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THE DESIGN OF ELECTORAL RULES AND THEIR IMPACT ON ECONOMIC GROWTH: THE ITALIAN CASE

M. Rosaria ALFANO,

A. Laura BARALDI

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Dipartimento di Studi Economici
Università degli studi di Napoli "Parthenope"
Via Medina, 40
80132 Napoli
Tel. +39-081-5474736 – fax +39-081-5474750

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The Design of Electoral Rules and Their Impact on Economic Growth: The Italian Case

M. Rosaria Alfano[+]

A. Laura Baraldi[*]

Abstract

A recent issue in political economy is how different institutional, economic and social systems influence economic performance in term of per capita GDP. This work seeks to enrich the poor theoretical and empirical literature concerning the effects of the mixed electoral systems on economic growth, referring to the Italian scenario in which, starting from '50, the following electoral Laws have implemented mixed electoral systems characterized by different degree of proportionality. Using a panel data for the 20 Italian regions from 1980 to 2003 and the Arellano-Bond dynamic panel data estimation technique, we find that lower degree of proportionality of the mixed electoral system implies higher regional rate of growth; moreover, considering that the electoral system shapes the corruption level of a country (and of a Region), we estimate this interaction effect on growth, showing that the impact of corruption on regional growth negatively depends on the degree of proportionality of the mixed electoral system.

Keywords: *Economic Growth, Electoral System, Corruption, Public expenditure, Education*

JEL Classification: D72, D73, H5

[+] Dipartimento di Diritto ed Economia, Seconda Università di Napoli, mariarosaria.alfano@unina2.it

[*] Dipartimento di Studi Europei e Mediterranei, Seconda Università di Napoli, laura.baraldi@unina2.it

1. Introduction

Several governments actively promote the spread of democracy as a means to improve the citizen well-being. In order to measure the probability of a democracy's success, it is important to consider how various forms of elections affect growth and development of a country. In this work we are interested in studying one of the political determinants of growth, that is, the *electoral rules* (majoritarian, proportional and mixed electoral systems).

Przeworski (2004) provides a definition of democratic elections: "a regime in which those who govern are selected through contested elections". In this framework we analyze the electoral systems. An electoral system is defined as "a set of essentially unchanged election rules under which one or more successive elections are conducted in a particular democracy" (Lijphart, 1994).
In order to understand the implication of electoral systems on growth, we must first clarify the distinction between the classical classification of electoral systems: majoritarian, proportional and mixed. A majoritarian electoral system has a small number of districts and the winner of the elections is the candidate who gets the most votes in the district; it does not guarantee representation of political minorities in Parliament. Proportional system has large districts with many candidates, and voters vote for a list of candidates drawn up by political parties, without expressing a preference for any particular candidate; the number of candidates elected in each list is proportional to the votes received by the list; it guarantees the presence in Parliament of a plurality of political parties. The third category, mixed systems, are a combination of the first two; they are typically implemented to achieve the benefits of having a majority while maintaining semi-proportional representation.

With respect to economic growth, given that proportional rule has a harder time agreeing on which policies to pass, many political science scholars believe that governments with majoritarian electoral systems have higher rates of economic growth.

The evidence of the impact that political institutions have on the economic growth is provided by Hall and Jones (1999), Acemoglu, Johnson and Robison (2001), Glaser et al. (2004), Rodrik, Subramanian and Trebbi (2004). Recently, Persson (2005) highlights the empirical evidence that parliamentary systems and proportional electoral rules both promote per capita GDP and also specify that the "research has no more that scratched the surface when it comes to structural policies to long-run economic performance".

The majority of research focused on the effect that electoral systems have on economic growth is in the field of comparative politics. Powell (2000) examines elections in 20 democracies over 25 years for a total of 155 elections. The notion that majoritarian vision portrays elections as enabling citizens to choose directly between alternative governments with the winner making all of

the policies, supports the hypothesis that governments with majoritarian systems have an easier time passing economic policies and therefore cause higher economic growth rates. Leduc concludes that countries with majoritarian rule benefit from explicit accountability because the voters know whom to blame if something goes wrong. Lijphart's (1984, 1999) disagree with this belief: there is no tradeoff between governing effectiveness (accountability) and high quality democracy (responsiveness) and he concludes that proportional systems perform better than majoritarian overall. Abelman and Pesevento (2007) find that countries with mixed electoral systems have the highest levels of economic growth with respect to countries with totally majoritarian or totally proportional systems.

There are a very few research studies that have explored the direct effect that mixed systems have on economic growth. Due to the fact that mixed systems are an increasingly popular form of electoral rules, they are becoming an interesting topic in political science. Kostadinova (2002) compares mixed systems in Eastern European countries and finds that they allow countries to enjoy the benefits of minority representation without sizeable government fragmentation. Therefore, if mixed systems have these capability, it could be possible for the countries which apply these systems achieve higher levels of growth because of the contamination effect (Moses et al. 2007).

This work, firstly, seeks to enrich the poor theoretical and empirical literature concerning the effects of the mixed electoral systems on economic growth, looking at the Italian scenario in which, already before 1980 (time at which the data set starts), mixed electoral systems followed, each of them characterized by different degree of proportionality.

The choice to focus on the Italian reality is not a limit to the effectiveness of this type of analysis. We use a panel data for the 20 Italian regions from 1980 to 2003 and we measure the degree of proportionality of the Italian mixed electoral system by an index ranking from 0 to 1 (as explained below); based on its construction, this index assumes different values between regions in the years of elections, which allows us to assimilate the Italian regions to countries with mixed electoral systems characterized by a different degree of proportionality. Moreover, there is a technical reason for choosing regional data within a country instead of cross-country data. One problem that arises in the interpretation of regressions based on cross-country data is that countries differ greatly in levels of government efficiency, in many aspects of socio-economic life, in the effectiveness of economic policies. Then it could be more difficult in regressions based on cross-country data to control such differences with respect to regressions based on regional data within the same country.

In addition, this paper will investigate if the mixed system has transformed the expected effects of each component of the system giving rise to the economic effects of the mixed system (proportional vs. majoritarian) on the economic growth.

The result of our investigation shows that per capita GDP rate of growth is as greater as the lower the degree of proportionality of the mixed electoral system; it is also affected by public expenditure, private investment in physical and human capital. Moreover, given the close theoretical link between electoral systems and corruption, we show that, in Italian scenario, corruption affects economic growth depending on the degree of proportionality of the electoral system.

This paper is organized as follows: in section 2 we summarize the theoretical literature about the institutional, economic and social determinants of economic growth; in section 3 we describe the data, the variables and the econometric specification; in section 4 we show the results and in section 5 we present the conclusions.

2. Determinant of economic growth

2.1 Electoral system

Democracy is a fundamental element for economic growth even if the link is not clear; it seems due to the fact that countries having high level of democracy are the ones with a larger property right and freedom of enterprise. Hall and Jones (1999) firstly emphasized the importance of institutions on aggregate productivity and economic growth. To better understand why policies differ across countries we have to start from the Arrow (im)possibility theorem (1957), and others central hypothesis (Downs, 1957) that have induced preferences over policies. As Acemoglu (2005) points out, this means "that different policies will map into different outcomes", therefore become very interesting to analyze the causal effect of constitutions on specific policy outcomes (Persson and Tabellini, 2003).

In this scenario, our focus is to analyze the implications of electoral systems on growth; to reach this purpose we have to consider the characteristics of electoral systems: majoritarian, proportional and mixed. In the majoritarian elections the winner is the candidate who gets the most votes in the district and of course the minority parties have not representation in Parliament. Differently, the proportional system allows voters to express their consensus for a list of candidates drawn up by political parties, and the number of elected candidates in each list is

proportional to the votes received by each list; therefore it guarantees the presence in Parliament of a plurality of political parties.

