POLITICAL CORRUPTION AND LEGISLATIVE COMPLEXITY: A MACROECONOMIC ANALYSIS

by

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Abstract. In this paper a dynamic model it is used to investigate the macroeconomic impact of legislative complexity on growth and welfare, in comparison with political corruption. After a review of the economic literature on corruption and legislative complexity, we set up the model. The main theoretical findings of the analysis are that legislative complexity, like corruption, constitutes a constraint to growth and determines a redistribution of income in favor of politicians. To check if the previsions of the model are verified a simple new indicator of legislative complexity is considered, built in a way that makes it internationally comparable, and consider the data for sixty-seven countries. To estimate the effects of legislative complexity and corruption on the growth rate of per capita income, OLS and 2SLS estiamtes are provided. The results of the econometric analysis support the hypothesis that legislative complexity is a constraint to growth, and that in countries with a long history of liberal democracy legislative complexity determines an income redistribution to the detriment of the more poor social classes.

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1. INTRODUCTION.

This paper investigates the economic impact of legislative complexity, in comparison with political corruption, on per capita income growth rate and income distribution.

Corruption has been considered one of the main constraints to growth in wealthy and developing countries, the history of corruption is very long and its origins lie in the mists of time. Less attention has been paid to legislative complexity and to its effects on growth, welfare and income distribution. In all the countries of the world in principle, public opinion, consumers, businessmen and even bureaucrats seem to consider legislative complexity (and bureaucracy) in a negative light, but this is in conflict with the finding that the phenomenon has not so far been estinguished. In particular, the interaction between corruption and legislative complexity has not been investigated in economic theory, despite some pioneering analysis in ancient times.

Tacitus (110) was probably one of the first scholars to associate corruption with legislative complexity, affirming that both are socially undesirable phenomena growing together. Even Rousseau (1750–1760) affirmed that a State that has more laws than a man may remember is corrupt. Spencer (1842), among philosophers, considered excessive legislation as an indicator of a poor quality of government and a source of social costs. In recent times, the strong relationship between corruption and legislative complexity has been highlighted by the World Bank which affirms: " ... `The causes of corruption are always contextual, rooted in a country's policies, bureaucratic traditions, political development, and social history … Monopoly rents can be large in highly regulated economies and, as noted above, corruption breeds demand for more regulation …` " (World Bank, 1997). Nowadays legislative complexity has increasingly been considered as an obstacle to growth in many

economies, such as, for example, Australia, European Countries, and OECD (Australian Government, 2011, European Commission, 2005, 2012, OECD, 2012, 2014, United Kingdom, 2012).

The persistence of legislative complexity raises the doubt that this phenomenon is not a casual and unwanted, but the result of the rational behaviour of self-interested politicians aiming to appropriate public rent and modify the income distribution in their favour. Legislative complexity may be a legal way to apply different laws to the same situations, or to apply the same law to different cases, to favour some groups instead of others, without a formal infringement of the legislation, as is the case of corruption.[1]

The newspapers are full of references to legislative complexity like a form of political corruption. For example Fareed (2011) has published an article of the significant title "Complexity equals Corruption",[2] but see also De Rugy (2011), who quoting Kevin Drum says: "Businesses don't like simple rules, because simple rules are hard to evade. So they lobby endlessly for exemptions both big and small. This is why we end up with tax subsidies for bow-and-arrow makers. It's why we end up with environmental rules that treat a hundred different industries a hundred different ways. It's why financial regulators don't enact simple leverage rules or place firm asset caps on firm size. Those would be hard to get around and might genuinely eat into bank profits. Complex rules, conversely, are the meat and drink of $500-per-hour lawyers and whiz kid engineers. If the rules are complicated enough, smart lawyers can always find ways around them. And American corporations employ lots of smart lawyers.

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[1] A phenomenon similar to legislative complexity is the "regulatory capture", a case government failure that occurs when a regulatory agency, created to act in the public interest, instead advances the commercial or political concerns of special interest groups that dominate the industry or sector it is charged with regulating. When regulatory capture occurs, the interests of firms or political groups are prioritized over the interests of the public, leading to a net loss to society as a whole (Dal Bò, 2006).

[2] Fared (2011) says " ... Most Americans believe that the federal tax code is highly complex and fundamentally corrupt. They are right. The federal code (plus IRS rulings) is now 72,536 pages in total. The code itself is 16,000 pages. The statist French have a tax code of 1,909 pages, only 12% as long as ours. Countries like Russia, the Czech Republic and Estonia have innovated and moved to a flat tax, with considerable success ... "

`Keep this firmly in mind the next time you hear someone from the Chamber of Commerce complaining about how many thousands of pages of regulations they have to comply with.`". This connection between legislative complexity and political corruption is still reported by Rose Ackerman (2007), who underlines how legislative complexity make easy corruption. Diwan (2014) consider the legislative simplification a relevant measure of political economy will have to be adopted in the Arabian countries to promote growth.

Yadav (2011) affirms that corruption take place in a more creative way by the legislative process, because the members of parliament appointed used their power to create oligopoly in favour of some cooperative firms. In particular she report the cases of corruption cases in Romanian about the bank legislation and Indonesian regarding public procurement (see Yadav, 2011).

The appropriation of public rent by politician by using legislative complexity is almost unobservable directly, because it is a hidden phenomenon that escape to the official statistics and to the control of public opinion. It is possible understand it only in an indirect ways, assuming that complex legislation makes unclear the law applicable thus make possible at political level to favour some agents instead of others. The members of parliament using their power to take advantage of the asymmetries information with private agents by adopting legislation to by-pass ordinary procedure and diverge public utilities in their favour of in favour of complaisant agents accepting bribes.[3] Harris (2003) put emphasis on complex and continuously changing legislation on banking system and money laundering such to hide illegal operation. He also underline that the legislation is so complex that small banks are not able to be compliant with legislation in due time.

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[3] Rose-Ackerman (2007) refer to a famous Italian case of *Tangentopoli* to explain how the legislative complexity is used by politician to get bribery.

In spite of previous studies of corruption and legislative complexity together, corruption has recently been studied worldwide from different points of view, even in economic literature (Campos *et al.*, 2015), whereas scholars have not paid the same attention to the economic impact of legislative complexity.

Despite the corruption is a phenomenon that may arise under which kind of political system, even in a dictatorship one, but for purposes of the comparative analysis between political corruption and legislative complexity, only the corruption that emerges under "liberal democracy" government system is considered. The corruption that emerge as a negative by-product of the form of government known as "liberal democracy" is well known and extensively studied even in economic literature (see, for a survey, Kaufmann and Vicente, 2011), where it is seen to represent a constraint to growth (Mocan, 2008, 2009). The effects of stratification, overlapping and conflicting interpretations of the laws over time, leading to the problem of legislative complexity, have been only marginally studied in a microeconomic approach (Kaplow, 1995). The stock of legislation and legislative complexity depend essentially on the date of introduction of liberal democracy as a form of government and the type of legal system (for example civil law or common law).[4] The term "liberal democracy" implies that law becomes the principal instrument to regulate social and economic life. The greater the amount of legislation passed by parliament, the higher the level of legislative complexity due to the layering and overlapping of laws, creating social costs due to the negative externality of coordination (see for example the United States tax code, that span about 75,000 pages at 2016. Edwards, 2016). The legal family to which the country belongs may be also relevant, because each legal system has different ways of solving the problem of negative coordination externality among laws passed at different points in time. In general, it is said that common law countries benefit from their more

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[4] For the differences between the legal systems of civil law and common law, see La Porta *et al*. 1998, Glaeser and La Porta (2002) and Siems (2007).

flexible legal system, which minimizes the social costs of information, coordination and overlapping of legislation (Ma, 2012, Posner, 1974, Priest, 1977).

In particular, up to now legislative complexity has not been considered in an endogenous growth model, to investigate the relationship between legislative complexity and corruption, to study the effects of both on the redistribution of income in favor of politicians, and the optimal level of public policies in terms of taxation and legislation. Barro (1990, p. S115) marginally accounts for the positive effects of an improvement in legislative efficiency, under form of an increase in property right protection, that raises the growth rate and savings; however he does not consider the effects of changes in the legislation.

Neither has the empirical relationship between corruption and legislative complexity been investigated. Kearl (1983), in his interesting paper, underlines regulatory (secondary rules) complexity, without building a formal model; moreover he does not address the problem of legislative complexity.

Acemoglu (2006, 2013) emphasized the rational behavior of groups with political power (i.e. *elites*) that, in order to appropriate public rent and redistribute income in their favor, introduce legislations and create institutions determining an inefficient performance of the economy at a macroeconomic level.[5] The problem of political corruption has become increasingly relevant such as to draw attention from scholars (Heywood, 1997, Neudorfer 2015, Peters and Welch, 1978, Rose Ackerman, 1997) and public opinion, for example in the United States with the organization of the American Anti Corruption Act, that is against lobbying activities and secret money. Mironov *et al*. (2016) highlighted the political corruption in Russia, in the area of public procurement, but many other examples regarding European countries, like Italy, may be found in the work of Heidenheimer and Johnson (2002).

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[5] For an interesting empirical analysis regarding the relationship between inequality and democratization see Houle (2009).

In this research the following questions are addressed: is legislative complexity an obstacle to economic growth? Is there a relationship between corruption and legislative complexity? Are there income redistribution effects due to legislative complexity?

To answer to the questions above a macroeconomic dynamic model is used, where taxation and public spending and/or the institutional changes introduced by legislation are investigated in a comparative way.

The main difference with respect to previous theoretical frameworks employed to address legislative complexity, where a microeconomic approach modeled like a game theory has been used, is that here a macroeconomic approach is used, following Barro (1990), Mauro (1995) and Ventelou (2002). In the presence of one or more sources of market failure, the interventions of political economy in the theoretical framework may assume two different forms: fiscal measures (extensively applied in the countries belonging at the Old Continent) or institutional policy (typical of North American and Coasian tradition) (Boettke *et al*. 2015). The first kind of policy implies a more direct presence of the State in the economic system. The institutional approach is founded rather on a change of economic incentives by means of institutional policy measures, that may assume the form of legislation or the creation of new institutions (like bureaus or agencies). Both kinds of policy show increasing marginal social costs: legislation may cause a negative coordination externality as a result of the stratification of laws; taxation also shows increasing marginal costs because it raises administrative and enforcement costs (i.e. transaction costs), to collect and enforce taxes. In this research are considered the trade-off costs between legislation and taxation and between corruption and legislative complexity, which constitutes all possible behaviors of public rent appropriation considered in our research.

Il is assumed that politicians are self-interested agents (Aidt, 2003) who attempt to maximize their amount of political consumption (i.e. the private consumption of politicians, following the terminology of Barro, 1990, Ventelou, 2002) by using their legislative power. Under this assumption, politicians may choose to perform rent-seeking activities illegally, by taking bribes, or legally, making more and more legislations to create legislative complexity and uncertainty regarding the law applicable, raising the level of asymmetric information between politicians and private agents, to increase the discretionary power of the members of parliament (MEPs and senator). In particular are explored the conditions under which a measure of political economy assuming the form of taxation or public spending is preferable to a change of legislation and vice versa, and the intermediate situations where the choice between the two kind of measure of political economy depends on collective preferences.

Finally, this study considers the effects of legislative complexity on income redistribution, in static and dynamic frameworks. If legislative complexity increases the level of inequality of income distribution, we expect a negative impact on growth, similar to that of corruption described by Persson and Tabellini (1994).

To address the economic impact of legislative complexity it is accounted for the stock of legislation, assuming that it is greater in those countries which first introduced liberal democracy as a government system. This means that at the same point in time, the value of the stock of legislation will be higher in economies with the oldest tradition of liberal democracy and separation of powers as a government system, than in countries where liberal democracy has been implemented more recently (see Acemoglu and Robinson, 2000, 2001).

In this research is considered the primary legislation, defined as Acts of Parliament (Congress) or statutes, without taking into account secondary legislation, that are the rules adopted by government and executive agencies as a way to enforce

laws passed by legislature (SIs, which are often called Codes, Orders, Regulations or Rules. See Taylor, 2010).[6] This means that the politicians control the primary legislation, while the bureaucrats deal with secondary legislation (that normally creates an agency problem with legislatures and may be a source of bureaucracy). Roughly speaking it is assumed that legislative complexity is an instrument to preserve the power of politicians, while regulations are a way to preserve the power of bureaucrats. Here just legislative complexity is considered, leaving to further and deeper analyses a more complicated version of the theoretical model to account also for regulation and bureaucracy.[7]

To check the results of theoretical finding, based on the growth model, in the empirical section of the paper are used data regarding sixty-seven countries for which the figures of the corruption perception index and other indicators of the rule of law are available. The analysis covers the time span from 1995 to 2015. A new and simple comparable international index of legislative complexity was built, based on the theoretical assumption that legislative complexity depends on the stock and flow of legislation, that are greater in countries where liberal democracy (with the universal suffrage vote) has been the form of government for many years. Following the approach of Barro (1991) and Mauro (1995) the cross-section growth econometric analysis is performed to avoid the problem of endogeneity implicit when time series are used. In particular, are employed the OLS and 2SLS econometric model on the average value of variables of interest.

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[6] Schuck (1992, p. 4) refers to regulation to define secondary legislation " … standards promulgated by several different agencies and private technical organizations, tort litigation, and common law contract principles … ".

[7] World Bank define political corruption like "Corruption within government can take place at both the political and the bureaucratic levels. The first may be independent of the second, or there may be collusion. At one level, controlling political corruption involves election laws, campaign finance regulations, and conflict of interest rules for parliamentarians. These types of laws and regulations lie beyond the mandate and expertise of the Bank but nevertheless are part of what a country needs to control corruption. At another level corruption may be intrinsic to the way power is exercised and may be impossible to reduce through lawmaking alone …" (World Bank, 1997).

