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Jacopo Costa, Roberto Ricciuti

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# **Sources for the Euro Crisis: Bad Regulation and Weak Institutions in Peripheral Europe**

Jacopo Costa  
University of Turin

Roberto Ricciuti\*  
University of Verona and CESifo

## **ABSTRACT**

We analyze the relationship between the quality of political institutions (Worldwide Governance Indicators) and economic regulations (Doing Business indicators) and the economic performance in a panel of 37 European countries between 2001 and 2011. Our results show that the regulations of business environment have a linear effect on the level of GDP, while political institutions have a non-linear effect (U-shaped). Bad political institutions seem not important when the returns of capital accumulation are high, whereas when the gains from the latter are exhausted, political institutions become crucial for further growth. These results allow us to better understand the differences between peripheral and central countries in Europe, and to identify these pre-existing differences as a source of instability in the EMU.

JEL codes: E02, O43, O52.

Keywords: European Monetary Union, economic institutions, political institutions.

\* Corresponding author: Roberto Ricciuti, Department of Economics, University of Verona, Vicolo Campofiore 2, 37129 Verona – Italy. Email: roberto.ricciuti@univr.it

## 1. Introduction

The economic crisis, began in 2007 in the US, has had a very strong effect on the European economies. In its first stage it affected the most financialized European countries, then it strongly affected Italy, characterized by a very high rate of the public debt on the GDP and almost zero growth in the previous ten years; Spain, with a bank system devastated by the explosion of the housing bubble; Greece, which manipulated its budget in order to join the Euro and to avoid sanctions from the Stability and Growth Pact, and Portugal, both characterized by a weak and marginalized economic structure.

We argue that the speculative attacks directed to these countries are the outcome of weaknesses in the quality of their institutions, and their inability to sustain - through the implementation of effective public policies and reforms<sup>1</sup> - the private sector to generate growth. To test our hypothesis, we build a dataset including 37 countries in Europe putting together Doing Business, Governance and economic and financial data between 2001 and 2011. In the paper we define “institutional quality” the features analyzed by the World Governance Indicators (Regulatory Quality, the Control of Corruption, the Voice & Accountability, the Government Effectiveness and the Rule of Law) and “business environment” the regulations of private actors measured by Doing Business (Starting a Business, Protecting Investors, Resolving Insolvency).

We find different effects for the business environments and political institutions. The former have a linear effect on the performance of the system: bad economic regulations characterize those systems with weak performances in the economic and business sectors. This

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<sup>1</sup> To theoretically contextualize the process of policy change, implementation and reform, we consider the analytical framework which studies the evolutions of policy paradigms, as initially defined by Hall (1993), and then recently redefined by Hall (2013), Baumgartner (2013), Blyth (2013) and Cox and Bèland (2013).

means that good economic environments could strengthen the positive effects of the capital accumulation, while bad regulations could have a negative effect. In contrast, political institutions have a nonlinear effect on the performances of the system. In particular, they have small effects when other variables - such as the return of capital or the external conditions of the international systems – are predominant. Then, the political institutions gain importance when the system becomes more mature, the return of capital decreases and the international framework changes. In this situation, political institutions have the role of sustaining the economic and business activities. This is the situation of Mediterranean countries, which were severely hit by the crisis in the last five years.

The paper is organized as follows: Section 2 describes the characteristics of the areas that are included in our definition of Europe. Section 3 reviews the theory linking political institutions and the economic environment. Section 4 describes the relation between the efficiency of bureaucracy, the capacity of providing (formal and informal) sanctions by media, courts, regulatory authorities and citizens, and the quality of economic environment. Section 5 describes some regularities that characterize the quality of governance and regulation of business activities, and introduces the data and the model, whereas Section 6 provides the results. Section 7 concludes.

## **2. The European context**

As De Grauwe (2007, 2011) shows, the European Monetary Union has been characterized by lack of homogeneity in fiscal policies, fractionalization of the labor markets and differences in international competitiveness. This heterogeneity conflicts with the unitary monetary policy, driven by the European Central Bank for the 17 countries that adopted the Euro.

Together with these economic differences, the European construction is characterized by political and institutional cleavages. We can identify some well-defined areas, constituted by countries that share the same structural and geographical characteristics. These countries are characterized by the use of the Euro or by the membership to the European Union, but some belong to neither of them.

The first area is constituted by the Mediterranean countries, i.e. Italy, Greece, Spain, Portugal, Cyprus and Malta, which are paying the highest price to the international crisis. The quality of their institutions is lower than in the other Western and Northern European countries, but sometimes it is also lower than Eastern or Balkan countries, such as Czech Republic, Estonia, Hungary (before the election of Viktor Orban, in April 2010) and Slovenia.<sup>2</sup> These countries are characterized by inefficient bureaucracy, with a high incidence of corruption and rent-seeking (Angelopoulos et al., 2009). These deficiencies, in particular the uncertainty of the property rights, do not allow for a pro-business environment to make it easier the start-up and the growth of businesses. Their economies are characterized by weak productive sectors – Greece and Portugal – or by a strong dependence to the building sector (Spain). Italy, although it has one of the most important manufacturing sectors in the world, is characterized by excellence and impressive know-how in labor-intensive industries – has not been able to upgrade to more innovative industries and has lost competitiveness in international markets (Bennett et al., 2008 and Schwab 2011).

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<sup>2</sup> In the following section, the data are taken by different sources: the data on corruption and institutions are taken by World Governance Indicators 2011, Corruption Perception Index 2011 and Doing Business (2012). The data on per-capita GDP growth are taken by UNCTAD (2011). The data on total unemployment, debt/GDP ratio, High-technology exports (% of manufactured exports) and R&D expenditure (as % of GDP), are taken by World Bank (2011). The data on the Global Competitiveness Index 2011-2012 are taken from Schwab (2011).

According to Schwab (2011), Spain, Italy and Portugal are ranked 36<sup>th</sup>, 43<sup>rd</sup> and 45<sup>th</sup> in the Global Competitiveness Index 2011-2012, while Greece is ranked 90<sup>th</sup>: their performances are the worst in the entire Western Europe. The biggest difficulties are recorded in the quality of institutions, macro-economic environment, goods market, labor market and financial market efficiency. In particular, their labor markets are fractionalized and characterized by over-education and dropping in the well-being of individuals and social groups (Ortiz, 2010). According to Schwab (2011), Greece is ranked 126<sup>th</sup>, Italy 123<sup>rd</sup>, Portugal 122<sup>nd</sup> and Spain 119<sup>th</sup> over 142 countries in the labor market efficiency. They are both inefficient and unequal: contractual rigidity between firms and workers, low wages and high taxation on the dependent employees, lack of skill-improving and qualified jobs. Investments are missing, while infrastructures and traditional know-how have to be innovated. These structural problems reduce the capacity of these countries to attract foreign investments and to boost the business initiative. The introduction of new kinds of labor contract did not improve the situation, reducing the purchasing power of a large fraction of the population. Moreover, these countries are characterized by negative performance in the management of the public finances, debt and deficit, with Italy and Greece hitting 120% and 140% of rate debt/GDP, respectively.

The second area groups together the Northern European countries, i.e. Germany, Switzerland, France, Belgium, Luxemburg and the Netherlands. They have a good quality of political institutions and business environment, resulting at the top for the easy of doing business rankings. They also have innovative and competitive economic structures, able to attract investments from abroad; a good educational system, research activities, and process and product innovations. Historically characterized by low level of public debt, they were able to cope with the first step of the economic crisis (2007-2008) thanks to the adoption of anti-cyclical policies. This led to the growth of their public deficits and debts, although at sustainable levels, with relatively low amounts of inequality and unemployment. In the last

two years, also their economic performances - particularly in France - have slowed down, because of the continue troubles in the European economic and monetary system.

