with reference to the Italian regions. The aim is to identify structural differences among the Italian regions in terms of financial and economic development, and in addition to observe the discrepancy between the various macro areas, even considering the effects of the international financial crisis broken out in the U.S. in 2007. We consider data over sufficiently long periods before and after the advent of the crisis and the long subsequent period of economic recession. The detail of the analysis is regional, in order to have a sufficient number of contexts that are grouped into homogeneous groups, helping to clarify and explain the dynamics of the socioeconomic differences that still exist. We use a Multidimensional scaling analysis with the aim of exploring the relationship between credit and socioeconomic development in the different Italian areas, observing in particular the structural differences that could lead to a deeper distance of the wellbeing of the poorest regions in the South compared to that of North-central.*

Keywords: Credit; Economic growth; Economic development.

JEL classification: E51; O11.

1. Introduction

The economic crisis of 2007, with financial origin and strong real effects worldwide, led long-term negative consequences, undermining the financial structure and the climate of trust in many countries. Structural weaknesses have been revealed, causing in some cases a long period of instability and uncertainty in financial and real markets, leading to the so-called “Great Recession”. The origin of the financial crisis has rapidly expanded its effects worldwide due to the interconnections of the global market, and the financial market has suffered from the persistent adverse effects, just due to the nature of the crisis. In Italy, households and businesses have accused banks to have interrupted the regular flow of funding, directed to consumption and investment, in a context of general economic slowdown and rising unemployment. The European financial system has been affected as early 2008, the year following the outbreak of the speculative bubble. Limits and constraints were immediately imposed by supervisory authorities, to prevent infection by the institutions with balance sheets at risk, severely restricting the work of some banks. The control and supervisor authority have found a sort of trade-off between restrictive policies on banks activities and the rising risk of bank default (Bernauer and Koubi, 2002), in a context of rising risk for the financial system for the period of economic downturn.

The lack of liquidity in the European system of banks, the growing perception of default risk and the more stringent rules on the choice of new debtors, have imposed a restriction in the normal function of the banks. On the other hand, there was the continuing deterioration of corporate balance sheets and the difficulty in repaying maturity debts, so the rising share of the so-called marginal borrowers (Woo, 2003), with few chance of getting restructuring of the bonds to maturity, and a greater risk of bankruptcy. In summary, the real financial origin of the crisis has had a relevant impact on the financial needs of businesses (Bernauer and Koubi, 2002) and households.

The persistence of economic difficulties and the general financial instability have worsened the situation of many banks, causing the decrease of the value of the banks’ assets, alarm for the future hoarding of capital, network effects among banks, the uncertainty and the scarcity of private savings, with the imposed requirement to hold additional funds (among others see Brunnermeier, 2009). On one hand the wrong choices in the composition of the credit securities portfolio of some banks has made it difficult to grant other loans during the recession (e.g. in some cases under-capitalization and low liquidity later), even risking of going outside the parameters of control of the budget. On the other hand, the economic difficulties for businesses and households have induced delays and problems in repaying debts, and structural change in the demand for loans, because of missing signs of economic recovery.

These problems have occurred in Europe, in a period of strong austerity imposed on the public accounts. The Mediterranean area has greatly suffered for the international financial crisis; in countries such as Italy the numerous local weaknesses have been added to the exogenous difficulty. Not all banks were affected from hazard on their balance sheets, and not in all the Italian regions credit flows have serious disturbances, as seen in this work.

