Monetary policy transmission in a high inflation environment: a view from the past

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by

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Abstract

This paper describes the transmission of the monetary policy impulses to banking interest rates in Italy from the late 1960s to the mid-1980s. The study introduces three main novelties: firstly, the use of a completely new database sourced from original papers of that period; secondly, an analysis of the monetary policy transmission for interest rates on eight different types of loans and on loans to sixteen productive sectors; thirdly, the study of monetary policy transmission to regional and provincial interest rates on loans. This comprehensive study provides further awareness into the monetary policy transmission during a period of high inflation and offers valuable insights for the present.

JEL codes: E43, E58, N14

Key words: monetary policy, inflation, banks, interest rates

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Introduction

In 2021-2022 high inflation reappeared in advanced economies. Firms, households, and policymakers found themselves facing an inflationary scenario that they were less familiar with, given the long period of low inflation they experienced from the nineties to the pandemic. Tight monetary policy, high interest rates on loans, and shifts in customers behaviour to adapt to rapid changes in prices seemed novelties in the economic scenario of the past two decades. However, this economic environment is not completely new when considering the past. Advanced economies experienced a period of very high inflation during the 1970s and 1980s due to oil shocks. Therefore, given that even the recent inflationary period has also been linked to shock in commodity prices, it is intriguing to analyse a previous period of high inflation to study the consequences of such a scenario.

This paper focuses on the reaction of banking interest rates to monetary policy impulse during a period of high inflation in Italy. To accomplish this, a study of interest rates in Italy from the late 1960s to mid-1980s is proposed in the following sections. Three notable features of this study are worth mentioning: 1) the dataset used is completely new, compiled from the transcription to spreadsheets of thousands of old data from original papers published by Banca d'Italia; 2) the study of interest rate movements across different types of loans and loans to sixteen productive sectors allows us to understand how the monetary policy was transmitted from the banking system to the real economy; 3) the dataset also enables us to observe the reaction of the average interest rates on loans in Italian regions and provinces, shedding light on the different magnitude of the monetary policy transmission across Italian areas.

Examining a past period of high inflation, particularly focusing on the transmission of monetary policy, could also be useful for gaining a more accurate understanding of the present.

The rest of the paper is organized as follows: section 2 briefly outlines the economic scenario of the analysed period; section 3 discusses the literature related to the topic of this paper; section 4 describes the dataset used, from its construction to its final definition; section 5 presents the methodology and results, and section 6 concludes the paper.

Economic scenario

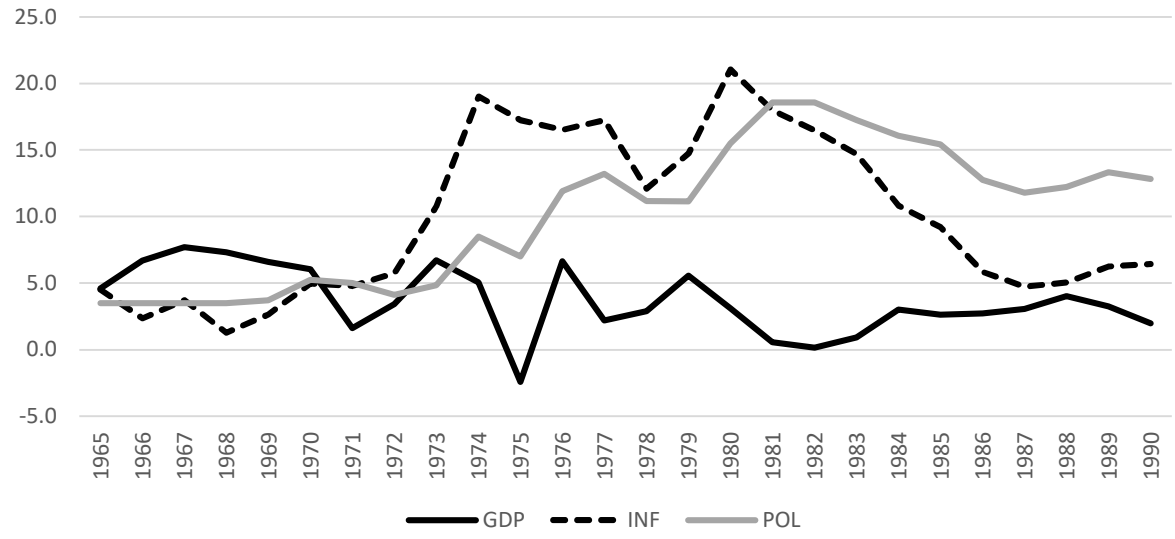
The econometric analysis presented in the following sections spans from the second quarter of 1969 to the third quarter of 1985. Figure 1 shows three economic indicators of the Italian economy over a broader period, from 1965 to 1990, providing a more ample view of that period. Firstly, it is evident that the inflation rate experienced a rapid increase in 1973. Italian inflation surged from 5.7% in 1972 to 10.8% in 1973. This sharp rise in prices trend was attributed to the so-called Yom-Kippur War during which Egypt, Syria and other Arab nations launched an attack against Israel in 1973. The decision of the US to support Israel moved OPEC countries to impose an oil embargo on the US and other developed economies (including the UK, Japan and the Netherlands). This action caused an oil market shortage with severe consequences on oil prices. The embargo ended in March 1974, but oil prices did not return to values observed before this crisis. For instance, the price of WTI oil per barrel increased from $3.56 in 1972 ($3.62 for Brent oil) to $4.3 by the end of 1973 ($4.6 for Brent), and further to $11.2 by the end of 1974 ($11.7 for Brent). Prices continued to rise gradually until the end of 1978, when the cost of a WTI barrel reached $14.9 ($15.0 for Brent). Another shock occurred in 1979 due to Iranian Revolution. In this case, the Iranian oil production diminished due to workers protests and, again, this led to a dramatic increase in *black gold* prices. The price of WTI oil per barrel soared to $32.5 by the end of 1979 ($41.9 for Brent), marking a +118% increase in one year. Prices continues to climb, reaching $37 by the end of 1980 ($40.8 for Brent), and peaking at $38 during the

first months of 1981 (Brent reached its peak at the end of 1979). Subsequently, prices began to gradually decline in the second half of 1981, and by 1986 the value of the barrel fell below $15 for both WTI and Brent.

These two shocks resulted in a significant increase in the inflation rate in major economies. Focusing on Italy, figure 1 shows that the inflation rate peaked at 19% in 1974, up from 5.7% in 1972, and reached a higher peak of 21.1% in 1980. Despite this scenario, the response from the Banca d'Italia and Italian Treasury was slow[2]. In fact, the policy rate increased from an annual average of 4.1% in 1972 to 4.8% in 1973 and to 8.5% in 1974. Thus, the policy rate remained 8.7% below the inflation rate in 1974, indicating an inadequate tightening of monetary policy. In the following years, although the policy rate peaked at 13.2% in 1977, it still remained below the average inflation rate of 17.3% for the same year. On the contrary, the policy rate consistently exceeded the inflation rate during and after the second oil shock. By 1981-82, the policy rate reached an all-time high of 18.6%, while inflation, after peaking at 21.1% in 1980, declined to 18% in 1981 and 16.5% in 1982. The real interest rate (policy rate minus inflation rate) was near zero or slightly positive before the shocks, negative from 1972 to 1980, and positive from 1981 onwards. The most negative real interest rate was recorded in 1974 (-10.5%), while the highest real interest rate was in 1988 (7.2%).

As regards the economic performance, the Italian economy experienced a recession only in 1975 (-2.4% annual GDP). However, it is evident that the average economic performance worsened after 1980, when the real interest rate turned positive. In other words, a relatively loose monetary policy (policy rate lower than the inflation rate) enabled the economy to withstand the oil shocks, whereas the decision to maintain a positive real interest rate had a negative impact on the economic cycle from 1981 onwards.

Figure 1. Inflation, Gross Domestic Product and Policy Rate in Italy, 1965-1990



Source: Banca d'Italia and OECD. Notes: GDP: constant price, yearly change; INF: inflation rate, annual average of 12 months annual inflation rates; POL: Banca d'Italia Tasso di Sconto, annual average.

[2] During the analysed period the power to modify the policy rate was assigned by law to the Treasury, which acted upon Bank of Italy proposal, see Passacantando (1996).

During that period, monetary policy aimed to moderate the inflation pressures stemming from an economy that did not have the structure of today's economy. The central bank still had a strong linkage with the Treasury, salaries were adjusted to incorporate the inflation rate (the so-called Scala Mobile), and economic growth was stronger than today. Therefore, the entire economic environment was more inflationary than today and, as a consequence, monetary policy had to be really tight to eradicate the inflationary pressures.

In such a dramatic and extreme scenario, it is interesting to study the behaviour of the banking system, to observe how the monetary policy impulses were transmitted to banking interest rates.

To put the data analysis in the right perspective, it is essential to emphasize that not only the economic system was different during those decades, but the Italian banking system also differed significantly from the current system. In this respect, it is useful to recall to most important characteristics of the financial and banking system during that period.

First of all, as shown by De Bonis et al (2012), during the years under examination, the market share of State-owned banks ranged between 80% in Sixties and 70% at the beginning of Eighties, a completely different situation compared to today's predominantly private system. This means that a large part of the system was *guided from the outside,* and this could have impacted banking management and the relationship between banks and customers. Moreover, even the regulatory Authority had a completely different approach to market regulation. During that period, structural regulation was at the core of the authority's activity, while prudential regulation was marginal. For example, as described by Piluso (2011), in 1973, Banca d'Italia established the so called "massimale sugli impieghi", which imposed limits on the expansion of loans, and the "vincolo di portafoglio", which required banks to purchase and retain fixed-rate assets in their portfolios linked to the increase of deposits. Through these two measures, the authority modified the composition of the banks' balance sheet to achieve specific goals. In general, Banca d'Italia used administrative tools to control and guide the banking system at that time. For example, the regulations included total control of entry and exit, as well as control over branching decisions, with only a few banks allowed to operate at the regional or national level, as highlighted by Chan (2003).

Furthermore, at that time, the banking market was divided between "aziende di credito" and "Istituti di credito speciale". The former could collect short-term savings, while the latter could only collect deposits with a maturity beyond the short term (18 months). This distinction was established in the 1936 banking law and accepted the then-dominant principle of banking specialization. This type of specialization, together with the large presence of the State-owned banks, altered competition within the banking market. In that scenario, "Istituti di credito speciale" had the mandate of disbursing a large part of the "credito speciale", that is credits with specific destination (i.e., a mandate to finance specific productive sectors or specific macro areas), regulated by special laws. As it is evident, the banking system was completely different compared to the current one, which emerged from the new banking law in 1993 (the so-called "Testo Unico Bancario").

Between the end of the Seventies and the beginning of the Eighties, two notable events began to impact the Italian economy. On the one hand, Italy joined the European Monetary System in 1978-79, but the still high inflation led to negotiating a broader fluctuation band for the Italian Lira compared to currencies of other participating countries. This moderated the use of the currency as an instrument to gain competitiveness. Moreover, in 1981, the so-called "divorce" granted full autonomy to Banca d'Italia with respect to the purchase of Treasury bills. As highlighted by Lavista (2011), these two events deeply modified the economic scenario, making it more deflationary and leading to the abandonment of administrative control of bank credit in 1983, which included the limit on loans

expansion mentioned earlier ("massimale sugli impieghi"). These significant changes had only a limited impact on the analysis proposed in the subsequent sections, as it ends in 1985.

Despite these operational restrictions, as stressed by Banca d'Italia (2003), banks dominated the allocation of financing until the Seventies, as evidenced by the high value of the ratio of banks' financial activities to total financial activities. During that period, household assets were largely invested in deposits, and on the liability side of non-financial sectors, bank loans were the main source of finance. Thus, the banking system played a crucial role in the Italian economic framework of the period under analysis.

This brief historical excursus has shed light on the structure of the Italian economy and on the functioning of the banking system during the decades under examination. It is no exaggeration to affirm that a significant portion of the Italian banking system was externally directed at that time. It will be important to bear these features in mind to properly contextualize the results presented in the following sections.

Literature review

Given the magnitude of the topic, this section focuses on research that has examined the transmission of monetary policy to bank rates, particularly papers related to Italian banking system, or papers support the methodology used in this work.

As described by Rousseas (1985), banks typically determine their lending rates by adding a markup to their cost of funding, which is usually approximated by policy rates. Therefore, changes in policy rates affect lending rates. Building on this simplified linkage, it is possible to deepen the analysis by exploring non-linearity and testing other factors that can affect lending rates.

The econometric approach adopted in my paper, as shown in the next section, follows the one by Beyer et al (2024), who studied the pass-through of monetary policy in thirty European countries during the pandemic and post pandemic periods. In particular, using the exchange rate pass through literature, see Burstein and Gopinath (2014), they investigated how changes in policy rates are associated with changes in bank rates. A similar study is the one proposed by Messer and Niepmann (2023), but it focuses on deposit rates. They examine the impact of policy rates on bank rates attempting to differentiate between rate hikes and cuts using dummy variables. They also include inflation rate and industrial production as regressors to control for other factors.