The third area is the Scandinavian Europe, where there are some countries that are member of the EU but not of the EMU: Denmark, Sweden, and Finland. Norway also belongs to this area, even if it is outside both the EU and the EMU. These four countries are characterized by excellent performance for the quality of institutions and business environment, and by sound public finances, with low public debt. At the same time, they have been able to produce an excellent pro-business environment, as well as to build a fair society. Innovation, education, research, skill-improving labor market, competitiveness and infrastructure are the cornerstones of their productive systems. With respect to the crisis, after the continued growth of the GDP per-capita between 2001 and 2007, it fell slightly during 2008 and 2009, recovering immediately in 2010, particularly in Denmark (1.61%), Finland (2.68%) and Sweden (4.76%). Norway kept instead negative rate of growth (-0.71%), linked probably to the evolution of the oil and gas prices. The unemployment rate did not grow so much, and also the debt/GDP and deficit/GDP rate kept at safe rates.

The fourth area is the Balkan Europe (Albania, Slovenia, Croatia, Bosnia Herzegovina, Serbia, Montenegro and Macedonia) mostly sprung from the break-up of former Yugoslavia: these countries have bad quality of institutions, corruption and public resource waste, even if their performance on these aspects are slightly improving, particularly in Croatia, Macedonia and Slovenia. The raising efficiency of the economic environment and the low level of wages have attracted foreign direct investments, causing the growth of exports and higher openness to international trade. However, infrastructures remain weak, as well as innovation, technology and financial markets. In the last ten years, these countries have had raising GDP and GDP per capita. The crisis badly hit the most economically integrated countries (Slovenia, Croatia and

Macedonia), but less those that are relatively more insulated (Albania and Bosnia Herzegovina).

The former soviet and communist countries (Romania, Poland, Hungary, Bulgaria, Czech Republic, Slovakia and Ukraine) represent the fifth area. The latter does not belong to any of the two European institutions, whereas the others joined the EU in 2006. These countries had sustained GDP growth between 2001 and 2008. Economic growth dropped during 2009 and partially recovered during 2010. Strongly linked with the German economy, they benefit of the delocalization of some manufacturing activities. This permitted the birth of a sizable industrial sector, with exports directed to the Western European countries. Innovation, research and high tech production are becoming important factors in Hungary and the Czech Republic, but they are growing also in the other countries. The case of Ukraine is different, because of the relevance of the mining sector and natural gas export, which causes the relinquishment of other activities. The quality of institutions and the ability to fight the corruption and rent-seeking activities are low, but their performances are improving. The same is true for the creation of a pro-business environment, as shown by the Doing Business Index. Concerning the management of public finances, it is possible to see a double nature. Some countries, like Czech Republic, Poland and Slovenia, have low public debt, but raising public deficits. Other countries, like Bulgaria and Romania, needed the help of the IMF to secure their fiscal balance. Moreover, these countries are vulnerable from external economic and financial shocks, due to the connection of their bank systems with which of Western countries, like Germany, France, Austria and Italy. This unresolved weakness is provoking some problems to Romania, Hungary – that in 2011 had to ask for help from the IMF and the ECB, while it is collapsing into an autocratic model – and Slovenia.<sup>3</sup>

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<sup>3</sup> For Slovenia see Kähkönen and Martijn (2011) and for Hungary see Gulde and Giorgianni (2012).



The last area is the Baltic Europe, i.e. Estonia, Latvia and Lithuania. They had a good economic performance until the beginning of the 2008 crisis, particularly Estonia. Instead, 2008 and 2009 were very difficult years – particularly for Latvia, which needed the help of IMF and ECB - with the fall of growth rates, which began to rise again in 2010, with the exception of Lithuania. They all have a remarkably low level of the public debt, included in a range between the 10% and 40% of GDP. These countries also share a good level of the manufacturing activity (around 20% of GDP) and financial activities, whereas the building sector has certain relevance (about 10% of GDP). Another important feature is the level of openness, with the export activities that weight strongly for Estonia (70% of GDP) and lower for Latvia and Lithuania (40-50% of GDP). It is also important to highlight the level of high-tech production on the total of the export, which is scored around the 10%. However, this score was higher in 2001, when it reached the 30%. Estonia, Latvia and Lithuania reach good institutional quality and business environment: improving corruption control, constant positive quality of institutions and very good ranks for the easy of doing business, better than Italy, Greece, Portugal and Spain.

### **3. The quality of institutions and economic environment**

We build our hypothesis on the literature framework defined by the works of March and Olson (2006), La Porta et al. (1998, 1999), Glaeser et al. (2004), Acemoglu and Robinson (2008, 2012), Acemoglu et al. (2001) and Besley and Persson (2009). They maintain that there is a link between the quality of institutions, the efficiency of the public policies and the wellbeing of the countries. We believe these connections are important to understand why the financial, speculative and production crisis hit some countries more than others. In particular, we believe there is a relationship between the weak political institutions and business

regulations of the Mediterranean countries and their lack of growth, increase of unemployment, fall in wellbeing and reduction of production.

We consider the institutions as a collection of rules, norms, practices and customs that regulate the life in common and the behaviors of citizens (March and Olsen, 2006). As in Acemoglu (2005) and Acemoglu and Robinson (2008, 2012), closed and conservative elites act to avoid the transformation and the openness of the social norms, limiting the access of the newest and more dynamic socio-economic groups. The closure of the process of norms transformation – i.e., the establishment of extractive institutions (Acemoglu and Robinson, 2012) - has strong effects on the capability to implement pro-business policies, reforms, infrastructure improvements and structural innovation. This could limit international competitiveness, economic activities and the establishment of a fair social equilibrium. There is evidence of this negative mechanism affecting the Mediterranean countries in the last twenty years, where the political institutions and business environment have been weak, and the increase of economic activities has been low. These countries have a political and socio-economic structure characterized by rent-seeking activities, patronage networks and corruption. Taken together, these features do not permit the efficiency of the economic system, preventing the correct allocation of resources and political accountability. Instead, they are the instruments to guarantee rents, patronage, and votes trading to keep the ruling establishment alive<sup>4</sup>.

The quality of institutions affects economic activities via a number of channels, largely analyzed in the literature. For example, Mauro (1995) and Tanzi (1998) analyze the effects of

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<sup>4</sup> Della Porta and Vannucci (1999, 2007), Vannucci (2009) and Colazingari and Rose-Ackerman (1998). Angelopoulos et al. (2009) show that Italy, Greece and Portugal are the European countries more affected by the rent-seeking activities.

corruption and invasive bureaucracy on economic development, due to the collapse of private investments. Knack and Keefer (1995) analyze the effect on the growth of the weak protection of the property rights. La Porta et al. (1998) study the relations between the law origins and the financing methods used by the firm and business activities, considering the strong effect on the economic development. Rothstein and Stolle (2007) consider the effect of institutions on the production of social capital, with the related issues of trust, reproduction of social know-how and the construction of the social well-being. They stress the role of the quality with respect to the quantity: democratic and economic systems could work well or bad depending on the quality of their institutions. The effect of bad quality of political institutions and business regulations, legislative inactivity and waste of money and resources has relevant effects for the development of the socio-economic performance. In particular, the weak legislative action causes inconsistencies in the reform process, ending up with the lack of innovation and the lost of competitiveness. These dynamics provoke the break-down of the legitimacy and trust relation between citizens and political elites, as analyzed by Morlino (2010) and Hetherington (1998). All these problems badly affected all the Southern countries.