The main result of this paper is that legislative complexity constitutes, like political corruption, a constraint to growth and welfare improvement. Legislative complexity and political corruption may be complements or alternative, to each other in depending on the years since the introduction of liberal democracy as a form of government. Both phenomena constitutes channels of appropriation of public rents by politicians.

After this introduction, the rest of the paper is organized as follows. Section two aims to survey the economic literature on corruption and legislative complexity. Section three analyzes the similarities and differences between corruption and legislative complexity. Section four is devoted to setting up the model. In Section five the implications of the economic model are analyzed and some exercises of comparative analysis are performed. Section six aims to deal with the dynamic analysis. In Section seven the dataset is described, with the preliminary analysis of data and the econometric analysis is performed, with comments on the results and findings. Final remarks conclude.

2. LITERATURE SURVEY.

This Section is aimed to provide a survey on previous studies regarding legislative complexity and corruption, in terms both of theoretical analyses and of applied research.

2.1 THEORETICAL ANALYSES OF LEGISLATIVE COMPLEXITY.

In the first real stages of human life, corruption and legislative complexity were both unknown, because no State existed,[8] at least in the modern meaning. Before liberal democracy was implemented in many countries as a form of government (Carter and Stokes, 1998), the monarchs did not need to be corrupted because they focused on all

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[8] With the remarkable exception of a few states like, for example, Ancient Egypt, China, India, Mesopotamia and Inca empire.

three fundamental branches of government (legislative, executive and judicial).[9] During monarchies, bribery was widespread at the lower levels of bureaucrats, who remained completely extraneous to the process of legislative production.

It was only with the adoption of liberal democracies around the world, with parliaments elected by popular vote, that the principle of separation of powers was implemented, and politicians were found to be using the law to maximize their personal gains. The representatives of the people (politicians) who took over from the sovereign, or otherwise joined him in guiding the country, began in an increasingly pervasive way to introduce laws to regulate all social phenomena. The appropriation of a part of the welfare of the community was no longer the result of the sovereign exercising his powers (not having to account to anyone for his actions, having only to accept the risk of a popular uprising that would lead to his dismissal), but of the corruption of politicians or of legislation. But this cannot be entirely clear, as it must succeed in concealing the activities of the social appropriation of rent by the legislature as much as possible.[10]

At the beginning of the development process an economic role of the State emerges, to satisfy public needs and to correct micro and macroeconomic sources of market failures, that leave the politician room for rent-seeking activities that may take the form of corruption. Bribes are easier to exact in developing countries where the control of politicians over the police is almost total, the risk of being condemned to prison is low, and the controls by public opinion are limited. Moreover, the possibility

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[9] See the interesting papers by Richard Epstein about the evolution of the state of nature and the development of property right like a guarantee of individual economic freedom (Epstein, 2011, 2015, 2016).

[10] In some sense there is a price that must be paid to transit from dictatorship to modern democracy and it is represented by corruption, this implies that there is a "leakage" (or transfer) of part of social welfare either to the dictator, to the sovereign or to the politician. In fact Acemoglu and Robinson (2005) argues that the society tolerates dictators because the total transfer could be less under the dictator (regular people may receive a larger share of the economic pie under the dictator when corruption of politicians is high. This may be a reason why dictators are supported in many developing countries).

to hide public rent appropriation using legislative complexity is impossible, because there are few laws.

In developed countries with a long story of legislative production and more stringent control over the administration of public resources, due to the introduction of liberal democracy as a form of government, legislative complexity may represents a devious (because lawful) and cheap alternative to corruption as a rent-seeking activity for politicians, without the risk of ending up in jail. In general it is possible to say that on one hand, new legislations are necessary to regulate the changing needs of society in consideration of the evolution of technologies, preferences and so on. On the other hand, new legislations raise social costs in terms of learning and coordination with previous laws.

Although legislative complexity may differs among countries, it can be considered at the same time as a source of negative coordination externality among sources of legislation and a cause of government failure like corruption (Kearl, 1983, Orbach, 2013), that constitutes a constraint to growth. In fact, Keech and Munger (2015) suggest that corruption is a source of public policy failure, that depends on how the parliament (government) defines the institution in which markets succeed or fail.

One of the first scholars who emphasize the negative effects of legislative complexity as a "barrier to entry" into markets was Kearl (1983), who quoting Jordan (1972) and Posner (1973), affirmed that politicians (regulators) rarely achieve "public interest" outcomes, because their aim is often the maximization of their own selfish interests (Aidt, 2003). They sometimes use laws and rules to appropriate public rents. Although Kearl (1983) addressed the problem of legislative and regulatory complexity from a macroeconomic point of view, he did not develop an economic model useful to perform quantitative analysis.

Years later Kaplow (1995) studied legislative complexity from a microeconomic point of view, emphasizing the difficult equilibrium between more complex but precise laws and flexible legislation, more prone to arbitrary interpretation.

The problem of the increasing amount of legislation to correct market failures due to access to information for private and regulatory agencies was investigated by Kip Viscusi (1996), who did not address the problem of the potential negative spillover of new legislations together with positive ones. Viscusi (1996) did mention the problem of the social costs of upgrading due to the introduction of new legislations that have to be coordinated and interpreted with the previous ones, to avoid overlapping and layering, without however investigating it fully.

Epstein (2004) studied legislative complexity from a microeconomic point of view using the approach of the cognitive limitations of ordinary individuals, but also tackled the problem of curbing the excesses of individual self-interest without conferring excessive powers on state individuals, whose motives and cognitive powers are themselves not above question.

There are very few studies, however, on political corruption and legislative complexity. Ventelou (2002), summarizing the results of economic literature, affirmed that corruption is strongly correlated with indices of bureaucratic and institutional (in)efficiency, like "political instability" and "inefficiency of the legal system".[11] Kirchner (2012), who studied the impact of legislative complexity in Australia, found a short run negative relationship between per capita income growth rate and legislative complexity, while in the long run he found that the relationship is positive. Ventelou

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[11] Fredriksson (2014) emphasizes the role of bureaucrats in explaining the slowdown of the growth rate of the economy. On regulatory complexity and the social costs of this phenomenon, see Kaplow, 1995, Kearl, 1983. Spinesi (2009), in a Schumpeterian model, investigated the rent-seeking behaviour of bureaucrats, finding that there are two negative effects on the economy: it increases inequalities in favour of bureaucrats and constitutes a burden on economic growth.

(2002) built a macroeconomic model based on the assumption of self-interested politicians to study corruption at a legislature level.

Kaplow (1995) assumed a positive relationship between regulatory complexity and the costs of enforcement, due to private cost of acquiring information about new legislation. Regarding market information about legislation there are asymmetries between private agents (consumers and entrepreneurs) and politicians. The costs of acquiring information about new laws are higher for private agents than for politicians and bureaucrats. Roughly speaking, legislative complexity can be viewed, at the same time, as a barrier to entry into markets and as a channel that may be used to obtain an income redistribution in favor of politicians.

In this research we emphasize the social costs of legislative complexity due to the negative coordination externalities caused by stratification, overlapping and non-uniform interpretation of legislation, that generate costs of acquiring information (Schuck, 1992). In general, the concept of legislative complexity is very broad, since it includes an internal level regarding laws issued by a single state, and an external one related to the legislations passed by other states, states conferences and international agreements.[12]

We consider the complexity of legislation as an by-product of lawmaking, accruing over time in a stock of laws issued at different times.[13]

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[12] The theoretical model we employ in this model regard a closed economy, such that coerently the legislative complexity that could arise among legislation passed by the state considered, and the international treaties and legislation are not considered. In the real economies, legislation can also derive from any number of institutional sources, like international treaties, parliaments or legislatures, ministries or agencies, or even voters themselves through various kinds of plebiscites. Given their variety, regulations can be described using many different labels: constitutions, statutes, legislation, standards, rules, and so forth (Schuck, 1992). The label used to refer to them will not matter for the purpose of evaluation. What does matter is that evaluators are precise about exactly what they seek to evaluate, however that governmental action may be labelled by others.

[13] In this theoretical framework we ignore the structure of the State, that could be of a multilevel type and generate negative coordination externalities among the different sources of regulation coming from different institutions (OECD, 2014).

Joskow and Rose (1989) in their survey on the estimation of the effects of legislation and regulations, were among the first to recognize that regulation has income redistributive effects. They referred to the concept of "economic regulation" as both primary legislation and administrative regulation of prices and entry barriers into specific industries or markets.[14]

Coglianese, in her interesting report (2012), studied the economic impact of legislations, using both *ex* ante and *ex* post approach, underlining the benefits and costs of the adoption of new legislation. Her analysis regards the single legislation which is evaluated along three different criteria of analysis: impact, cost-effectiveness and net benefits, without any consideration of legislative economic effects as a whole.

In empirical literature, legislative complexity has still been considered as an indicator of the poor quality of institutions that may: " *... translate into an increased degree of uncertainty that sends mixed signals to the market, thus affecting the productive process ...* " (Chong and Calderon, 2000, p. 761).

3. CORRUPTION AND LEGISLATIVE COMPLEXITY: SIMILARITIES AND DIFFERENCES.

3.1 CORRUPTION. Many definitions of corruption have been used in previous studies, for example "an illegal payment to a public agent to obtain a benefit that may or may not be deserved in the absence of payoffs" (Rose-Ackerman, 1997, 1999) or "the sale by government officials of government property for personal gain" (Shleifer and Vishny, 1993).[15] The economic history of corruption is well documented in the book of

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[14] For a more complete survey of the literature on economic and social regulation through 1980, see Joskow and Noll (1981).

[15] Jain (2001) defines corruption as " … an act in which the power of public office is used for personal gain in a manner that contravenes the rule of the game". Even the OECD (2007) supplies a definition of corruption as: "active or passive misuse of the powers of Public officials (appointed or elected) for private

Nooman (1984) that reports wide episodes of corruption since the Roman Republic with the case of Verres that bribed everyone in Sicily and half the public officials of the Republic. The history continues with the cases of trials against Francis Bacon in the 17th century, and Warren Hastings in the 18th century. But even the history of United States of America is full of episodes of bribery. Aidt (2001) affirms that corruption is a persistent feature of human societies during time and among countries. The sale of seats in "rotten boroughs" in England before the Reform Act of 1832 and "machine politics" in immigrants' cities in the United States at the turn of 19th century are two further historical examples (Aidt, 2001, see also Williams, 2000, 2000a, 2000b, 2000c). In this paper we refer exclusively to the "political corruption" that regards the process of formulation of legislation and policies (OECD, 2008), ignoring the other kinds of corruption such as administrative and private.

Two parties may exchange favours over time that "pay each other": through the allocation of specific legislation or procurement contracts (by the politician to the private sector counterpart), and earmarking political campaign funding (by the private sector connected to the politician); or simply through an explicit changeover in the political power "chair" among the *elite* players (where in each period one of them allocates the chair to the other); simple repeated bribery of politicians may also be encompassed by this notion if we think of the bribe as "political campaign funding" itself.

Jain (2001) in his interesting survey on corruption, listed three conditions for corruption to arise and persist. The first, is the discretionary power of public officials in designing and enforcing legislation and regulation. Secondly, this discretionary power allows officials to extract public rent or create rent that can be extracted. Thirdly, weak institutions make it possible for public officials to exploit public rent (Jain, 2001).

financial or other benefits." and Passive bribery as: "the offence committed by the official receiving the bribe" and Active bribery "as paying or promising to pay a bribe."

Following the approach of Jain (2001, p. 3) who categorised four different forms of corruption, we assume that legislative complexity falls within the category of self-reinforcing corruption, where the profit from rent-seeking activity depends, among other things, on the history of the institutions.

This simple and incomplete survey on theoretical models of various forms of corruption paves the way to the concept of "legal corruption", introduced for the first time, to our knowledge, in the economic literature by Kaufmann and Vincent (2011). In this hypothesis the 'abuse of public office for private gain', assumes a legal form, such that the liable party does not run the risk of going to jail. Legislative complexity is different from "legal corruption" because it does not involve exchange of money or favours, but is useful to create a prerequisite for the lawful appropriation of public rent by politicians, in cases where the marginal costs of corruption, in terms of the likelihood of being discovered and convicted, are higher than the marginal revenues of bribery.

The switch of corruption from an illegal to a legal form, after the process of democratization in Latin American countries and former member-countries of the Soviet Union, is well documented in economic literature (see Acemoglu and Robinson, 2000, 2001), but no scholars have investigated whether legislative complexity can be considered to act like legal corruption.

The distributional effects of corruption have been highlighted in economic literature (Blackburn and Forgues-Puccio, 2007), but the relationship between legislative complexity and inequality, although acknowledged, has not been studied in depth. Income redistribution is a socially undesired by-product of corruption, that distorts market incentives. Only in recent times has it been recognized that corruption (together with agency problems and rent-seeking activity) should be included among the sources of transaction costs, that have a negative impact on welfare and the growth rate of the economy (Keech and Munger, 2015).

3.2 LEGISLATIVE COMPLEXITY.

An analysis of the history of legislative complexity must begin from the consideration that, unlike corruption, there is not an encyclopedia in four volumes devoted to the study of this problem: in general little research has been done on this issue. The explanation for this is simple: corruption is newsworthy, it attracts public attention because it is rot to be fought. Legislative complexity is a subtle phenomenon, because it is silent, dark, assimilated to bureaucracy (which operates at a lower level of legislation), which in itself does not excite the interest of the media and, therefore, like all impalpable and invisible phenomena (including certain dangerous causes of market failure), it is often ignored or poorly understood.