The general consensus among scholars is that "the choice between majoritarian and proportional elections is a tradeoff between accountability and responsiveness" (Persson and Tabellini, 2003). Majoritarian elections have the twin virtues of strong and accountable party government. "Strong" means single-party, not coalition, government. Cohesive parties with a majority of parliamentary seats are able to implement their manifesto policies without the need to engage in post-election negotiations with coalition partners. The election result is decisive for the outcome. At the end of their tenure in office governments remain accountable to the electorate, who can throw them out if they so wish, but the government is not always responsive to change in the popular opinion[1].

Proportional elections grant accurate representation of voter desires without the assurance of a clear cut majority to hold accountable for decisions. Moreover, proportional rule has a harder time agreeing on which policies to pass[2]. These reasons induce the most political science scholars to believe that governments with majoritarian electoral systems have higher rates of economic growth.

The mixed systems combine the characteristic of the majoritarian and proportional system and it allows to achieve the benefits of having a majority while maintaining semi-proportional representation. Nowadays mixed systems are one the most attractive electoral rules; this implies an increasingly interest by political scientists to explore the direct effect that mixed systems have on economic growth.

It seems that governments using mixed systems provide a better environment for productive economic policy; following this prediction, more and more countries around the world are abandoning totally majority or proportional electoral systems adopting mixed ones. Since 1948, Italy has experimented a mixed electoral system for the election to the Senate; at the beginning of the 1990s the Italian electoral system switched from a more proportional to more majoritarian one[3]. In this sense we can properly consider it as a mixed electoral system, characterized by a different degree of proportionality[4].

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[1] Powell (2004) says that "responsiveness may be conceived as a series of linkage intended to ensure that governments respect the preferences of the governed"

[2] Differently, Milesi-Ferreti et al (2000, 2002) and Scartascini (2001) point out that proportional systems are more geared to spending on transfers because it represents a greater variety on interests, while majoritarian systems are more prone to purchases of goods and services, typically targeted along geographical lines.

[3] Recently (September 18, 1992), next to Italy, only New Zeeland, with a referendum, voted to change of the electoral system but in the opposite direction with respect to Italy, from majoritarian to proportional.

[4] After the referendum of April 18, 1993 the Italian electoral system switched from proportional to majoritarian. For the Senate (upper chamber), 3/4 of the 315 seats are assigned using the majoritarian criterion and the other 1/4 using the proportional one. For the Chamber of Deputies (lower chamber), 630 seats are distributed in 26 electoral districts; in each district, 75% of the seats are assigned by majoritarian and the resulting 25% by proportional. This is why the Italian electoral system is a mixed one. Before the referendum in 1993 the elections of the representatives to the

In this particular scenario, this work wants to enrich the theoretical and empirical literature concerning the effects of the mixed electoral system on Italian regional economic growth; moreover, it seeks to identify which degree of proportionality of the electoral system supports a higher economic growth.

2.2 Corruption

Corruption is defined as the ”abuse of public power for private benefit[5]”. Recently, corruption emerges where there are rents and also when public officials have wide discretion power; therefore the bureaucrats have the opportunity to demand bribes or to accept offered bribes. One could think of corruption as a kind of government inefficiency.

Very important is the link between corruption and electoral systems In particular, if we consider the *district size*, small districts increase the barriers to entry (Myerson (1993), Ferejohn (1986)). Instead, a majoritarian system, where only one candidate is elected in each district, the incumbent, already well known in the constituency, is more likely to reach a relative majority; in a proportional system, large districts that appoint several candidates are more likely to get down to new candidates who get a minority of votes. Thus proportional electoral systems with a large district magnitude will rise smaller entry barriers, associated to stiffer competition, and will lead to smaller incumbent rent, with respect to majoritarian electoral systems.

However referring to the *electoral formula*, when voters vote for an individual candidate, there is a direct link between individual performance and reappointment; in fact, voters base the valuation of their representatives on their ability to represent interests of the community. Of course, the incumbent faces strong incentives to perform well to maximize the probability of re-election. Therefore in a proportional system the incentive to corruption is higher than in a majoritarian system (Persson and Tabellini (1999a)). Hence, the net effect is ambiguous but the empirical work of Persson, Tabellini and Trebbi (2000) suggests that countries with proportional system have much more widespread corruption compared to countries with majoritarian system.

Generally theory suggests that corruption will slow economic growth. The primary social losses of corruption comes from propping up of inefficient firms and the allocation of talent, technology and capital away from their socially most productive uses; corruption also affects the allocation of entrepreneurial skills. When corruption is widespread and institutionalized, some firms

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Chamber of Deputies was governed by Law 30 March 1957 no. 361 which introduced a purely proportional system. For the elections to the Senate the Law 6 February 1948 no. 28 initiated a mixed electoral system where just one candidate was presented in each district, and he/she was elected only if he/she reached at least 65% of votes. If no candidate was elected the seats were distributed using proportional criteria. In very few cases candidates reached 65% of preferences. At that time elections to the Senate were purely proportional. Law no. 270, December 20, 2005, changed again the Italian electoral system again into proportional.

[5] This is the definition used by the World Bank.

may devote resources to obtaining valuable licenses and preferential market access, while others focus on improving productivity (Murphy, Shleifer and Vishny, 1991, 1993).

Corruption negatively influences the incentives of economic agents to invest (corruption acts as a tax in cases where entrepreneurs are asked for bribes before enterprises can be started, or corrupt officials later demand shares in the proceeds of their investments), and also influence the quality of the public infrastructure and services, decreasing tax revenue, causing talented people to engage in rent-seeking rather than productive activities (Mauro 1998b). Significant in that sense is the Del Monte and Papagni (2001) analysis regarding the Italian regions which shows the strong negative effects of corruption on economic growth; they observe that corruption reduce the amount and quality of public infrastructure and services, therefore efficiency of public expenditure is lower if corruption is higher.

Scholars think that some types of corruption could be growth enhancing: they claim that bribery may allow firms to get things done in an economy plagued by bureaucratic hold-ups and bad, rigid laws (Leff, 1964; Huntington, 1968). A system built on bribery for allocating licenses and government contracts may lead to an outcome in which the most efficient firms will be able to afford to pay the highest bribes (Lui, 1985).

The evidence from studies tends to support the theorists who argue that corruption slows down growth. Mauro (1995) is the first attempt to study the relationship between corruption and growth in a large cross-section of countries. Contrary to what is sometimes claimed, Mauro does not find robust evidence of a link between corruption and growth, although a broader measure of bureaucratic efficiency is correlated with investment and growth.

Huntington (1968) argued a reverse causality between corruption and growth, like whether modernization and rapid growth may increase corruption[6]. Powell (2004) also notes that corruption is a key factor causing governments to stray from responsive actions. Corruption causes governments to stray from efficient behavior and adapt policies that not always in the best interest of a nation. It is therefore relevant to control for corruption in a perfect economic growth model. According to Powell, the proportional vision portrays elections as choosing representatives who can bargain for the voters' interests in policy making. Due to the fact that governments with proportional systems have to bargain, they are less efficient in passing effective economic policies. Leduc (1996) takes the same stance. He concludes that countries with majoritarian rule benefit from explicit accountability because the voters know whom to blame if something goes wrong.

Aidt et al. (2008) argue that corruption, economic growth and the quality of political institutions are related through a complex web. The quality of institutions determines the political

[6] In the econometric specification we take into account this endogeneity problem.

accountability which can play a critical role in defining the relationship between corruption and economic growth. We can grasp this web looking at Italy. Indeed in 1992, "Tangentopoli", a campaign against rampant corruption of those years, started, leading to a rapid reduction of corruption. But, always in 1992, there was the change in the Italian electoral system (as said above), from a mare proportional to a majoritarian one, which, according to the theory, could have contributed to the decrease in the Italian corruption. These reforms, taken place in the same period, make Italy a particular scenario to be studied, which allows us to grasp simultaneously the effects of different institutional changes on economic growth and their interactions.