In the literature, it is possible to find different explanation of the roots of the economic crisis. Stiglitz (2012) focuses on social inequality as a major cause, while Krugman (2012) considers the effect of the demand reduction and austerity measures on the evolution of the crisis. Palma (2009) underlines the role of the neo-liberalism, and the effects provoked by its financial and economic technologies on the social relations. For the EMU a neo-mercantilist theory, stressing the hegemonic role of the Germany at the origins of the economic crisis, has been suggested. In Bellofiore et al. (2011), Overbeek (2012), Young and Semmler (2011) and Krugman (2012) an overproduction crisis, exploded in the first years of the 21st century in Europe, reduced the return of capital in the manufacturing sector. This dynamics encouraged the allocation of capital from neo-mercantilist (i.e., countries in structural surplus of their trade

balance, such as Germany and The Netherlands) to the peripheral countries (Spain, Portugal, Ireland and Greece). This allocation stimulated investments in the financial and building sectors, promoting the growth of their GDP and wages, but also the reduction of their competitiveness on the international market. At the same time, these transfers of capital have sustained the consumption of the peripheral countries, with positive effects on the German exports and GDP. In addition, the wage moderation and anti-inflation policies in Germany have reduced its demand for goods and services, internal consumption and inflation. In this way Germany could increase its competitiveness and exports. At the opposite, the peripheral countries, no longer able to devalue their currency, worsened their positions on the international market.

#### **4. The effect of bureaucracy and sanction on the economic environment**

In the countries with low institutional quality - which we have yet defined extractive institutions (Acemoglu and Robinson, 2012) ruled by closed elites - the behavior of the bureaucracy shares several pernicious mechanisms with the model of Mehlum et al. (2006). This model describes the birth of an entrepreneurial class devoted to rent-seeking activities instead to promote the productive activities in resource-rich countries, but could be very useful also to inspire the analysis of the politicians and public officers in the “bad States”. In such a framework, politicians, civil servant, public officers, bureaucrats, CEOs of public enterprises at every level – central government, regional or federal state, municipalities – can have the opportunities to dedicate time and efforts to the promotion of illegal activities, theft of resource and abuse of authority. The behavior of the bureaucrats may have different relations with the political sphere, depending on the theoretical framework we are using. They could be structurally linked with the power structures of the political elites, as clearly analyzed by Della Porta and Vannucci (1999, 2007). In this model, the action of the bureaucracy is constrained

by the structural relation with the political actors, through the definition of clientage and patronage networks. On the other side, a principal-agent models can also be used (Klitgaard, 1991), moving by the information asymmetry, the independence of the bureaucracy, the efficiency of incentives and the state monitoring capacity. In this theoretical framework, the agents act independently by their principal, which can not control them because of the asymmetry of information and the monitoring costs. In this framework, Klitgaard (1991) studies the effects of incentives, monopoly and discretion of officials on corruption. Mishra (2006) studies the links between corruption and the tasks of the bureaucratic structure, while Recanatini et al. (2005) use the concept of internal organization and operational sector of the public agencies. In both theoretical frameworks, the goal of the public officers is the accumulation of political and economic advantages, so increasing the individual and group wellbeing. Political bosses and big mans, national and local parties, internal factions, families, friends, business partners, creditors, banks, industrial establishment, organized criminal groups become the principal beneficiaries of the public actions and spending (Della Porta and Vannucci, 1999). In this framework, the civil servant is no longer the promoter of the public interest through the implementation of efficient public policies and bureaucratic services; he becomes a grabber and a rent-seeker, cooperating with the political spheres to break down the traditional cycle of vote-public policies-accountability.<sup>5</sup>

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<sup>5</sup> In the "Quality of Government" framework (Rothstein and Teorell, 2008, 2012), impartiality of the governmental and bureaucratic action plays a central role. The impartiality should be the basic characteristics of a good procedural governmental and administrative capacity, but it may be undermined by the behavior of the civil servants and politicians. Differently, Fukuyama (2013) considers the "Quality of Government" such as the "government's ability to make and enforce rules, and to deliver services, regardless of whether that government is democratic or not", paying more attention to the issues of capacity (Rule of Law and policy production) and autonomy of bureaucratic bodies.

At this point, we can identify three instruments that could raise the monitoring capacity of the citizens and state apparatus (working like an antibody to the systemic illness): the media, the judicial system and the regulatory authorities. The role of media is widely analyzed in the literature: the higher the freedom and quality of the Press, the lower the opportunities for rent-seeking activities, corruption and patronage networks (e.g., Brunetti and Weder, 2001; Besley and Prat, 2004 and Djankov et al., 2010). The judicial system and the regulatory authorities are key players in this field. Their role is concerned with the regulation (regulatory authorities) and sanctions (judicial courts) of the corporate, financial and administrative behaviors. These institutions need strong independence to work correctly. There is a large literature on these subjects: Stigler (1971) analyzes the need for political and judicial regulations to cope with the hegemonic dynamics between the power groups in an oligopolistic market. In Shleifer and Vishny (1993), a weak state capacity and the lack of regulation open sizable opportunities for negative behaviors by state agencies and bureaucratic sectors, as corruption or resource waste. In Gibson (2006), the independence is considered one of the most important characteristics to have working justice institutions. Estache and Martimort (1999) consider this relation for the regulatory institutions. Djankov et al. (2003) analyze the role of the courts, theorizing that less efficient courts are linked with the phenomena of corruption and rent-seeking activities. Glaeser and Shleifer (2003) introduce the problems of the corporative relations between the business world and the judicial power, also considering the role of independence. We can claim when the press, judicial power and regulatory authorities are characterized by lack of independence, strong corporative relations, control of politicians, lack of accountability and so on, the state capacity is lower.

Besides, there is also a role for social sanctions to punish negative behavior. Binmore (2011) underlines how the social contract is enforced and defended by the Leviathan (through the Rule of Law) but also, unconsciously, by the social imitation and sanctions that are

implemented by the groups or individuals. This mechanism could have a strong effect on the changing or elimination of these negative behaviors. Quoting Binmore (2011: 83), “*it becomes easier to understand why it is so hard to reform corrupt societies in which criminality has become socially acceptable*”. This sentence perfectly describes the situation in Italy and Greece.<sup>6</sup>

## **5. Stylized facts, model and data**

In order to give a clearer idea of what we have discussed in the previous Sections, we provide some evidence of the low economic and institutional performance that Southern European countries experienced in the last decade. In figures 1-5 we report on the x-axis some measures of institutional effectiveness - ease of starting business (as percentage cost of income per capita), ease of enforcing contracts (as number of procedures), control of corruption, rule of law and government effectiveness, respectively - and on the y-axis the growth of income per capita in the last decade of a large number of European countries.<sup>7</sup> Clearly, this analysis is only meant to give an idea of the correlation of these institutional variables with growth.

[Figures 1 to 5 about here]

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<sup>6</sup> Established works in sociology and political science on Italy are Banfield (1958) and Putnam et al. (1993). For a critical reflection, see also Tarrow (1996), Boix and Posner (1996) and Harris (2007).

<sup>7</sup> When we consider Doing Business data (ease of starting business, ease of enforcing contracts) we analyze the 2003-2011 time span, whereas for the World Bank data (control of corruption, rule of law and government effectiveness) we use the 2002-2010 time interval. The values of the World Bank data are included between -2.5 and 2.5, so we multiplied them by ten to have a better graphic representation.

Taken together all figures show post-communist countries have higher growth rates, but this is related with a process of convergence in per-capita income levels that has been taking place over the years. Interestingly, we can see the clusters of countries that we have analyzed in the previous Section according to their institutional features. For example, in Figure 1 we can identify a group of Eastern European countries showing high growth rates and reasonable costs of starting a business; a group of high income countries is located near the origins of the axis. Finally, Southern European countries show high costs and low economic performance. Figures differ from each other, but the performances of Italy, Greece, Spain, Portugal and Cyprus are remarkably similar (we can almost always include them in a small area) and tend to be worse than the other countries considered in the sample.<sup>8</sup>

The general specification is:

$$GDPpc_{it} = \alpha_0 + \alpha_1 GDP_{i0} + \alpha_2 Pop\ growth_{it} + \alpha_3 EDU_{it} + \varepsilon_{it}$$

We have used as dependent variable the “GDP per capita converted in PPP at 2005 constant price”, taken by the World Penn Table database 7.0. For the political institutions, we have considered different indicators taken by the World Governance Indicators (Kaufmann *et al.*, 2011), from the World Bank. We have considered the *Regulatory Quality*, the *Control of Corruption*, the *Voice & Accountability*, the *Government Effectiveness* and the *Rule of Law* indexes,<sup>9</sup> which have a range of values between 2.5 (good performance) and -2.5 (bad

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<sup>8</sup> The area is relatively larger, but still well defined, in Figure 1.