Legislative complexity may be considered as a presupposition of "legal corruption" that may emerge in countries where the elite choose to occult corruption from public opinion creating artificial "legal barriers", that represents a prerequisite for public officials to exercise discretionary power in order to weaken the institutions and to extract public rent. In economic literature it has been observed that "red-tape", despite entailing a cost for politicians, is a nice example of an instrument that may be used to conceal activities of public rent-seeking from the population (Kaufmann and Vincent, 2011).

The question is how to define legislative complexity.[16] From a theoretical point of view, the cornerstone on this issue is represented by the paper of Schuck (1992), identifying the four characteristics necessary to define a legal system as complex: density, technicality, differentiation and indeterminacy. But legislative complexity is not coincident with the legal system, because the latter consists not only of legislation but also of secondary rules, social customs, popular traditions and so on. Schuck (1992)

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[16] Many scholars agree that some kind of complexity of legislation is necessary. The problem is the optimal amount of complexity.

therefore defined legislative complexity referring to the legal system as a whole, not only to the primary source of legislation.

The ineffectiveness of the legal system has been considered a condition that promotes corruption in a more indirect way than we usually think about with regard to this problem (Herzfeld and Christoph, 2003, Jain, 2001). Legislative complexity, in consideration of the additional information required to understand which law would be applicable, represents another case of transaction costs in the economy with a negative spillover on welfare and growth (Spatt, 2012).[17] We assume that the upgrade costs of legislation and negative coordination externalities among laws are an increasing function of legislation in force at the same time in a country.[18] The legislative complexity is a source of ineffectiveness of the legal system by making the interpretation of the laws completed, difficult and time consuming. That ineffectiveness of the legal system can indirectly promote corruptive behaviours, to avoid the costs to be compliant with legislative prescription.

3.3 A COMPARATIVE ANALYSIS OF CORRUPTION AND LEGISLATIVE COMPLEXITY.

Under the assumption that politicians are rational agents who want to maximize their personal benefits (Aidt, 2003), this paper suggested that they can do that illegally by requesting or accepting bribes, and/or legally by means of legislative complexity. Corruption allows for the immediate appropriation of public rent, but if the illicit behavior of the politician is discovered, he can be convicted and sent to jail. Legislative complexity is a way to do unclear the law that discipline a case, so to make legal some

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[17] In particular, Spatt (2012) says: " ... much of the costs of regulation in my view are associated with its intricacies. It also is useful to recognize that complexity in regulation leads to huge entry barriers associated with the cost of regulatory compliance ... ".

[18] Regarding the business tax system, legislative complexity has been defined in three directions: technical, structural and compliance (see Ramalingam *et al*., 2008). See also Wright (2000) who warns about simplicity as the virtue of legislation. A different view is held by Professor Richard Epstein, who sees the complexity of legislation as a serious problem, so much so that his book is symptomatically entitled: Simple Rule for a Complex World (Epstein, 1997).

forms of public rent appropriation. Potential benefits and costs are greater in the case of corruption than in that of legislative complexity. Bribery gives immediate utility to it recipient, while legislative complexity is a precondition for the appropriation of a portion of public rent, both reducing social welfare. The potential cost to politician of corruption is much higher, because such an offense is punishable by imprisonment, unlike legislative complexity. An example of how the politician may extract rent from legislative complexity could be area of public procurement. The intricacy of legislation in the area of aid to banks and/or public provision, due to the rationale to avoid corruption and thus imposing a lot of controls and conditions, sometime is used to justify the drop of ordinary legislation, due to urgency to adopt the measure of political economy (e.g. as in the case of earthquakes, humanitarian interventions and serious financial crises, etc), and allot the aids to complaisant banks or firms of which the politician (or a figurehead) is a shareholder. State aid to the bank in crisis or the award of an important contract allow the politician to take advantage of the legislative complexities legally.

At the first stage of economic development there is no problem of legislative complexity because the power is held by a monarch or an oligarchy (*elite*), with no constraint due to public opinion evaluation or the risk of being convicted and imprisoned. As the social and economic systems evolve to a more modern organization, corruption becomes more costly, and politicians attempt to appropriate rent by means of legislation. In picture 1 below, we report on the horizontal axis the time and on the vertical axis the level of corruption and the legislative complexity.

[Figure 1, around here]

We assume that corruption level may be represented by an increasing concave curve, while the legislative complexity is an increasing convex curve. The time from one hand reinforce the democratic institutions and deter corruption, on the other hand

the accrual of legislation create increasing negative coordination externality due to legislative complexity.

In their research Joskow and Rose (1989, p. 4) define two main reasons for legislation: a) poor performance of unregulated markets; b) standard sources of market failures like monopolies, externalities, public goods and information failures. Legislative complexity, as an undesired by-product of lawmaking, has been neglected for a long time, although this problem reduces the effectiveness of the legislation and, because of information asymmetries between politicians and private agents, constitutes a premise for a legal, but unfair, form of rent-seeking activity.

Herzfeld and Weiss (2003), in an interesting empirical analysis conducted on a cross-countries data set, found a strong significant inter-relationship between legal (in)effectiveness and various measures of corruption. Legislative complexity may be considered a good example of legal (in)effectiveness, that helps to feed and perpetuate corruption in a legitimate way. It may lead to the creation of artificial barriers to the exercise of economic activities that allow a few people, essentially politicians and bureaucrats, to benefit from the annuity to the detriment of a larger public (private agents).

In a way perfectly mirrored in Mauro's (1995, p. 681) research on corruption, we may assume that legislative complexity reduces economic growth and social welfare, and creates conditions to increase corruption through two possible channels. Firstly, it tends to make people willing to pay bribes to avoid legal uncertainty and bureaucratic delay. Secondly, politicians who know how to solve the problem created by legislative complexity and who are allowed to levy bribes tend to work harder, especially in the case where bribes are paid at a piece rate. While the first mechanism would increase the likelihood that corruption may take place in all stages of growth of economies, the second mechanism is typical of more developed countries with a long

legislative history. A good example of the effects of legislative complexity and political corruption may be represented by the sector of public procurement (Locatelli et al., 2016). The Italian legislation consider a lot of procedural warranties to prevent and punish corruption. But politician to by pass these stringent fulfillment create the condition to apply emergency laws and adjudicate the public work to whom pay bribes.[19]

The basic insight is that legislative complexity acts in a similar way to corruption, increases the social costs of economic policy due to negative law coordination externalities; corruption increases the social costs of economic policy due to bribes. Finally, legislative complexity, like corruption, reduces private investment because it creates uncertainty about the legislation to be applied.

In this research we assume that legislative complexity is not, as was long believed, a random or insignificant phenomenon, but a way to create areas of legislative uncertainty, to allow politicians to extract rents from their parliamentary activity without incurring the risk of being convicted and condemned. Like corruption, it represents a hidden channel to redistribute income in favour of politicians.

Regarding the effects of legislative complexity on growth, we may assume it acts like a negative externality, diverting scant resources from private consumption and production aims, in favour of politicians (regulators). The social costs associated with legislative complexity are an increasing function of the years of existence of the liberal democracy and law production; a mature age creates problems of stratification, overlapping and misinterpretation of legislation.

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[19] Despite the scandal, the Italian legislators apparently failed to prevent the problem of corruption. For instance, the reform of the law about public work contracts about the Italian building process following *Tangentopoli* (Bologna and Del Nord, 2000) had little effect. "After Tangentopoli the Italian legislation has not implemented mechanisms to combat the problem of corruption, but sometimes, has favoured its diffusion". These words come from Raffaele Cantone, the current President of Italian National Anti-Corruption Authority (*Il fatto quotidiano* 12.15.2014).

In the theoretical framework, we assume that the rate of misappropriation of public resources depends positively on the degree of presence of the State in the economy, given by the flat direct tax on income, that constitutes at the same time the opportunity for bribing and the size of the rent potentially under the control of politicians. High level of per capita income reduces the opportunity to be corrupted, as proved by empirical literature, because more wealthy peoples are less prone to criminal behaviour (Treisman, 2000). Legislative complexity promotes corruption because opacity and ambiguity of the law due to stratification and increasing negative coordination externalities make the appropriation of public rent easier, by increasing the level of discretion of politicians. Finally, the likelihood of politicians being detected, arrested and put in jail reduces the level of corruption and, in general, the rate of misappropriation of public funds. Such assumptions on the rate of misappropriation of public rent satisfy the suggestions of the World Bank (1997). [20]

4. THE MODEL

In this section a dynamic model of a closed economy that considers political corruption and legislative complexity jointly is developed, to highlight public rent appropriation and the redistributive effects of both. Two kinds of agents are considered: private (consumers and entrepreneurs) and politicians. The politicians have access to more information about the legislation, that they may use to extract public rent without fear of criminal responsibility as in the case of corruption.

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[20] Regarding the impact of legislative complexity on corruption, the World Bank affirms that: " ... Monopoly rents can be large in highly regulated economies and, as noted above, corruption breeds demand for more regulation. In transition economies economic rents can be enormous because of the amount of formerly state-owned property essentially "up for grabs." The discretion of many public officials may also be large in developing and transition economies, exacerbated by poorly defined, ever-changing, and inadequately disseminated rules and regulations ... " (World Bank, 1997).

The model were built departing from the utility functions of both kinds of agent. A welfare function is considered as the sum of utilities of private agents and politicians. The aggregate output is realized using a standard Cobb-Douglas production function that, without sources of market failure, shows constant returns to scale. In the presence of one of more causes of macroeconomic market failure, are considered two different kinds of economic policy measures, fiscal policy and legislation, making a comparative analysis between them. Both kinds of economic policies are formalized and accounted for in the Hamiltonian function. The redistributive effects of political corruption and legislative complexity are addressed in a static and dynamic framework, considering their impacts within the current generation, and among current and future generations. Although the variables depend on the time, the term t from the functions have been suppressed to render the formal analysis more simple.

4.1 UTILITY FUNCTIONS AND WELFARE.

It is assumed that politicians are self-interested (Aidt, 2003) and use primary legislation as a device to increase their personal gain. An internal assumption of the model is that primary legislation is self-executive and needs no bureaucratic activity to be implemented.[21]

To simplify the analysis, two classes of economic agents are considered. The first constitute the private consumers: they are employed in the private sector w and may be indifferently entrepreneurs or employees. The second are the politicians q that demand for political consumption, under the assumption $w + q = 1$.[22]

In consideration of the existence of two classes of agents are tackle two standard constant intertemporal iso-elastic elasticity utility functions. The first function is relative

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[21] This assumption will be relaxed in a further study that accounts also for secondary legislation and bureaucracy. Otherwise we have to consider also secondary legislation that is the instrument used by bureaucrats to maximize their utility by appropriation of public rent.

[22] The condition that in each point of time the growth rate of the population is equal to zero (ie, the number of births is equal to the number of deaths) helps to simplify the analysis. A growing population assumption can easily be introduced in the model.

to people employed in the private sector *w* for which the utility depends on the flow of private consumption (see Barro, 1990).

[1] $u_w = \dfrac{C^{1-\varepsilon} - 1}{1 - \varepsilon},$

where the elasticity of marginal utility of private consumption C is constant and equal to -ε.

The utility function of the politician *q* depends on the flow of political consumption B.

[2] $u_q = \dfrac{B^{1-\eta} - 1}{1 - \eta}.$

Here -η is the elasticity of the marginal utility of B that may be greater than, equal to or lower than -ε.[23] This assumption is crucial to investigate the effects on welfare of a redistribution of income from consumers to politicians.

In an infinite time-horizon, the welfare function that the social planner want to maximize is

[3] $W = \int_0^\infty u_w(C)we^{-\delta t}dt + \int_0^\infty u_q(B)(1-w)e^{-\delta t}dt.$

Where δ > 0 is the exogenous discount rate.

4.2. TECHNOLOGY. To address technology, a standard Cobb-Douglas production function is assumed, with constant returns to scale. Without sources of market failure the production function is

[4] $Y = K^\alpha w^\beta$, where (α, β) > 0, and α + β =1,

where Y is the total product, K is the physical capital and w is the labor force devoted to the production sector. In the presence of macroeconomic market failure the economic policy of government can take two forms. First, public expenditure G

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[23] This is an assumption that simplifies the analysis, but it is not a necessary condition to derive the results of the model.

financed with direct taxation τY, where τ is the income taxation rate satisfying the condition that $0 \quad \tau < 1$, when the State provides public and non-rival services or products that cannot be supplied by firms, and increases the productivity of private input, like labor and physical capital. Secondly, the State may introduce changes in legislation to correct macroeconomic market failures, due to misspecification of property rights, negative externalities and public goods, that are all sources of market inefficiencies and may be corrected by a change in legislation. In the production function, we assume that taxation always has a positive effect on Y (Barro, 1990). Legislation can be useful to correct the macroeconomic externalities, but from a certain point of time, legislative uncertainty (caused by the proliferation, overlapping in time, and accrual of laws) can do that the social external costs of legislation become greater than the social external benefits. In the latter case, legislative complexity becomes an obstacle to economic growth. These considerations may be useful to explain why public expenditure and legislation are enter in the production function in a different way.[24]

Following Barro (1990) and Ventelou (2002) it is assumed a broad concept of capital that includes both physical and human capital. Public expenditure G is included in the production function as an input, such that Y shows constant returns to scale in the G/K ratio, and decreasing returns to scale in K alone. Under the previous assumptions, including the existence of one of more sources of macroeconomic market failure, the production function is

[5] $$Y = K^{\alpha} w^{\beta} L^{\gamma} Z^{-\rho} \left(\frac{G}{K} \right)^{\psi},$$

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[24] In between these two extremes of the ways of intervention in the economy: taxes versus legislation, in which government intervention in the economy can be achieved either by taxation and subsequent public spending (for example pure public good provision), or through changing economic incentives through legislative changes (for example transforming common goods into private), there are a number of cases in which the choice is purely discretionary and depends on the social preferences and decisions of policy makers (for example the pension system, telecommunications, health care, instruction, etc.).

where the aggregate production is a function of the physical capital endowment K, the labour force *w* employed in private sector, L is the flow of new legislation, and Z is the flow of negative coordination externalities due to legislative complexity.