Our work wants to verify this web between corruption, electoral rules and economic growth.

2.3 Public expenditure

In 1950s, some economists (Black (1948), Downs (1957), Buchanan and Tullock (1962), recently Mueller (1989)) applied the tools of their trade to non-market decision making: economic theory was applied to issues which had previously been in the domain of political science. This implied the conclusion that the outcomes of the public sector are determined, in part, by institutions, their procedures and the people working in those institutions; therefore, fiscal institutions can determine outcomes[7]. Persson and Tabellini (2000) showed that countries with proportional electoral rules have an higher government expenditure shares on GDP than countries with majoritarian election (Persson, Roland, and Tabellini (2006)) and government expenditure is tilted towards transfers rather than purchases of goods and services (Milesi-Ferretti, Perotti and Rostagno (2002)). Other empirical paper focused on the estimation of elasticity of government expenditure with respect to output providing an empirical test of the so-called "Wagner law"[8].

Barro (1991) finds that growth is inversely related to the share of government consumption in GDP; Levine and Zervos (1993) measure the role of government in economic activity by using the ratio of government consumption to GDP and also find a negative insignificant relationship between government consumption to GDP and growth.

Of course, if we consider the composition of government expenditures on health and education (measured as a share of GDP) we have to reconsider the above conclusion thinking of a positive relationship between government spending and growth of per capita income (Gallup et al. 1998).

[7] Like Buchanan and Wagner (1977) wrote "We are institutionalists in the sense that we think that arrangements or rules do affect outcomes".

[8] The main purpose is that public goods and services, including redistribution via transfers and the activities of public enterprises, have an income elastic greater then one, i.e., are superior goods.

Others authors like Kolluri et al. (2000) investigate the G7 countries over the years 1960-1993 by a country-specific single equation models, finding that government expenditure is generally cointegrated with income both in the long-term, when the income elasticities of government expenditure is slightly above unity for government consumption and government transfers, and also in the short-term when elasticities have an average around 0.5. Recently, Arpaia and Turrini (2008), show that, using a sample of EU countries over the 1970-2003 time, the hypothesis of a common long-term elasticity between cyclically-adjusted primary expenditure and potential output close to unity cannot be rejected.

2.4 Education

Human capital in terms of education level and health is the main source of economic growth. Many papers use the standard neo-classical growth model or the extended version including human capital but more recently literature focused on endogenous growth models. Barro (1991) using a cross section of 98 countries in the period 1960-1985, showed that the growth rate of real per capita GDP is positively related to initial[9] human capital. In addition, in 1995 he emphasises that a greater current level of human capital development implies a faster country growth given that physical capital expands rapidly to match a high endowment of human capital.

Barro (1996) showed that growth rate is enhanced by higher education; this positive relationship rises from the effect of education on workers which becoming more skilled and more productive increasing growth.

Gallup et al. (1998) point out that well developed labour force[10], in terms of better education, is able to produce more from a given resource base than less-skilled workers. The accumulation of human capital is important for economic growth; in particular, the evidence suggests that investment in education may have external benefits that make social return to schooling greater than private returns; in addition education give rise significant impact on the average skill workforce, inducing technological innovations and expanding the body of economically useful knowledge, contributing to long-run growth (Lucas 1988)[11]. We have to highlight that in the early stages of development primary education is more likely to be productive in terms of achieving advances in human development, while it is generally recognized that vocational and secondary education are likely to have a large impact on human development and is

[9] Where human capital was proxied by 1960 school-enrollment rates.

[10] Romer (1990) showed that quality development of labour force generates new products or ideas that implies technological progress. Therefore, he considered that countries with large and well developed labour force will introduce new goods and process so they grow faster.

[11] The human capital accumulation depends both by time and resource invested in such activities.

positively related to growth (Brunetti et al. 1998). Following Levine and Zervos (1993), countries that have an higher number of students enrolled in secondary schools grow faster than others.
Instead, the tertiary education moves the system into a research and development role, however the various measures of education are positively related to growth (Martin and Xavier (1997)) and, in general, higher rates of investment in human capital will lead to an improvement in productivity and increase in per capita growth (Becker et al. (1990).

Of course, an inadequate supply of education and other infrastructure may prevent the full use of human capital in lower income regions[12].
In our analysis education serve as a proxy for the effect of the quality of regional human capital; larger education may increase economic performance.

2.5 Investment

Solow growth model emphases capital accumulation and exogenous rates of change in population and technological progress; therefore, physical capital accumulation was the prime engine of economic growth. The recent proliferation of endogenous growth models began with the work of Romer (1986) which shows that long –run growth is determined by economic incentives.

Firstly, Aschauer (1989) highlighted the importance of public investment in the US economy; later, there has been a large part of literature that investigates whether public investment leads to an increase in output growth and also the productivity of private capital (Munnell, 1990; Khan and Reinhart, 1990; Barro, 1990; Easterly and Rebelo, 1993; Ramirez, 1998; Khan and Kumar, 1997).
Further empirical studies[13], both for US and developing countries - using a neoclassical production function by looking at the productivity of private capital and labor and the rate of return to private capital derived from the production function - showed that private capital is more productive than public investment. This implies that although public investment contributes to the productivity of private capital in empirical term it does not explain the main part of the variation in output growth. Others studies (Ramirez, 1994; Erenburg and Wohar, 1995; Nazmi and Ramirez, 1997; Ghali, 1998; Apergis, 2000) using a flexible accelerator model of private investment[14] and applying the model at single-country dataset, provide more mixed results as to whether public and private investment are complements or substitutes.

[12] This is one of the important argument against decentralisation is that the provision of many public goods in a region will have a positive effect on growth in other regions, that is, there are positive spillover effects. Mendoza and Martínez-Vázquez (2000) document how decentralization of responsibility for education engendered some forms of competition for human and financial resources between the federal and subnational education systems.
[13] Erden, Lutfi, Holcombe, Randall G, (2006).
[14] In that case the dynamic structure of private investment is defined as a partial adjustment mechanism.

Differently, Maddison (1995) and Jones (1997), analyzed country growth across the world using physical capital stock as the alone input. Of course, the allocation of growth to its sources is far from a new endeavour; in fact, Fabricant (1954), Abramovitz (1956), Solow (1957), and Kendrick (1956) pointed to the possibility that labor quality might be an important component of economic growth, therefore seems still logic the approach of Jorgenson and Griliches (1967) which introduced a framework for handling the problem of composition adjustment in both labor and capital inputs in an elegant and symmetric fashion (Gordon 1999).

3. The data and variables of empirical analysis

This section addresses the link between growth, institutional reforms both political and socio-economic environment. For this purpose we estimate a dynamic panel data model using the Arellano-Bond techniques[15] related growth and institutional, political and socioeconomic variables for the Italian regions over 24 years (1980 - 2003). Moreover, moving from the Barro and Sala-i-Martin (1995), the per capita GDP growth is related to: previous per capita GDP rate of growth, composite institutional, social and economic reform indicators, investment, as well as physical and human capital indicators. This is to enrich the few empirical literature on the effect of mixed electoral systems on economic growth. as said above, we study Italy because this country represents a particular case in the world scenario: at the beginning of the 1990s the Italian electoral system switched from a more proportional to more majoritarian one. Italian socio-economic policies also was characterized by ”Tangentopoli”, a campaign against corruption of public bureaucrats, the entry into force of the Euro in 2000 and the Constitutional reform approved in 2001 which give rise to a significant decentralization process.

All these events made this country a very interesting case that gives rise to a very complex socio-economic situation characterised by multiple and diversified socio-economic reality in each region. Moreover, as stated above, there is a technical reason for choosing regional data within a country instead of cross-country data, linked to great differenced in levels of corruption, in many aspects of economic life, in the importance of economic policies among countries.