<sup>9</sup> Rule of law measures “the extent to which agents have confidence in and abide by the rules of the society, in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence”. Voice and accountability assesses “the extent to which country’s citizens are able to participate in selecting their governments, as well as freedom of expression, freedom of association, and a free media”.



performance).<sup>10</sup> For the regulations of business environment, we have instead used different indicators taken by the Doing Business Database (2011) and the Doing Business Reports (from 2004 to 2012 edition), again from the World Bank. The indicators we have used are: *Starting a Business*, considering the sub-indicators of Time, Cost as % of income, and Procedures; *Protecting Investors*, considering the sub-indicators of Extent of Disclosure Index, Extent of Director Liability Index and Ease of Shareholder Suits Index; *Resolving Insolvency*, considering the sub-indicators of Time, Cost as % of debtor's estate and 100% Recovery Rate; *Enforcing Contracts*, considering the sub-indicators of Time, Cost as % of claim and number of procedures.

As control variables we use a number of variables. To evaluate the effects of the economic openness on the level of GDP, we have considered the “*Openness at 2005 constant prices (%)*”, while for the effects of the investment on the GDP per capita, we consider “*Investment Share of PPP Converted GDP Per Capita at 2005 constant prices*”, both taken by the World Penn Table 7.0. Also from the former source, we used “*Government Consumption Share of PPP Converted GDP Per Capita at 2005 constant prices*” to analyze the effects of the government spending on the GDP per capita. Finally, we have also used the value of the GDP per capita in the first year of the sample ( $GDP_{i0}$ ) to capture economic convergence,

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Government effectiveness measures “perception of quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies”. Regulatory quality quantifies “the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development”, finally Control of Corruption measures “the extent to which public power is exercised for private gain, including both petty and grand forms of corruption as well as capture of the states by elites and private interests” (Kaufmann et al., 2011).

<sup>10</sup> We have not considered Political Stability since there is no variation in our sample.

although in a short time-span. Table 1 reports the summary statistics. A correlation matrix is available upon request.<sup>11</sup>

## 6. Results

In tables 2-5 we show the results for the economic institutions. As far as covariates are concerned, we find very consistent results across specifications. In particular, we find a significant convergence effect given by the negative coefficient of Initial GDP, and positive effect of Investments, R&D investments and Openness, and a negative one from Government spending and population growth, consistently with growth theory and empirics. Relevant results are quite similar in table 6, where Government spending and population growth become often insignificant.

Looking at the relationship between per-capita GDP, political institutions and business environment, we can note some interesting facts. The business environment shows a linear relation with the GDP per-capita, which means that a bad business environment would have negative effects on the level of GDP (with the exception of Starting a Business (cost % of income per capita)). In particular, this effects are meaningful and in line with our basic hypothesis for the all indexes, whereas the political institutions show no meaningful linear relations.

[Tables 2-5 about here]

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<sup>11</sup> The countries included in the sample are: Albania, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Montenegro, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and United Kingdom.

At the opposite, there is a strong quadratic and non-linear relation between the political institutions - Control of Corruption, Voice & Accountability, Regulatory Quality and Rule of Law - and the GDP per-capita. This quadratic relation has a U-shape form. The quadratic relation is not generally found for the regulations of business environments. In our panel we have countries with heterogeneous characteristics. In fact, there are some countries - such as the Eastern and Balkan countries - with low quality of political institutions, low-to-medium GDP but sustained growth rate. Other countries - such as the Mediterranean ones - have medium-to-bad quality of the political institutions, high level of the GDP but very weak growth rate (or negative, as in the case of Italy). Finally, it is possible to find a third set of countries - such as the Northern or the Scandinavian ones - that have a very high quality of their political institutions, high level of GDP and positive growth rate.

[Table 6 about here]

To interpret these different results we claim that in the first steps of the development process, the high marginal productivity of capital and the convergence effect play a relevant role in the growth process. In particular, these factors outweigh the role of bad political institutions. At this stage, it could be more important to have opened and inclusive business environments, which could promote business activities and capital accumulation. Eastern and some Balkan countries could be a good example, because of the forced economic openness provoked by the fall of communist regimes after 1992. Following the intervention of the Western institutions (IMF, WB and EU), a set of efficient economic regulations has been defined, borrowed from the Western capitalistic system.

When a country has already exploited the high returns of initial capital accumulation, as the Western European countries did, the political institutions become crucial in sustaining the economic growth and the wellbeing of citizens, because of their influence on the production of public policies and the allocation of resources. They cooperate with the market's incentives to shift the system to a more inclusive, innovative and technology-advanced type of business activities. At the same time, the countries that have been able to consolidate their political institutions are more efficient coping with the shocks hitting the economy, financial sector, public debt management or rent-seeking activities. This is the case of the Northern and Scandinavian countries, which have enforced their political institutions, creating the right business environment to slightly improve per capita GDP between 2001 and 2011. The same is not true for the Mediterranean countries that have not dedicated resources and efforts in improving the quality of their political institutions.

## **7. Conclusions**

In this paper we propose an analysis of the crisis of the Euro zone based on the importance of some pre-existing factors, such as the differences in the quality of political institutions and business environments. In our perspective, these internal factors have contributed to the economic and financial problems, explaining why some countries were object of the speculative attacks. In this context, the links between the political institutions and bad economic performances was established before the explosion of the economic crisis, as show by our empirical results. So, the roots of the crisis are inside the internal political sphere more than in the outside economic and financial structure.

In this framework we empirically find different effects for the business environments and political institutions. The former have a linear effect on the performance of the system:

bad economic regulations characterize those systems with weak performances in the economic and business sectors. This means that good economic environments could strengthen the positive effects of the capital accumulation, while bad regulations could have a negative effect. An example is the role of property rights: a low capacity to protect them leads to the reduction of the investments, and consequently to the fall of GDP and GDP per capita. In contrast, political institutions have a non linear effect on the performances of the system. In particular, they have small effects when other variables - such as the return of capital or the external conditions of the international systems - are characterized by the full and positive exploitation. Then, the political institutions gain importance when the system becomes more mature, the return of capital decreases and the international framework changes. In this situation, political institutions have a basic role in sustaining the economic and business activities, as shown by our empirical results. The example of the mature European democracies speaks us about this dynamics.

This is the situation of Mediterranean countries, which were severely hit by the crisis in the last five years. These countries should blame their political institutions and business environments at least as other external factors that triggered the economic and financial crisis. The reform of their institutional structure is central in overcoming their weaknesses.