The presence of asymmetry in the pricing behaviour of banks is not a recent discovery. Hannan and Berger (1991) found that deposit rates are more rigid when the stimulus for a change is upward rather than downward. While my paper focuses on lending rates, the observed asymmetry typically affects both deposit and lending rates. Indeed, regarding Italy, increases in policy rates are usually found to have a stronger effect on lending rates than decreases, see Angeloni (1994). As regards the asymmetry, Buttiglione et al. (1997) studied the effect of official rate on loan rates in Italy from 1992 to 1996 using two coefficients, one for positive and one for negative variations, and found a stronger impact in the case of tight monetary policy.

Focusing on European countries, de Bondt et al. (2005) studied the pricing of both bank loans and bank deposits and showed that retail bank interest rates adjusted not only to changes in short-term interest rates but also to long-term ones. The combined use of short and long-term interest rates inspired the use of the interest rate on long-term Italian bonds employed in the regression of my study.

Another inspiring work was conducted by Gambacorta (2001). In this case, the dependent variable was not an interest rate, but, in turn, deposits, loans and liquidity of banks. Despite this difference, the noteworthy aspect is that Gambacorta employed CPI and GDP as regressors, similar to the approach used in the econometric study presented in the following sections. The use of these two variables is valuable for capturing cyclical movements that may have affected banking variables and serves, as stated by Gambacorta, to isolate the monetary policy component of interest rate changes.

Similarly, Albertazzi et al. (2016) adopted an approach akin to the one used in the following sections of my paper. They studied the transmission of monetary policy to the cost of credit in euro area countries, analysing both conventional and unconventional monetary policy measures. Their empirical analysis employed a loan rate as the dependent variable and included a monetary policy indicator, along with the 10-year sovereign spread and the unemployment rate as regressors. The use of these macroeconomic variables aimed to isolate monetary policy changes from other factors, such as financial shocks, loan demand conditions, and borrowers' riskiness. The same rationale guides the selection of macroeconomic variables used in the regressions of this paper.

As described in the previous section, the Italian banking system could not be classified as a free system during the period under analysis. Several studies have highlighted that the pricing behaviour of banks is linked to competition. For example, the study by Corvoisier and Gropp (2001) suggests that increasing concentration may have led to less competitive pricing by banks in the European banking sector. While it is challenging to compare the current market with that of decades ago, this finding supports the idea that a completely closed and externally guided system inevitably exhibited a certain degree of stickiness in adjusting rates, particularly when comparing the speed of adjustment of lending and deposit rates following changes in the policy rate.

The paper by Cottarelli and Kourelis (1994) shed light on the relationship between bank lending rates and money market rates in 31 industrial and developing countries. In the regression they used to calculate the impact of money rates on lending rates, they also tested the effect of discount rate changes on lending rates, a view more in line with the focus of my paper. They studied this linkage in Italy from June 1985, just after the end of the sample analysed in my paper, to February 1993. They tested two models and the coefficient linking Banca d'Italia discount rate to lending rate ranged between 0.51 and 0.63. This result is slightly stronger than the one observed in the period analysed in my paper, as shown in the following sections.

Cottarelli, Ferri and Generale (1995) focused on Italian banks and studied the impact of treasury bill rate and discount rate on bank lending rate. In the first step of their analysis, they studied the Italian banking system as a whole, using an error correction model and monthly data over the period June 1986-December 1993. They calculated an impact coefficient of the discount rate on bank lending rate equals to 0.41. This value is not so different from the one obtained in my study. Moreover, the discount rate and the treasury bill rate are used together as determinants of lending rate also in this study.

Toolsema et al. (2001) replicated the study by Cottarelli and Kourelis (1994) for six EMU countries, covering a more extended period, from January 1980 to January 2000. They chose the three-month money market rate as a proxy of the policy rate and calculated impact, interim and long-term multipliers to show the effect of a money market rate change on lending rate. Focusing on Italy, they found a low value of the impact multiplier (0.18) and values for interim and long-term multipliers in line with the study by Cottarelli and Kourelis (0.61 and 0.62).

Borio and Fritz (1995) focused on the size and speed of the response of bank lending rates to changes in policy rates, analysing 12 countries, Italy included. Regarding Italy, they studied the magnitude of the monetary policy transmission from July 1984 to June 1994 using a short-term loan rate, a rate on treasury bills, and the policy rate as main variables. In particular, focusing on the loan rate response to a change in the policy rate, they found that the response of loan rate to a 100 basis points change in policy rate was equal to 53 basis points after one quarter. Interesting, they did not find statistical evidence of the presence of an asymmetric response of the loan rate to increases and reductions in money market rates and policy rates.

Another interesting study is the one by Kleimeier and Sander (2002). In this paper, the authors refined the study by Cottarelli and Kourelis (1994) by using an ECM and different models for asymmetric interest rate adjustment. Kleimeier and Sander also used the money market rate as a monetary policy indicator and studied the impact of changes in this rate on mortgage rates, consumer rates, and corporate lending rates from April 1995 to December 2000. Focusing on Italian corporate lending rate, results showed multipliers below 1 in the short term (0.15) and long term (0.85), indicating a limited pass-through. They also divided the analysis into two periods and found slightly higher values for the multipliers during the EMU period. Therefore, this study also emphasized an imperfect and sluggish pass-through of monetary policy, a result consistent with those that will be shown in the following sections.

Hofmann (2003) followed an approach similar to those seen in the previous papers. He studied the pass-through from a money market rate to business lending rates in four euro area countries, including Italy, from January 1995 to November 2002. In this case, he used an ECM and chose a money market rate for the short-term loan rate and a money market rate together with a government bond yield for the long-term loan rate as explanatory variables. The results were consistent with other studies: the impact coefficient of money market rate on short-term loan rate in Italy was equal to 0.17, while it was equal to 0.85 for the long-term loan rate.

Summing up, the literature on monetary policy transmission to loan rates is extensive, and a particular strand of the literature analyses the strength of impulses from Central Banks to loan rates. The approaches vary, but each study provides interesting insight that can be used to examine this issue. For these reasons, as detailed below, I attempt to condense these different methods and approaches in my paper.

This paper contributes to the existing literature by studying a period of the Italian banking history not previously examined in such detail. Moreover, the study is of interest because it covers a period of very high inflation. Furthermore, this paper deepens the knowledge of the behaviour of different types of loan rates at the national level and of loan rates at regional and provincial levels. To my knowledge, this is the first time that such a comprehensive and particular database has been studied using an econometric approach.

Dataset description

The data used in this study have been collected from publications called “Bollettino” (Trad: Bulletin) published by the Banca d’Italia. The period covered by the analysed publications spans from the second quarter of 1969 to the third quarter of 1985. The majority of data have been manually copied from papers to spreadsheets. At the end of this process, more than 8700 data have been copied to be studied in this paper. This process allowed the collection of time series data for: eight interest rates on loans (Total loans, Commercial portfolio; Financial portfolio; Current accounts; Foreign

Transactions; Collateralized loans; Interbank loans; Inter-credit loans), interest rates on loans to sixteen productive sectors (Manufacturing products; Rubber; Chemistry; Mechanics; Metallurgical sector; Mining and quarrying; Food and related industries; Agriculture and forestry; Construction; Transportation; Production and distribution of electricity, gas, water; Wood and related products; Non-metallic minerals; Paper and printing; Leather and footwear; Textiles and Clothing), one hundred and nine interest rates on total loans in Italian Regions and Provinces (twenty Italian Regions and eighty nine Italian Provinces).

As regards the time series on loans to productive sectors, due to a discontinuity in sectors classification in 1973, it has been necessary to merge pre-1973 with post-1973 series. This process has been carried out for the sixteen productive sectors mentioned above.

To study these data, other series covering the same period have been collected: the quarterly Italian inflation rate used in the regression is the quarterly average of the monthly data published by Istat; Quarterly data on Italian gross domestic product have been gauged starting from annual data published by Banca d'Italia and adopting the Chow and Lin (1971) procedure. The Denton (1971) method has been also tested, but the results were very similar to those obtained with the Chow and Lin procedure; The Italian policy rate (Tasso Ufficiale di Sconto) is the key series, the starting point of the monetary policy transmission. This rate is also published by Banca d'Italia, and the policy rate of the last month of each quarter has been used in the regressions presented in the following sections; The last time series collected is the yield on Italian State Bond with more than 1 year maturity (Rendimento titoli di Stato-scadenza oltre 1 anno), published by Banca d'Italia. As with the policy rate, the yield of the last month of each quarter has been used in the dataset.

Table A1 in the Appendix shows the descriptive statistics of the time series used in the paper.

Methodology and Results

Equations tested and the results of regressions are presented in this section. The structure of the equations is inspired by the papers mentioned above. Moreover, two approaches have been employed: a time series approach and a panel approach. The combination of two approaches is useful to provide more robust results.

-Time series approach

Given that the main goal of the paper is the study of the monetary policy transmission, regressions employ interest rate on loans as dependent variable and the policy rate as regressor, together with other monetary and economic regressors. Equation (1) shows the basic structure of the tested equation, and it is mainly inspired by the previously cited work by Beyer et al. (2024).

$$\Delta Loansrate = \beta_1 + \beta_2(\Delta Inflation) + \beta_3(\Delta Policyrate) + \beta_4(\Delta BTPrate) + \beta_5(\Delta GDP) + \beta_6(Dummyasimmetry) + \varepsilon_i \quad (1)$$

Loansrate represents the interest rate on different types of loans or the interest rate on loans to productive sectors or the interest rate on loans prevailing in regions and provinces. Inflation is the Italian inflation rate. Policyrate is the interest rate settled by the Bank of Italy. BTPrate is the yield of Italian state bonds with a maturity of more than 1 year. GDP is the Italian Gross domestic product and Dummyasimmetry is a dummy variable employed to test for the asymmetry in the transmission of monetary policy between period of increasing or decreasing policy rate. This dummy takes the value of 1 if policy rate increases quarter on quarter and 0 otherwise.

The symbol Δ indicates that the change of the variable is employed in the regression. In particular, ΔGDP means that the change of the quarterly real GDP percentage change is used as a regressor. The first difference has been used to deal with non-stationary time series. Table A2 in the appendix displays the results of both the Augmented Dikey Fuller and the Phillip Perron tests, showing that all the variables employed in the analysis are stationary.

Moreover, the presence of multicollinearity has been tested by computing the Variance Inflation Factors, and the results have consistently been very close to 1, indicating no presence of multicollinearity, see table A3 in the appendix for the results of this test.

The structure of equation (1) allows us to observe the reaction of banking rates to inflation (coefficient β2), monetary policy (coefficients β3 and β6), market interest rate (coefficient β4) and the state of the economy (coefficient β5). Various types of lags for regressors have been tested, as well as a lagged dependent variable, dummies for every year of the sample, and other regressors not mentioned above (for example, yield on short term Italian bonds). The best combination of regressors will be showed in the following analysis. In particular, the best results for the rate on total loans have been achieved testing equation (2)

$$\Delta Loansrate_t = \beta_1 + \beta_2(\Delta Inflation_{t-1}) + \beta_3(\Delta Policyrate_{t-1}) + \beta_4(\Delta BTPrate_{t-1}) + \beta_5(\Delta GDP_{t-1}) + \beta_6(Dummyasimmetry) + \beta_7(Dummy1974) + \varepsilon_i \quad (2)$$

Inflation, Policyrate, BTPrate and GDP are lagged in equation (2). As regards dummy variables, dummyasimmetry seems useful for improving the results and, among dummies on years, the dummy for the year 1974 (1 in the four quarters of 1974 and 0 otherwise) has proved to be highly significant in different specifications of this regression. This is the best structure tested for interest rate on total loans, and this type of regression has been replicated for the other banking interest rates. This equation links the movements in loan rates to changes in monetary policy, market rate, as another source of funding costs, and state of the economy, as indicator of credit risk, while accounting for the usual different reaction of lending rates when policy rate increase or decrease.

The first step of the analysis focuses on the interest rate on total loans and the other seven interest rates on different types of loans (Commercial portfolio; Financial portfolio; Current accounts; Foreign Transactions; Collateralized loans; Interbank loans; Inter-credit loans). Results are shown in table 2. Before focusing on these results, it is important to explain the meaning of the dummy variable on policy rate. The value of this dummy represents the average increase in loan rates during a quarter characterized by an increase in the policy rate.