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[15] Linear dynamic panel-data models include p lags of the dependent variable as covariates and contain unobserved panel-level effects, fixed or random. By construction, the unobserved panel-level effects are correlated with the lagged dependent variables, making standard estimators inconsistent. Arellano and Bond (1991) derive a consistent generalized method of moments (GMM) estimator for the parameters of the model $y_{i,t} = \sum_{j=1}^{p} \alpha_j y_{i,t-1} + \beta_1 x_{i,t} + \beta_2 w_{i,t} + v_i + \varepsilon_{i,t}$

where α_j are p parameters to be estimated, $x_{i,t}$ is a vector of strictly exogenous variables, $w_{i,t}$ is a vector of predetermined variables, β_1 and β_2 are parameters to be estimated, vi are the random effects that are i.i.d. over the panel with variance σ^2_v and $\varepsilon_{i,t}$ are i.i.d. over the whole sample with variance σ^2_ε.

We firstly estimate the follow relations:

$$\begin{aligned}\Delta GDP_{i,t} = \alpha + \beta_1 \Delta GDP_{i,t-1} + \beta_2 \Pr op_{i,t-1} + \beta_3 Corr_{i,t+1} + \beta_4 EU + \beta_5 \ln G_{i,t} + \beta_6 \ln G_{i,t-1} + \\ + \beta_7 \ln Inv_{i,t} + \beta_8 \ln Inv_{i,t-1} + \beta_9 \ln Edu_{i,t} + \beta_{10} \ln Edu_{i,t-1} + \beta_{11} \ln \Pr od_{i,t} + \\ + \beta_{12} \ln \Pr od_{i,t-1} + \beta_{13} \Delta Pop_{i,t} + \beta_{14} \ln Sch_{i,t-1} + \beta_{15} \ln Sch_{i,t-2} + \varepsilon_{i,t}\end{aligned} \quad (1)$$

where $\Delta GDP_{i,t}$ is the growth rate of the per capita *GDP* of region *i* at time *t* (taken at constant price 1995)*;* $\Delta GDP_{i,t-1}$ is the lag of the dependent variable; $Prop_{i,t-1}$ is the proportionality index of the electoral system in region *i* at time *t-1* (we take the value of this variable at time *t-1* because the policy implemented by the winners of the elections gives its effects at least one year later); $Corr_{i,t+1}$ is per capita corruption crimes reported to the police of region *i* at time *t+1* (we take the value at *t+1* because the corruption crimes recorded by the police refer to those committed at least one year before); EU a dummy variable to take into account the convergence criteria that, starting in 1992, Italy had to respect to enter the European Union; it takes the value 0 from 1980 to 1992 and 1 from 1993 to 2003; $ln(G)_{i,t}$ is the logarithm of public consumption spending/GDP[16] in percentage of region *i* at time *t* (taken at constant price 1995); $ln(Inv)_{i,t}$ is the logarithm of the level of private investments/GDP in percentage of region *i* at time *t* (taken at constant price 1995); $ln(Edu)_{i,t}$ is the logarithm of the family expenditure on education/GDP in percentage of region *i* at time *t;* $ln(Prod)_{i,t}$ is a labor productivity index and it is constructed as the logarithm of the ratio total added value/unit of labor of region *i* at time *t;* $\Delta Pop_{i,t}$ is the population rate of growth of region *i* at time *t;* $Sch_{i,t}$ is a measure of the rate of schooling and is constructed by dividing the number of registered in high school over the population in age class 15-19, of region *i* at time *t*.

The data we used is from the ISTAT database and the Annals of Judicial Statistics for the 20 Italian regions over 24 years (1980 - 2003) on an annual basis. The dependent variable is regional per capita GDP which is characterised by a significant difference among the minimum and maximum level within the Italian Regions which is also summarised in a wide standard deviation.
Of course, the descriptive analysis highlights wide difference (fig. 1) existing within the time series -1980-2003- of per capita GDP related to the Italian Regions, in particular there is a standard deviation in the interval between 3,1 and 4,4 (fig. 2) that clearly summarize the difference between the per capita GDP of Valle D'Aosta and Calabria.

[16] According to the SEC95 classification, the expenditure on general services, defence, education, health, social services and security, housing, culture, economic services, public order, environment

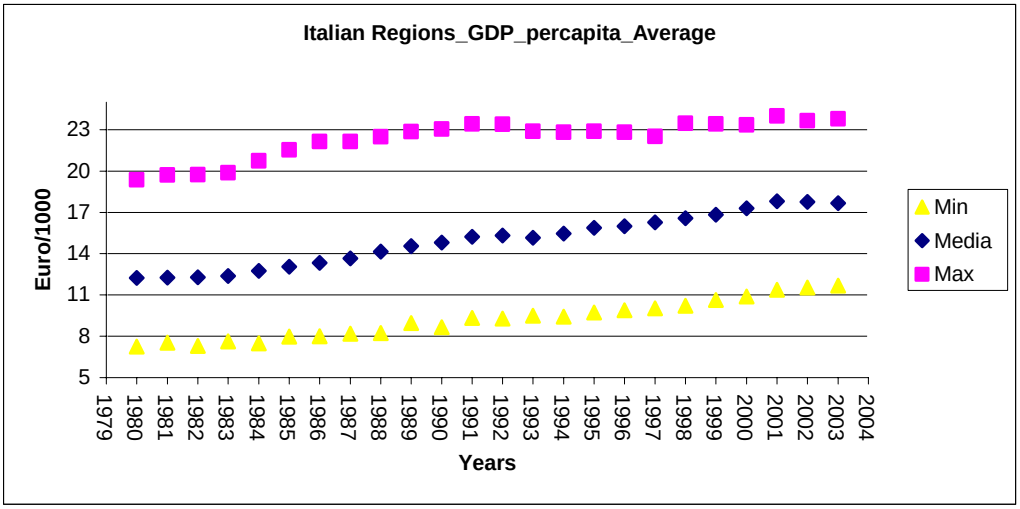

Fig. 1- Istat database for the 20 Italian regions 1980 – 2003.

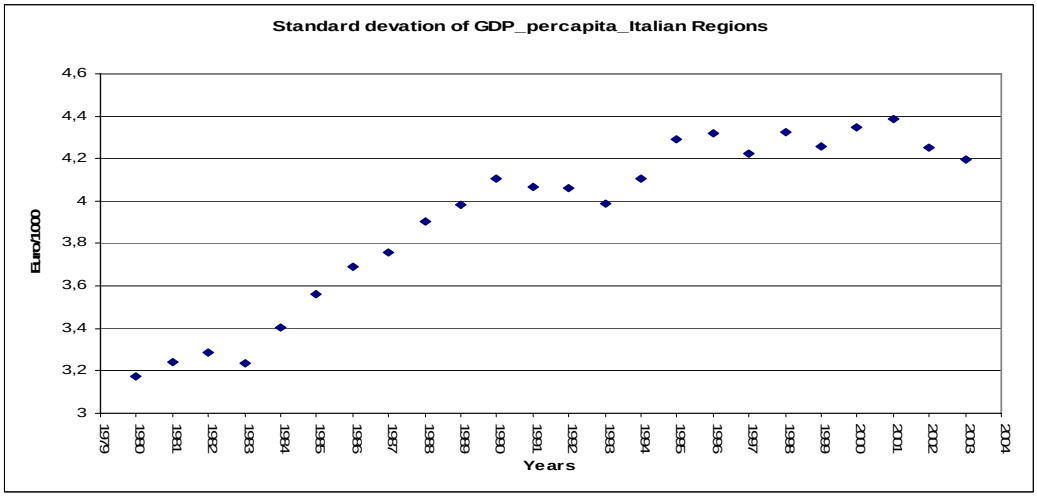

Fig. 2 – Elaboration on Istat Regional database -1980-2003

The main purpose of this paper is to analyse the linkage between growth and socio-political environment; to do that we construct a proportionality index of the mixed electoral system. This index allows us to better grasp the migration versus a mixed electoral systems with a different degree of proportionality. The proportionality index can take values from 0 to 1: 1 indicates perfect proportionality, 0 means that a candidate with no votes wins a seat.