The periods of economic relevance considered in our analysis are 2004-07 and 2008-12. For these purposes we consider the average values of credit, socioeconomic and R&D variables. For these two stages, we use a *Multidimensional Scaling Analysis* (MDS), with the aim of observing the conditions of distance and proximity of the Italian regions and the variations in the two periods, considering simultaneously all the chosen variables. Such information will be useful to provide an overview on the development differentials still present in the various Italian macro-areas. The first period begins with the early signs of inversion of the growing trend of the value of real estate in the U.S., performance related to high lending by the U.S. banks, and that has led the formation of the speculative bubble. During the same period were observed the first effects of the military intervention of the U.S. led coalition in Iraq, which started about a year earlier, with huge economic and social costs recorded, and the prospect of a long participation of the countries involved. The second period begins with the initially effects of the economic crisis in Italy, the year following the burst of the speculative bubble in the U.S., and continues with the subsequent lack of recovery and the prolonged economic recession. It is useful to note that in particular 2010, represents the year in which it was expected economic recovery in those countries that were most affected by the undesirable exogenous effects.
The paper is composed as follows: after the introduction we propose a chapter on the economic literature that draws the general outline of the relationship between credit and economic development; follows a chapter on the observation of the time series of relevant variables related to the activity of the banks and then the MDS for two separate periods for the Italian regions, followed by the conclusions.

2. The credit as a leverage for local and national development

The connections among the financial market, in particular the flows in the granting of credit, and the economic growth and development are multiple and in both directions (Fry, 1988). The financial market redirect resources towards the production sector, having the information (and economies of scale) to do so efficiently (among others Stiglitz and Weiss, 1981), i.e. moves from areas or sector in surplus to those in deficit. At the same time, the evolution of the economic environment needs and promotes a stronger and more secure financial market. According to this, there is full efficiency in the allocation of capital when economic agents are free to act, and there are multiple sources of debt financing, accessible to different levels of investment risk.
The efficiency of financial intermediation affects the degree and the rapidity of development of the economic context. Only banks may have the expertise and convenience of structuring financial products for the various categories of borrowers, as well as reducing the structural limitations and imperfection of the credit market.
Already Schumpeter (1934) observed that the intermediation role of banks, considering the saving of households and the needs of entrepreneurs, had a key role in the innovation and development. In a context of economic recession and scarcity of resources, the latter must be allocated according to local development and policy plans, in fact a strong expansion of private credit (to households), compared to that for the purchase of real estate, can be a forecaster of crises for the banking system, because of the increasing balance sheets' vulnerability, while is less for businesses credit, the latter that is moderated by the expected and associated increase in income thanks to the same financed investments (Büyükkarabacak and Valev, 2010).

The credit is an essential resource for economic development of a country, and especially in conditions of economic recession, it is necessary to create virtuous circles which are based on the local economy. At the local level, an efficient financial system should include banks that provide the appropriate tools for business and, in the case of SMEs, that support by consulting the decision-making processes of production and investment. The Italian entrepreneurial system is largely composed of SMEs, severely affected by the economic recession, and in conditions of scarce financial resources to borrow, the smallest enterprises could be forced to make greater use of the so-called trade credit (Atanasova and Wilson, 2003), that are payment terms agreements between suppliers and customers.

The knowledge of the local area is useful to banks on one hand to advise local businesses in a professional manner, on the other hand to find the strengths and weaknesses of the businesses, and thus decreasing the risk for their funding. Moreover, the best and closer relations among households, businesses and banks “conscious” of the territory would make difficult speculative behaviour or conduct contrary to the general welfare.

3. The context of the Italian macro-areas during the "Great Recession"

The efficiency of the financial system is a determinant of the economic development by supporting consumption and investment. The imperfections of the credit market (e.g. rationing, adverse selection, moral hazard) are already strong restrictions on the chances of borrowers to receive funding based on personal potential and guarantees. The above mentioned imperfections are considered to be a limit to the development of developing countries, but major differences remain even today in some areas of the more advanced countries.

In Italy, the paths of economic development of different macro-areas are historically distant, in 2012, the average income (considering *Italy = 100*) was 122 and 120 in the areas of the North West and North East, 111 in the Centre, 66 in the southern and insular areas.