In all subsequent tables that show the results of the regressions, the average impact of a tight monetary policy is displayed. The sum of the coefficient of the asymmetry (β6) with the value obtained by multiplying the coefficient on policy rate (β3) by 255 basis points represents the average impact of a tight monetary policy during the sample period. 255 basis points is the average policy rate increase when the dummy on asymmetry equals 1, when the policy rate increases quarter on quarter. In this way it is possible to calculate the impact of the average increase in the policy rate to loan rates after 1 quarter: the dummy variable represents the immediate impact while the policy rate regressor is lagged. This simple calculation allows to gauge the strength of the monetary policy transmission. To show a comparable impact of a reduction of the policy rate, the same approach has been followed to calculate the change in loan rates after a reduction of 255 basis points in the policy rate. Obviously, the difference between the two impacts is represented by the value of the dummy.

Equation (2) performs quite well for the total loans rate, commercial portfolio rate, and current accounts loans rate. Its results are satisfactory for the financial portfolio rate, but not for the foreign

transactions rate, collateralized loans rate, interbank loans rate and inter-credit loans rate, see table 2 part 1 and part 2 for details. Overall, inflation is significant in 4 out of 8 regressions, while the policy rate, the rate on bond and the GDP are each significant 5 times. As regards the dummy variables, dummy for the year 1974 is significant in 4 regressions, while the dummy to test the asymmetry is significant 3 times.

The regressions with poor results analyse particular interest rates for that period. Indeed, the worst results are obtained with the rate on inter-credit loans and with the rate on foreign transactions. The characteristics of these operations made them unique: the rate on foreign transactions was probably more linked to foreign markets than to Italian one; the inter-credit loans were loans with a "istituto di credito speciale" as one part of the exchange. As described above, these banks collected deposits with a maturity beyond the short term (more than 18 months) and they had the mandate of the disbursement of a large part of the "credito speciale", that is credits with specific destination regulated by special laws. These features could have influenced the sensibility of these two particular interest rates to changes in policy rate.

Table 2. Interest rates on different type of loans, national level, Part 1

	Sample: 1969Q4-1985Q3. Observations:64			
Dependent variable: rate on	(1) Total loan	(2) Commercial portfolio	(3) Financial portfolio	(4) Current accounts
Coefficient				
β1-Costant	-0.16** (0.065)	-0.15** (0.073)	-0.05 (0.093)	-0.15** (0.068)
β2-Inflation	0.11*** (0.036)	0.11*** (0.040)	0.13** (0.051)	0.12*** (0.037)
β3-Policyrate	0.46*** (0.053)	0.58*** (0.060)	0.20** (0.076)	0.49*** (0.056)
β4-BTP	0.27*** (0.079)	0.17* (0.088)	0.41*** (0.112)	0.30*** (0.082)
β5-GDP	0.18*** (0.048)	0.17*** (0.054)	0.12* (0.068)	0.15*** (0.050)
β6-Asimmetry	0.70*** (0.171)	0.70*** (0.192)	0.18 (0.244)	0.76*** (0.179)
β7-1974	1.22*** (0.261)	1.49*** (0.293)	0.76** (0.371)	1.14*** (0.272)
Adj R^2	0.83	0.82	0.57	0.83
F statistic	51.79***	49.62***	14.89***	52.37***
DW	2.13	1.94	2.75	2.15
Tight monetary policy impact in bp^	**187**	**218**	69	**201**
Easy monetary policy impact in bp^^	**117**	**148**	**51**	**125**

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Table 2. Interest rates on different type of loans, national level, part 2

	Sample: 1969Q4-1985Q3. Observations:64			
Dependent variable: rate on	(5) Foreign Transactions	(6) Collateralized loans	(7) Interbank loans	(8) Inter-credit loans
Coefficient				
β1-Costant	-0.11 (0.184)	-0.15 (0.311)	-0.09 (0.199)	0.01 (0.286)
β2-Inflation	0.09 (0.101)	-0.02 (0.170)	0.03 (0.109)	-0.00 (0.156)
β3-Policyrate	0.13 (0.151)	0.12 (0.254)	0.46*** (0.162)	0.16 (0.233)
β4-BTP	0.11 (0.223)	0.96** (0.374)	0.25 (0.239)	0.42 (0.344)
β5-GDP	0.18 (0.135)	0.24 (0.227)	0.33** (0.145)	-0.02 (0.209)
β6-Asimmetry	0.39 (0.484)	0.99 (0.814)	0.25 (0.520)	0.35 (0.749)
β7-1974	1.06 (0.737)	0.51 (1.238)	1.09 (0.791)	-0.07 (0.350)
Adj R^2	0.08	0.14	0.29	0.00
F statistic	2.02*	2.64*	5.33***	0.65
DW	2.39	2.75	2.70	3.49
Tight monetary policy impact in bp^	72	130	142	76
Easy monetary policy impact in bp^^	33	31	**117**	41

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Focusing on regression (1) table 2, which employs the amplest interest rate as dependent variable, the results show that there was a positive and statistically significant linkage with inflation rate, policy rate, rate on Italian bonds, and economic cycle and that banks reacted with different strength when policy went up or down. As regards the impact of policy rate changes, a 255 basis points increase in the policy rate was followed by an increase of 187 basis points of the rate on total loans after one quarter, while the impact of a specular cut was equal to 117 basis points.

As stated above, good results obtained with regression (1) made this regression the benchmark, and its structure has been used in the following phases of the analysis.

The second step of the analysis is focused on interest rates on loans to productive sectors. In this case, as said before, the dependent variables are the interest rates on total loans to sixteen productive sectors (Manufacturing products; Rubber; Chemistry; Mechanics; Metallurgical sector; Mining and quarrying; Food and related industries; Agriculture and forestry; Construction; Transportation; Production and distribution of electricity, gas, water; Wood and related products; Non-metallic minerals; Paper and printing; Leather and footwear; Textiles and Clothing). Table 3 shows the results. Even in this case, apart from the results of the regressions, table 3 shows the impact of the monetary policy.

All in all, this equation gives poor result just for rate on loans to the agricultural sector, it gives sufficient results for Non-metallic minerals, Mining and quarrying and Production and distribution of electricity, gas, water, while the results are very good for the other twelve sectors.

As regards the coefficients, inflation is significant 14 times (3 times at 10%), policy rate 15 times (always at 1%), coefficient on bonds is significant 12 times (1 time at 10%), GDP 14 times (2 times at 10%), dummy on asymmetry 14 times, dummy 1974 is significant 14 times (2 times at 10%).

Focusing on monetary policy transmission, the asymmetry emerges in 14 cases, and it is really strong in two sectors (Production and distribution of electricity, gas, water, and Wood and related products). The impact of a tight monetary policy (+255 basis points of the policy rate) after one quarter is larger and above 200 basis points in four sectors (Construction, Production and distribution of electricity, gas, water, Wood and related products, and Transportation) while it looks milder in two sectors (Food and related industries, and Leather and footwear), with an impact around 180 basis points.

Table 3. Interest rates on loans to productive sectors, national level, part 1

	Sample: 1969Q4-1985Q3. Observations: 64				
Dependent variable: rate on loans to	Agriculture	Food	Paper	Chemistry	Construction
Coefficient					
β1-Costant	-0.12 (0.311)	-0.17* (0.083)	-0.16 (0.097)	-0.20** (0.079)	-0.14** (0.067)
β2-Inflation	-0.19 (0.170)	0.11* (0.045)	0.14** (0.053)	0.10** (0.043)	0.09** (0.037)
β3-Policyrate	-0.03 (0.254)	0.44*** (0.068)	0.49*** (0.079)	0.48*** (0.065)	0.49*** (0.055)
β4-BTP	1.24*** (0.374)	0.22** (0.099)	0.11 (0.116)	0.26*** (0.096)	0.24*** (0.081)
β5-GDP	0.04 (0.227)	0.20*** (0.060)	0.18** (0.071)	0.23*** (0.058)	0.13*** (0.049)
β6-Asimmetry	0.56 (0.814)	0.68*** (0.217)	0.70*** (0.253)	0.73*** (0.208)	0.80*** (0.176)
β7-1974	0.45 (0.814)	1.36*** (0.329)	1.33*** (0.39)	1.34*** (0.317)	1.23*** (0.176)
Adj R^2	0.11	0.74	0.68	0.78	0.82
F statistic	2.35*	31.25***	23.48***	38.86***	48.70***
DW	2.57	2.54	2.70	1.88	2.40
Tight monetary policy impact in bp^	48	**180**	**195**	**195**	**205**
Easy monetary policy impact in bp^^	-8	**112**	**125**	**122**	**125**

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Table 3. Interest rates on loans to productive sectors, national level, part 2

	Sample: 1969Q4-1985Q3. Observations: 64				
Dependent variable: rate on	Electricity, gas	Rubber	Manufacturing	Wood	Mechanics
Coefficient					
β1-Costant	-0.28* (0.141)	-0.20** (0.088)	-0.16** (0.074)	-0.21* (0.121)	-0.16 (0.101)
β2-Inflation	0.14* (0.077)	0.10** (0.048)	0.13*** (0.040)	0.06 (0.066)	0.14** (0.055)
β3-Policyrate	0.66*** (0.116)	0.40*** (0.072)	0.51*** (0.060)	0.48*** (0.099)	0.47*** (0.082)
β4-BTP	0.04 (0.170)	0.39*** (0.106)	0.16* (0.089)	0.48*** (0.146)	0.27** (0.121)
β5-GDP	0.19* (0.103)	0.25*** (0.064)	0.15*** (0.054)	0.08 (0.088)	0.17** (0.074)
β6-Asimmetry	1.15*** (0.371)	0.87*** (0.230)	0.59*** (0.193)	1.01*** (0.317)	0.73*** (0.264)
β7-1974	1.48** (0.563)	1.26*** (0.349)	1.29 (0.294)	1.03** (0.482)	0.78* (0.401)
Adj R^2	0.59	0.75	0.79	0.61	0.67
F statistic	15.95***	33.00***	41.61***	17.43***	21.95***
DW	2.44	2.01	2.33	2.62	2.63
Monetary policy impact in bp^	**283**	**189**	**189**	**223**	**193**
Easy monetary policy impact in bp^^	**168**	**102**	**130**	**122**	**120**

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Table 3. Interest rates on loans to productive sectors, national level, part 3

	Sample: 1969Q4-1985Q3. Observations: 64					
Dependent variable: rate on	Metallurgical sector	Non-metallic minerals	Mining	Leather	Textiles	Transportation
Coefficient						
β1-Costant	-0.19** (0.080)	-0.15 (0.154)	-0.11 (0.126)	-0.16** (0.065)	-0.18*** (0.065)	-0.17** (0.072)
β2-Inflation	0.10** (0.044)	0.18** (0.084)	0.14* (0.069)	0.12*** (0.035)	0.11*** (0.036)	0.11*** (0.039)
β3-Policyrate	0.51*** (0.065)	0.48*** (0.126)	0.29*** (0.103)	0.48*** (0.053)	0.48*** (0.053)	0.48*** (0.058)
β4-BTP	0.21** (0.096)	-0.01 (0.185)	0.14 (0.152)	0.17** (0.078)	0.24*** (0.079)	0.27*** (0.086)
β5-GDP	0.21*** (0.059)	0.20* (0.112)	0.34*** (0.092)	0.15*** (0.047)	0.17*** (0.048)	0.15*** (0.052)
β6-Asimmetry	0.64*** (0.210)	0.76** (0.403)	0.35 (0.331)	0.62*** (0.170)	0.72*** (0.171)	0.82*** (0.187)
β7-1974	1.50*** (0.319)	1.42* (0.613)	1.72*** (0.504)	1.28*** (0.258)	1.25** (0.261)	1.20*** (0.285)
Adj R^2	0.78	0.45	0.52	0.82	0.83	0.81
F statistic	38.29***	9.49***	12.32***	50.00***	53.56***	44.61***
DW	2.12	2.87	1.78	2.32	2.20	2.24
Monetary policy impact in bp^	**194**	**198**	109	**184**	**194**	**204**
Easy monetary policy impact in bp^^	**130**	**122**	**74**	**122**	**122**	**122**

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

The third step of the analysis allows us to study regional and provincial data. Table 4 shows values and significance of coefficients β3 and β6 for the twenty Italian regions, together with the adjusted R^2 of every regression and the impact of both an increase and a decrease in policy rate following the same criteria explained above. Table 5 shows results for Italian provinces and it has the same structure of table 4. The complete results of all these regressions at regional and provincial levels are shown in the Appendix, see table A4 and A5.

Starting from the interest rate on total loans in 20 Italian regions, the regressions show reasonably good results, except for Marche, Abruzzo and Molise, given a R^2 statistics below 60%. As regards the coefficients of these regressions, inflation is significant 12 times (1 time at 10%), policy rate 20 times (19 times at 1%), coefficient on bond is significant 18 times (2 times at 10%), national GDP 14 times (2 times at 10%), dummy on asymmetry 16 times (1 time at 10%), dummy 1974 is significant 18 times (1 time at 10%).