The proportionality index[17] is:

$$\Pr op = 1 - \sqrt{\frac{1}{2}\sum_i (v_i - s_i)^2}$$

where v_i and s_i are respectively the share of votes and of seats of a single political party (i=1,....,n political parties) for the Senate elections in 1979, 1983, 1987, 1992, 1994, 1996 and 2001 of each

[17] Gallagher M. (1991).

Region[18], because the Senate seats are distributed on a regional basis, differently from the seats of the Deputy.

Since 1992 in Italy, moving from a proportional to a majoritarian electoral system, the index decreased, as shown in Fig. 3.

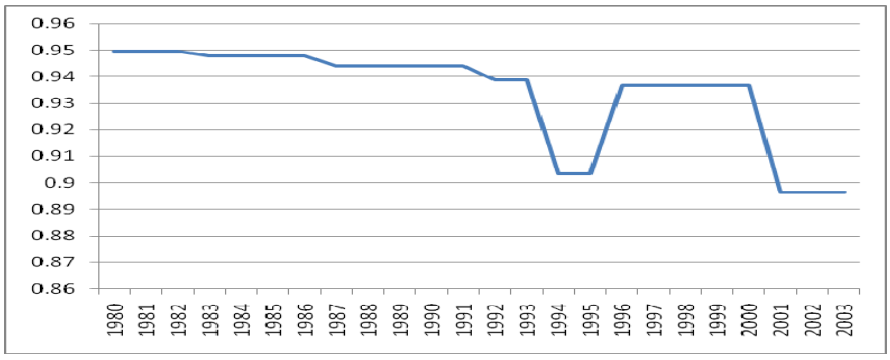

Fig. 3: Proportionality index for Italy 1980 - 2003

The choice of *regional* growth rate as the dependent variable and its political determinant (the Senate *national* election on a regional basis to construct the proportionality index) as regressor is not forcing and helps to understand the complex Italian case, characterized by the institution of Regions in 1970 jointly with strong centralization, at least until 1995, of public expenditure and provision which just delegated to bureaucrats service delivery and control costs. This implied that the regional financial system was almost totally "derivative", so each regional balance was characterized by vertical fiscal imbalances, and consequent transfers from the central government. Central government provided transfers including statutory tax sharing as well as various categorical and block grants, in addition it provides equalization grants to regions with lower income. After 1995, several Laws followed in order to enhance the financial autonomy of the regions until November 2001 when Title V of the Italian Constitution was reformed, rewriting the new principles of decentralization that at moment requests executive Laws that will implement the fiscal federalism systems like the ones designed in the Title V of the Constitution. Therefore, we can strongly argue that the regional financial decisions (which affected regional growth), for the period under consideration (1980-2003), have been taken at national level, even if the reforms[19] and the Law 56/2000 has imposed some allocation constraints at Regional level for health expenditure proving more autonomy both in the field of taxation and expenditure.

To enforce the above argumentation of choosing regional data beside national data on a regional basis, there is the other fact that the national political party system is faithfully reflected at

[18] The value of the index varies among regions.
[19] Brosio, Maggi and Piperno (2003); Stiglitz J.E (2008).

regional level[20]. In general we expect that a lower proportionality index of the electoral system give rise to higher regional growth.

Government planners, administrators and economists have traditionally devoted little attention to the implicit assumption that bureaucrats and politician's delegated would behave dishonestly giving rise a large amounts of corruption, which plays a large role increasing global amount of public budget[21]. In particular, corruption, more than the electoral system, alters the public budget structure towards social services and securities instead of education, health and general services. Thus, corruption affects both the total regional amount of public spending and its structure, addressing expenses towards those sectors in which it is easier to collect bribes, and then it could negatively influences regional economic growth.

In our analysis the variable called *Corr* measures the number of crimes against public administration reported to the police for each of the 20 Italian regions between 1980 and 2003, per capita; this number is based on Statutes no. 286 to 294 (ISTAT- Annals of Judicial Statistics). As summarised in the following figure the level of corruption in Italy was very high before "Tangentopoli" period, when corruption crimes started to decrease[22]. In general we expected a negative effect of corruption on regional economic growth.

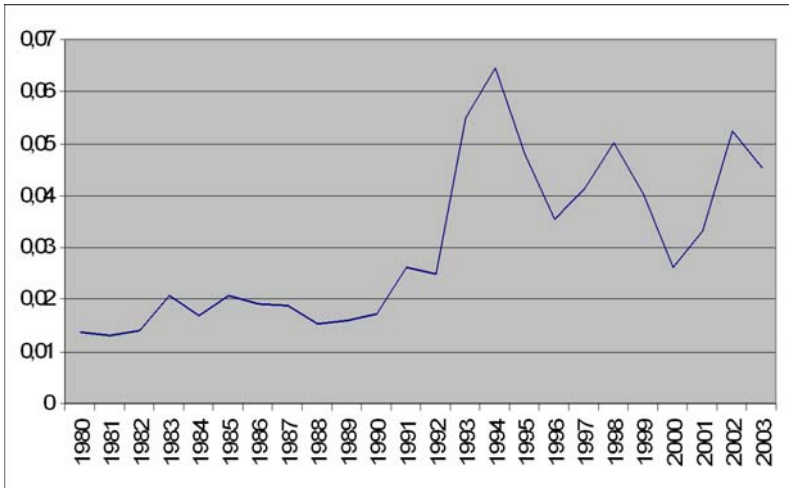

Fig. 5 Per capita corruption in Italy between 1980 – 2003

[20] Baraldi, 2008. We have decided to choose national election data even because the 1968 election law for the Italian Regional Council established a proportional rule for the distribution of the seats. In 1995 was passed a law to try to adapt the regional electoral system to the majoritarian national one, but this law states that only 1/5 of the seats had to be distributed using a majoritarian criterion leaving the electoral system substantially proportional. Thus using these regional data we wouldn't be have been able to capture the effects of the change of the proportionality degree of the electoral system.

[21] Baraldi (2008).

[22] Per capita corruption crimes recorded by the police at time t refer to those committed at least one year before; this explain why the increasing trend starts changing from 1994.

To adequately consider the public budget management, we consider the level of public consumption spending/GDP in percentage of region *i* at time *t*. Italian regional public consumption spending, according to the ISTAT SEC95 classification, includes expenses in general services, defence, education, health, social services and securities, housing, culture, economic services, public order, environment. As we can observe in following figure, there is a quite significant differences in the level of public expenditure per capita among the Italian Regions, that is linked to the fact that some Regions have a special autonomy.

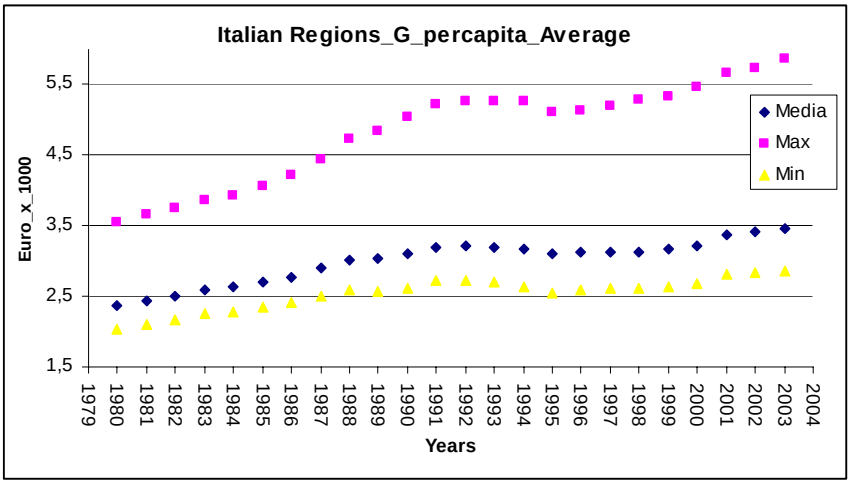

Fig. 6

If we expect a relation between public spending and economic growth, a change in the regional public consumption spending implies a change of the regional rate of growth. As said in section 2.3, the impact of government consumption spending on economic growth is not predictable: some expenses could have a positive effect (as expenses in education and health) and some other a negative effect.