[6] $Z = \varpi L^{\pi}$, where $(\varpi, \pi) > 0$.

It is assumed that the positive contribution of legislation to production outweighs its negative contribution in the form of increased legislative complexity, which is equivalent to assuming that $\gamma > \pi\rho$. Here ϖ 1 is a parameter representing the impact of L^{π} on Z, and π is another parameter that measures the social costs of negative coordination externalities due to legislation accruing, stratification and legislative production over-activity.

The physical capital satisfies the following equation:

[7] $\dot{K} = Y - C - B$, where $C(0) = C_0$

Eq. [7] is a constraint which considers the change of physical capital over time. To make the analysis simple, it is assumed that there is no depreciation in K. Aggregate consumption is denoted by $C = cY$, with $0 < c$ 1. Aggregate saving is $S = sY = \dot{K}$, where $0 < s$ 1, and $s = (1-c)$.

4.3 THE PUBLIC SECTOR.

Modern political economy recognizes at least three forms of intervention in the economy: income redistribution, macro-economic stabilization and regulation (Majone 1997). The regulatory state is an institutional specialization in one of these functions (Caporaso, 1996, Thatcher, 2002). The main characteristics of regulatory policy center on the control of market failures, including negative externalities, co-ordination failures and the undersupply of public goods (Majone, 1997). However, no real political entity can completely avoid some activity in all three areas (Caporaso *et al*., 2015).

It is possible to consider the public economy as a sector of the economy, and regulatory complexity as a device to divert income from the private to the public sector, in a legal way, but changing the distribution of income from private agents to politicians. This income redistribution, in order not to be clearly perceived by public opinion, may assume the form of hidden actions that are fostered by legislative complexity.

In the presence of some sources of macroeconomic market failure, the policy maker may adopt different policies like fiscal measures to cover public expenditure or change the institutional setting by introducing new legislation. In some cases, the choice is mandatory (for example in the case of a registry office, etc.), or in defining property rights, but there are many areas where the kind of economic policy measure to adopt (fiscal or legislative/institutional) depends on the political preferences and the economic role assigned to the State.

4.3.1. FISCAL POLICY.

The public budgetary constraint (for a zero public deficit) is

[8] $\tau Y = G = B + D$

where B is the political consumption that depends on the flat tax rate, the GDP and the rate of public rent appropriation E, while D is public expenditure.

[9] $B = E\tau Y$

The rate of misappropriation (or public resource dissipation) that satisfies the previous theoretical assumptions is

[10] $E = f(\underset{+}{\tau}, \underset{-}{Y}, \underset{+}{Z}, \underset{-}{\varphi}) = \dfrac{\sigma\pi}{\theta\varphi}$, with σ, π, θ and $\varphi \le 1$

where σ accounts for the effects of the tax rate on the rate of misappropriation, π accounts for the social costs of negative coordination externalities due to legislative complexity, θ measures how E varies with a change in the GDP, and, finally, φ is a

parameter accounting for the probability for a corrupted politician to be condemned to jail if discovered taking bribes. The subscripts express the algebraic sign of the first partial derivatives.

This functional form of the misappropriation rate satisfies the assumptions that E is increasing in the level τ, such that $\partial E/\partial \tau > 0$ ($\tau = G/Y$), decreasing in the level of income $\partial E/\partial Y > 0$, and declining in the probability of politician being discovered to be corrupted and convicted in jail $\partial E/\partial \varphi < 0$.

4.3.2. LEGISLATIVE MEASURES.

Legislative production is considered as a way to account for macroeconomic market failures, that do not need public provision of goods and services by the State. The economic system is itself a complex system that interacts with all the aspects of life, that may evolves to inefficiency, without the adoption of economic policy measures. The flow of legislation issued by self-interested politicians on one hand is helpful to address the new needs of society, due to changes in technology, preferences, social customs and so on, while on the other hand it raises the level of negative coordination externalities among legislation issued in previous years. Utiliy function of politicians depend positively on legislative complexity (this is evident substituting [9] in [2]); the latter can be used as a device for public rent appropriation, and may be either an alternative to or a complement of corruption. Although the problems of coordination externality have initially been introduced in a microeconomic framework, its negative effects have been well investigated in a macroeconomic framework in the study of Cooper and Jones (1998), on employment and economic growth. In our theoretical framework, the social costs due to negative coordination externalities in the legislation production have a flow dimension Z, that continuously increases in legislation over

time.[25] We assume that self-interested politicians issue more and more legislation to create artificial barriers to entry in the market, leaving room for their rent-seeking activity.[26]

The motion equation of the legislative stock R is

[11] $\dot{R} = (q\mu - \vartheta)L$, where $L(0) = L_0$ and $\mu, \vartheta > 0$.

Here q are the politicians, $\mu > 0$ is a parameter that accounts for political productivity in legislative production and represents the positive effects of legislation due to the internalization of macroeconomic causes of market failures and $\vartheta > 0$ is the rate of repeal of laws.[27] This means that $q\mu$ is the rate at which the stock of legislation would grow if there were not the rate of legislation repeal ϑ.

In this theoretical framework it is assumed that the repeal of laws reduces the stock of legislation and the effects of the flow of negative coordination externalities.

The function to be maximized is [3] subject to [4] – [11]. Assuming $Z = \varpi L^\pi$, the current-value Hamiltonian H is

[12] $$H = \frac{C^{1-\varepsilon} - 1}{1-\varepsilon} + \frac{B^{1-\eta} - 1}{1-\eta} + \lambda_1 \left\{ \left(K^\alpha w^\beta L^{\gamma - \pi\rho} \varpi^{-\rho} \right) \left(\frac{G}{K} \right)^\psi - C - B - D \right\} + \lambda_2 \left[(1-w)\mu - \vartheta \right] L,$$

λ_i with i = 1, 2, denote the current value of shadow prices of stock variables.

[25] For the concept of dynamic externalities see Boldrin (1992), Datta and Mirman (2000), Partridge and Rickman (1999). Datta and Mirman (2000) have shown that policy coordination is not needed when preferences are the same among the agents involved in trade.

[26] Under our theoretical assumptions for which politicians are self-interested people attempting to maximize their utility, performing rent-seeking activity which takes the form of legislative complexity to justify the proliferation of commissions, institutions, and, more in general, new and better remunerated public appointments, these activities may be alternatives to and/or complements of corruption.

[27] From the standard initial conditions of all the stock variables, at each point in time their values depend on the time spent since the time t=0, and the law motion for each state variable. This mathematical framework allows us to capture the feature of the economic system that will have a greater stock of legislation, and therefore of legislative complexity, depending on the number of years since the introduction of liberal democracy as a form of government.

To simplify the exposition, the first order conditions, together with transversality conditions, are reported in Appendix A.[28]

5. STATIC ANALYSIS OF ECONOMIC POLICY MEASURES. Using the first order conditions, the instantaneous relationships among the variables considered is investigate, before studying their dynamics in the next section.

5.1 CORRUPTION AND LEGISLATIVE COMPLEXITY. The first problem investigated is how the aggregate production level is influenced by a change in the probability of detecting corruption in politicians and the consequences of a reduction in the negative coordination externality due to legislative complexity. To analyze the first issue, we consider equations [A.1] and [A.2] jointly, to eliminate λ_1, obtaining

[13] $$(cY)^{-\varepsilon} = \left(\tau Y \frac{\sigma\pi}{\theta\varphi}\right)^{-\eta},$$

putting in evidence Y, we find

[14] $$Y^* = \left[(\tau\sigma\pi)^{-\eta}(\theta\varphi)^{\eta}c^{\varepsilon}\right]^{\frac{\varepsilon}{\eta}}.$$

that is the reduced form of Y. [14] satisfies conditions that $\partial Y^*/\partial\varepsilon > 0$, and $\partial Y^*/\partial\eta < 0$. Taking the partial derivative of Y^*, with respect to φ and π, the result are

[15] $$\frac{\partial Y^*}{\partial\varphi} = \frac{\varepsilon}{\varphi}c^{\frac{\varepsilon^2}{\eta}}\left(\frac{\pi}{\theta\varphi}\tau\sigma\right)^{-\varepsilon}.$$

For $\partial Y^*/\partial\varphi > 0$, a change in the probability that a politician will be discovered taking bribes always has a positive effect on the production level because it deters corruption. Using the partial derivative of Y^* with respect to π, it is possible to understand the effects of a change in the level of the negative coordination externality due to legislative complexity over Y,

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[28] The proof that our model exhibits a saddle point equilibrium is available, upon request, from the author.

$$[16] \quad \frac{\partial Y^*}{\partial \pi} = -\frac{\varepsilon}{\pi} c^{\frac{\varepsilon^2}{\eta}} \left(\frac{\pi}{\theta\varphi} \tau\sigma \right)^{-\varepsilon},$$

Such that $\partial Y^*/\partial \pi < 0$. In the instantaneous equilibrium there is an inverse relationship between Y and the negative coordination externality due to legislative complexity. In quantitative terms, the difference between [15] and [16] is represented, in absolute terms, by π and φ. As long as they maximize their rate of misappropriation of public consumption, politicians are indifferent whether they use bribes or legislative complexity: when $\varphi = \pi$, for $\varphi > \pi$ legislative complexity will be preferred, and for $\pi > \varphi$ accepting bribes will be chosen, because the probability of detecting corrupt politicians is low.

The economic meaning of the condition $\varphi = \pi$ is that in each point of the stationary growth path, the costs of negative externality of coordination due to legislative complexity should be the same as the probability of discovering a corrupted politician.

Now to investigate the relationship between legislative complexity and corruption, we find the optimal level of negative coordination externality of legislative complexity π^*

$$[17] \quad \pi^* = c^{\frac{\varepsilon}{\eta}} \theta\varphi \frac{Y^{\frac{\varepsilon-\eta}{\eta}}}{\sigma\tau},$$

From which

$$[18] \quad \frac{\partial \pi^*}{\partial \varphi} = c^{\frac{\varepsilon}{\eta}} \theta \frac{Y^{\frac{\varepsilon-\eta}{\eta}}}{\sigma\tau} > 0,$$

this means that the two channels accounting for appropriation of public rent are complementary, and that corruption flourishes in the presence of legislative complexity and vice versa.

To investigate the relationships between legislative complexity, corruption and taxation the first partial derivative of $\pi*$ with respect to σ is calculated, obtaining

$$[19] \qquad \frac{\partial \pi*}{\partial \sigma} = -c^{\frac{\varepsilon}{\eta}} \theta \varphi \frac{Y^{\frac{\varepsilon - \eta}{\eta}}}{\sigma^2 \tau} < 0,$$

and then the second mixed partial derivatives of $\pi*$ with respect to φ

$$[20] \qquad \frac{\partial^2 \pi*}{\partial \varphi \partial \sigma} = -c^{\frac{\varepsilon}{\eta}} \theta \frac{Y^{\frac{\varepsilon - \eta}{\eta}}}{\sigma^2 \tau} < 0.$$

[19] and [20] prove that legislative complexity and taxation are two different channels alternative to one another to that politician can use to extract public rent. The likelihood of being discovered if corrupted and the tax rate are alternatives, this implies that corruption and taxes are complementary (Shleifer and Vishny, 1993).[29]

5.2 FISCAL POLICIES VERSUS LEGISLATIVE CHANGES.

As stated previously, the policy maker, in the presence of a macroeconomic source of market failure, uses taxation or legislation to modify the market allocation. To make a comparison between these two kinds of economic policy, we use [A1], [A3] and considering that $Z = FL^\pi$, we obtain

$$[21] \qquad Y = \sqrt[1-\varepsilon]{\frac{\mu \lambda_2 L w \tau^\varepsilon}{\beta \left(\frac{\sigma \pi}{\theta \varphi} \right)^{-\varepsilon}}},$$

Holding λ_2 unaltered and calculating the partial derivative of Y, with respect to the flow of legislation and the rate of taxation, we obtain

$$[22] \qquad \frac{\partial Y}{\partial L} = \frac{\mu \lambda_2 L \frac{w}{\beta} \left[(\frac{\theta \varphi}{\tau \sigma \theta})^{1\eta} \right]^{\frac{1}{1-\eta}}}{(1-\eta)} \frac{1}{L},$$

and

---

[29] Note that the likelihood of being corrupted is, in statistical meaning, the complement of φ, and is equal to $(1-\varphi)$.

$$[23] \quad \frac{\partial Y}{\partial \tau} = \frac{\mu \lambda_2 L \frac{w}{\beta} \left[(\frac{\theta \varphi}{\tau \sigma \theta})^{1\eta} \right]^{\frac{1}{1-\eta}}}{(1-\eta)} \frac{\tau}{\varepsilon}.$$

It is worth mentioning that the two partial derivatives differ only in the final part. Although both have a positive effect on Y (for $\eta < 1$), their magnitude depends on legislation by the ratio 1/L, that means that the smaller the amount of legislation, the greater the marginal effects of new laws. The marginal effect of the taxation rate on Y is weighted by the elasticity of marginal utility of private consumption. This means that for $\tau/\varepsilon > 1/L$, $\partial Y/\partial \tau > \partial Y/\partial L$, such that under that condition it is better to use taxation as an instrument of economic policy, while for $1/L > \tau/\varepsilon$, $\partial Y/\partial L > \partial Y/\partial \tau$, so it is better to use legislation measures.