## References

- Acemoglu D. 2005. *Modelling Inefficient Institutions*, Advances in Economic Theory, Proceedings of 2005 World Congress, edited by Blundell R., Newey W. and Persson T., Cambridge University Press, London, 341-380.
- Acemoglu D. and Robinson J. 2012. *Why Nations Fail. The Origins of Power, Prosperity and Poverty*, Profile Books, London.
- Acemoglu D. and Robinson J. 2008. Persistence of Power, Elites and Institutions, *American Economic Review* 98: 267-93.
- Acemoglu D., Robinsons J.A. and Johnson S. 2001. The Colonial Origins of Comparative Development: an Empirical Investigation, *American Economic Review* 91: 1369-1401.
- Angelopoulos K., Philippopoulos A. and Vassilatos V. 2009. The Social Cost of the Rent Seeking in Europe, *European Journal of Political Economy* 25: 280-99.
- Banfield E. C. 1958. *The Moral Basis of a Backward Society*, The Free Press, Glencoe.
- Baumgartner F.R. 2013. Ideas and Policy Change, *Governance: An International Journal of Policy, Administration, and Institutions* 26: 239-258.
- Bellofiore R., Garibaldi F. and Halevi J. 2011. The Global Crisis and the Crisis of European Neomercantilism, *Socialist Register*, 47.
- Bennett H., Escolano J., Fabrizio S., Gutierrez E., Ivaschenko I., Lissovlik B., Moreno-Badia M., Schule W., Tokarick S., Xiao Y. and Zarnic Z. 2008. Competitiveness in the Southern Euro Area: France, Greece, Italy, Portugal and Spain, *IMF Working Paper* 08/112.
- Besley, T. and Persson, T. 2009. The Origins of State Capacity: Property Rights, Taxation, and Policy, *American Economic Review*, 99: 1218-1244.
- Besley T. and Prat A. 2006. Handcuffs for the Grabbing Hand? Media Capture and Government Accountability, *American Economic Review* 96: 720-36.
- Binmore K. 2011. *Natural Justice*, Oxford University Press, New York.
- Blyth M. 2013. Paradigms and Paradox: The Politics of Economic Ideas in Two Moments of Crisis, *Governance: An International Journal of Policy, Administration, and Institutions* 26: 197-215.
- Boix C. and Posner D.N. 1996. Making Social Capital Work: A Review of Robert Putnam's *Making Democracy Work: Civic Traditions in Modern Italy*, *WCFIA Working Paper*.
- Brunetti A. and Weder B. 2003. A Free Press is Bad News for Corruption, *Journal of Public Economics* 87: 1801-1824.
- Colazingari S. and Rose-Ackerman S. 1998. Corruption in a Paternalistic Democracy: Lessons from Italy for Latin America, *Political Science Quarterly* 113: 447-470.
- Cox R.H. and Bèland D. 2013. Valence, Policy Ideas, and the Rise of Sustainability, *Governance: An International Journal of Policy, Administration, and Institutions* 26: 307-328.
- Darvas Z. 2012. The Euro Crisis: Ten Roots, but Fewer Solutions, *Bruegel Policy Contribution*.
- De Grauwe P. 2011. Managing a Fragile Eurozone, *CESifo Forum* 12: 40-45.
- De Grauwe P. 2007. *Economics of Monetary Union*, Oxford University Press, Oxford.
- Della Porta R. and Vannucci A. 2007. Corruption and anti-corruption: The political defeat of 'Clean Hands' in Italy, *West European Politics* 30: 830-853.
- Della Porta R. and Vannucci A. 1999. *Corrupt Exchanges: Actors, Resources and Mechanisms of Political Corruption*, Aldine De Gruyter, New York.
- Djankov S., La Porta R. and Lopez-de-Silanes F. 2010. Disclosure by Politicians, *American Economic Journal: Applied Economics* 2: 179-209.

- Djankov S., La Porta R., Lopez-de-Silanes F. and Shleifer A. 2003. Courts, *The Quarterly Journal of Economics* 118: 453-517.
- Estache A. and Martimort D. 1999. Politics, Transaction Costs and the Design of Regulatory Institutions, *World Bank Policy Research Working Paper No 2073*.
- European Central Bank 2012. *Long-term interest rate statistics for EU Member States*, ECB, <http://www.ecb.int/stats/money/long/html/index.en.html>.
- Fukuyama F. 2013. What Is Governance?, *Governance: An International Journal of Policy, Administration, and Institutions* 26: 347-336.
- Gibson J. L. 2006. Judicial Institutions, in *Oxford Handbooks of Political Science*, edited by Rhodes R. A. W., Binder S. A. and Rockman B. A., Oxford University Press, New York.
- Glaeser F., La Porta R., Lopez-de-Silanes F. and Shleifer A. 2004. Do Institutions Cause Growth?, *Journal of Economic Growth* 9: 271-303.
- Glaeser E.L. and Shleifer A. 2003. The Rise of the Regulatory State, *Journal of Economic Literature* 2: 401-25.
- Gulde A.M. and Giorgianni L. 2012. Republic of Hungary: Staff Report for the 2011 Article IV Consultation and Second Post-Program Monitoring Discussions, *International Monetary Fund*.
- Hall A.P. 2013. Brother, Can You Paradigm?, *Governance: An International Journal of Policy, Administration, and Institutions* 26: 189-192.
- Hall A.P. 1993. Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain, *Comparative Politics* 25: 275-296.
- Haller D. and Shore C., 2005. *Corruption, Anthropological Perspective*, Pluto Press, London.
- Harris D. 2007. Bonding Social Capital and Corruption: A Cross-National Empirical Analysis, *Environmental Economy and Policy Research, Discussion Paper Series*.
- Hetherington M.J. 1998. The Political Relevance of Political Trust, *American Political Science Review* 92: 791-808.
- Kähkönen J. and Martijn J.K. 2011. Republic of Slovenia: Staff Report for the 2011 Article IV Consultation, *International Monetary Fund*.
- Kaufmann D., Kraay A. and Mastruzzi M. 2011. *World Governance Indicators 2011*, World Bank, <http://info.worldbank.org/governance/wgi/index.asp>.
- Klitgaard R. 1991. *Controlling Corruption*, University of California Press, Berkeley.
- Knack S. and Keefer P. 1995. Institutions and economic performance: cross country tests using alternative institutional measures, *Economics and Politics* 7: 207-27;
- Krugman P. 2012. *End This Depression Now*, W.W. Norton & Company, New York.
- La Porta R., Lopez-de-Silanes F., Shleifer A. and Vishny R. 1998. Law and Finance, *Journal of Political Economy* 106: 1113-1155.
- La Porta R., Lopez-de-Silanes F., Schleifer A. and Vishny R. 1999. The Quality of Government, *Journal of Law, Economics and Organization* 15: 222-279.
- March J. G.. and Olsen J. P. 2006. Elaborating the New Institutionalism, in *Oxford Handbooks of Political Science*, edited by Rhodes R. A. W., Binder S. A. and Rockman B. A., Oxford University Press, New York.
- Mauro P. 1995. Corruption and Growth, *The Quarterly Journal of Economics* 110: 681-712.
- Mehlum H., Moene K. and Torvik R. 2006. Institutions and the Resource Curse, *Economic Journal* 116: 1-20.
- Mishra A. 2006. Corruption, Hierarchies and Bureaucratic Structure, in *International Handbook of the Economics of Corruption*, edited by Rose-Ackerman S., Edward Elgar Publishing Limited, Cheltenham.