Several microeconomic studies analyse the links between human resources, such as education, and labour market outcomes because investments in education and health contribute to the productivity of an individual directly in order to employ fully both types of capital stock that are important for the investor and then for growth. In this scenario, the regional human resources become an important determinant for the long-term viability of the investments and growth. Considering that framework we study the regional data of family expenditure in education, investment and rate of schooling, that are widely different among Italian Regions, to highlight the effect of physical and human capital on regional growth. Al these variables serve as a proxy for the effect of the quality of regional physical and human capital; of course larger investment,

expenditure in education and level of schooling, may increase economic activity therefore their effects on GDP growth is expected to be positive.

Another important input for growth is the productivity of labour which we measure by the ratio between the total added value and the unit of labour.

Following the theoretical literature emphasizing the link between electoral systems and corruption, we are interesting in verifying if the impact of corruption on economic growth depends on the degree of proportionality of the electoral system; to do that, we estimate the following model:

$$\begin{aligned}\Delta GDP_{i,t} = \alpha + \beta_1 \Delta GDP_{i,t-1} + \beta_2 \Pr op_{i,t-1} + \beta_4 EU + \beta_5 \ln G_{i,t} + \beta_6 \ln G_{i,t-1} + \beta_7 \ln Inv_{i,t} + \\ + \beta_8 \ln Inv_{i,t-1} + \beta_9 \ln Edu_{i,t} + \beta_{10} \ln Edu_{i,t-1} + \beta_{11} \ln \Pr od_{i,t} + \beta_{12} \ln \Pr od_{i,t-1} + \\ + \beta_{13} \Delta Pop_{i,t} + \beta_{14} \ln Sch_{i,t} + \beta_{15} \ln Sch_{i,t-1} + \beta_{15} Corr_{i,t+1} * \Pr op_{i,t-1} + \varepsilon_{i,t}\end{aligned} \qquad (2)$$

which includes an interaction variable achieved by the product between per capita corruption and proportionality index; this variable is called $Corr_{i,t+1}$* $Prop_{i,t-1}$.

4. Results

Table 1 shows the results of the estimations. We estimate a dynamic panel data model using the Arellano-Bond techniques. The dependent variable is the rate of growth of the per capita GDP for Region i at time t, called $\Delta GDP_{i,t}$ (taken at constant price 1995). Equation (a) reports the coefficients of the one-step estimation considering the homoskedastic case. Only in the case of homoskedastic error term the Sargan test have an asymptotic chi-squared distribution; the chi-squared of the one-step Sargan test in the table reject the null hypothesis that the overidentifying restriction are valid, but it could be due to heteroskedasticity. For that reason we estimate the equation (b) with robust standard errors, and the values of the coefficients do not change. In the robust case we can compute the Arellano-Bond test for first and second-order autocorrelation in the first-differenced residuals that is showed in the table 2: referring to equation (b), (c) and (d), we reject the null hypothesis of no first-order autocorrelation in the differenced residuals but we cannot reject the null hypothesis of no second-order autocorrelation. First-order autocorrelation in the differenced residuals does not imply that the estimates are inconsistent but second-order autocorrelation would imply that the estimates are inconsistent.

The results of the equations (a), (b), (c) and (d) are similar. $\Delta Pop_{i,t}$ is negative and significant: the higher the regional population rate of growth, the lower the regional rate of growth; as the population grows, if all else is constant, the per capita rate of growth of the economy

decreases. As expected, the sign of the coefficient of the *EU* dummy variable is negative and highly significant everywhere. As stated before this variable wants to capture the effects of the economic policies to enter *EU* on the size of regional rate of growth. The reduction of the debt/GDP ratio, the deficit/GDP ratio and the inflation rate negatively weighed upon growth.

The effect of the variable $ln(Edu)_{i,t}$ on growth is positive (the coefficient at time t is highly significant while the coefficient of the lagged variable is not). In equation (a), (b) and (d) the family expenses on education is treated as an endogenous variable because of the reverse causality between growth and home expenditure. The variable is taken in natural logarithm therefore the coefficient measures the absolute change in the regional rate of growth due to a relative change in the regional family expenses on education: an increase of 1% in the family expenses in education leads to an increase of 0,06 millions of euro in the regional rate of growth.

The total effect of the private investment (the sum of the sign of the variable $ln(Inv)_{i,t}$ and its lag) on regional growth is positive. This measure the absolute change in the regional rate of growth due to a relative change in the regional private investment. The sign of the coefficient is not surprising.

$Ln(G)_{i,t}$ is the logarithm of the level of public consumption spending/GDP in percentage of region *i* at time *t*. The sum of both the significant coefficients of the $ln(G)_{i,t}$ and $ln(G)_{i,t-1}$ is positive meaning that this kind of public spending positively affects Italian regional economic growth. The interpretation of this (sum of the) coefficient is an absolute change in the regional rate of growth due to a relative change in the regional public consumption spending. It is well known in the literature the positive relation between the public expenses in education and health and the economic growth; but in general the impact of the other items on growth could be negative because they are non productive expenses which require to be financed with some taxes, thing that is detrimental for growth. The evidence for Italian regions is of a general positive impact of government consumption spending on economic growth.

The total effect of the *School* variable on regional growth is positive. The rate of schooling is a measure of the human capital. We relate the annual economy rate of growth with the value of the rate of schooling of the two previous years (the two lags of the variable *School*). Regions with more developed labour force, in terms of better educated, are likely to be able to produce more from a given resource base, than less-skilled workers. This is the justification of the (total) positive effect on growth of the rate of schooling. Moreover, following Romer (1990), we can state that Italian regions with quality developed labour force, can generate new products or ideas that underlie technological progress.

The $Ln(Prod)_{i,t}$ variable is a measure of the labour productivity, indeed it is constructed, as explained above, as the ratio between the total value added (meaning the value added in agriculture, in industry, in market services and in non market services) and the unit of labour; as expected, it is positively relate with regional economic growth.

See now corruption. As stated by the literature, the relation between corruption and growth is negative: a more corrupt system is detrimental for growth. The coefficient is highly significant in every regression; this variable is treated as an endogenous one for the reverse causality problem specified above. This is a measure of the government efficiency: corruption causes governments to stray from efficient behavior and adapt policies that not always are in the best interest of a nation, and this reduces economic growth.

The sign of $Prop_{i,t-1}$ is negative and highly significant. It measures the electoral system proportionality. The negative sign states that the lower the proportionality of the electoral system the higher the regional rate of growth. Inside a mixed electoral system, it is better for growth to have one with a lower degree of proportionality. The interpretation of the results of the analysis made on Italian regions can be extended to an international context. Indeed the proportionality index we calculated varies among regions in the years of elections, which, firstly, allows us to assimilate the Italian regions to individual countries with mixed electoral systems characterized by varying degrees of proportionality, and, secondly, to purify the econometrics analysis from the difficulties relating to the differences between countries, and consequently make it more precise. So, given that the mixed electoral systems are replacing the traditional forms of totally majoritarian or totally proportional systems, the Italian evidence would suggest to opt for a mixed solution with a lower degree of proportionality.

The theoretical explanation of this results is that a more proportional legislature could have a harder time agreeing on which policies to implement with respect to a more majoritarian system, in which there is no need to create coalitions among political parties with different goals to pass the policies; this is the argument underlying the result that more majoritarian electoral systems produce governments that can better support economic growth.