We have developed the mean values of the time series of bank loans and non-performing loans related to different categories of borrowers in order to observe the consequences of the international financial crisis on the Italian situation, highlighting the structural differences between the different macro-areas

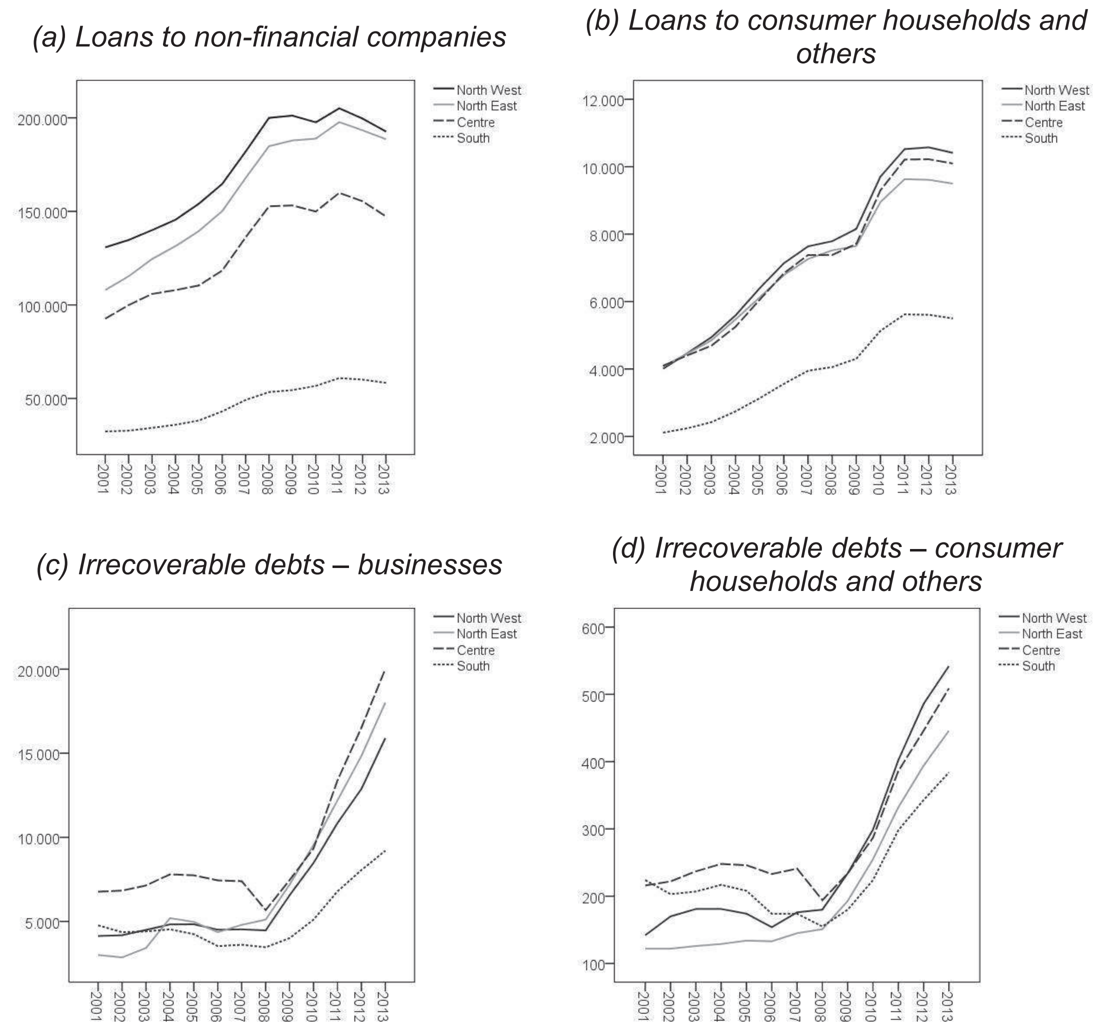

Figure 1: Values of per capita loans and irrecoverable debts for businesses and households in the Italian macro areas
Source: Our elaborations on *Banca d'Italia*, *Istat* and *Unioncamere* data

As can be seen from the above graphs (Fig. 1), are evident the variations of the variables for each area from 2008, the year in which the consequences of the bursting of the speculative bubble in the U.S. (in 2007) were more evident in Italy. The first two graphs show the evolution of the average bank lending, according to the two main categories of borrowers: non-financial companies (Fig. 1 a) and consumer households (Fig. 1 b). The same distinction is made for the two graphs below, considering the non-performing loans, i.e. the irrecoverable debts, for all types of businesses (financial, non-financial, producer households in Fig. 1 c) and households (Fig. 1 d). The graphs show our estimates of the mean values calculated for the Italian macro-areas, considering in our processing the resident population and the number of businesses for each period.