To understand the relationship between taxation and legislation in the aggregate production function, we may calculate the second partial derivative of Y, with respect to τ and L, to obtain

$$[24] \quad \frac{\partial^2 Y}{\partial \tau \partial L} = \frac{\mu \lambda_2 L \frac{w}{\beta} \left[(\frac{\theta \varphi}{\tau \sigma \theta})^{-\eta} \right]^{\frac{1}{1-\eta}}}{(1-\eta)^2 L} \frac{\eta}{\tau}.$$

[24] is always positive and this means that the two most important instruments in the hands of the policy maker are complements of each other. Both kinds of measure should be used in cases of macroeconomic market failures; the question is what their optimal combination is.

5.3 REDISTRIBUTIVE EFFECTS OF LEGISLATIVE PRODUCTION.

From equations [A1] and [A2], it is necessary that along the balanced stationary growth path should be satisfied the following condition

$$[25] \quad B^{-\eta} - C^{-\varepsilon} = 0,$$

This means that an increase in the consumption of the politicians implies a reduction in the consumption of private agents and vice versa.

To account for the effects of legislative complexity on C, we may put in evidence B, and using equations [25], [1], and [10], that define the rate of public resources misappropriation, we calculate the partial derivative with respect to Z

[26] $\qquad \dfrac{\partial C}{\partial Z} = -\dfrac{(\tau YE)^{\frac{\eta}{\varepsilon}}}{K}\dfrac{\eta\rho}{\varepsilon Z} < 0.$

This means that private consumption decreases with the flow of negative externalities due to legislative complexity. To account for the total effects of legislation on private consumption we may substitute [6] for Z in the production function, and partially differentiate for L

[27] $\qquad \dfrac{\partial C}{\partial L} = \dfrac{(\tau YE)^{\frac{\eta}{\varepsilon}}}{K}\dfrac{\eta(\gamma - \rho\pi)}{\varepsilon L}.$

This partial derivative may be greater than, equal to or lower than zero, in consideration of the values that $(\gamma - \rho\pi)$ assumes. For $(\gamma - \rho\pi) > 0$ the marginal benefits of new legislation are greater than the marginal costs (due to negative coordination externalities), so there is room for new laws to increase private consumption. An equilibrium is achieved when $(\gamma - \rho\pi) = 0$, such that the marginal costs and marginal benefits of new legislation are perfectly balanced. Finally, for $(\gamma - \rho\pi) < 0$ the marginal external costs of legislative complexity are greater than the marginal benefit, such that further laws will reduce private consumption.

The other channel that politicians may use to increase their rent is the flat rate on income tax. Using [26] to calculate the second partial derivative of C with respect to τ, the result is

[28] $\qquad \dfrac{\partial^2 C}{\partial Z \partial \tau} = -(\tau YE)^{\frac{\eta}{\varepsilon}}\dfrac{\eta^2\rho}{\varepsilon^2 \tau K Z}.$

Using [28] and [25] it is possible to affirm that in an instantaneous equilibrium an increase of flat rate income tax reduces private consumption, diverting consumption in favor of politicians.

6. DYNAMIC ANALYSIS.

Moving from a static to a dynamic analysis, the emphasis is placed on the balanced stationary growth path.[30]

6.1 THE STATIONARY GROWTH PATH. Deriving logarithmically the equation of production [5] with respect to time, after substituting [6] for Z, we obtain:

[29] $g_Y = \alpha g_K + (\gamma - \pi\rho)g_L + \psi(g_G - g_K)$

simplifying

[30] $g_Y = g_K(\alpha - \psi) + (\gamma - \pi\rho)g_L + \psi g_G$

This means that in long run equilibrium the growth rate of income will be equal to αg_K, if the sources of macroeconomic market failures are perfectly internalized, (i.e. $\gamma - \pi\rho = 0$, and $g_K = g_G$), bearing in mind that in the steady state the growth rate of public expenditure is equal to that of capital.

The worst situation occurs when the costs of negative externality of legislative complexity are greater than the benefits ($\gamma < \pi\rho$) and the growth rate of public expenditure is higher than the physical capital ($g_K < g_G$).

To calculate the reduced form of the growth rate of the economy, the equation [A3] is derived logarithmically to eliminate g_L, using [30], and considering that along the stationary growth path $g_G = \tau$ and $\alpha g_K = g_Y$ the result is

[31] $g_Y^* = \dfrac{(\gamma - \pi\rho)[(q\mu - \delta - \vartheta) - \delta] + \psi\tau}{1 - [\alpha - \psi - (\gamma - \pi\rho)(1 - \varepsilon)]}$

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[30] The analysis of transitional dynamics of the model and the possible existence of multiple equilibria will be addressed in a companion paper.

the equation [31] expresses the growth rate of the GDP in terms of parameters. We may observe that the growth rate of the economy is positive iff $(\gamma - \pi\rho) > 0$, or rather when the benefits of new legislation are greater than the external costs due to legislative complexity. This result confirms that the excess of legislation not only decreases aggregate production, but also has a negative impact on the growth rate of the economy.

6.2 DYNAMICS OF CORRUPTION AND LEGISLATIVE COMPLEXITY.

To address the impact of a corruption change on the growth rate of the economy along the stationary growth path, it is possible to use [10] and substitute for π, calculating the partial derivative of the g_Y^* with respect to the rate of misappropriation E

$$[32] \qquad \frac{\partial g_Y^*}{\partial E} = -\frac{\theta\varphi\rho(q\mu - \delta - \vartheta)\sigma(1 - \alpha + \psi) + \psi\tau}{[\sigma(1 - \alpha + \psi - \gamma + \gamma\varepsilon) + E\theta\varphi\rho(1 - \varepsilon)]^2},$$

this simple analysis immediately shows that an increase in E reduces the optimal growth rate. The effect of a change in legislative complexity is the same as in the case of E, as it is evident taking the partial derivative of g_Y^* with respect to π

$$[33] \qquad \frac{\partial g_Y^*}{\partial \pi} = -\frac{\rho(q\mu - \delta - \vartheta)(1 - \alpha + \psi) + \psi\tau}{[\sigma(1 - \alpha + \psi - \gamma + \gamma\varepsilon) + \pi\rho(1 - \varepsilon)]^2}.$$

Previous results confirm that also along the optimal growth path, corruption and legislative complexity constitute a burden on the growth of the economy.

6.3 THE LONG-RUN RELATIONSHIP BETWEEN FISCAL POLICY AND LEGISLATIVE COMPLEXITY.

The growth rate of the economy is increasing in the flat rate of income tax, a result that this model shares with other theoretical frameworks in consideration of the assumed positive externality of public expenditure (Barro, 1990). To perform a formal analysis of this result, it is investigated how g_Y^* varies as a consequence of a change in τ,

[34] $\quad \dfrac{\partial g_Y^*}{\partial \tau} = \dfrac{\psi}{1 - [\alpha - \psi - (\gamma - \pi\rho)(1 - \varepsilon)]}.$

The magnitude of the impact of a change in the taxation level on the growth rate depends on the value of the parameter ψ, measuring the incidence of the public sector (given by the ratio G/Y) in the aggregate production function (Barro, 1990). To complete the analysis on the impact of the public sector of the economy on the growth rate, taking the partial derivative of g_Y^* with respect to ψ

[35] $\quad \dfrac{\partial g_Y^*}{\partial \psi} = \dfrac{\tau(1 - \alpha - \gamma + \gamma\varepsilon + \pi\rho - \pi\rho\varepsilon) - (\gamma - \pi\rho)[(q\mu - \delta - \vartheta)]}{\{1 - [\alpha - \psi - (\gamma - \pi\rho)(1 - \varepsilon)]\}^2}.$

This result is due to the assumption that the public sector of the economy generates positive externalities (Barro, 1990). This is not in contrast with the outcomes obtained regarding legislative complexity, for which excessive legislation, after some threshold level, creates negative macroeconomic costs; this is because the negative coordination externalities caused by legislative complexity are greater than the benefits of new legislation.

6.4 GROWTH AND INTERTEMPORAL REDISTRIBUTIVE EFFECTS OF LEGISLATIVE COMPLEXITY.

To evaluate the dynamic redistributive effects of taxation, legislative complexity and corruption between the two categories of consumers, we depart from [A.12], using [A.8], to eliminate the growth rate of λ_1, from which

[36] $\quad \dot{C} = \left(\alpha\dfrac{Y}{K} - \delta\right)\dfrac{C}{\varepsilon}.$

For the public consumption of politicians B we can do the same

[37] $\quad \dot{B} = \left(\alpha\dfrac{Y}{K} - \delta\right)\dfrac{J}{\mu}$

Using [A.1] and [A.2] jointly, we obtain

[38] $B^{-\eta} = C^{-\varepsilon}$

from which

[39] $B = \sqrt[-\eta]{C^{-\varepsilon}} = C^{\frac{\eta}{\varepsilon}}$

and

[40] $C = \sqrt[-\varepsilon]{B^{-\eta}} = B^{\frac{\varepsilon}{\eta}}$.

Letting the total consumption of the economy be C_T

[41] $C_T = C + B = 1$

that it is possible to rewrite as

[42] $B = 1 - C^{\frac{\eta}{\varepsilon}}$,

or

[43] $C = 1 - B^{\frac{\varepsilon}{\eta}}$.

Substituting for C the equation [43] in [36] the result is:

[44] $\dot{C} = \left(\alpha \frac{Y}{K} - \delta \right) \dfrac{1 - B^{\frac{\varepsilon}{\eta}}}{\varepsilon}$,

taking the partial derivative

[45] $\dfrac{\partial \dot{C}}{\partial B} = -\dfrac{\alpha Y + \delta K}{K} \dfrac{B^{\frac{\varepsilon - \eta}{\eta}}}{\eta} < 0.$

This means that political consumption reduces the flow of private consumption, along the optimal stationary growth path.

To confirm the previous result, in the analysis are also accounted the effects of a change in the parameter σ, considering the impact of the flat tax rate on private consumption.

$$[46] \quad \frac{\partial \dot{C}}{\partial \sigma} = -\frac{\alpha Y + \delta K}{K} \frac{\left(\tau Y \sigma \dfrac{Z}{\theta \varphi}\right)^{\frac{\varepsilon}{\eta}}}{\eta \sigma} < 0.$$

Also in this case the relationship possesses a negative algebraic sign: an increase in the flat tax rate reduces private consumption. Finally, we investigate how the flow of consumption is influenced by a change in the probability that a politician will be discovered accepting bribes.

$$[47] \quad \frac{\partial \dot{C}}{\partial \varphi} = \frac{\alpha Y - \delta K}{K} \frac{\left(\tau Y \sigma \dfrac{Z}{\theta \varphi}\right)^{\frac{\varepsilon}{\eta}}}{\eta \varphi} > 0.$$

The effects of a change in φ on $\dot{C}$ are positive, because an increase in the probability that a politician will be discovered accepting bribes reduces the value of the rate of misappropriation of public rent.

7. ECONOMETRIC ANALYSIS.

To verify empirically the theoretical findings of the model, now it is performed the econometric analysis, departing from the description of the dataset, making a preliminary analysis of data, reporting and commenting on the results of the regressions.

7.1 DATASET. The analysis covers the time span from 1995 to 2015. A sample of sixty-seven countries, for which the variables of interest are available, was considered thirty-six of these countries are developed and thirty-one underdeveloped (or emergent) along the classification of World Development Indicator published by the World Bank (WDI, 2016).

TABLE 1
LIST OF COUNTRIES DIVIDED BY PER CAPITA INCOME

DEVELOPED COUNTRIES	DEVELOPING COUNTRIES

| Australia, Austria, Belgium*, Canada, Chile*, Croatia*, Cyprus*, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Israel*, Italy, Japan, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Slovakia*, Slovenia*, South Korea*, Spain, Sweden, Switzerland, Thailand, United Kingdom, United States, Uruguay. | Afghanistan**, Albania*, Argentina, Armenia, Azerbaijan, Bangladesh**, Bolivia*, Bosnia and Herzegovina*, Brasil, Bulgaria*, China*, Colombia, Hungary*, Iran*, India*, Indonesia*, Kazakhstan*, Kosovo*, Macedonia*, Malta*, Messico*, Moldova*, Pakistan*, Peru*, Philippines*, Romania*, Serbia and Montenegro*, Sri Lanka, Tunisia*, Turkey, Venezuela*. |

Symbol captation: *Low income economies. * Countries with a value of international indicator of legislative complexity (IILC, calculated at 2015), below the average of the sample.