- Morlino L. 2010. Legitimacy and the Quality of Democracy, *International Social Science Journal* 60: 211-222.
- Ortiz L. 2010. Not the Right Job, but a Secure One: Over-education and Temporary Employment in France, Italy and Spain, *Work Employment & Society* 24: 47-64.
- Overbeek H. 2012. Sovereign Debt Crisis in Euroland: Root Causes and Implications for European Integration, *The International Spectator* 47: 30-48.
- Palma J.G. 2009. The Revenge of the Market on the Rentiers, *Cambridge Journal of Economics* 33: 829-869.
- Putnam R.D., Leonardi R. and Nanetti R.Y. 1993. *Making Democracy Work: Civic Tradition in Modern Italy*, Princeton University Press, Princeton.
- Recanatini F., Prati A. and Tabellini G. 2005. Why Are Some Public Agencies less Corrupt than Others? Lessons for Institutional Reform from Survey Data, *Sixth Jacques Polak Annual Research Conference*, Washington.
- Rothstein B. and Stolle D. 2007. The Quality of Government and Social Capital: A Theory of Political Institutions and Generalized Trust, *QoG Working Paper Series* 2007: 2.
- Rothstein B. and Teorell J. 2008. What Is Quality of Government? A Theory of Impartial Government Institutions, *Governance: An International Journal of Policy, Administration, and Institutions* 21: 165-190.
- Rothstein B. and Teorell J. 2012. Defining and Measuring Quality of Government, in: Holmberg S. and Rothstein B. (eds.) *Good Government: The Relevance of Political Science*, Edward Elgar Publisher, Cheltenham.
- Schmieding H. 2012. Tough Love: The True Nature of the Eurozone Crisis, *Business Economics* 47: 177-189.
- Schwab, K. 2011. The Global Competitiveness Report, 2011-2012, World Economic Forum.
- Shleifer A. and Vishny R. 1993. Corruption, *The Quarterly Journal of Economics* 108: 599-617.
- Stigler G.J. 1971. The Theory of the Economic Regulation, *The Bell Journal of Economics and Management Science* 2: 3-21.
- Stiglitz J.E. 2012. Macro-economic Fluctuations, Inequality and Human Development, *Journal of Human Development and Capabilities* 13: 31-58.
- Tanzi V. 1998. Corruption Around the World: Causes, Consequences, Scope, and Cures, *IMF Staff Papers* 98/63.
- Tarrow S. 1996. Making Social Science Work Across Space and Time: A Critical Reflection on Robert Putnam's Making Democracy Work, *The American Political Science Review* 90: 389-397.
- UNCTAD 2011. *Real GDP Growth Annual Rates, per capita*, <http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx>.
- Vannucci A. 2009. The Controversial Legacy of 'Mani Pulite': A Critical Analysis of Italian Corruption and Anti-Corruption Policies, *Bulletin of Italian Politics* 1: 233-264.
- World Bank 2012. *Economic Policy and External Debt: Central government debt, total (% of GDP)*, <http://data.worldbank.org/topic/economic-policy-and-external-debt>.
- World Bank 2012. *Labor & Social Protection: Unemployment, total (% of total labor force)*, <http://data.worldbank.org/topic/labor-and-social-protection>.
- World Bank 2012. *Science & Technology: High-technology exports (% of manufactured exports)*, <http://data.worldbank.org/topic/science-and-technology>.
- World Bank 2012. *Science & Technology: Research and development expenditure (% of GDP)*, <http://data.worldbank.org/topic/science-and-technology>.
- Young B. and Semmler W. 2011. The European Sovereign Debt Crisis. Is Germany to Blame?, *German Politics and Society*, 29.