Since 2008, the trend of loans to businesses (Figure 1 a) is affected by a halt in the upward trend, having a decrease in value, to resume to grow slightly after 2010. In this case we refer to the so-called credit crunch, in the sense of the increased fear on banks side to lend to businesses in an unstable climate with a negative outlook, but also the general slowdown in domestic economic activities. The loans to households (Figure 2 b) instead show a strong increase in mean values, indicating that the resources lent by the banks are going to support consumption rather than investment, in a situation of rising unemployment. For households the trend in loan flows was interrupted only from 2010 onwards, due to the lack of the expected domestic economic recovery. Such situations are confirmed in the central and northern regions, while the poor economic vitality of the South has limited the phenomena just described. Furthermore, looking at the absolute values, in 2010 and 2011 in the wealthiest areas of the country loans to households have surpassed in value that for non-financial companies of the construction industry, a category of high relevance for the internal dynamics. In the southern areas, the values for consumption were historically higher respect to the productive purposes, but, over the last decade, the distance from the potentially productive funds, as for enterprises, has increased. The prolonged crisis have gone to decrease the values of the consumer credit and credit commitments, and the difficulties of companies resulted in a slight increase in factoring, which showed a negative trend before 2007.

4. Credit and economic development: data, methodology and results

In this section we propose the analysis that aims to determine the changes that occurred in the relations between Italian regions in terms of credit, economic development and R&D, using a multidimensional scaling analysis (see also Mattoscio et al., 2012 and 2013). We consider two separate periods, the years before the effects of the international financial crisis (2004-07) and the following years of the prolonged economic recession (2008-12). The details of our analysis is regional, so as to observe the relationship between the granting of credit and economic development to be different in the various areas of the country, still marked by deep structural differences. In particular, it is expected that the enduring weaknesses in the southern areas have caused an increase in the distance from the wealthiest zones. In fact, the MDS allows to produce a graphical representation of a pattern of objects, in this case the 20 Italian regions, based on the degree of similarity/dissimilarity between them, and providing a representative map that best approximates the distances observed between regions. This statistical method attempts to build a configuration of the various entities, merged in a small number of dimensions (two in our case). This is done by defining relations between regions in terms of proximity/distance with respect to the considered indicators. The resulting positioning map has the property to partition the regions into homogeneous groups, so as that the degree of association between two regions is maximal if they belong to the same group and minimal otherwise. We consider a matrix of 20 regions and 12 indicators, 4 variables for each socioeconomic aspect considered in the analysis: the granting of credit, the economic situation, the R&D level.

The variables chosen for each group are: loans to companies, loans to households, leasing, factoring, *per capita* GDP, labour productivity, export capability, capital intensity, science graduates, employed in science sectors, public spending in R&D, private spending in R&D.

The source of the variables on credit is the *Bank of Italy*, the average values were obtained considering the resident population (*Istat* data) and the number of firms (*Unioncamere* data). The data source for the other variables is *Istat*. The two selected periods (2004-07 and 2008-12) are sufficiently long time series to represent the period just before the exogenous effects of the international crisis and the subsequent economic downturn.
Data were normalized within each considered variable, in order to avoid possible distortions due to different ranges and magnitudes. The model's goodness of fit was assessed via the *RSQ* (0,95 for the first period and 0,97 for the second period, respectively), that indicates the proportion of variability explained by the corresponding dissimilarity distances, and the *Stress Index* (0,11 for the first period and 0,08 for the second period, respectively). As a general rule, results are found to be robust when the size *k* achieves an *Stress Index* value lower than 0,15. A two-dimensional model was judged to be acceptable according to the values of the previous indexes. The correlations between dimensions and variables for the two considered periods (see Table 1) were useful for naming the axes. The resulting two-dimensional images are shown in Figure 2 and 3. The horizontal axis represents the variables concerning bank loans, economic development and the emphasis on R&D by private enterprises; the vertical one is related to capital intensity and public spending in R&D.