Focusing on monetary policy transmission, the asymmetry emerges in 16 regions. The highest values of the dummy on asymmetry are observed in Umbria, Lazio, and Friuli Venezia Giulia. These are also the three regions with the highest impact of a tight monetary policy after one quarter (with impacts respectively equal to 257, 212, 199 basis points). On the contrary, the three regions in which the impulse of the monetary policy to loan rate is lighter are Basilicata, Molise, and Sardegna (impacts below 125 basis points).

Table 4. Regional analysis, policy rate coefficients

Dependent variable: regional rate on total loans. Sample: 1969Q4-1985Q3. Observations:64				Tight monetary policy impact in bp^	Easy monetary policy impact in bp^^
Region	β3-Policyrate	β6-Asimmetry	Adj R^2 of regressions		
Abruzzo	0.36*** (0.059)	0.63** (0.281)	0.56	**155**	**92**
Basilicata	0.41*** (0.070)	-0.05 (0.226)	0.68	100	**105**
Calabria	0.48*** (0.077)	0.34 (0.246)	0.65	156	**122**
Campania	0.45*** (0.067)	0.63*** (0.215)	0.73	**178**	**115**
Emilia Romagna	0.46*** (0.065)	0.79*** (0.210)	0.76	**196**	**117**
Friuli Venezia Giulia	0.46*** (0.061)	0.82*** (0.194)	0.79	**199**	**117**
Lazio	0.49*** (0.059)	0.87*** (0.190)	0.80	**212**	**125**
Liguria	0.42*** (0.068)	0.74*** (0.218)	0.76	**181**	**107**
Lombardia	0.42*** (0.056)	0.65*** (0.178)	0.82	**172**	**107**
Marche	0.31** (0.127)	0.74* (0.409)	0.40	**153**	**79**
Molise	0.38*** (0.095)	0.14 (0.303)	0.58	111	**97**
Piemonte	0.47*** (0.057)	0.63*** (0.182)	0.82	**183**	**120**
Puglia	0.44*** (0.060)	0.45** (0.192)	0.77	**113**	**112**
Sardegna	0.37*** (0.108)	0.29 (0.346)	0.47	123	**94**
Sicilia	0.43*** (0.051)	0.59*** (0.164)	0.80	**169**	**110**
Toscana	0.38*** (0.054)	0.60*** (0.174)	0.80	**157**	**97**
Trentino Alto Adige	0.39*** (0.068)	0.72*** (0.218)	0.73	**171**	**99**
Umbria	0.54*** (0.071)	1.19*** (0.227)	0.73	**257**	**138**
Valle d'Aosta	0.41*** (0.082)	0.68** (0.262)	0.63	**173**	**105**
Veneto	0.40*** (0.049)	0.67*** (0.156)	0.83	**169**	**102**
Italy	*0.46*** (0.053)*	*0.70*** (0.171)*	*0.83*	***187***	***117***

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Table 5 and table A5 show the results of the provincial analysis. A total of 89 Italian provinces have been analysed.

Regarding the statistical significance of the coefficients, inflation is significant 61 times (6 times at 10%), policy rate is significant 83 times (4 times at 10%), coefficient on bond is significant 83 times (14 times at 10%), national GDP 50 times (3 times at 10%), dummy on asymmetry 67 times (6 times at 10%), dummy 1974 is significant 75 times (4 times at 10%).

Focusing on monetary policy transmission, as mentioned earlier, asymmetry emerges in 67 cases, 75% of the provinces. The three highest values of the dummy on asymmetry are observed in Bologna, Viterbo, and Ancona while the provinces with the highest impact of a tight monetary policy after one quarter are Terni, Roma, Ancona and Pistoia (with impacts respectively equal to 350, 212, 204 basis points). The three lowest impacts of a tight monetary policy to loan rates are observed in Macerata, Nuoro, and Grosseto (with impacts respectively equal to 36, 48, 53 basis points).

Table 5. Provincial analysis, policy rate coefficients, Part 1

Dependent variable: provincial rate on total loans. Sample: 1969Q4-1985Q3. Observations: 64				Tight monetary policy impact in bp^	Easy monetary policy impact in bp^^
Region-province	β3-Policyrate	β6-Asimmetry	Adj R^2		
Abruzzo-Chieti	0.36*** (0.086)	0.35 (0.275)	0.56	127	92
Abruzzo-L'Aquila	0.51*** (0.087)	0.19 (0.279)	0.60	149	130
Abruzzo-Pescara	0.41*** (0.068)	0.63*** (0.218)	0.67	**168**	**105**
Abruzzo-Teramo	0.14 (0.221)	0.77 (0.710)	0.18	113	36
Basilicata-Matera	0.26*** (0.082)	0.30 (0.262)	0.56	96	66
Basilicata-Potenza	0.43*** (0.068)	-0.07 (0.219)	0.70	103	110
Calabria-Catanzaro	0.59*** (0.116)	0.11 (0.372)	0.48	161	150
Calabria-Cosenza	0.34*** (0.082)	0.63** (0.262)	0.61	**150**	**87**
Calabria-Reggio Cal.	0.43*** (0.075)	0.42* (0.241)	0.64	**152**	**110**
Campania-Avellino	0.54*** (0.092)	-0.02 (0.296)	0.59	136	138
Campania-Benevento	0.32*** (0.113)	-0.02 (0.363)	0.47	80	82
Campania-Caserta	0.45*** (0.098)	0.54* (0.313)	0.55	**169**	**115**
Campania-Napoli	0.47*** (0.073)	0.64*** (0.233)	0.70	**184**	**120**
Campania-Salerno	0.46*** (0.069)	0.38* (0.222)	0.70	**155**	**117**
EmiliaR-Bologna	0.41*** (0.069)	0.92*** (0.221)	0.74	**197**	**105**
EmiliaR-Ferrara	0.06 (0.185)	0.42 (0.593)	0.21	57	15
EmiliaR-Forlì	0.35*** (0.077)	0.73*** (0.248)	0.69	**162**	**89**
EmiliaR-Modena	0.47*** (0.066)	0.72*** (0.213)	0.76	**192**	**120**
EmiliaR-Parma	0.33*** (0.075)	0.75** (0.240)	0.69	**159**	**84**
EmiliaR-Piacenza	0.32*** (0.082)	0.73*** (0.264)	0.59	**155**	**82**
EmiliaR-Ravenna	0.48*** (0.098)	0.77** (0.315)	0.58	**199**	**122**
EmiliaR-ReggioEmilia	0.42*** (0.070)	0.50** (0.224)	0.73	**157**	**107**
FriuliVG-Gorizia	0.46*** (0.064)	0.55*** (0.206)	0.74	**172**	**117**
FriuliVG-Pordenone	0.42*** (0.070)	0.66*** (0.226)	0.75	**173**	**107**
FriuliVG-Trieste	0.46*** (0.072)	0.80*** (0.230)	0.73	**197**	**117**
FriuliVG-Udine	0.42*** (0.067)	0.80*** (0.216)	0.72	**187**	**107**
Lazio-Frosinone	0.40*** (0.074)	0.52** (0.236)	0.68	**154**	**102**
Lazio-Latina	0.36*** (0.121)	0.60 (0.389)	0.44	152	92
Lazio-Rieti	0.36** (0.148)	1.01** (0.476)	0.31	**193**	**92**
Lazio-Roma	0.49*** (0.062)	0.87*** (0.198)	0.78	**212**	**125**
Lazio-Viterbo	0.10 (0.308)	1.67* (0.990)	0.11	193	26
Liguria-Genova	0.41*** (0.071)	0.75*** (0.226)	0.75	**180**	**105**
Liguria-Imperia	0.41*** (0.061)	0.68*** (0.196)	0.77	**170**	**102**
Liguria-Savona	0.39*** (0.065)	0.70*** (0.207)	0.76	**169**	**99**
Liguria-LaSpezia	0.46*** (0.076)	0.71*** (0.244)	0.70	**188**	**117**
Lombardia-Bergamo	0.43*** (0.054)	0.65*** (0.173)	0.82	**175**	**110**
Lombardia-Brescia	0.46*** (0.051)	0.61*** (0.163)	0.85	**178**	**117**
Lombardia-Como	0.43*** (0.057)	0.67*** (0.183)	0.80	**177**	**110**
Lombardia-Cremona	0.47*** (0.081)	0.45* (0.259)	0.68	**165**	**120**
Lombardia-Mantova	0.19* (0.103)	0.69** (0.328)	0.50	**117**	**48**
Lombardia-Milano	0.43*** (0.059)	0.66*** (0.188)	0.81	**176**	**110**
Lombardia-Pavia	0.33*** (0.071)	0.56** (0.226)	0.70	**140**	**84**
Lombardia-Sondrio	0.43*** (0.071)	0.64*** (0.229)	0.74	**174**	**110**
Lombardia-Varese	0.44*** (0.052)	0.72*** (0.168)	0.83	**184**	**112**

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Table 5. Provincial analysis, policy rate coefficients, Part 2

Dependent variable: provincial rate on total loans. Sample: 1969Q4-1985Q3. Observations: 64				Tight monetary policy impact in bp^	Easy monetary policy impact in bp^^
Region-province	β3-Policyrate	β6-Asimmetry	Adj R^2		
Marche-Ancona	0.45*** (0.096)	0.89*** (0.308)	0.60	**204**	**115**
Marche-Ascoli	0.19 (0.186)	0.78 (0.596)	0.19	126	48
Marche-Macerata	0.04 (0.272)	0.26 (0.873)	0.09	36	10
Marche-Pesaro	0.30* (0.169)	0.65 (0.543)	0.21	142	77
Molise-Campobasso	0.39*** (0.106)	0.15 (0.339)	0.54	114	99
Piemonte-Alessandr.	0.45*** (0.058)	0.62*** (0.187)	0.81	**177**	**115**
Piemonte-Asti	0.44*** (0.076)	0.79*** (0.243)	0.67	**191**	**112**
Piemonte-Cuneo	0.44*** (0.067)	0.69*** (0.214)	0.73	**181**	**112**
Piemonte-Novara	0.40*** (0.059)	0.73*** (0.190)	0.79	**175**	**102**
Piemonte-Torino	0.46*** (0.064)	0.60*** (0.204)	0.78	**177**	**117**
Piemonte-Vercelli	0.44*** (0.054)	0.72*** (0.172)	0.83	**184**	**112**
Puglia-Bari	0.45*** (0.060)	0.55*** (0.191)	0.78	**170**	**115**
Puglia-Brindisi	0.64*** (0.096)	-0.18 (0.308)	0.62	145	163
Puglia-Foggia	0.37*** (0.054)	0.40 (0.260)	0.61	134	94
Puglia-Lecce	0.45*** (0.068)	0.57** (0.218)	0.73	**172**	**115**
Puglia-Taranto	0.43*** (0.081)	0.28 (0.261)	0.60	138	110
Sardegna-Cagliari	0.34*** (0.103)	0.62* (0.329)	0.46	**149**	**87**
Sardegna-Nuoro	0.43** (0.174)	-0.62 (0.558)	0.30	48	110
Sardegna-Sassari	0.35* (0.202)	-0.21 (0.649)	0.23	68	89
Sicilia-Catania	0.46*** (0.054)	0.64*** (0.172)	0.81	**181**	**117**
Sicilia-Messina	0.33*** (0.055)	0.50*** (0.177)	0.75	**134**	**84**
Sicilia-Palermo	0.44*** (0.043)	0.63*** (0.138)	0.85	**175**	**112**
Sicilia-Ragusa	0.42*** (0.067)	0.83*** (0.214)	0.72	**190**	**107**
Sicilia-Siracusa	0.47*** (0.058)	0.46** (0.187)	0.75	**166**	**120**
Sicilia-Trapani	0.48*** (0.151)	0.26 (0.486)	0.20	148	122
Toscana-Arezzo	0.45*** (0.069)	0.57** (0.220)	0.74	**172**	**115**
Toscana-Firenze	0.45*** (0.054)	0.67*** (0.173)	0.82	**182**	**115**
Toscana-Grosseto	-0.16 (0.238)	0.94 (0.763)	0.15	53	-41
Toscana-Livorno	0.44*** (0.062)	0.64*** (0.199)	0.76	**177**	**112**
Toscana-Lucca	0.40*** (0.057)	0.65*** (0.182)	0.79	**167**	**102**
Toscana-MassaCarr.	0.46*** (0.061)	0.86*** (0.196)	0.77	**203**	**117**
Toscana-Pisa	0.46*** (0.060)	0.74*** (0.191)	0.78	**191**	**117**
Toscana-Pistoia	0.49*** (0.058)	0.79*** (0.186)	0.81	**204**	**125**
Toscana-Siena	0.26* (0.145)	0.49 (0.467)	0.30	115	66
Trentino-Bolzano	0.38*** (0.080)	0.74*** (0.257)	0.66	**171**	**97**
Trentino-Trento	0.41*** (0.078)	0.68*** (0.250)	0.65	**173**	**105**
Umbria-Perugia	0.42*** (0.070)	0.90*** (0.225)	0.72	**197**	**107**
Umbria-Terni	0.75*** (0.102)	1.59*** (0.326)	0.64	**350**	**191**
Veneto-Belluno	0.45*** (0.063)	0.63*** (0.202)	0.75	**178**	**115**
Veneto-Padova	0.51*** (0.054)	0.41*** (0.174)	0.83	**171**	**130**
Veneto-Rovigo	0.40*** (0.066)	0.54*** (0.211)	0.69	**156**	**102**
Veneto-Treviso	0.43*** (0.058)	0.55*** (0.187)	0.79	**165**	**110**
Veneto-Venezia	0.50*** (0.059)	0.66*** (0.188)	0.81	**194**	**128**
Veneto-Verona	0.43*** (0.057)	0.51*** (0.182)	0.79	**161**	**110**
Veneto-Vicenza	0.46*** (0.057)	0.57*** (0.182)	0.81	**174**	**117**

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.