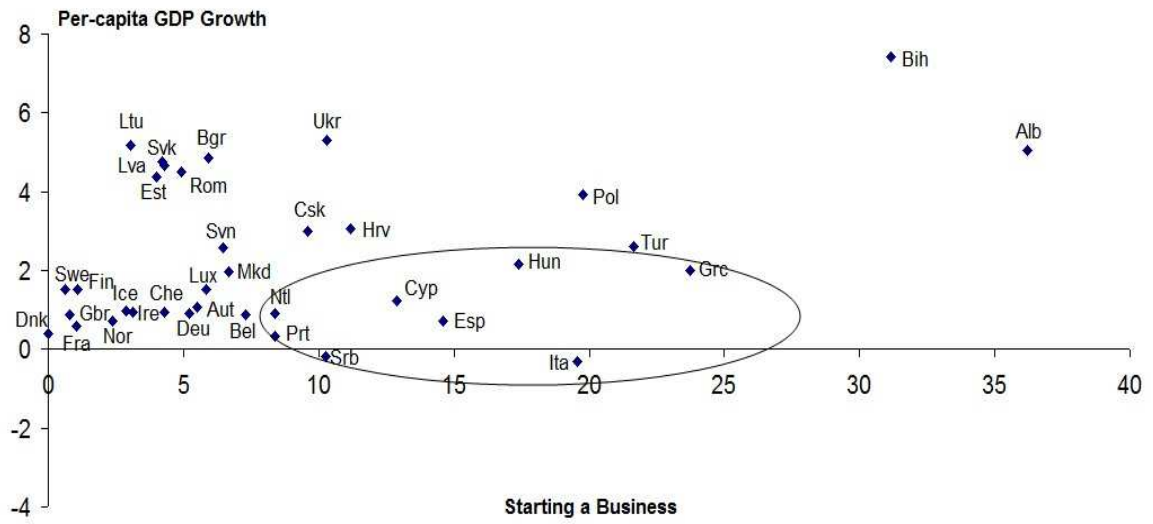


Figure 1 – Ease of starting a business and growth

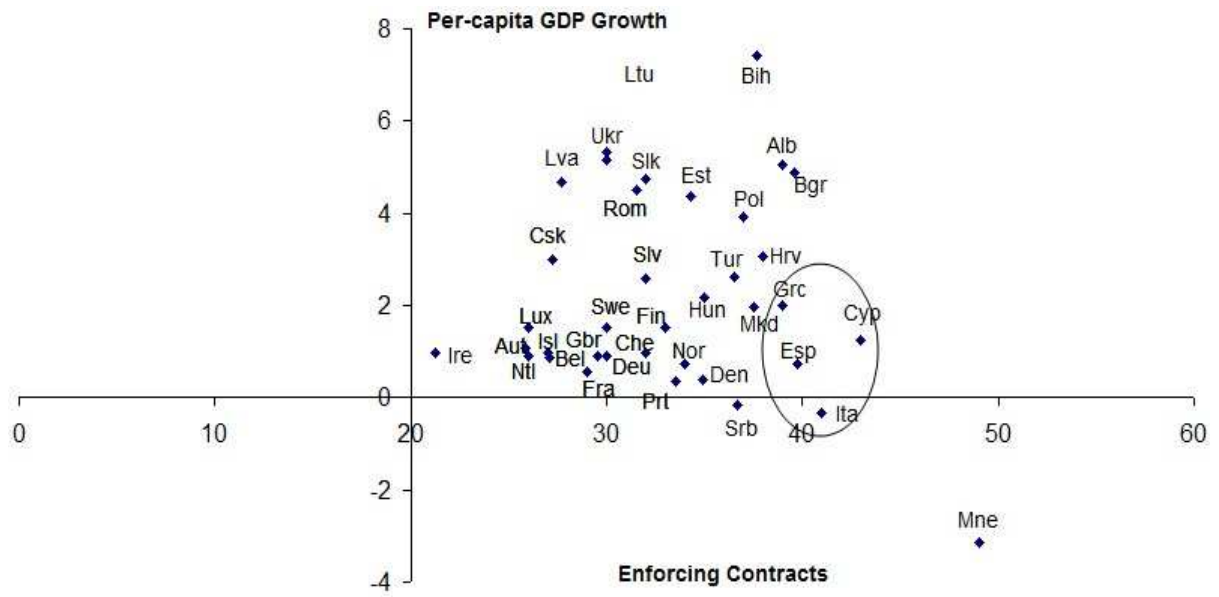


Figure 2 – Contracts and growth

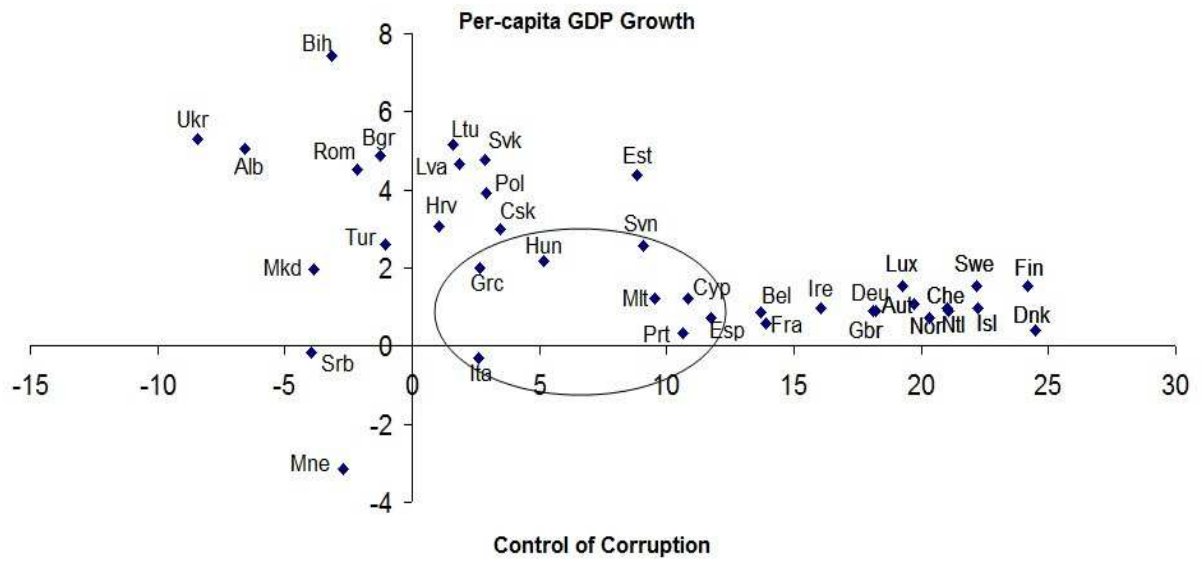


Figure 3 – Control of corruption and growth

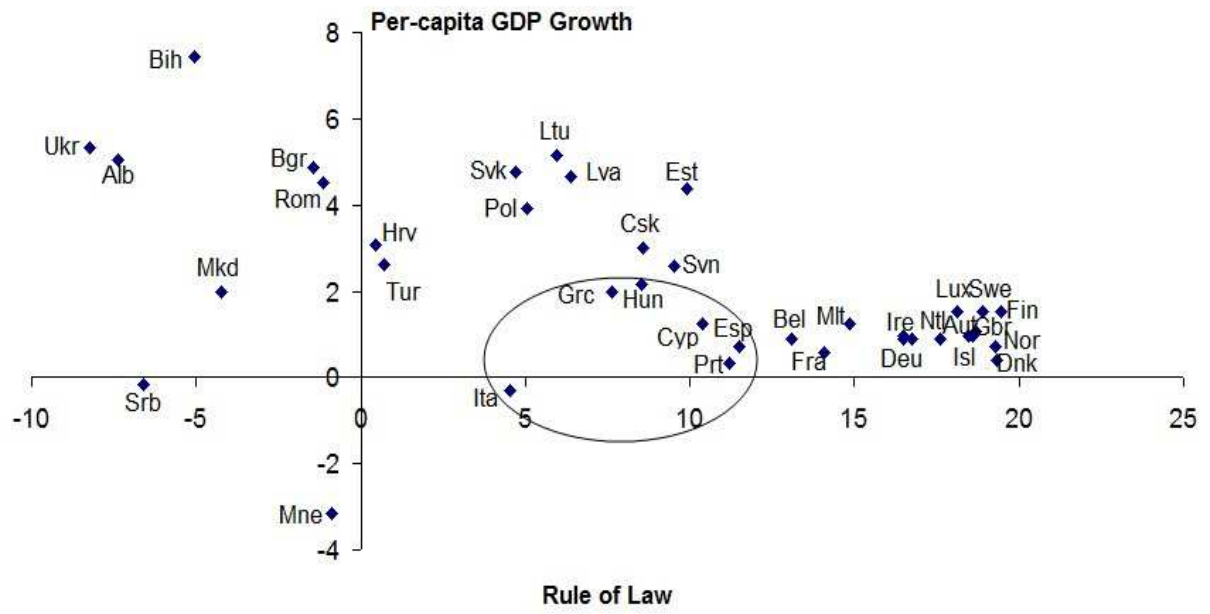


Figure 4 – Rule of law and growth

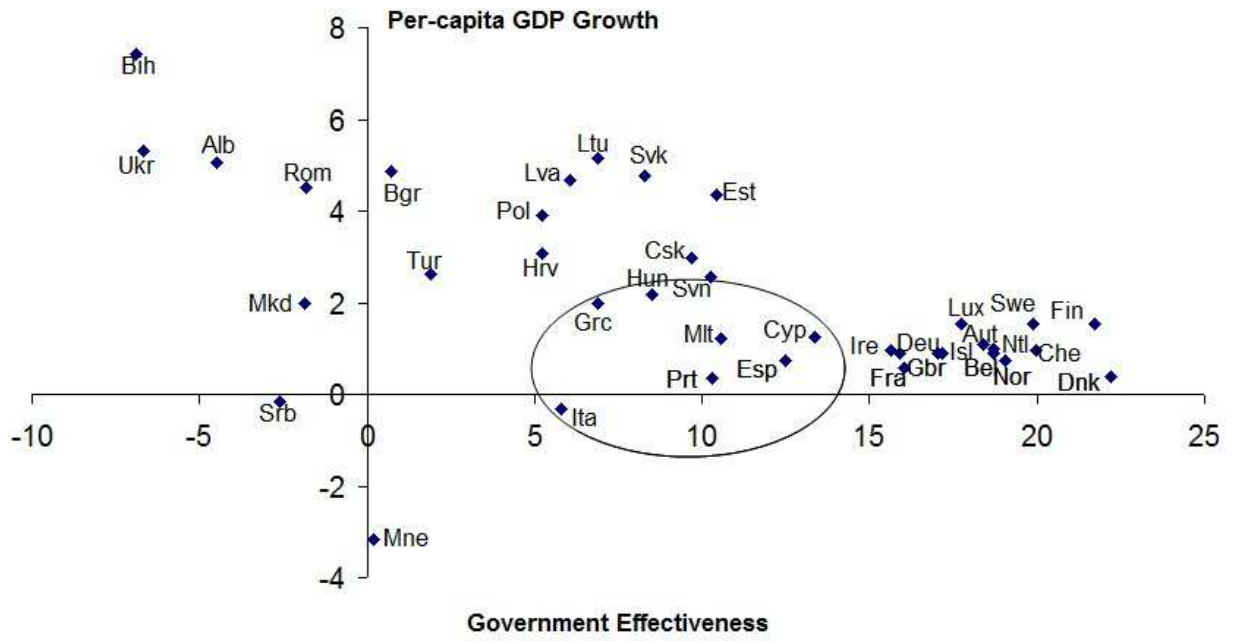


Figure 5 – Government effectiveness and growth

Table 1 – Summary statistics

	Mean	S.D.	Min	Max
Initial GDP	21253.864	13532.100	3629.958	63418.764
POP growth	0.226	0.715	-1.131	2.639
R&D expenditure	1.313	0.900	0.016	4.169
Government Consumption Share	9.549	2.774	4.862	21.642
Investment Share	23.2163	5.218	10.398	44.934
Openness	102.276	46.453	37.599	324.310
Starting a Business (days)	890.902	1612.445	0	12996
Starting a Business (procedures)	7.294	3.076	2	15
Starting a Business (cost % of income per capita)	9.590	9.866	0	56.9
Protecting investors (extent of disclosure)	5.668	2.663	1	10
Protecting investors (extent of directors liability)	4.728	1.673	1	9
Protecting investors (ease of shareholder suit)	6.046	1.550	3	9
Strength of investors protecting index	5.402	1.197	2.7	8.3
Enforcing Contracts (days)	437.789	184.607	1	980
Enforcing Contracts (cost)	21.899	8.710	0	41.5
Enforcing Contracts (number of procedures)	33.119	5.365	21	49
Resolving insolvency (years)	2.269	1.351	0.4	9.2
Resolving insolvency (cost)	10.793	7.606	0	42
Resolving insolvency (recovery rate)	51.826	23.874	1.9	94.4
Voice and accountability	0.975	0.554	-0.664	1.825
Government effectiveness	0.973	0.843	-0.970	2.337
Regulatory quality	0.998	0.665	-0.643	1.923
Rule of law	0.880	0.866	-0.984	2.014
Control of corruption	0.867	0.981	-1.027	2.590