Table 1: Correlations between variables and dimensions (r > |0,5|)

	2004-2007 configuration		***2008-2012 configuration***	
Variables	**Dimension 1**	**Dimension 2**	**Dimension 1**	**Dimension 2**
Loans to companies	0,92		0,95	
Loans to households	0,85		0,90	
Leasing	0,86		0,86	
Factoring	0,72		0,70	
Per capita GDP	0,86		0,84	
Labour productivity	0,64		0,78	
Export capability	0,58		0,72	
Capital intensity		-0,59		-0,62
Science graduates	0,67	0,56	0,75	0,50
Employed in science sectors	0,90		0,95	
Public spending in R&D		0,72		0,85
Private spending in R&D	0,68		0,84	

Source: Our elaborations on *Banca d'Italia* and *Istat* data

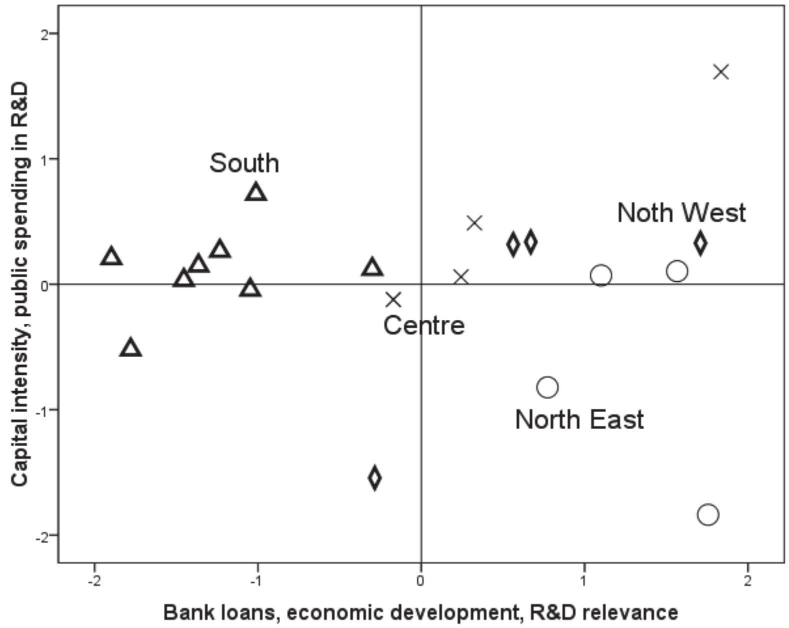

Figure 2: Cluster of 20 Italian regions in a two dimensional space (mean values calculated for the period 2004-07)
Source: Our elaborations on *Banca d'Italia*, *Istat* and *Unioncamere* data