^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.

^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Panel approach

Regional and provincial data are used as panel data in this section. In other words, the same data used in the previous section as time series are now employed as panel data to replicate the analysis through a different econometric approach. Indeed, panel regressions can strengthen the deductions made in the previous section, rendering them more robust.

Data for 20 regions and for 89 provinces are separately utilized in the two panel regressions shown below. The tested equation is the number (3).

$$\Delta Loansrate_{it} = \beta_1 + \beta_2(\Delta Inflation_{t-1}) + \beta_3(\Delta Policyrate_{t-1}) + \beta_4(\Delta BTPrate_{t-1}) + \beta_5(\Delta GDP_{t-1}) + \beta_6(Dummyasimmetry) + \beta_7(Dummy1974) + \varepsilon_i \quad (3)$$

Where $\Delta Loansrate_{it}$ represents the interest rate on total loans at time *t* for, alternatively, *i* regions or *i* provinces.

Table 6 presents results for both regional and provincial panel data. Specification 1 shows regression without any type of effect, neither fixed nor random, while specification 2 uses cross-section fixed effects, and specification 3 employs both cross-section and period random effects (table A6 and A7 in the Appendix show the Redundant fixed effect tests). Results remain robust across different specifications, confirming the linkages observed through the time series approach showed in the previous section.

Regressions perform quite good across all specifications, with all coefficients always highly significant and displaying the same signs as the time series approach. Concerning monetary policy transmission, the elaboration reveals, after one quarter, a response of approximately 165 basis points (167 with regional data and 161 with provincial data) of loan rate to a 255 basis points increase in the policy rate. The asymmetry in the changes of loan rate between tight and easy monetary policies is 70 basis points with regional data and 55 basis points with provincial panel data.

All in all, the panel approach has supported the results presented in the previous section, confirming the presence of an asymmetry in loan rate movements in the case of rate hikes compared to rate cuts, and demonstrating that the impacts of inflation, bond rate and economic cycle on loan rates are consistently significant. Moreover, even in these panel regressions, the dummy variable for the year 1974 turned to be useful for improving results.

Table 6. Panel regressions with regional and provincial data.

	Sample: 1969Q4-1985Q3. Observations: 1280			Sample: 1969Q4-1985Q3. Observations: 5696		
Dependent variable: rate on total loans	Regional-1	Regional-2	Regional-3	Provincial-1	Provincial-2	Provincial-3
Coefficient						
β1-Costant	-0.13*** (0.020)	-0.13*** (0.020)	-0.13** (0.064)	-0.12*** (0.013)	-0.12*** (0.013)	-0.12* (0.066)
β2-Inflation	0.10*** (0.011)	0.10*** (0.011)	0.10*** (0.035)	0.09*** (0.007)	0.09*** (0.007)	0.09*** (0.036)
β3-Policyrate	0.42*** (0.016)	0.42*** (0.016)	0.42*** (0.052)	0.40*** (0.011)	0.40*** (0.011)	0.40*** (0.054)
β4-BTP	0.29*** (0.024)	0.29*** (0.024)	0.29*** (0.077)	0.33*** (0.016)	0.33*** (0.016)	0.33*** (0.079)
β5-GDP	0.14*** (0.015)	0.14*** (0.015)	0.14*** (0.047)	0.13*** (0.010)	0.13*** (0.010)	0.13*** (0.048)
β6-Asimmetry	0.60*** (0.052)	0.60*** (0.053)	0.60*** (0.167)	0.59*** (0.034)	0.59*** (0.035)	0.59*** (0.172)
β7-1974	1.19*** (0.079)	1.19*** (0.080)	1.19*** (0.254)	1.15*** (0.052)	1.15*** (0.053)	1.15*** (0.262)
Adj R^2	0.70	0.69	0.70	0.54	0.53	0.54
F statistic	490.0***	116.0***	47.83***	1099.2***	69.2***	43.82***
Cross-section fixed effect	No	Yes	No	No	Yes	No
Period fixed effect	No	No	No	No	No	No
Cross-section random effect	No	No	Yes	No	No	Yes
Period random effect	No	No	Yes	No	No	Yes
Tight monetary policy impact in bp^	**167**	**167**	**167**	**161**	**161**	**161**
Easy monetary policy impact in bp^^	**107**	**107**	**107**	**102**	**102**	**102**

* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.
^ Impact of the average increase of the policy rate (255bp) on banking rate after 1 quarter. In bold if both β3 and β6 are significant.
^^ Impact of a policy rate cut of 255bp on banking rate after 1 quarter. In bold if β3 is significant.

Conclusions

During periods of high inflation, monetary policy transmission becomes particularly important because a rapid and strong impulse to banking interest rates enable central banks to mitigate inflationary pressures effectively.

This paper represents an initial attempt to shed light on monetary policy transmission in Italy from the late 1960s to mid-1980s, a period not yet widely explored through econometric studies. To this aim, a new dataset has been constructed, based on data published by Banca d'Italia in its quarterly Bulletin during those years. The study focused on four main aspects of the pass-through of the monetary policy: firstly, the study of possible differences in transmission on rates on different types of loans; secondly, the examination of loan rates to different productive sectors; thirdly, possible differences among regions and provinces; finally, the existence of asymmetry in the response of loan rates to policy rate hikes and cuts.

The results revealed two notable features worth emphasizing: the presence of asymmetry and variations in the strength of monetary policy transmission across different types of loans, sectors and

regions-provinces; a second interesting finding is the importance of a market rate, the bond yield, in determining the changes in loan rates.

These two characteristics from the past also offer valuable insights for the present. On the one hand, it emerges the necessity for a central bank to study the different mechanisms of transmission to know in which economic sector and area the monetary policy is stronger or weaker. This understanding is crucial for policymakers to calibrate their monetary policy stance and anticipate the effects of changes in policy rates. On the other hand, today the role of the market rates is surely stronger than that observed in a rigid banking system as the one of those decades. Thus, central banks should inevitably take into account the fluctuations of the market rates to have a complete picture of the monetary scenario.

Appendix

Table A1. Descriptive statistics of time series

Variable name-description	Source	N. Obs.	Minimum	Mean	Maximum	St. Dev.
Policy Rate – Tasso Ufficiale di Sconto	Banca d'Italia	66	3.50	11.15	19.00	5.28
Yield on long term bond – Yield on bond with more than 1 year maturity	Banca d'Italia	66	5.62	12.46	21.34	4.54
Inflation rate – Consumer price	Istat	66	2.10	13.12	25.70	5.93
GDP-Annual rate of change of quarterly real GDP	Istat	66	-3.69	3.21	8.14	2.78
Rate on…	Source	N. Obs.	Minimum	Mean	Maximum	St. Dev.
Total loan	Banca d'Italia	66	6.81	15.10	22.54	4.92
Commercial portfolio	Banca d'Italia	66	6.33	16.03	23.92	5.65
Financial portfolio	Banca d'Italia	66	6.53	13.45	18.36	3.76
Current accounts	Banca d'Italia	66	7.22	16.11	24.24	5.50
Foreign Transactions	Banca d'Italia	66	3.50	9.93	16.69	2.77
Collateralized loans	Banca d'Italia	66	5.64	12.42	21.15	4.31
Interbank loans	Banca d'Italia	66	4.81	11.84	19.64	4.68
Inter-credit loans	Banca d'Italia	66	5.36	11.57	19.54	4.30
Rate on loans to a specific sector	Source	N. Obs.	Minimum	Mean	Maximum	St. Dev.
Agriculture	Banca d'Italia	66	4.33	11.54	20.50	3.84
Food	Banca d'Italia	66	6.88	14.89	21.69	4.61
Paper	Banca d'Italia	66	6.96	15.61	23.09	5.09
Chemistry	Banca d'Italia	66	6.69	14.13	21.78	4.55
Construction	Banca d'Italia	66	7.51	16.64	24.63	5.56
Electricity, gas	Banca d'Italia	66	5.41	14.34	21.81	4.81
Rubber	Banca d'Italia	66	6.36	14.31	21.91	4.62
Manufacturing	Banca d'Italia	66	7.00	15.37	22.52	4.67
Wood	Banca d'Italia	66	6.73	15.80	23.40	5.18
Mechanics	Banca d'Italia	66	6.77	14.99	22.53	4.87
Metallurgical	Banca d'Italia	66	6.38	14.24	21.89	4.71
Non-metallic minerals	Banca d'Italia	66	6.96	15.69	23.43	5.21
Mining	Banca d'Italia	66	7.18	14.18	20.09	3.84
Leather	Banca d'Italia	66	6.86	15.20	22.35	4.65
Textiles	Banca d'Italia	66	6.66	15.15	22.46	4.90
Transportation	Banca d'Italia	66	6.89	15.86	23.71	5.38
Rate on total loans in a specific region	Source	N. Obs.	Minimum	Mean	Maximum	St. Dev.
-Abruzzo	Banca d'Italia	66	7.24	16.32	24.36	5.41
-Basilicata	Banca d'Italia	66	8.01	17.50	24.83	5.45
-Calabria	Banca d'Italia	66	8.10	17.39	24.96	5.43
-Campania	Banca d'Italia	66	7.40	16.48	23.41	5.12
-Emilia Romagna	Banca d'Italia	66	6.93	15.01	23.04	4.98
-Friuli Venezia G.	Banca d'Italia	66	6.83	15.17	22.85	5.04
-Lazio	Banca d'Italia	66	6.78	14.92	22.26	4.95
-Liguria	Banca d'Italia	66	6.55	14.69	22.36	4.80
-Lombardia	Banca d'Italia	66	6.70	14.77	22.24	4.84
-Marche	Banca d'Italia	66	6.80	15.27	24.10	5.47
-Molise	Banca d'Italia	66	8.08	17.15	25.17	5.46
-Piemonte	Banca d'Italia	66	6.55	14.66	21.59	4.72
-Puglia	Banca d'Italia	66	7.72	16.85	24.30	5.16
-Sardegna	Banca d'Italia	66	7.30	15.50	22.48	4.52
-Sicilia	Banca d'Italia	66	7.83	17.44	24.26	5.28
-Toscana	Banca d'Italia	66	6.89	15.16	22.85	4.96
-Trentino Alto Adige	Banca d'Italia	66	7.09	15.55	23.94	5.07
-Umbria	Banca d'Italia	66	6.71	15.20	23.19	5.03
-Valle d'Aosta	Banca d'Italia	66	7.22	16.22	23.27	5.19