7.2 DEFINITION OF VARIABLES AND PRELIMINARY ANALYSIS OF DATA.

To investigate the problem of legislative complexity in a quantitative manner in order to derive an indicator that was comparable among countries with different social customs, histories and legal families, the analysis depart from theoretical assumption that legislative complexity is function of number of years passed since the introduction of liberal democracy like form of government (calculated at 2015). We denominate this proxy of legislative complexity: International Indicator of Legislative Complexity (in short *iilc*). Liberal democracy assumes legislation to be at the centre of power (because laws are the main form of intervention of the state in the economy), so that older is the introduction of this form of government, higher will be the level of legislative complexity due to the stratification, overlapping and coordination difficulties among laws passed at different point of time. Among the sixty-seven countries considered, thirty-two exhibits a value of *iilc* lower than the average value calculated at 2015, like reported in Table 1. Twenty-four countries with an *iilc* below the average value, are developing, while eight developed countries possess an average value of *iilc* lower than the average for all the countries considered. This means, in accordance with our theoretical assumption, that in such countries corruption and legislative complexity

grow together (i.e. are complements).[31] Moreover, to consider legislative complexity in a different way a dummy variable is considered that assumes the value 1 if the country has a legislative process characterized by bicameralism, and 0 if the parliament constitutes of only one chamber (*bicameralism*).[32] Parliamentary bicameralism guarantees the democracy of the legislative process, but slows down legislative activity, making it longer and more complicated. Moreover, to address legislative complexity in a different way we consider the number of parliamentarians that are members of the national parliament in each country (*parliament*), assuming that the higher the number of members of parliament, the greater will be the value of *iilc*, because a high number of members raises the negative coordination externalities among legislators. Another indicator of legislative complexity is the ease of doing business index (*edbi*), which ranks economies from 1 to 190, with first place being the best. A high ranking (a low numerical score) means that the regulatory environment is conducive to business operation (WDI, 2015). Finally, another proxy of legislative complexity is the time to enforcing contracts (*trec*) (another indicator provided by World Bank, WDI, 2015), that measures the time and cost for resolving a commercial dispute through a local first-instance court. It is also an index of the quality of judicial processes, evaluating whether, each economy, has adopted a series of good practices to promote quality and efficiency in the court system. The time required to enforce a contract is the number of calendar days from the filing of a lawsuit in court until the final determination and, in appropriate cases, payment.

To account for bribery it was used the Corruption Perception Index (*cpi*) that was created in 1995 by Transparency International (Transparency International, 2016). It

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[31] Mauro (1995, p. 687), found that " … richer countries tend to have better institutions than poorer countries, and that fast-growers also tend to be among the countries with a higher bureaucratic efficiency index".

[32] It is useful to report that Tunisia until 2002 had a legislative process characterized by monocameralism, whereas now there are two chambers. So this country is considered among those with a bicameral legislative process.

actually ranks almost 200 countries on a scale of 10 to 0, with ten indicating low levels of corruption and zero high levels of corruption. Developed countries typically rank higher than developing economies due to stronger regulations. Another measure of corruption is the indicator of absence of corruption (*rliac*), like measured by World Justice Project's research team (World Justice Report, 2015), that assume value one in countries free of corruption and value zero in countries where bribering is pervasive. A more indirect indicator of corruption is the Rule of the Law index, like measured by World Justice Project's research team (World Justice Report, 2015), that uses a definition of the rule of law based on four universal principles, derived from internationally accepted standards. The Rule of Law Index measures adherence to the rule of law by looking at policy outcomes (such as whether people have access to courts or whether crime is effectively controlled). This stands in contrast to efforts that focus on the laws on the books, or the institutional means by which a society may seek to achieve these policy outcomes, like Rule of Law Absence of Corruption Index, it may assume values enclosed in a range from one to and zero, where values one indicate absence of corruption.

Following the seminal papers by Barro (1991) and Mauro (1995), what are the authors of two pioneering papers on the effects of corruption on the growth rate of the economy, the per Capita Income Growth Rate (*GDPpcgrowth*) was enclosed among the dependent variables explained.

Among our variables of interest is considered the GDP per capita based on purchasing power parity, that is the gross domestic product converted to international dollars using purchasing power parity rates (*GDPpcpp*). In this research is still considered the Gross Fixed Capital Formation (*gfcf*), expressed as a percentage of the GDP, that measures the capability of the economy to accrue fixed capital. To consider

the presence of the state in the economy, in a quantitative way, we already consider public expenditure, expressed as a percentage of the GDP (*PubExp*).

To consider the redistribute effects of corruption and legislative complexity the data of the Gini index (*Gini*) are considered, which measure the extent to which the distribution of income, among individuals or households within an economy, deviates from a perfectly egual distribution.[33] Thus a Gini index of 0 represent perfect equality, while an index of 100 implies perfect inequality. To address the redistributive effects of legislative complexity in a different perspective, it is already considered the income share held by the highest 10% (*IShigh10*). It accounts for the percentage of income that accrues to subgroups of the population indicated by the first deciles; and the income share held by the highest 20% (*IShigh20*), that accounts for the percentage of income that accrues to the subgroups of population indicated by the second deciles.

Following the paper by Mauro (1995) to overcome the potential problem of endogeneity it is considered as an instrumental variable the index of ethnolinguistic fractionalization (defined by Mauro as a measure of the probability that two people drawn at random from a country's population will not belong to the same ethnolinguistic group). Moreover in consideration of the changes of the geopolitical situation around the world it is already used the ethnolinguistic fractionalization indices, recently measured by Alesina *et al.* (2003). These indexes show a strong correlation with the corruption perception index and international indicator of legislative complexity as well as with the economic variables, but at the same time ethnolinguistic fractionalization indexes are not endogenously correlated with *cpi* and *iilc*, as well as with other covariates.

In the econometric analysis was enclosed the legal families to which belongs each country enclosed in the dataset, along the official classification by the Central

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[33] The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality expressed as a percentage of the maximum area under the line.

Intelligent Service (CIA, 2016). More precisely consider three dummies are undertaken in the analysis: common law (*common*), civil law (*civil*) German and Nordic law (*germnord*), that assume the value one, if the country belongs in one of these legal families, and zero otherwise. The countries with German and Nordic legal systems are covered by the same dummy variable, because they share many characteristics and are a small number compared to the number of countries considered in the analysis.

7.3 DESCRIPTIVE STATISTICS AND PRELIMINARY ANALYSIS OF DATA. The full definition of the variables considered and their sources are listed in Table 2 below,

[Table 2, around here]

Summary statistics and the correlation matrix are reported, respectively, in the following Tables 3 and 4.

[Tables 3 and 4, around here]

The coefficient of correlation between the corruption perception index (*cpi*) and the international indicator of legislative complexity (*iilc*) is equal to 0.59; this means that the two variables are strongly correlated. Moreover, both corruption and legislative complexity have a negative impact on the growth rate of the per capita GDP, with a similar magnitudes (a little bit more than 40%). For the entire sample the *iilc* shows a negative (-0.229) and weak statistically significant (r<10%) partial correlation with the growth rate of the per capita income. When only the countries with a value of *iilc* greater than average are taken into account, it is still negative and statistically significant at 5% level, while for the remaining thirty-two countries the partial correlation index is negative, but not statistically significant.

Based on the average values of the variables in the period under consideration, it was found that the partial correlation between the corruption perception index (*cpi*) and

the indicator of legislative complexity (*iilc*) is positive and highly statistically significant, for the entire sample. The partial correlation remain positive (0.035), but statistically insignificant when just the 35 countries with values of *iilc* above the average value are considered. Finally, the partial correlation between *cpi* and *iilc* is positive (0.047) and statistically significant at 5% level, for the 40 countries with values of *iilc* below the average. This preliminary analysis of data support the theoretical assumption that corruption and legislative complexity are complements each other in countries with young liberal democracy, and alternative in economies with long history of liberal democracy.

The *iilc* is positively correlated with the dummy accounting for bicameralism of the parliament (0.184), as well as with the dummy accounting for the countries with a civil law legal system (0.130), and with the legal systems of common law (0.065). The legislative complexity indicator is negatively correlated with legal system of German/Nordic law (-0.1432). Finally, the number of members of parliament shows a negative correlation with *cpi* (-0.0194).

The *iilc* shows a positive correlation with all the indicators of income inequality distribution such as the Gini Index (0.037), the first (0.03) and second decile of high income share (0.028), and with other proxies of legislative complexity like the number of members of parliament (0.124) and with the dummy that accounts for the bicameralism of parliaments (0.187). Regarding the relevance of legal families (La Porta *et al.*, 1998) it is possible to observe that the international indicator of legislative complexity is correlated negatively with the dummy accounting for the legal system of German/Nordic law (-0.153) and positively with the legal systems of common law (0.071) and civil law (0.111).

Regarding the weight of the state in the economy the partial correlation between the *cpi* and public expenditure is 0.306, and is statistically significant at r<5%, while the

iilc is negatively correlated with public expenditure, although not statistically significant; however for the twenty-seven countries with a value of iilc greater than average it is negative, while for the remaining forty economies it is positively correlated with the indicator of legislative complexity. Finally, we observe that the partial correlation between the gross fixed capital formation is negatively correlate with *cpi* (-0.4071, and statistically significant at 1%), and positively but not statistically significant with *iilc*. Legislative complexity seems to be a constraint to the gross capital accumulation in countries with high levels of *iilc*, while the corruption possess a strong (-3.146) and statistically significant effect (at 5% level) in the economies with a recent history of liberal democracy. Finally, regarding the ethnolinguistic fractionalization index (*efind*) that it is used like an instrumental variable, it shown a negative and significant partial correlation between the corruption perception index (-0.312, with r<5%), and with international indicator of legislative complexity (-0.096, with r<10%), which makes the *efind* a good instrument.

7.4 THE ECONOMETRIC MODEL.

Following theoretical findings it is investigated empirically first the relationship between the growth rate of the per capita income, the indicator of legislative complexity, and the corruption perception index. The classic specification in cross-country growth literature was used (Mauro, 1995, Barro, 1991, Levine and Renelt, 1991), and the econometric models of OLS and 2SLS (as in Mauro, 1995, p. 695). The regression was performed on the average values for the period considered using cross-section data, to avoid bias in the estimation due to potential problem of serial correlation, typical of time series analyses.

In a more formal way the econometric model estimated is

[48] $GrowthGDPpc_j = \alpha_0 + \alpha_1 cpi_j + \alpha_2 iilc_j + \alpha_3 x_j + u_t,$

where *GrowthGDPpc* is the dependent variable consisting of the average value of the per capita income growth rate for the countries in the sample (over the period of observation 1995-2015). In accordance with theoretical model, among independent variables were considered the corruption perception index and the international indicator of legislative complexity. x_j is a vector of other covariates, $_0$ is the constant term, $_i$, with i = 1, 2, 3, are the coefficient regressors, j = 67 indicates the number of countries considered, u_t is an error term. In 2SLS regressions it is also used like instrumental variable the ethnolinguistic fractionalization index, like recently updated by Alesina *et al*. (2003).

7.5 RESULTS AND COMMENTS. The results of the regressions, using different specification like in Mauro (1995), are reported in Table 5, below

[**Table 5, around here**]

7.5.1 PER CAPITA INCOME GROWTH, CORRUPTION AND LEGISLATIVE COMPLEXITY. In accordance with theoretical model it may be observed that both corruption (*cpi*) and legislative complexity (*iilc*) seem to represent a constraint to growth for the countries considered in the sample. Both indicators exhibits a negative algebraic sign and are prevalently statistically significant under different specification. The outcome of regressions seems to be consistent with preliminary analysis of data. The public expenditure is not statistically significant and exhibits a negative algebraic sign. While it is confirmed that the accumulation of fixed capital contribute to growth of the per capita income. It is possible to affirm that the inequality of income distribution, measured by the Gini index, constitutes a constraint a constraint to welfare improving.

To check further the robustness of the regression results, we had performed other regression using like covariates different indicators of corruption and legislative complexity. The results are reported in the following Table 6

[**Table 6, around here**]

In general, it is possible to affirm that using several explanatory variables, with respect to those considered previously and shown in Table 5, the two indicators of corruption and legislative complexity always possess a negative algebraic sign, despite *iilc* is not always significant. The outcomes of regression performed considering like covariates the ease in doing business index, instead of *iilc*, and the income share held that accrues to subgroups of population indicated by the first deciles, confirms our theoretical findings. Despite the *eidb* is not statistically significant it possess the expected negative algebraic sign, while the index of income distribution exhibits an inverse relationship with the per capita income and it is also statistically significant. Inequality in the per capita income distribution, as measured by *IShigh10* and *IShigh20*, represent a constraint to the growth of the per capita income. Civil law legal system had a negative and statistically significant impact on the income per capita growth. A negligible contribution to explain the growth rate of per capita GDP arrive from the Rule of law indices, *rli* and *rliac*, and from the time required to enforce a contract.

7.5.2 PUBLIC EXPENDITURE, CORRUPTION AND LEGISLATIVE COMPLEXITY. The theoretical analysis predicts that public expenditure is a preliminary condition for corruption, and that public expenditure and legislation are alternative measures of economic policy. Using the dataset it is possible to address this relationship empirically using the following econometric model

[49] $\quad PubExp = \beta_0 + \beta_1 cpi_j + \beta_2 iilc_j + \beta_3 x_j + u_t$

where *PubExp* (the average value of public expenditure) is the dependent variable, expressed like percentages of GDP for all the countries enclosed in the sample (since 1995 to 2015). In accordance with our theoretical model, we enclose among covariates the corruption perception index and the international indicator of legislative complexity. x_j is a vector of other covariates, β_0 is the constant term, β_i, with i = 1, 2, 3, are the coefficient regressors, j = 67 indicates the countries considered, u_t is an error

term. As previously in 2SLS regressions we use like instrumental variable the ethnolinguistic fractionalization index (Alesina *et al*., 2003). Based on the regression results reported in Table 7 below

[**Table 7, around here**]

it is possible to say that the corruption flourishing in public expenditure, the coefficients of regressions between the government expenditure and *cpi* are always positive and statistically significant. Moreover the indicator of legislative complexity always possesses a negative algebraic sign, this means that, like predicted in the model, legislation and public expenditure represent alternative measures of political economy, at least at this level of aggregation of the theoretical model.