There is also the influence of corruption on policy implementation in both the electoral systems: proportional rules are fertile environment for corruption because of the less accountability of politicians which could implement policies in their own interest.

To justify this prediction (as said above) we construct an interaction variable in equation (d) given by the product between the per capita corruption and the proportionality index; this variable, called called $Corr_{i,t+1}$* $Prop_{i,t-1}$, has a negative and significant coefficient. The interpretation is

$$\frac{\partial \Delta GDP}{\partial Corr} = -0.12 * \Pr op$$

an increase in the per capita corruption is as much depressing for economic growth as much proportional the electoral system is. This result could have important implications. Given that more majoritarian electoral systems are not fertile ground for the spread of corruption, voting for this kind of electoral mixed rule will allows countries to obtain both a reduction of corruption and a push for growth.

5. Conclusions

This work sought to investigate how mixed the electoral system, corruption, public expenditure, private expenditure in education, private investment and rate of schooling affect the per capita GDP rate of growth of the Italian regions. We choose to analyse this country because it is a complex case characterised by some important institutional reforms, as, in1992, the change in the electoral system (from more proportional to more majoritarian) and ”Tangentopoli”, a campaign against corruption of public bureaucrats, the entry in force of Euro in 2000 and the Constitutional reform approved in 2001 which give rise to a significant decentralization process that is not jet effectively realised.

The result of our investigation showed that per capita GDP rate of growth is as greater as the lower the degree of proportionality of the mixed electoral system; it is also affected by public expenditure, private investment in physical and human capital. Moreover, given the close theoretical link between electoral systems and corruption, we showed that, in Italian scenario, corruption affects economic growth depending on the degree of proportionality of the electoral system.

Table 1

ΔGDP	(a)	(b)	(c)	(d)
$(\Delta GDP)_{i,t-1}$	-.0037275 (-0.11)	-.0037275 (-0.06)	.0002195 (0.0)	-.0212368 (-0.35)
$Corr_{i,t+1}$	-.1004445* (-3.18)	-.1004445** (-2.28)	-.1036737** (-2.12)	
$Prop_{i,t-1}$	-.029697*** (-1.8)	-.029697* (-2.53)	-.0342685* (-2.45)	-.0274836** (-2.11)
EU	-.0151911* (-4.39)	-.0151911* (-3.4)	-.0151402* (-3.30)	-.0157884* (-3.09)
$ln(G)_{i,t}$	-.1839241* (-6.68)	-.1839241* (-3.91)	-.1887322* (-4.00)	-.2009588* (-4.23)
$ln(G)_{i,t-1}$	.1922433* (7.09)	.1922433* (3.83)	.2018689* (4.12)	.2047666* (3.91)
$ln(Inv)_{i,t}$	.036303* (3.84)	.036303* (3.30)	.0381788* (3.00)	.0345135* (2.54)
$ln(Inv)_{i,t-1}$	-.034345* (-3.71)	-.034345* (-2.76)	-.0327803* (-2.65)	-.0316518* (-2.85)
$ln(Edu)_{i,t}$	.0649625** (2.26)	.0649625*** (1.77)	.0650641** (1.94)	.0792936** (1.96)
$ln(Edu)_{i,t-1}$	-.0309674 (-1.13)	-.0309674 (-0.86)	-.0316961 (-0.85)	-.0349621 (-0.97)
$ln(Prod)_{i,t}$	.5018236* (11.49)	.5018236* (7.45)	.5010464* (7.32)	.4952736* (6.31)
$ln(Prod)_{i,t-1}$	-.467239* (-10.22)	-.467239* (-5.79)	-.4720265* (-5.88)	-.4797522* (-5.85)
$\Delta Pop_{i,t}$	-1.167547* (-11.25)	-1.167547* (-12.00)	-1.17355* (-11.56)	-1.143236* (-10.72)
$School_{i,t-1}$	-.2204724* (-3.28)	-.2204724* (-4.14)	-.222355* (-3.99)	-.2262089* (-3.38)
$School_{i,t-2}$	.2276539* (3.54)	.2276539* (3.90)	.2356547* (3.72)	.2456982* (3.48)
$Corr_{i,t+1} * Prop_{i,t-1}$				-.1274967** (-2.28)
N.obs	420	420	402	420
Sargan test	chi2(277) = 434.862			

In parentheses are standardized normal *z*-test values. * significant at 1% level; ** significant at 5% level; *** significant at 10% level. Equation (a): Arellano-Bond one-step estimation, $Corr_{i,t+1}$ and $ln(Edu)_{i,t}$ are the endogenous variables; equation (b): Arellano-Bond one-step robust estimation, $Corr_{i,t+1}$ and $ln(Edu)_{i,t}$ are the endogenous variables; equation (c): Arellano-Bond one-step robust estimation, $Corr_{i,t+1}$ is the endogenous variables; equation (d): Arellano-Bond one-step robust estimation, $ln(Edu)_{i,t}$ is the endogenous variable.

Table 2

	(b)		(c)		(d)	
Order	z	Prob > z	z	Prob > z	Z	Prob > z
1	-3.6	0.0003	-3.66	0.0002	-3.69	0.0002
2	-.25	0.79	-.22	0.8187	-.49	0.62

Arellano-Bond test for zero autocorrelation in first-differenced errors.
H0: no autocorrelation

Bibliography

Abelman E., Pesevento A.E. (2007) "A Regression Analysis of Electoral Systems and Economic Growth" working paper.

Abramovitz M. (1956), Resource and Output Trends in the United States Since 1870, American Economic Review, Vol. 46, May.

Acemoglu D., Johnson S. and Robison J., (2005), Handbook of Economic Growth (Philippe Aghion and Stephen Durlauf, eds., Elsevier, North Holland) pp. 386-472.

Aidt T., Dutta J., Sena V. (2008), "Governance regimes, corruption and growth: Theory and evidence", Journal of Comparative Economics,36 195–220.

Apergis, N., (2000), Public and Private Investments in Greece: Complementary or Substitute 'Goods'?, Bulletin of Economic Research, 2000, 52, (3), 225-34

Arellanno M., Bond S. (1991) "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equation" *The Review of Economic Studies*, 58: 277-297.

Arpaia A. and Turrini A., (2008), Government Expenditure and Economic Growth in the EU: Long-Run Tendencies and Short-Term Adjustment, European Economy Economic Papers No. 300

Aschauer D.A., (1989), Back of the G-7 pack: public investment and productivity growth in the Group of Seven," Working Paper Series, Macroeconomic Issues 89-13, Federal Reserve Bank of Chicago.

Baraldi A. L. (2008), "Effects of Electoral Rules, Political Competition and Corruption on the Size and Composition of Government Consumption Spending: an Italian Regional Analysis", forthcoming on The B.E. Journal of Economic Analysis & Policy.

Barro, R. J, (1991), Economic Growth in a Cross Section of Countries, The Quarterly Journal of Economics, MIT Press, vol. 106(2), pages 407-43, May

Barro, R.J, (1990), Government Spending in a Simple Model of Endogenous Growth, Journal of Political Economy, University of Chicago Press, vol. 98(5), pages S103-26, October

Becker G.S.,. Murphy K. M and Tamura R. F., (1990), Human Capital, Fertility, and Economic Growth, NBER Working Papers 3414, National Bureau of Economic Research, Inc.

Black, D. (1948). On the rationale of group decision making. Reprinted in K.J. Arrow and T.Scitovsky (eds.) (1969) Readings in welfare economics, London: George Allen and Unwin.

Buchanan J.M. and G. Tullock (1962). The calculus of consent. Ann Arbor: University of Michigan Press.

Del Monte A., Papagni E. (2001), Public expenditure, corruption, and economic growth: the case of Italy, European Journal of Political Economy 17, 1-16.