-Veneto	Banca d'Italia	66	6.70	15.36	22.80	4.98
Rate on total loans in a specific province	Source	N. Obs.	Minimum	Mean	Maximum	St. Dev.
Abruzzo-Chieti	Banca d'Italia	66	7.12	16.89	25.26	5.62
Abruzzo-L'Aquila	Banca d'Italia	66	8.03	16.67	24.45	5.24
Abruzzo-Pescara	Banca d'Italia	66	7.14	16.32	24.15	5.31
Abruzzo-Teramo	Banca d'Italia	66	5.35	15.37	24.38	5.70
Basilicata-Matera	Banca d'Italia	66	8.32	17.69	25.73	5.73
Basilicata-Potenza	Banca d'Italia	66	7.83	17.31	24.45	5.32
Calabria-Catanzaro	Banca d'Italia	66	8.04	17.15	24.90	5.16
Calabria-Cosenza	Banca d'Italia	66	7.77	17.63	25.88	5.95
Calabria-Reggio Cal.	Banca d'Italia	66	8.23	17.36	24.62	5.38
Campania-Avellino	Banca d'Italia	66	7.95	17.20	24.15	5.34
Campania-Benevento	Banca d'Italia	66	8.66	17.38	24.83	5.04
Campania-Caserta	Banca d'Italia	66	7.87	17.38	24.70	5.43
Campania-Napoli	Banca d'Italia	66	7.30	16.31	23.17	5.06
Campania-Salerno	Banca d'Italia	66	7.96	16.81	23.93	5.10
EmiliaR-Bologna	Banca d'Italia	66	7.05	15.08	22.76	4.84
EmiliaR-Ferrara	Banca d'Italia	66	5.94	13.97	23.35	5.20
EmiliaR-Forlì	Banca d'Italia	66	6.88	15.29	23.84	5.27
EmiliaR-Modena	Banca d'Italia	66	7.19	15.02	23.10	4.92
EmiliaR-Parma	Banca d'Italia	66	6.98	15.30	23.14	5.32
EmiliaR-Piacenza	Banca d'Italia	66	6.84	15.04	22.42	4.71
EmiliaR-Ravenna	Banca d'Italia	66	6.77	14.37	23.12	4.87
EmiliaR-ReggioEmilia	Banca d'Italia	66	7.17	15.29	23.41	5.05
FriuliVG-Gorizia	Banca d'Italia	66	7.57	16.15	23.69	4.94
FriuliVG-Pordenone	Banca d'Italia	66	6.51	14.96	22.77	4.95
FriuliVG-Trieste	Banca d'Italia	66	6.87	15.22	22.84	5.07
FriuliVG-Udine	Banca d'Italia	66	6.80	15.05	23.04	5.03
Lazio-Frosinone	Banca d'Italia	66	7.44	16.81	25.09	5.55
Lazio-Latina	Banca d'Italia	66	6.95	15.75	24.92	5.44
Lazio-Rieti	Banca d'Italia	66	6.87	16.05	24.38	5.38
Lazio-Roma	Banca d'Italia	66	6.78	14.85	22.12	4.91
Lazio-Viterbo	Banca d'Italia	66	5.72	13.97	23.77	5.27
Liguria-Genova	Banca d'Italia	66	6.51	14.47	22.12	4.70
Liguria-Imperia	Banca d'Italia	66	6.89	15.88	23.90	5.34
Liguria-Savona	Banca d'Italia	66	6.89	15.84	22.85	5.11
Liguria-LaSpezia	Banca d'Italia	66	7.22	15.94	23.95	5.10
Lombardia-Bergamo	Banca d'Italia	66	6.78	15.30	23.10	5.10
Lombardia-Brescia	Banca d'Italia	66	6.64	15.16	23.14	5.08
Lombardia-Como	Banca d'Italia	66	6.87	15.17	22.61	4.85
Lombardia-Cremona	Banca d'Italia	66	6.92	14.68	21.97	4.77
Lombardia-Mantova	Banca d'Italia	66	6.72	14.65	23.03	4.92
Lombardia-Milano	Banca d'Italia	66	6.68	14.60	21.93	4.74
Lombardia-Pavia	Banca d'Italia	66	6.72	14.91	22.74	5.02
Lombardia-Sondrio	Banca d'Italia	66	7.03	16.09	24.30	5.58
Lombardia-Varese	Banca d'Italia	66	6.70	14.91	22.19	4.75
Marche-Ancona	Banca d'Italia	66	6.98	15.33	23.53	5.13
Marche-Ascoli	Banca d'Italia	66	6.21	15.71	25.52	6.07
Marche-Macerata	Banca d'Italia	66	4.95	14.31	25.22	6.06
Marche-Pesaro	Banca d'Italia	66	6.52	15.10	24.82	5.43
Molise-Campobasso	Banca d'Italia	66	8.08	17.00	25.18	5.42
Piemonte-Alessandria	Banca d'Italia	66	6.58	15.39	22.47	5.04
Piemonte-Asti	Banca d'Italia	66	6.61	15.12	22.15	4.74
Piemonte-Cuneo	Banca d'Italia	66	6.57	14.88	22.22	4.81

Piemonte-Novara	Banca d'Italia	66	6.62	15.10	22.50	5.02
Piemonte-Torino	Banca d'Italia	66	6.55	14.42	21.21	4.59
Piemonte-Vercelli	Banca d'Italia	66	6.43	14.99	22.48	4.95
Puglia-Bari	Banca d'Italia	66	7.47	16.66	24.62	5.15
Puglia-Brindisi	Banca d'Italia	66	8.01	17.16	25.06	5.08
Puglia-Foggia	Banca d'Italia	66	7.82	16.99	24.04	5.25
Puglia-Lecce	Banca d'Italia	66	8.08	16.57	23.42	4.92
Puglia-Taranto	Banca d'Italia	66	8.24	17.45	24.90	5.45
Sardegna-Cagliari	Banca d'Italia	66	7.26	15.63	22.63	4.67
Sardegna-Nuoro	Banca d'Italia	66	7.40	14.52	22.29	4.23
Sardegna-Sassari	Banca d'Italia	66	7.40	15.64	22.96	4.49
Sicilia-Catania	Banca d'Italia	66	7.90	17.04	24.40	5.29
Sicilia-Messina	Banca d'Italia	66	7.72	17.83	25.26	5.55
Sicilia-Palermo	Banca d'Italia	66	7.76	17.46	24.48	5.33
Sicilia-Ragusa	Banca d'Italia	66	9.01	18.42	26.00	5.74
Sicilia-Siracusa	Banca d'Italia	66	8.66	18.12	25.59	5.30
Sicilia-Trapani	Banca d'Italia	66	7.61	16.83	24.63	4.70
Toscana-Arezzo	Banca d'Italia	66	6.71	15.10	22.78	5.07
Toscana-Firenze	Banca d'Italia	66	6.90	15.21	22.59	4.87
Toscana-Grosseto	Banca d'Italia	66	5.63	13.91	24.39	5.53
Toscana-Livorno	Banca d'Italia	66	7.23	15.94	24.13	5.35
Toscana-Lucca	Banca d'Italia	66	7.02	15.29	22.16	4.82
Toscana-MassaCarr.	Banca d'Italia	66	7.04	16.03	23.62	5.10
Toscana-Pisa	Banca d'Italia	66	6.73	15.17	22.50	4.74
Toscana-Pistoia	Banca d'Italia	66	7.06	15.83	23.25	5.21
Toscana-Siena	Banca d'Italia	66	4.78	14.25	23.30	5.24
Trentino-Bolzano	Banca d'Italia	66	6.99	15.84	24.56	5.41
Trentino-Trento	Banca d'Italia	66	7.21	15.17	22.95	4.62
Umbria-Perugia	Banca d'Italia	66	6.93	15.16	22.93	4.93
Umbria-Terni	Banca d'Italia	66	6.46	15.32	23.76	5.28
Veneto-Belluno	Banca d'Italia	66	8.10	16.01	23.74	4.79
Veneto-Padova	Banca d'Italia	66	6.88	15.46	22.92	5.05
Veneto-Rovigo	Banca d'Italia	66	8.04	16.39	24.25	5.30
Veneto-Treviso	Banca d'Italia	66	6.66	15.30	23.03	5.06
Veneto-Venezia	Banca d'Italia	66	6.44	15.42	22.90	5.23
Veneto-Verona	Banca d'Italia	66	6.83	15.16	22.36	4.77
Veneto-Vicenza	Banca d'Italia	66	6.91	15.27	22.78	4.79

Table A2. Unit root tests

Null hypothesis: series has a unit root		
Series	Augm. Dickey-Fuller test statistic	Phillips-Perron test statistic
National interest rate in first difference		
-Policy rate	-7.73***	-7.73***
-BTP	-6.05***	-6.07***
-Total loans	-4.84***	-4.14***
-Commercial portfolio	-4.36***	-4.39***
-Financial portfolio	-5.81***	-5.73***
-Current accounts	-4.32***	-4.37***
-Foreign Transactions	-7.80***	-7,80***
-Collateralized loans	-4.78***	-19.47***
-Interbank loans	-7.73***	-7.73***
-Inter-credit loans	-18.87***	-18.57***
-Manufacturing products	-4.56***	-4.56***
-Rubber	-4.71***	-4.31***
-Chemistry	-4.39***	-3.91***
-Mechanics	-5.19***	-5.19***
-Metallurgical sector	-4.93***	-4.02***
-Mining and quarrying	-5.90***	-4.84***
-Food and related industries	-4.53***	-4.40***
-Agriculture and forestry	-4.37***	-17.84***
-Construction	-4.52***	-4.54***
-Transportation	-4.33***	-4.36***
-Production and distribution of electricity, gas, water	-5.51***	-5.44***
-Wood and related products	-6.35***	-6.35***
-Non-metallic minerals	-6.59***	-6.59***
-Paper and printing	-4.86***	-4.91***
-Leather and footwear	-4.15***	-4.22***
-Textiles and Clothing	-4.76***	-4.22***
Other variables employed in regressions		
-Inflation rate	-6.37***	-4.71***
-GDP	-4.39***	-3.34**
Regional interest rate in first difference		
-Abruzzo	-6.61***	-6.67***
-Basilicata	-5.95***	-5.95***
-Calabria	-6.06***	-6.07***
-Campania	-5.25***	-5.27***
-Emilia Romagna	-4.49***	-4.40***
-Friuli Venezia G.	-4.77***	-3.86***
-Lazio	-4.69***	-4.73***
-Liguria	-5.01***	-4.08***
-Lombardia	-4.96***	-3.83***
-Marche	-4.03***	-7.14***
-Molise	-6.56***	-6.56***
-Piemonte	-5.07***	-4.20***
-Puglia	-4.68***	-4.70***
-Sardegna	-7.10***	-7.06***
-Sicilia	-4.40***	-4.51***
-Toscana	-4.15***	-4.06***
-Trentino Alto Adige	-4.62***	-4.62***
-Umbria	-5.45***	-5.45***
-Valle d'Aosta	-4.98***	-4.66***
-Veneto	-4.72***	-3.97***
* null hypothesis rejected at 10%, ** at 5%, *** at 1%.		
Note: as regards provincial interest rates, data are not showed but both tests don't signal the presence of a unit root.		

Table A3. Variance Inflation Factors

	Test for equation 1 table 2, obs 64		
Variable	Coeff. Variance	Uncentered VIF	Centered VIF
β1	0.004284	1.268173	NA
β2 inflation	0.001281	1.403631	1.399474
β3 Policyrate	0.002857	1.387603	1.357868
β4 BTP	0.006207	1.495062	1.464233
β5 pil	0.002288	1.146443	1.143951
β6 dtpol	0.029394	1.223590	1.051523
β7 dummy1974	0.068017	1.258384	1.179735
Note: for all the other regressions the uncentered and the centered VIF are always the same.			

Table A4. Regional regressions, complete results.

Dependent variable: regional rate on total loans. Sample: 1969Q4-1985Q3. Observations:64										
Region	β1-cost	β2-Infl	β3-Pol	β4-BTP	β5-GDP	β6-Asi	β7-1974	Adj R^2	F stat	DW
Abruzzo	-0.10 (0.107)	0.08 (0.058)	0.36*** (0.059)	0.46*** (0.130)	0.05 (0.078)	0.63** (0.281)	0.55 (0.428)	0.56	14.6***	2.8
Basilicata	-0.05 (0.086)	0.07 (0.047)	0.41*** (0.070)	0.28*** (0.104)	0.04 (0.063)	-0.05 (0.226)	1.67*** (0.343)	0.68	23.5***	2.7
Calabria	-0.07 (0.094)	0.05 (0.051)	0.48*** (0.077)	0.31*** (0.113)	0.06 (0.069)	0.34 (0.246)	1.14*** (0.374)	0.65	20.7***	2.7
Campania	-0.13 (0.082)	0.08* (0.045)	0.45*** (0.067)	0.29*** (0.099)	0.12** (0.060)	0.63*** (0.215)	1.12*** (0.328)	0.73	28.7***	2.4
Emilia Romagna	-0.19** (0.080)	0.11** (0.044)	0.46*** (0.065)	0.25** (0.096)	0.14** (0.058)	0.79*** (0.210)	1.27*** (0.319)	0.76	34.1***	2.3
Friuli Venezia G.	-0.18** (0.074)	0.14*** (0.041)	0.46*** (0.061)	0.23** (0.089)	0.14** (0.054)	0.82*** (0.194)	1.25*** (0.296)	0.79	40.8***	2.0
Lazio	-0.18** (0.073)	0.12*** (0.040)	0.49*** (0.059)	0.17* (0.087)	0.17*** (0.053)	0.87*** (0.190)	1.09*** (0.289)	0.80	41.8***	2.3
Liguria	-0.17* (0.083)	0.15*** (0.045)	0.42*** (0.068)	0.20** (0.100)	0.25*** (0.061)	0.74*** (0.218)	1.37*** (0.331)	0.76	34.4***	2.0
Lombardia	-0.16** (0.068)	0.16*** (0.037)	0.42*** (0.056)	0.27*** (0.082)	0.19*** (0.050)	0.65*** (0.178)	1.18*** (0.271)	0.82	49.5***	1.86
Marche	-0.13 (0.156)	0.01 (0.085)	0.31** (0.127)	0.59*** (0.188)	0.141 (0.114)	0.74* (0.409)	0.94 (0.622)	0.40	7.87***	2.72
Molise	-0.07 (0.116)	0.06 (0.063)	0.38*** (0.095)	0.49*** (0.139)	0.15* (0.085)	0.14 (0.303)	1.20** (0.461)	0.58	15.7***	3.03
Piemonte	-0.16** (0.070)	0.13*** (0.038)	0.47*** (0.057)	0.18** (0.084)	0.22*** (0.051)	0.63*** (0.182)	1.37*** (0.277)	0.82	47.9***	1.97
Puglia	-0.12 (0.073)	0.08** (0.040)	0.44*** (0.060)	0.32*** (0.088)	0.09 (0.054)	0.45** (0.192)	1.30*** (0.292)	0.77	36.3***	2.50
Sardegna	-0.07 (0.132)	0.05 (0.072)	0.37*** (0.108)	0.47*** (0.159)	0.09 (0.096)	0.29 (0.346)	0.99* (0.526)	0.47	10.2***	2.24
Sicilia	-0.07 (0.063)	0.14*** (0.034)	0.43*** (0.051)	0.11 (0.075)	0.10** (0.046)	0.59*** (0.164)	1.17*** (0.249)	0.80	42.5***	2.17
Toscana	-0.12* (0.066)	0.08** (0.036)	0.38*** (0.054)	0.35*** (0.080)	0.17*** (0.049)	0.60*** (0.174)	1.18*** (0.265)	0.80	43.0***	2.18
Trentino Alto Adige	-0.16* (0.083)	0.13*** (0.045)	0.39*** (0.068)	0.31*** (0.100)	0.13** (0.061)	0.72*** (0.218)	1.05*** (0.218)	0.73	28.8***	2.40
Umbria	-0.22** (0.087)	0.08 (0.047)	0.54*** (0.071)	0.14 (0.104)	0.12* (0.063)	1.19*** (0.227)	1.31*** (0.346)	0.73	30.1***	2.85
Valle d'Aosta	-0.12 (0.100)	0.08 (0.055)	0.41*** (0.082)	0.20* (0.120)	0.19** (0.073)	0.68** (0.262)	1.45*** (0.398)	0.63	19.0***	2.10
Veneto	-0.15** (0.059)	0.14*** (0.033)	0.40*** (0.049)	0.21*** (0.072)	0.13*** (0.043)	0.67*** (0.156)	1.25*** (0.237)	0.83	53.0***	2.11
* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.										