Enclosing among covariates the time to enforce a contract instead of *iilc*, prove that there is a positive relationship between the public expenditure and this indicator of efficiency of justice system, that it is assumed depends on degree of legislative complexity. The justice system could more efficiently enforce the legislation if the law applicable is simple to identify.

7.5.3 INCOME DISTRIBUTION, CORRUPTION AND LEGISLATIVE COMPLEXITY. Finally, it is analyzed the impact of legislative complexity and corruption on the income distribution. Based on theoretical findings it is expected that legislative complexity increase the inequality in the per capita income distribution. To verify empirically this relationship three different measures of income distribution was considered, like Gini index, the per capita income share held by the first deciles (*IShigh10*), and the per capita income share held by the second deciles (*IShigh20*). Assuming that distribution may be influenced by the per capita income level, was included among covariates the GDP per capita based on purchasing power parity. The following econometric model is used to perform regressions

[50] $DistributionIndex = \gamma_0 + \gamma_1 cpi_j + \gamma_2 iilc_j + \gamma_3 GDPpcpp_j + u_t$

where *DistributionIndex* is the dependent variable. Four regressions have been run for each of the three indicators of the income distribution (Gini index, *IShigh10*, and *IShigh20*), considering the average values for all the countries enclosed in the sample (since 1995 to 2015). γ_0 is the constant term, γ_i, with i = 1, 2, 3, are the coefficient regressors, j = 67 indicates the countries considered, u_t is an error term. As previously in 2SLS regressions the instrumental variable is the ethnolinguistic fractionalization index (Alesina *et al*., 2003). In Table 8 are reproduced the outcomes of regressions performed using, alternatively, like dependent variable the Gini index (columns I-IV), the per capita income share held by the first deciles (*IShigh10*) (columns V-VIII), and the per capita income share held by the second deciles (*IShigh20*) (columns IX-XII).

[**Table 8, around here**]

From the results of regression is clear that the legislative complexity raises the inequality in the per capita income distribution. The values of coefficients of *iilc* exhibits a positive algebraic sign and prevalently statistically significant, with all three indicators of income distribution. It is worthwhile to remark that the values of R-squared is higher in case the per capita income share held by the first deciles (*IShigh10*) (columns V-VIII) is used like dependent variable. This confirms that legislative complexity is a channel of public rent appropriation, that benefit few groups of individuals (politicians) at detriment of majority of citizens. The corruption perception index exhibits an inverse relationships with all the indicators of inequality in income distribution considered in this research, this may be explained considering that corruption benefit not only the politicians but also some private agents, such to reduce the level of inequality in income distribution.[34]

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[34] This findings are perfectly consistent with the results of preliminary analisys of data (see the correlation matrix), where the *cpi* show a negative correlation with all three indicators of income distribution, while

To conclude the analysis should be observed that the per capita income at purchase power parity is irrelevant in explain the income distribution, because its quantitative effects is negligible, possess alternate algebraic signs and is prevalently no statistically significant.

8. FINAL REMARKS.

This paper constitutes the first attempt to include legislative complexity in an endogenous growth model, and estimate empirically the economic impact of this phenomenon on the per capita income growth rate.

Under simple and realistic assumptions, it is shown, in an instantaneous and dynamic equilibrium, that beyond a certain threshold, the social costs of new legislation, in terms of negative coordination externalities, are greater than the benefits. These theoretical findings represent a starting point to explain why many developed countries have observed a reduction in their growth rate because of legislative complexity, while developing countries are less affected or only marginally so by legislative complexity, probably in consideration of the more recent introduction of liberal democracy as a form of government.

Legislative complexity seems to be a special kind of legal corruption that is employed by politicians to appropriate public rent in a legal manner, without the risk of being convicted and put in jail for corruption. The article seeks to dispel the myth that the complexity of legislation is an inevitable by-product of liberal democracy as a form of government, while suggesting that it is the result of a rational choice of politicians used to conceal legal forms of appropriation of public rent. The empirical analysis performed using a newly indicator of legislative complexity seems to support the finding that legislative complexity, like corruption, constitutes a constraint to growth. In

the *iilc* exhibits a positive relationship with Gini index and the two indicators of high income holder the 10% and 20% of total GDP per capita

particular, some evidence was found that in countries with a long history of liberal democracy, corruption declines as legislative complexity increases, and while in economies where liberal democracy has been introduced more recently, corruption and legislative complexity grow together. The indicator of legislative complexity used in this research is far perfection, but it represents a good starting point for further analyses. This research represents just a first step to analyses the economic impact of legislative complexity. More in-depth theoretical studies may include also secondary legislation and bureaucracy.

APPENDIX

A.1. FIRST ORDER AND TRANSVERSALITY CONDITIONS.

[A.1] $\dfrac{\partial H}{\partial C} = C^{-\varepsilon} - \lambda_1 = 0,$

[A.2] $\dfrac{\partial H}{\partial B} = B^{-\eta} - \lambda_1 = 0,$

[A.3] $\dfrac{\partial H}{\partial w} = \lambda_1 \beta \dfrac{K^{\alpha} w^{\beta} \mathrm{L}^{\gamma - \pi\rho} \varpi^{-\rho}}{w} \left(\dfrac{G}{K}\right)^{\psi} - \mu\lambda_2 L = 0,$

[A.4] $\dfrac{\partial H}{\partial L} = \lambda_1 (\gamma - \pi\rho) \dfrac{K^{\alpha} w^{\beta} \mathrm{L}^{\gamma - \pi\rho} \varpi^{-\rho}}{L} \left(\dfrac{G}{K}\right)^{\psi} + [(1-w)\mu - \vartheta]\lambda_2 = 0,$

[A.5] $\dot{\lambda}_1 = \delta\lambda_1 - \dfrac{\partial H}{\partial K} = \delta\lambda_1 - \lambda_1 \alpha \dfrac{K^{\alpha} w^{\beta} \mathrm{L}^{\gamma - \pi\rho} \varpi^{-\rho}}{K} \left(\dfrac{G}{K}\right)^{\psi},$

[A.6] $\dot{\lambda}_2 = \delta\lambda_2 - \dfrac{\partial H}{\partial R} = \delta\lambda_2 - \lambda_2(q\mu - \vartheta),$

The growth rates of dynamic multipliers are

[A.7] $g_{\lambda_1} = \dfrac{\dot{\lambda}_1}{\lambda_1} = \delta - \alpha \dfrac{K^{\alpha} w^{\beta} \mathrm{L}^{\gamma - \pi\rho} \varpi^{-\rho}}{K} \left(\dfrac{G}{K}\right)^{\psi},$

[A.8] $g_{\lambda_2} = \dfrac{\dot{\lambda}_2}{\lambda_2} = \delta - [(1-w)\mu - \vartheta],$

The transversality conditions (Michel, 1982) are

[A.9] $\lim\limits_{t\to\infty} e^{-\delta t} H(t) = 0,$

[A.10] $\lim\limits_{t\to\infty} e^{-\delta t} \lambda_1(t) K(t) = 0,$

[A.11] $\lim\limits_{t\to\infty} e^{-\delta t} \lambda_2(t) R(t) = 0,$

Deriving logarithmically [A.1] and [A.2] we obtain:

[A.12] $-\varepsilon g_c = g_{\lambda 1}$

[A.13] $-\eta g_{C^G} = g_{\lambda_1}$

[A.12] and [A.13] are the same only when the two marginal elasticities of consumption are the same.

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Figure 1

CORRUPTION AND LEGISLATIVE COMPLEXITY

Corruption

Legislative
complexity

Legislative complexity

Corruption

Time t →∞
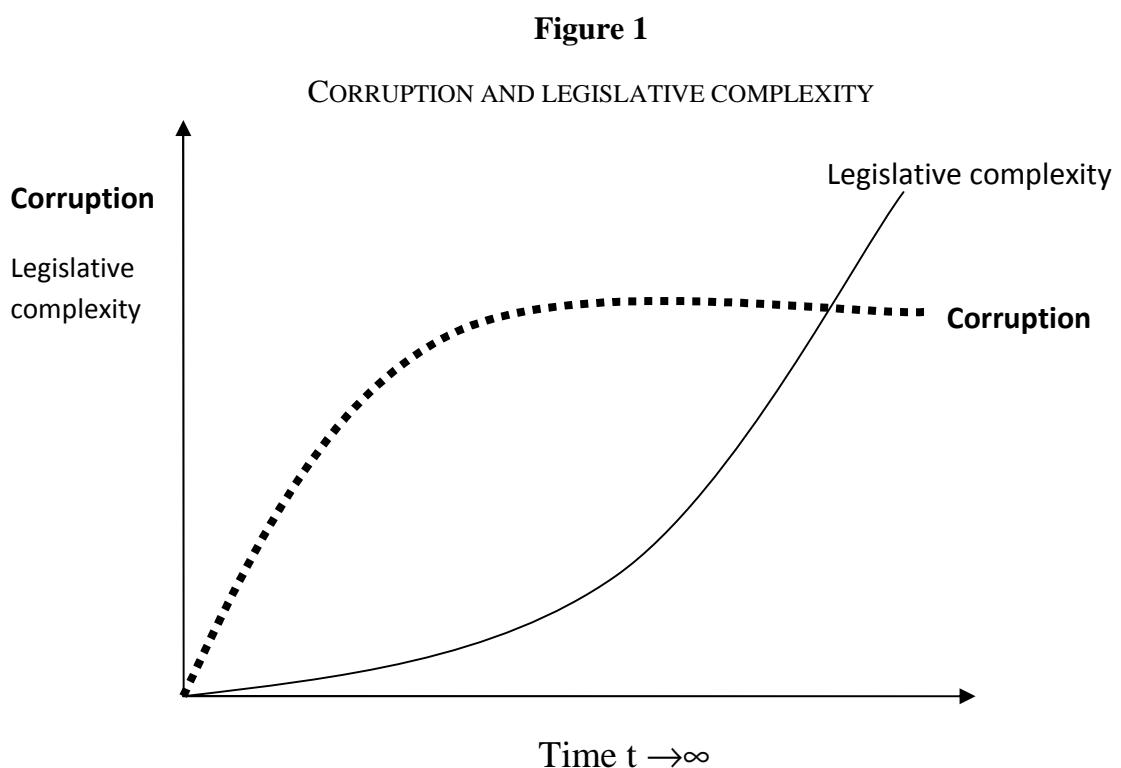
TABLE 2

VARIABLES AND DATA SOURCES

List of the variables collected, their definition, and sources.*

_____

VARIABLES NAME	DESCRIPTION
(1) Corruption Perception Index (**cpi**)	The corruption perception index was created in 1995 by Transparency International. It ranks almost 200 countries on a scale of zero to 10, with zero indicating high levels of corruption and 10 indicating low levels. Developed countries typically rank higher than developing nations due to stronger regulations (Source: Transparency.org).
(2) International Indicator of Legislative Complexity (**iilc**)	The international Indicator of Legislative Complexity measures the number of years for which a country has employed liberal democracy as a form of government and the legislation is the main form of intervention in the economy. Low levels of iilc indicate small level of legislative complexity. Source: our elaboration.
(3) GDP per capita growth (annual %) (**GrowthGDPpc**)	Annual percentage growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population. GDP at purchaser's prices is the sum of gross value added ?by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.
(4) GDP per capita, PPP (constant 2011 int. $) (**GDPpcpp**)	The GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2011 international dollars.
(5) Gross fixed capital formation (**gfcf**)	Gross fixed capital formation (annual % growth). Average annual growth of gross fixed capital formation based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. Gross fixed capital formation (formerly gross domestic fixed investment) includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.
(6) Public Expenditure (% GDP) (PubExp)	Expense is cash payments for operating activities of the government in providing goods and services. It includes compensation of employees (such as wages and salaries), interest and subsidies, grants, social benefits, and other expenses such as rent and dividends.
(7) Rule of Law Index (**rli**)	The World Justice Project's definition of the rule of law is a system in which the following four universal principles are upheld: 1. The government and its officials and agents as well as individuals and private entities are accountable under the law.; 2. The laws are clear, publicized, stable, and just; are applied evenly; and protect fundamental rights, including the security of persons and property and certain core human rights; 3. he process by which the laws are enacted, administered, and enforced is accessible, fair, and efficient; 4. Justice is delivered timely by competent, ethical, and independent representatives and neutrals who are of sufficient number, have adequate resources, and reflect the makeup of the communities they serve. It may assume values enclosed in a range from 1 to and 0, where values one indicate the full respect of the Rule of the Law (World Justice Project, 2015).

(8) Rule of Law Index Absence of Corruption (**rliac**)

This indicator measures the absence of corruption in a number of government agencies. The factor considers three forms of corruption: bribery, improper influence by public or private interests, and misappropriation of public funds or other resources. These three forms of corruption are examined with respect to government officers in the executive branch (2.1), the judiciary (2.2), the military and police (2.3), and the legislature (2.4), and encompass a wide range of possible situations in which corruption – from petty bribery to major kinds of fraud – can occur. It may assume values enclosed in a range from 1 to and 0, where values one express absence of corruption (World Justice Project, 2015).

(9) Ease in doing Business indicator (**edbi**)

Ease of doing business ranks economies from 1 to 190, with first place being the best. A high ranking (a low numerical rank) means that the regulatory environment is conducive to business operation. The index averages the country's percentile rankings on 10 topics covered in the World Bank's Doing Business. The ranking on each topic is the simple average of the percentile rankings on its component indicators

(10) Bicameralism (**bicam**)

Bicameralism is a dummy variable that assume value 1, if the country adopts a bicameralism system and 0 if the legislative system is monocameral. Source: our elaborations.

(11) Number of parliamentarians (**parliament**)

The number of parliamentarians is given by the total number of members of parliament for each countries. Source: our elaborations.