Table 2 – Per-capita GDP and starting a business indices

	(1)	(2)	(3)
Initial GDP	-0.105*** (0.038)	-0.107*** (0.036)	-0.107*** (0.037)
Population growth	-0.610* (0.347)	-0.741*** (0.265)	-0.850** (0.307)
R&D expenditure	0.985*** (0.270)	0.908*** (0.262)	0.117*** (0.202)
Government Consumption Share	-0.226*** (0.085)	-0.222*** (0.081)	-0.264*** (0.076)
Investment Share	1.062*** (0.304)	1.068*** (0.035)	1.183*** (0.031)
Openness	0.288*** (0.059)	0.259*** (0.066)	0.334*** (0.051)
Starting a Business (days)	-0.616*** (0.196)		
Starting a Business (days) squared	0.341** (0.155)		
Starting a Business (procedures)		-0.429* (0.239)	
Starting a Business (procedures) squared		1.963 (1.371)	
Starting a Business (cost % of income per capita)			0.187*** (0.018)
Starting a Business (cost % of income per capita) squared			-0.063 (0.112)
Constant	4.120*** (1.662)	5.193*** (1.890)	0.956*** (0.161)
Obs.	143	143	143
R <sup>2</sup>	0.983	0.981	0.981
Wald	171.8***	126.2***	1.68.3***

Table 3 – Per-capita GDP and protecting investors indices

	(1)	(2)	(3)	(4)
Initial GDP	-0.105*** (0.034)	-0.104*** (0.034)	-0.106*** (0.029)	-0.102*** (0.033)
Population growth	-0.653** (0.276)	-0.738** (0.302)	-0.698*** (0.228)	-0.651** (0.221)
R&D expenditure	1.058*** (0.246)	1.035*** (0.266)	1.029*** (0.212)	1.130*** (0.238)
Government Consumption Share	-0.238*** (0.064)	-0.186** (0.067)	-0.215*** (0.062)	-0.248*** (0.064)
Investment Share	0.701** (0.303)	0.673** (0.260)	0.819*** (0.274)	1.057*** (0.029)
Openness	0.251*** (0.053)	0.205*** (0.056)	0.196*** (0.050)	0.227*** (0.043)
Protecting investors (extent of disclosure)	0.657*** (0.144)			
Protecting investors (extent of disclosure) squared	-0.486** (0.159)			
Protecting investors (extent of directors liability)		0.739** (0.310)		
Protecting investors (extent of directors liability) squared		-0.554 (0.544)		
Protecting investors (ease of shareholder suit)			0.411** (0.165)	
Protecting investors (ease of shareholder suit) squared			-0.102 (0.215)	
Strength of investors protecting				0.978*** (0.328)
Strength of investors protecting squared				-0.865 (0.683)
Constant	3.316** (1.243)	3.018** (1.184)	2.949** (1.091)	2.749** (1.128)
Obs.	143	143	143	143
R <sup>2</sup>	0.986	0.987	0.988	0.988
Wald	946.7***	1052.7***	1244.4***	1556.1***



Table 4 – Per-capita GDP and enforcing contracts indices

	(1)	(2)	(3)
Initial GDP	-0.110*** (0.038)	-0.107*** (0.035)	-0.107 (0.0426)
Population growth	-0.105** (0.034)	-0.583* (0.306)	-0.620* (0.318)
R&D expenditure	0.113*** (0.021)	0.121*** (0.020)	0.113*** (0.025)
Government Consumption Share	-0.308*** (0.087)	-0.236*** (0.074)	-0.216** (0.084)
Investment Share	0.850*** (0.271)	0.137*** (0.034)	0.124*** (0.027)
Openness	0.250*** (0.053)	0.327 (0.052)	0.246*** (0.057)
Enforcing Contracts (days)	-0.712*** (0.292)		
Enforcing Contracts (days) squared	-0.006*** (0.002)		
Enforcing Contracts (cost)		0.481 (0.504)	
Enforcing Contracts (cost) squared		-0.326 (0.887)	
Enforcing Contracts (number of procedures)			-0.343** (0.156)
Enforcing Contracts (number of procedures) squared			-0.610*** (0.129)
Constant	2.709* (1.546)	1.845 (1.661)	1.689 (1.298)
Obs.	143	143	143
R <sup>2</sup>	0.982	0.981	0.982
Wald	1218***	1122***	1895***

Cost is measured as a percentage of claim.

Table 5 – Per-capita GDP and resolving insolvency

	(1)	(2)	(3)
Initial GDP	-0.107*** (0.042)	-0.109*** (0.043)	-0.107*** (0.038)
Population growth	-0.835** (0.340)	-0.905*** (0.350)	-0.897** (0.332)
R&D expenditure	0.118*** (0.026)	0.106*** (0.021)	0.116*** (0.021)
Government Consumption Share	-0.257** (0.095)	-0.254*** (0.079)	-0.260*** (0.085)
Investment Share	0.105*** (0.032)	0.107*** (0.327)	0.123*** (0.031)
Openness	0.289*** (0.058)	0.282*** (0.049)	0.321*** (0.051)
Resolving insolvency (years)	0.910 (0.872)		
Resolving insolvency (years) squared	-0.276 (0.454)		
Resolving insolvency (cost)		0.193 (0.162)	
Resolving insolvency (cost) squared		-0.103*** (0.064)	
Resolving insolvency (recovery rate)			0.867** (0.147)
Resolving insolvency (recovery rate) squared			-0.012* (0.071)
Constant	1.951*** (0.446)	2.321** (1.275)	1.275 (1.580)
Obs.	143	143	143
R <sup>2</sup>	0.980	0.980	0.981
Wald	1286****	1145***	1391***

Cost is measured as a percentage of estates and recovery rate as cents on a dollar.

Table 6 – Per-capita GDP and governance indices

	(1)	(2)	(3)	(4)	(5)
Initial GDP	-0.108*** (0.006)	-0.105*** (0.006)	-0.105*** (0.005)	-0.101*** (0.005)	-0.107*** (0.006)
Population growth	-0.607* (0.417)	-0.493 (0.459)	-0.719* (0.409)	-0.381 (0.400)	-0.352 (0.377)
R&D expenditure	0.117*** (0.030)	0.135*** (0.036)	0.600** (0.260)	0.628* (0.474)	0.778* (0.430)
Government Consumption Share	-0.153 (0.942)	-0.161 (0.106)	-0.148* (0.987)	-0.104 (0.970)	-0.178 (0.888)
Investment Share	0.132*** (0.047)	0.135*** (0.047)	0.152*** (0.041)	0.137*** (0.041)	0.133*** (0.042)
Openness	0.288*** (0.078)	0.247*** (0.067)	0.232*** (0.078)	0.229*** (0.061)	0.287*** (0.060)
Voice and accountability	-0.428 (0.193)				
Voice and accountability squared	0.122* (0.087)				
Government effectiveness		0.292* (0.102)			
Government effectiveness squared		-0.332 (0.400)			
Regulatory quality			-0.276 (1.134)		
Regulatory quality squared			1.438** (0.764)		
Rule of law				-0.117* (0.880)	
Rule of law squared				0.109* (0.561)	
Control of corruption					-0.234* (0.128)
Control of corruption squared					0.100*** (0.036)
Constant	1.222* (0.875)	-0.557** (0.215)	1.753 (1.888)	2.888** (1.014)	-2.795* (1.999)
Obs.	168	168	168	168	168
R <sup>2</sup>	0.976	0.975	0.975	0.976	0.976
Wald	7557***	6897***	7013***	5803***	7891***