Table A5. Provincial regressions, complete results, part 1.

Dependent variable: provincial rate on total loans. Sample: 1969Q4-1985Q3. Observations:64										
Province	β1-cost	β2-Infl	β3-Pol	β4-BTP	β5-GDP	β6-Asi	β7-1974	Adj R^2	F stat	DW
Abruzzo-Chieti	-0.04 (0.105)	0.14** (0.057)	0.36*** (0.086)	0.33** (0.126)	0.08 (0.077)	0.35 (0.275)	0.51 (0.418)	0.56	14.42***	2.44
Abruzzo-L'Aquila	-0.06 (0.106)	0.07 (0.058)	0.51*** (0.087)	0.28** (0.128)	0.06 (0.078)	0.19 (0.279)	0.95** (0.423)	0.60	16.44***	2.33
Abruzzo-Pescara	-0.09 (0.083)	0.094** (0.045)	0.41*** (0.068)	0.34*** (0.100)	0.04 (0.061)	0.63*** (0.218)	0.45 (0.331)	0.67	22.49***	2.52
Abruzzo-Teramo	-0.13 (0.271)	-0.04 (0.148)	0.14 (0.221)	1.05*** (0.326)	0.06 (0.198)	0.77 (0.710)	0.58 (1.081)	0.18	3.32***	2.89
Basilicata-Matera	-0.02 (0.100)	0.20*** (0.055)	0.26*** (0.082)	0.29** (0.120)	-0.02 (0.073)	0.30 (0.262)	0.68* (0.399)	0.56	14.19***	2.11
Basilicata-Potenza	-0.06 (0.084)	0.07 (0.046)	0.43*** (0.068)	0.25** (0.101)	0.05 (0.061)	-0.07 (0.219)	1.71*** (0.333)	0.70	25.32***	2.76
Calabria-Catanzaro	-0.07 (0.142)	-0.01 (0.078)	0.59*** (0.116)	0.33* (0.171)	-0.01 (0.104)	0.11 (0.372)	1.24** (0.566)	0.48	10.58***	2.88
Calabria-Cosenza	-0.08 (0.100)	0.06 (0.055)	0.34*** (0.082)	0.43*** (0.120)	0.09 (0.073)	0.63** (0.262)	1.09*** (0.398)	0.61	17.45***	2.44
Calabria-Reggio Cal.	-0.07 (0.092)	0.10** (0.050)	0.43*** (0.075)	0.20* (0.111)	0.10 (0.067)	0.42* (0.241)	1.11*** (0.367)	0.64	19.88***	2.50
Campania-Avellino	-0.07 (0.113)	0.05 (0.062)	0.54*** (0.092)	0.20 (0.136)	0.05 (0.083)	-0.02 (0.296)	1.62*** (0.450)	0.59	16.00***	2.85
Campania-Benevento	-0.03 (0.139)	-0.03 (0.076)	0.32*** (0.113)	0.58*** (0.167)	0.06 (0.101)	-0.02 (0.363)	1.92*** (0.552)	0.47	10.28***	2.50
Campania-Caserta	-0.08 (0.120)	0.11* (0.065)	0.45*** (0.098)	0.33** (0.144)	0.08 (0.087)	0.54* (0.313)	0.90* (0.476)	0.55	13.77***	2.88
Campania-Napoli	-0.14 (0.089)	0.07 (0.049)	0.47*** (0.073)	0.30*** (0.107)	0.131** (0.065)	0.64*** (0.233)	1.15*** (0.354)	0.70	25.47***	2.51
Campania-Salerno	-0.09 (0.085)	0.11** (0.046)	0.46*** (0.069)	0.19* (0.102)	0.10 (0.062)	0.38* (0.222)	1.26*** (0.337)	0.70	25.35***	2.56
EmiliaR-Bologna	-0.20** (0.084)	0.17*** (0.046)	0.41*** (0.069)	0.20* (0.102)	0.18*** (0.062)	0.92*** (0.221)	1.22*** (0.336)	0.74	31.34***	2.53
EmiliaR-Ferrara	-0.08 (0.226)	0.12 (0.124)	0.06 (0.185)	0.87*** (0.272)	0.12 (0.165)	0.42 (0.593)	0.42 (0.902)	0.21	3.76***	2.80
EmiliaR-Forlì	-0.16* (0.095)	0.12** (0.052)	0.35*** (0.077)	0.25** (0.114)	0.22*** (0.069)	0.73*** (0.248)	1.69*** (0.377)	0.69	24.18***	2.45
EmiliaR-Modena	-0.20** (0.081)	0.14*** (0.044)	0.47*** (0.066)	0.17* (0.098)	0.16*** (0.059)	0.72*** (0.213)	1.47*** (0.324)	0.76	34.82***	2.11
EmiliaR-Parma	-0.15* (0.092)	0.10** (0.050)	0.33*** (0.075)	0.42*** (0.111)	0.16** (0.067)	0.75** (0.240)	1.23*** (0.366)	0.69	24.34***	2.43
EmiliaR-Piacenza	-0.13 (0.101)	0.15*** (0.055)	0.32*** (0.082)	0.27** (0.121)	0.11 (0.074)	0.73*** (0.264)	0.95** (0.401)	0.59	16.39***	2.51
EmiliaR-Ravenna	-0.17 (0.120)	0.13* (0.066)	0.48*** (0.098)	0.12 (0.146)	0.22** (0.088)	0.77** (0.315)	1.27** (0.478)	0.58	15.44***	2.58
EmiliaR-ReggioEmilia	-0.14 (0.086)	0.13*** (0.047)	0.42*** (0.070)	0.39*** (0.103)	0.09 (0.063)	0.50** (0.224)	0.90** (0.341)	0.73	29.05***	2.29
FriuliVG-Gorizia	-0.12 (0.078)	0.15*** (0.043)	0.46*** (0.064)	0.20** (0.094)	0.07 (0.057)	0.55*** (0.206)	1.01*** (0.313)	0.74	31.29***	2.53
FriuliVG-Pordenone	-0.17* (0.086)	0.17*** (0.047)	0.42*** (0.070)	0.33*** (0.104)	0.20*** (0.063)	0.66*** (0.226)	1.04*** (0.343)	0.75	33.33***	2.17
FriuliVG-Trieste	-0.17* (0.088)	0.14*** (0.048)	0.46*** (0.072)	0.18* (0.105)	0.19*** (0.064)	0.80*** (0.230)	1.32*** (0.349)	0.73	29.77***	2.37
FriuliVG-Udine	-0.17** (0.083)	0.08* (0.045)	0.42*** (0.067)	0.31*** (0.099)	0.10 (0.060)	0.80*** (0.216)	1.26*** (0.329)	0.72	28.34***	2.05
* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.										

Table A5. Provincial regressions, complete results, part 2.

Dependent variable: provincial rate on total loans. Sample: 1969Q4-1985Q3. Observations:64										
Province	β1-cost	β2-Infl	β3-Pol	β4-BTP	β5-GDP	β6-Asi	β7-1974	Adj R^2	F stat	DW
Lazio-Frosinone	-0.12 (0.090)	0.11** (0.049)	0.40*** (0.074)	0.25** (0.109)	0.160** (0.066)	0.52** (0.236)	1.32*** (0.359)	0.68	23.38***	2.46
Lazio-Latina	-0.11 (0.148)	0.03 (0.081)	0.36*** (0.121)	0.54*** (0.179)	0.12 (0.108)	0.60 (0.389)	1.04* (0.591)	0.44	9.13***	2.65
Lazio-Rieti	-0.19 (0.182)	-0.04 (0.099)	0.36** (0.148)	0.52** (0.219)	0.09 (0.133)	1.01** (0.476)	1.16 (0.724)	0.31	5.72***	2.53
Lazio-Roma	-0.18** (0.076)	0.13*** (0.041)	0.49*** (0.062)	0.17* (0.091)	0.17*** (0.055)	0.87*** (0.198)	1.09*** (0.301)	0.78	38.92***	2.37
Lazio-Viterbo	-0.22 (0.378)	-0.26 (0.207)	0.10 (0.308)	1.29*** (0.455)	-0.02 (0.276)	1.67* (0.990)	0.48 (1.51)	0.11	2.25*	3.01
Liguria-Genova	-0.17** (0.086)	0.16*** (0.047)	0.41*** (0.071)	0.20* (0.104)	0.26*** (0.063)	0.75*** (0.226)	1.37*** (0.344)	0.75	32.39***	1.95
Liguria-Imperia	-0.13* (0.075)	0.11*** (0.041)	0.41*** (0.061)	0.30*** (0.090)	0.14** (0.055)	0.68*** (0.196)	1.13*** (0.298)	0.77	36.12***	1.98
Liguria-Savona	-0.14* (0.079)	0.15*** (0.043)	0.39*** (0.065)	0.22** (0.095)	0.18*** (0.058)	0.70*** (0.207)	1.40*** (0.315)	0.76	33.78***	2.37
Liguria-LaSpezia	-0.15 (0.093)	0.10* (0.051)	0.46*** (0.076)	0.22* (0.112)	0.21*** (0.068)	0.71*** (0.244)	1.29*** (0.372)	0.70	24.93***	2.44
Lombardia-Bergamo	-0.15** (0.066)	0.13*** (0.036)	0.43*** (0.054)	0.26*** (0.079)	0.14*** (0.048)	0.65*** (0.173)	1.22*** (0.263)	0.82	48.33***	2.22
Lombardia-Brescia	-0.15** (0.062)	0.12*** (0.034)	0.46*** (0.051)	0.31*** (0.075)	0.16*** (0.045)	0.61*** (0.163)	1.12*** (0.248)	0.85	58.44***	1.90
Lombardia-Como	-0.15** (0.070)	0.15*** (0.038)	0.43*** (0.057)	0.26*** (0.084)	0.16*** (0.051)	0.67*** (0.183)	1.11*** (0.278)	0.80	44.07***	2.32
Lombardia-Cremona	-0.14 (0.099)	0.09* (0.054)	0.47*** (0.081)	0.32*** (0.119)	0.17** (0.072)	0.45* (0.259)	1.33*** (0.394)	0.68	23.12***	2.32
Lombardia-Mantova	-0.12 (0.125)	0.17** (0.069)	0.19* (0.103)	0.48*** (0.151)	0.15* (0.092)	0.69** (0.328)	0.76 (0.500)	0.50	11.67***	2.70
Lombardia-Milano	-0.17** (0.072)	0.15*** (0.039)	0.43*** (0.059)	0.28*** (0.086)	0.21*** (0.052)	0.66*** (0.188)	1.21*** (0.29)	0.81	46.54***	1.91
Lombardia-Pavia	-0.11 (0.086)	0.13*** (0.047)	0.33*** (0.071)	0.34*** (0.104)	0.15** (0.063)	0.56** (0.226)	1.17*** (0.345)	0.70	25.48***	2.27
Lombardia-Sondrio	-0.10 (0.087)	0.20*** (0.048)	0.43*** (0.071)	0.26** (0.105)	0.13** (0.064)	0.64*** (0.229)	1.05*** (0.348)	0.74	31.29***	2.25
Lombardia-Varese	-0.15** (0.064)	0.15*** (0.035)	0.44*** (0.052)	0.18** (0.077)	0.19*** (0.047)	0.72*** (0.168)	1.15*** (0.256)	0.83	51.23***	2.06
Marche-Ancona	-0.18 (0.117)	0.07 (0.064)	0.45*** (0.096)	0.39*** (0.141)	0.18** (0.086)	0.89*** (0.308)	1.05** (0.468)	0.60	16.82***	2.55
Marche-Ascoli	-0.11 (0.227)	0.00 (0.124)	0.19 (0.186)	0.62** (0.274)	0.20 (0.166)	0.78 (0.596)	1.10 (0.906)	0.19	3.47***	2.99
Marche-Macerata	-0.01 (0.333)	-0.08 (0.182)	0.04 (0.272)	1.16*** (0.401)	0.11 (0.243)	0.26 (0.873)	0.33 (1.328)	0.09	2.08*	2.96
Marche-Pesaro	-0.11 (0.21)	-0.07 (0.113)	0.30* (0.169)	0.67*** (0.250)	0.03 (0.152)	0.65 (0.543)	0.97 (0.826)	0.21	3.87***	2.74
Molise-Campobasso	-0.08 (0.130)	0.04 (0.071)	0.39*** (0.106)	0.57*** (0.156)	0.15 (0.095)	0.15 (0.339)	1.20** (0.516)	0.54	13.45***	2.99
* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.										