Downs, A. (1957). An economic theory of democracy. New York: Harper and Row.

Easterly, W. and Rebelo, S., (1993), Fiscal policy and economic growth: An empirical investigation, Journal of Monetary Economics, Elsevier, vol. 32(3), pages 417-458, December.

Erden Lutfi and Holcombe R. G., (2006), The Linkage Between Public and Private Investment: A Co-integration Analysis of a Panel of Developing Countries, Eastern Economic Journal, Eastern Economic Association, vol. 32(3), pages 479-492, Summer.

Erenburg, S. J. and Wohar, M.E., (1995), Public and private investment: Are there causal linkages?, Journal of Macroeconomics, Elsevier, vol. 17(1), pages 1

Esteban K., F and Moses S.,(2007), Social Identity and Preferences over Redistribution, CEPR Discussion Papers 6406, C.E.P.R. Discussion Papers

Fabricant, S. (1954), Economic Progress and Economic Change, 34th Annual Report. New York: National Bureau of Economic Research.

Gallagher, M. (1991), Proportionality, Disproportionality and Electoral Systems, Electoral Studies 10, 33-51.

Gallup J. L., Sachs J. D. and Mellinger A. D., (1998), Geography and Economic Development," NBER Working Papers 6849, National Bureau of Economic Research

Ghali, K. H. (1998). "Government size and economic growth: Evidence from a multivariate cointegration analysis". Applied Economics (31), 975-987.

Glaeser, E., La Porta R., Lopez-de-Silanes F., and Shleifer A., (2004), Do Institutions Cause Growth?, Journal of Economic Growth, Vol 9. pp. 271-303

Hall R. E. and Jones Charles I., (1999), Why Do Some Countries Produce So Much More Output Per Worker Than Others?, The Quarterly Journal of Economics, MIT Press, vol. 114(1), pages 83-116

Hall, R.E.; C.I. Jones (1999), Why Do Some Countries Produce So Much More Output Per Worker Than Others, Quarterly Journal of Economics, 114 (1), 83-116

Huntington, S (1968), Political order in changing societies. London: Yale University Press.

Jones, C.I. (1997) "Convergence Revisited" Journal of Economic Growth, 2(2), 131-153

Jorgenson, D.W and Griliches, Z. (1967), The Explanation of Productivity Change, Review of Economic Studies, 34, 249-283.

Kendrick, J.W. (1956), Productivity Trends: Capital and Labor, Review of Economics and Statistics, Vol. 38, No. 3, August, pp. 248-257.

Khan, M. S. and Reinhart, C.M., (1990), "Private investment and economic growth in developing countries," World Development, Elsevier, vol. 18(1), pages 19-27, January

Kolluri, B. R., Panik, M. J and Wahab, Mahmoud S, (2000), Government Expenditure and Economic Growth: Evidence from G7 Countries, Applied Economics, Taylor and Francis Journals, vol. 32(8), pages 1059-68, June

Leduc, L., R. Niemi, and P. Norris, (1996), Comparing Democracies: Elections and Voting in Global Perspective. Thousand Oaks, CA: Sage.

Leff N. H., (1964), Economic Development through Bureaucratic Corruption, The American Behavioral Scientist; 8(3); 8-14.

Levine, R and Zervos, S. (1993), Looking at the facts : what we know about policy and growth from cross-country analysis, Policy Research Working Paper Series 1115, The World Bank

Lijphart A. (1999) "Patterns of Democracy: Government Forms and Performance in Thirty-Six Countries" New Haven & London: Yale UP.

Lijphart A. (1984), "Democracies: Patterns of Majoritarian and Consensus Government in Twenty-one Countries", New Haven: Yale University Press.

Lijphart, A. (1994) "Electoral Systems and Party Systems" Oxford: Oxford UP.

Lucas, R.E. (1988): On the Mechanics of Economic Development, Journal of Monetary Economics, 22:3-42.

Lui, F.T.(1985), An Equilibrium Queing Model of Bribery, Journal of Political Economy; 93; 760-781.

Maddison, A. (1995): Monitoring the World Economy, 1820-1992, OECD Development Centre, Paris

Mauro P. (1995), "Corruption and Growth" Quarterly Journal of Economics, Vol. 110, No. 3 (Aug., 1995), pp. 681-712.

Mauro P. (1998a), "Corruption and the Composition of Government Expenditure", Journal of Public Economics 69, 263-279.

Mauro P. (1998b) "Corruption: Causes, Consequences and Agenda for Further Research" Finance & Development, World Bank, Washington, DC.

Mauro, P. (1997), "The Effects of Corruption on Growth, Investment and Government Expenditure" Elliot, K. (ed.), Corruption and the Global Economy: 83-108

Mendoza C. and Martínez-Vázquez (2000), Assignment of Spending Responsibilities and Service Delivery in Giungale and Webb. (Eds.) Achievements and Challenges of Fiscal Decentralization – Lessons from Mexico, World Bank, Washington D.C

Milesi-Ferretti G.M., Perotti R., Rostagno M., (2002) ”Electoral Systems and the Composition of Public Spending”, Quarterly Journal of Economics 11, 609-657.
Mueller, D.C. (1989). Public Choice II. New York: Cambridge University Press.
Munnell A. H., (1991), Is there a shortfall in public capital investment? An overview," New England Economic Review, Federal Reserve Bank of Boston, issue May, pages 23-35.
Murphy, K. M., Shleifer, A. and Vishny, R. W, (1991), The Allocation of Talent: Implications for Growth, The Quarterly Journal of Economics, MIT Press, vol. 106(2), pages 503-30, May
Persson T, Roland G, and Tabellini G., (2006), Electoral Rules and Government Spending in Parliamentary Democracies, Levine's Working Paper Archive with number 784828000000000024, UCLA Department of Economics.
Persson T., Tabellini G. (1999a) ”The Size and Scope of Government: Comparative Politics with Rational Politicians” European Economic Review 43, 699-735.
Persson T., Tabellini G. (1999b) ”Political Economics and Public Finance” in Auerbach A., FeldsteinM. eds Handbook of Public Economics North Holland.
Persson T., Tabellini G. (2000) ”Political Economics: Explaining Economic Policy” MIT Pres, Cambridge and London.
Persson T., Tabellini G. (2003) “The Economic Effects of Constitutions.” Cambridge, Massachusetts: The MIT P.
Persson T., Tabellini G., F. Trebbi (2002), Electoral Rules and Corruption, mimeo IGIER Bocconi University.
Powell Jr., G. Bingham, . (2004), The Chain of Responsivness, Journal of Democracy 15.4, 91-105.
Przeworski A. (2004). “The Last Instance: Are Institutions the Primary Cause of Economic Development?” European Journal of Sociology 45(2): 165-188.
Ramirez M. D. and Nazmi N., (1997), Public Investment and Productivity Growth in Mexico," Contemporary Economic Policy, Volume XV, No. 1, January, pp. 65-75.
Rodrik D., Subramanian A.,Trebbi F., (2004), Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development, Journal of Economic Growth, Springer, vol. 9(2), pages 131-165, 06.
Romer, P. (1990), Endogenous Technological Change. Journal of Political Economy, XCVIII, S71-S102. 04): 91-105.
Romer, Paul M, (1986), Increasing Returns and Long-run Growth, Journal of Political Economy, University of Chicago Press, vol. 94(5), pages 1002-37.
Sala-I-Martin, Xavier. (1997) I Just Ran Four Million Regressions, NBER Working Paper No. 6252, November.
Scartascini, C. and Crain W. M. (2001), The Size and Composition of Government Spending in Multi-Party Systems. Working Papers in Economics 01.05. George Mason University.
Solow, R., (1956), A Contribution to the Theory of Economic Growth," Quarterly Journal of Economics, February.
Solow, R., (1957), Technical Change and the Aggregate Production Function, Review of Economics and Statistics, August.