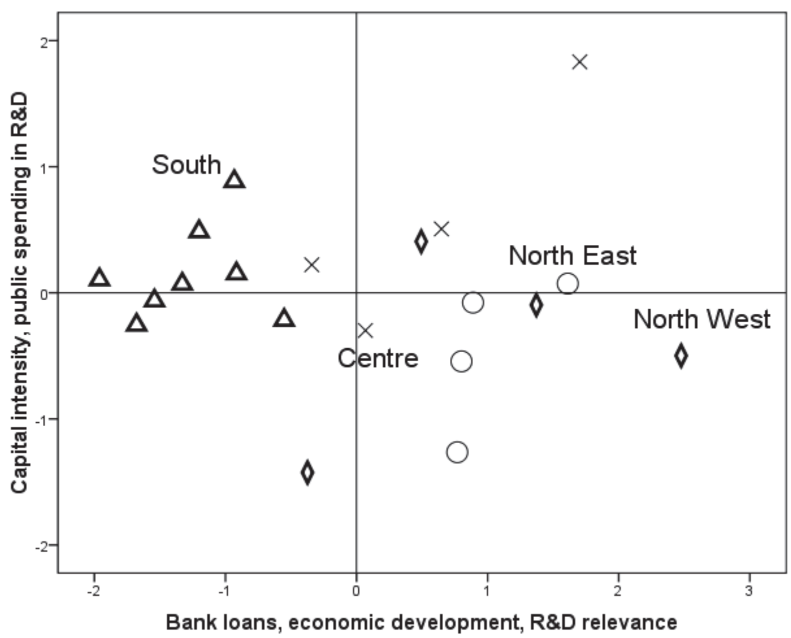

Figure 3: Cluster of 20 Italian regions in a two dimensional space (mean values calculated for the period 2008-12)
Source: Our elaborations on *Banca d'Italia*, *Istat* and *Unioncamere* data

The two above graphs (Fig. 2 and 3) show the presence of a few outlier cases, which mark the extreme values on the vertical axis. All other regions are arranged in an orderly manner on the most important horizontal axis. The latter represents the majority of the variables considered, and watching it from the left (negative values) in ascending, it is possible to find almost all the regions, but in separate groups, those of the South (left area), followed by the centre (origin of axes) and those of the North (N. East and N. West). Being on the right side of the graph means receiving on average more loans from banks, have a richer socio-economic context and be more careful to innovation. In the second period, then characterized by the negative effects of the international crisis, there was a further distancing of the regions, in particular the North West compared to the South. This is due to a better response of the financial and the real market. The northern regions were those that were affected before by the "imported" crisis, being more open to international trade. The same openness to exports, however, has allowed a partial faster recovery; also the financial system of these regions is more efficient, making possible higher levels of average loans, even in a climate of uncertainty. This means a support to household consumption and business investment, and in general a sustain to the aggregate demand. In summary, the importance of the financial system is essential for growth and economic development especially in times of a general slowdown in economic activity, lack of resources and rising unemployment. Observing the Italian case, it became evident as the structural weaknesses of the South have expanded the difficulties of an exogenous crisis with financial and real effects, while the highest level of dynamicity of the North, strengthened by a local financial system more active and confident, at least partially assisted against the increasing economic and social difficulties.

5. Conclusions

In this paper we observed the theoretical and empirical relations that link the efficiency of the financial system, particularly the credit, with the processes of economic growth and development (also considering variables related to R&D activities). We have analysed the case of the Italian regions, characterized by deep structural inequalities, in the light of the international financial crisis of 2007. After estimating the *per capita* values of several variables, in order to observe the trend of the time series in recent years and outline a general framework, we applied the *Multidimensional scaling analysis* for two separate periods for the 20 regions. These are representative periods before the negative effects of the financial crisis and then the years of economic recession in Italy. The aim is to observe how the regions, and then the macro areas of socio-economic interest, have reacted to these phenomena. In summary it can be said that since 2008, several resources granted by the banks were transferred from businesses to households. This was caused by a climate of increasing uncertainty in the production and investment, a general slowdown in economic activity, and the simultaneous increase in unemployment. The increase in loans to households has alleged consumption, and in the early period of the crisis has caused difficulties for companies, already struggling. After the lack of economic recovery in 2010, however, have been observed significant differences between the efficiency of the financial systems of the macro areas.

The richest regions in the North, more open to international trade and for this first hit by the "imported" effects of the crisis, have had the opportunity to stimulate aggregate demand due to consumer support, resume productive investment and restore the position of the businesses in difficulty, thanks to a more efficient local financial system. The possibility of obtaining on average more resources to the Centre-north in the years of the economic downturn, resulted in a slight deviation of these regions from those of the South.

Structural interventions that include the creation of a widespread trust in consumption and investment seems therefore essential to boost the economy in the poorer areas of the country. The primary focus should be on the optimization of the services, infrastructure and the financial system in general, with the aim of creating competitive conditions for businesses to participate in the international market, the only possible source for the economic recovery.

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