Table A5. Provincial regressions, complete results, part 3.

Dependent variable: provincial rate on total loans. Sample: 1969Q4-1985Q3. Observations:64										
Province	β1-cost	β2-Infl	β3-Pol	β4-BTP	β5-GDP	β6-Asi	β7-1974	Adj R^2	F stat	DW
Piemonte-Alessandria	-0.13* (0.072)	0.12*** (0.039)	0.45*** (0.058)	0.26*** (0.086)	0.19*** (0.052)	0.62*** (0.187)	1.31*** (0.285)	0.81	44.53***	2.19
Piemonte-Asti	-0.15 (0.093)	0.11** (0.051)	0.44*** (0.076)	0.16 (0.112)	0.18** (0.069)	0.79*** (0.243)	1.13*** (0.370)	0.67	22.25***	2.32
Piemonte-Cuneo	-0.16* (0.082)	0.13*** (0.045)	0.44*** (0.067)	0.12 (0.098)	0.19*** (0.060)	0.69*** (0.214)	1.33*** (0.326)	0.73	29.25***	2.27
Piemonte-Novara	-0.15** (0.072)	0.13*** (0.040)	0.40*** (0.059)	0.26*** (0.087)	0.19*** (0.053)	0.73*** (0.190)	1.22*** (0.289)	0.79	39.55***	2.35
Piemonte-Torino	-0.17** (0.078)	0.13*** (0.043)	0.46*** (0.064)	0.18* (0.094)	0.23*** (0.057)	0.60*** (0.204)	1.43*** (0.31)	0.78	38.13***	1.98
Piemonte-Vercelli	-0.16** (0.066)	0.13*** (0.036)	0.44*** (0.054)	0.22*** (0.079)	0.19*** (0.048)	0.72*** (0.172)	1.28*** (0.262)	0.83	50.82***	2.06
Puglia-Bari	-0.14* (0.073)	0.09** (0.040)	0.45*** (0.060)	0.31*** (0.088)	0.12** (0.053)	0.55*** (0.191)	1.34*** (0.291)	0.78	39.22***	2.40
Puglia-Brindisi	-0.05 (0.117)	-0.01 (0.064)	0.64*** (0.096)	0.37** (0.141)	-0.01 (0.086)	-0.18 (0.308)	1.23** (0.468)	0.62	17.81***	2.52
Puglia-Foggia	-0.09 (0.099)	0.11** (0.054)	0.37*** (0.054)	0.39*** (0.119)	0.03 (0.073)	0.40 (0.260)	0.95** (0.396)	0.61	17.46***	2.40
Puglia-Lecce	-0.13 (0.083)	0.09* (0.046)	0.45*** (0.068)	0.28*** (0.100)	0.14** (0.061)	0.57** (0.218)	1.30*** (0.332)	0.73	29.57***	2.33
Puglia-Taranto	-0.08 (0.100)	0.06 (0.055)	0.43*** (0.081)	0.25** (0.120)	0.04 (0.073)	0.28 (0.261)	1.48*** (0.397)	0.60	16.86***	2.78
Sardegna-Cagliari	-0.11 (0.126)	0.07 (0.069)	0.34*** (0.103)	0.31** (0.151)	0.11 (0.09)	0.62* (0.329)	1.21** (0.500)	0.46	9.85***	2.00
Sardegna-Nuoro	0.03 (0.213)	0.05 (0.117)	0.43** (0.174)	0.59** (0.256)	0.08 (0.156)	-0.62 (0.558)	1.12 (0.849)	0.30	5.52***	2.73
Sardegna-Sassari	-0.03 (0.248)	-0.05 (0.136)	0.35* (0.202)	0.86*** (0.298)	0.09 (0.181)	-0.21 (0.649)	0.98 (0.988)	0.23	4.14***	3.05
Sicilia-Catania	-0.11 (0.066)	0.11*** (0.036)	0.46*** (0.054)	0.21*** (0.079)	0.14*** (0.048)	0.64*** (0.172)	1.25*** (0.262)	0.81	46.95***	1.99
Sicilia-Messina	-0.07 (0.068)	0.12*** (0.037)	0.33*** (0.055)	0.25*** (0.081)	0.07 (0.049)	0.50*** (0.177)	1.30*** (0.269)	0.75	33.33***	2.23
Sicilia-Palermo	-0.08 (0.053)	0.12*** (0.029)	0.44*** (0.043)	0.14** (0.064)	0.08** (0.039)	0.63*** (0.138)	1.20*** (0.210)	0.85	60.85***	2.15
Sicilia-Ragusa	-0.10 (0.082)	0.16*** (0.045)	0.42*** (0.067)	0.17* (0.099)	0.09 (0.060)	0.83*** (0.214)	1.13*** (0.326)	0.72	28.21***	2.39
Sicilia-Siracusa	-0.06 (0.071)	0.12*** (0.039)	0.47*** (0.058)	0.12 (0.086)	0.09* (0.052)	0.46** (0.187)	1.11*** (0.284)	0.75	32.96***	2.23
Sicilia-Trapani	0.02 (0.185)	0.14 (0.101)	0.48*** (0.151)	-0.459* (0.223)	0.11 (0.135)	0.26 (0.486)	1.48** (0.739)	0.20	3.62***	1.88
* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.										

Table A5. Provincial regressions, complete results, part 4.

Dependent variable: provincial rate on total loans. Sample: 1969Q4-1985Q3. Observations:64										
Province	β1-cost	β2-Infl	β3-Pol	β4-BTP	β5-GDP	β6-Asi	β7-1974	Adj R^2	F stat	DW
Toscana-Arezzo	-0.13 (0.084)	0.06 (0.046)	0.45*** (0.069)	0.41*** (0.101)	0.176*** (0.061)	0.57** (0.220)	0.92*** (0.335)	0.74	30.96***	2.33
Toscana-Firenze	-0.14** (0.066)	0.12*** (0.036)	0.45*** (0.054)	0.26*** (0.080)	0.19*** (0.048)	0.67*** (0.173)	1.16*** (0.263)	0.82	49.84***	2.17
Toscana-Grosseto	-0.07 (0.292)	-0.08 (0.159)	-0.16 (0.238)	1.20*** (0.351)	0.15 (0.21)	0.94 (0.763)	0.54 (1.162)	0.15	2.83**	2.84
Toscana-Livorno	-0.14* (0.076)	0.09** (0.042)	0.44*** (0.062)	0.29*** (0.092)	0.14** (0.056)	0.64*** (0.199)	1.24*** (0.303)	0.76	34.57***	2.54
Toscana-Lucca	-0.16** (0.070)	0.13*** (0.038)	0.40*** (0.057)	0.24*** (0.084)	0.19*** (0.051)	0.65*** (0.182)	1.19*** (0.278)	0.79	40.98***	2.46
Toscana-MassaCarr.	-0.16** (0.075)	0.11*** (0.041)	0.46*** (0.061)	0.15* (0.090)	0.17*** (0.055)	0.86*** (0.196)	1.23*** (0.299)	0.77	35.77***	2.15
Toscana-Pisa	-0.16** (0.073)	0.09** (0.040)	0.46*** (0.060)	0.30*** (0.088)	0.15*** (0.053)	0.74*** (0.191)	1.16*** (0.291)	0.78	38.70***	2.34
Toscana-Pistoia	-0.17** (0.071)	0.13*** (0.039)	0.49*** (0.058)	0.21** (0.086)	0.15*** (0.052)	0.79*** (0.186)	1.29*** (0.283)	0.81	46.47***	2.25
Toscana-Siena	-0.09 (0.178)	-0.05 (0.098)	0.26* (0.145)	0.61*** (0.215)	0.12 (0.130)	0.49 (0.467)	1.46** (0.710)	0.30	5.45***	2.68
Trentino-Bolzano	-0.15 (0.098)	0.12** (0.054)	0.38*** (0.080)	0.33*** (0.118)	0.16** (0.072)	0.74*** (0.257)	1.24*** (0.390)	0.66	21.68***	2.40
Trentino-Trento	-0.15 (0.095)	0.16*** (0.052)	0.41*** (0.078)	0.25** (0.115)	0.10 (0.070)	0.68*** (0.250)	0.67* (0.380)	0.65	20.32***	2.56
Umbria-Perugia	-0.18** (0.086)	0.07 (0.047)	0.42*** (0.070)	0.31*** (0.103)	0.17** (0.063)	0.90*** (0.225)	1.32*** (0.342)	0.72	28.22***	2.37
Umbria-Terni	-0.28** (0.124)	0.10 (0.068)	0.75*** (0.102)	-0.122 (0.150)	0.061 (0.091)	1.59*** (0.326)	1.31** (0.496)	0.64	19.34***	3.06
Veneto-Belluno	-0.16** (0.077)	0.10** (0.042)	0.45*** (0.063)	0.17* (0.093)	0.12** (0.056)	0.64*** (0.202)	1.43*** (0.308)	0.75	32.01***	2.17
Veneto-Padova	-0.12* (0.067)	0.16*** (0.036)	0.51*** (0.054)	0.26*** (0.080)	0.09* (0.049)	0.41*** (0.174)	0.97*** (0.265)	0.83	52.15***	2.32
Veneto-Rovigo	-0.11 (0.080)	0.12*** (0.044)	0.40*** (0.066)	0.25** (0.097)	0.01 (0.059)	0.54*** (0.211)	0.98 (0.320)	0.69	24.63***	2.38
Veneto-Treviso	-0.13* (0.071)	0.15*** (0.039)	0.43*** (0.058)	0.23** (0.086)	0.14** (0.052)	0.55*** (0.187)	1.24*** (0.284)	0.79	41.40***	1.93
Veneto-Venezia	-0.15** (0.072)	0.15*** (0.039)	0.50*** (0.059)	0.18** (0.086)	0.14*** (0.052)	0.66*** (0.188)	1.24*** (0.286)	0.81	45.56***	2.28
Veneto-Verona	-0.18** (0.070)	0.13*** (0.038)	0.43*** (0.057)	0.17** (0.084)	0.17*** (0.051)	0.51*** (0.182)	1.39*** (0.277)	0.79	41.49***	2.27
Veneto-Vicenza	-0.16** (0.070)	0.15*** (0.038)	0.46*** (0.057)	0.19** (0.084)	0.18*** (0.051)	0.57*** (0.182)	1.34*** (0.277)	0.81	46.24***	2.10
* significant at 10%, ** significant at 5%, *** significant at 1%. Standard error in brackets.										

Table A6. Fixed Effect tests, Regional panel

Redundant Fixed Effects Tests on equation Regional 2 table 6 with cross-section fixed effects

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.063719	(19,1254)	1.0000
Cross-section Chi-square	1.235171	19	1.0000

Table A7. Fixed Effect tests, Provincial panel

Redundant Fixed Effects Tests on equation Provincial 2 table 6 with cross-section fixed effects

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.045806	(88,5601)	1.0000
Cross-section Chi-square	4.097825	88	1.0000

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