(12) Gini Index (**gini**)

Gini index measures the extent to which the distribution of income a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. Data are based on primary household survey data obtained from government statistical agencies and World Bank country department.

(13) Income share held by highest 10% (**IShigh10**)

Income share held by highest 10% is the percentage share of income that accrues to subgroups of population indicated by the first deciles.

(14) Income share held by highest 20% (**IShigh20**)

Income share held by highest 10% is the percentage share of income that accrues to subgroups of population indicated by the second deciles.

(15) Time required to enforce a contract (**trec**)

Time required to enforce a contract is the number of calendar days from the filing of the lawsuit in court until the final determination and, in appropriate cases, payment.

(16) Ethnolinguistic fractionalization Index (**efind**)

Index of ethnolinguistic fractionalization that measures the probability that two persons drawn at random from a country's population will not belong to the same ethnolinguistic group) (Mauro, 1995, Appendix 3, column 6). Source: Mauro (1995).

(17) Ethnolinguistic fractionalization Index updated (**efind1**)

Index of ethnolinguistic fractionalization that measures the probability that two persons drawn at random from a country's population will not belong to the same ethnolinguistic group), as updated by Alesina et al. 2003 (Table A.1. ethnic, column 3). Source: Alesina et al. (2003).

(18) Common law (**common**)

This is a dummy variable that takes the value of one in economies with common law legal system, and zero otherwise. Source: CIA (2016).

(19) Civil law (**civil**)

This is a dummy variable that takes the value of one in economies of civil law, and zero otherwise. Source: CIA (2016)

(20) German and Nordic law system (**GermNord**)

This is a dummy variable that takes the value of one in economies with german or nordic legal system, and zero otherwise. Source: CIA (2016).

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Legenda: Source and definition of variables: World Bank (WDI).

TABLE 3

SUMMARY STATISTICS

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Variables	Obs.	Mean	S.D.	Min.	Max
(1) Corruption Perception Index (**cpi**)	66	50.687	22.634	12.67	94.38
(2) International Indicator of Legislative Complexity (**iilc**)	66	74.282	40.397	4.5	157.1
(3) GDP per capita growth (annual %) (**GrowthGDPpc**)	66	2.849	1.909	0.28	11.03
(4) GDP per capita, PPP (constant 2011 international $) (**GDPpcpp**)	66	22392.51	15853.98	1479.59	83728.53
(5) Gross fixed capital formation (annual % growth) (**GFCF**)	65	4.705	3.341884	-1.11	20.64
(6) Public Expenditure (% GDP) (**PubExp**)	63	29.229	12.712	1.94	80.22
(7) Rule of Law Index (**rli**)	55	0.6149	0.149912	0.32	0.87
(8) Rule of Law Index Absence of Corruption (**rliac**)	59	0.48492	0.1171	0.23	0.79
(9) Ease in doing Business indicator (**edbi**)	66	56.433	44.956	2.50	186.10
(10) Bicameralism (**bicam**)	67	0.552	0.501	0	1
(11) Number of parlamentarians (**NoPaliament**)	67	362.806	416.27	57	3000
(12) Gini Index (**gini**)	63	35.056	9.202	13.84	57.98
(13) Income share held by highest 10% (**IShigh10**)	63	27.179	6.324	9.69	44.82
(14) Income share held by highest 20% (**IShigh20**)	63	41.321	9.005	5.21	60.82
(15) Time to enforce a contract (expressed in days) (**trec**)	66	577.56	303.59	226.95	1642.01
(16) Ethno. fractionalization Index (**efind**)	41	0.301	0.258	0.01	0.89
(17) Ethno. fractionalization Index Revised (**efind1**)	65	0.328	0.228	0.01	0.77
(18) Common law (**common**)	66	0.197	0.401	0	1
(19) Civil law (**civil**)	66	0.409	0.495	0	1
(20) German and Nordic law system (**GermNord**)	66	0.364	0.485	0	1

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TABLE 4

CORRELATION MATRIX

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Corruption Perc. Index (**cpi**)	1																		
(2) Indicator of leg. complexity (**iilc**)	0.546	1																	
(3) GDP per capita growth (**GDPpc**)	-0.454	-0.421	1																
(4) GDP per capita (**GDPpcpp**)	0.849	0.522	-0.499	1															
(5) Gross fixed capital (**GFCF**)	-0.469	-0.254	0.554	-0.458	1														
(6) Public Expenditure (**PubExp**)	0.461	0.283	-0.389	0.488	-0.538	1													
(7) Rule of Law Index (**rli**)	0.96	0.499	-0.239	0.874	-0.505	0.601	1												
(8) Rule of Law In. Absence of Corruption (**rliac**)	0.769	0.402	-0.067	0.577	-0.312	0.384	0.764	1											
(9) Ease in doing Business indicator (**edbi**)	-0.830	-0.586	0.283	-0.778	0.518	-0.529	-0.868	-0.611	1										
(10) Bicameralism (**bicam**)	0.108	0.187	0.225	-0.032	0.051	-0.028	0.138	0.195	-0.015	1									
(11) No. of parlamenta (**NoParl**)	-0.019	0.124	-0.102	0.007	-0.153	0.088	-0.023	-0.359	0.013	0.304	1								
(12) Gini Index (**Gini**)	-0.155	0.037	0.355	-0.491	0.294	-0.459	-0.323	-0.117	0.117	0.178	-0.151	1							
(14) Income share 10%(**IShigh10**)	-0.251	0.030	0.375	-0.643	0.448	-0.461	-0.513	-0.369	0.345	0.060	-0.140	0.870	1						
(14) IShigh20 (**IShigh20**)	-0.205	0.028	0.334	-0.610	0.379	-0.312	-0.497	-0.427	0.344	0.001	-0.112	0.688	0.9383	1					
(15) T. enforce contract (**trec**)	-0.440	0.019	0.026	-0.341	0.137	0.023	-0.336	-0.268	0.252	0.123	0.079	0.204	0.199	0.162	1				
(16) Ethnoling. fraction. Ind. (**efind**)	-0.373	-0.447	0.538	-0.411	0.314	-0.600	-0.351	-0.173	0.387	0.188	0.030	0.196	0.050	-0.058	-0.017	1			
(17) Ethnoling. fraction. II (**efind1**)	-0.584	-0.431	0.203	-0.518	0.401	-0.666	-0.622	-0.427	0.552	0.017	-0.132	0.413	0.358	0.188	0.111	0.660	1		
(18) Common law (**common**)	0.181	0.065	0.180	0.101	0.041	-0.252	0.109	0.124	-0.057	0.315	0.356	-0.073	-0.245	-0.363	-0.035	0.423	0.145	1	
(19) Civil law (**civil**)	-0.405	0.130	-0.181	-0.321	0.058	0.022	-0.351	-0.357	0.213	-0.049	-0.117	0.311	0.443	0.466	0.301	-0.161	0.171	-0.608	1
(20) German and Nordic law (**GermNord**)	0.375	-0.143	-0.046	0.404	-0.148	0.249	0.381	0.319	-0.247	-0.331	-0.294	-0.337	-0.319	-0.235	-0.319	-0.183	-0.265	-0.233	-0.543	1

TABLE 5

GROWTH, CORRUPTION PERCEPTION INDEX AND INTERNATIONAL INDICATOR OF LEGISLATIVE COMPLEXITY
DEPENDENT VARIABLE: PER CAPITA GDP GROWTH RATE (1995-2015 AVERAGE VALUES).

INDEPENDENT VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Constant	4.7885	4.5336	4.327	4.9454	5.068	4.5106	5.51399	4.7296	2.9674	3.311	6.559	6.1109
	(9.19)***	(3.75)***	(9.57)***	(3.45)***	(9.52)***	(4.18)***	(8.27)***	(4.26)***	(4.06)***	(1.74)*	(6.25)***	(2.64)**
Corruption Perception Index (**cpi**)	-0.0383	-0.04479			-0.02681	-0.00805	-0.02246	-0.0288	-0.0091	0.02864	-0.0307	-0.02138
	(-4.07)***	(-2.23)**			(-2.42)**	(-0.23)	(-1.87)*	(-0.51)	(-0.80)***	(0.58)	(-2.69)***	(-0.43)
Indicator of legislative complexity (**iilc**)			-0.0199	-0.0339	-0.01157	-0.01699	-0.01184	-0.02759	-0.0116	-.02105	-0.0101	-0.01258
			(-3.71)***	(-2.15)**	(-1.86)*	(-1.37)	(-1.82)*	(-1.50)	(-2.07)**	(-1.61)*	(-1.64)*	(-0.79)
Government Expenditure (**PubExp**)							-0.0225	-0.04586				
							(-1.26)	(-1.44)				
Gross fixed capital formation (**gfcf**)									0.253560	0.34178		
									(3.92)***	(2.57)*		
Gini Index (**gini**)											-0.04015	-0.03571
											(-1.68)*	(-1.14)
Observations	67	67	67	67	67	67	67	67	67	67	67	67
R-squared	0.2057		0.1772		0.2472		0.2627		0.3939		0.2755	
Estimation Methods	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS

t statistics in parentheses. * r<0.10, ** r<0.05, *** r<0.01. In case of 2SLS we did not report the R-squared because it is not appropriate to estimate the goodness of fit.

TABLE 6

ROBUSTNESS ANALYSIS
DEPENDENT VARIABLE: PER CAPITA GDP GROWTH RATE (1995-2015 AVERAGE VALUES).

INDEPENDENT VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Constant	8.1614 (6.29)***	9.0199 (2.46)**	6.999 (4.05)***	7.0191 (4.18)***	5.4762 (9.29)***	5.039 (4.14)***	4.3401 (4.86)***	4.1608 (4.01)***	5.6998 (7.45)***	5.0994 (3.47)***	4.7272 (4.63)***	4.5615 (3.78)***
Corruption Perception Index (**cpi**)	-0.05483 (-4.46)***	-0.0669 (-1.40)			-0.03414 (-2.86)***	-0.04778 (-1.81)*			-0.04293 (-4.41)***	-.03411 (-1.69)*		
Indicator of legislative complexity (**iilc**)			-0.01665 (-2.56)**	-0.01345 (-0.47)	-0.008162 (-1.25)	-0.01574 (-1.11)	-0.02027 (-3.33)***	-0.0357 (-0.86)			-0.01811 (-2.83)***	-.01074 (-1.67)*
Rule of the Law Index (**rli**)			-2.0758 (-0.89)	-2.4594 (-061)			-0.0203 (-0.19)	1.8651 (0.31)				
Ease of doing business index (**edbi**)	-0.00937 (-1.41)	-0.01346 (-0.81)										
Income share 10%(**IShigh10**)	-0.0743 (-2.09)**	-0.0753 (-2.09)**										
Income share 20%(**IShigh20**)			-0.04564 (-1.70)*	-0.04725 (-1.66)*								
Time required to enforce contract (**trec**)									-0.0012 (-1.69)*	-0.0009 (-1.04)		
Rule of Law Absence of Corruption (**rliac**)											-1.0701 (-0.51)	-2.0766 (-0.46)
Civl Law legal System (**civlaw**)					-.70823 (-1.63)*	-1.2545 (-2.09)**						
Observations	67	67	67	67	67	67	67	67	67	67	67	67
R-squared	0.2958		0.1962		0.275		0.2373		0.2370		0.1553	
Estimation Methods	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS

t statistics in parentheses. * r<0.10, ** r<0.05, *** r<0.01. In case of 2SLS we did not report the R-squared because it is not appropriate to estimate the goodness of fit.

TABLE 7

PUBLIC EXPENDITURE, CORRUPTION AND INTERNATIONAL INDICATOR OF LEGISLATIVE COMPLEXITY
(PERIOD 1995-2015 AVERAGE VALUES).

INDEPENDENT VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX	X
Constant	21.179	6.9684	30.986	-4.6300	28.272	4.317	29.019	-8.7417	10.977	-10.60
	(5.31)***	(0.71)	(5.61)***	(-0.19)	(4.44)***	(0.22)	(3.96)***	(-0.27)	(2.01)**	(-0.79)
Corruption Perception Index (**cpi**)	0.2064	0.7229	0.1337	0.9654	0.1849	0.7697	0.1739	0.9058	0.2187	.55307
	(2.49)**	(2.18)**	(1.66)*	(1.74)*	(2.60)**	(1.80)*	(2.37)**	(1.65)*	(3.19)***	(2.77)***
Indicator of legislative complexity (**iilc**)	-0.0346	-0.2007	-.0338	-.25409	-0.0141	-.1985	-0.0112	-0.2415		
	(-0.74)	(-1.71)*	(-0.77)	(-1.66)*	(-0.36)	(-1.69)*	(-0.28)	(-1.24)		
Gross Fixed Capital Formation (**gfcf**)			-1.3775	0.5223						
			(-2.84)**	(0.36)						
Gini Index (**gini**)					-0.2424	-.0286				
					(-1.68)*	(-0.11)				
Income share 10%(**IShigh10**)							-0.3278	0.3042		
							(-1.67)*	(0.50)		
Time required to enforce contract (**trec**)									0.0123	0.0199
									(2.33)**	(2.69)***
Observations	67	67	67	67	67	67	67	67	67	67
R-squared	0.103		0.235		0.192		0.185		0.169	
Estimation Methods	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS

t statistics in parentheses. * r<0.05, ** r<0.01, *** r<0.001. In case of 2SLS we did not report the R-squared because it is not appropriate to estimate the goodness of fit.

TABLE 8

INDICATORS OF PER CAPITA INCOME DISTRIBUTION, CORRUPTION AND LEGISLATIVE COMPLEXITY (PERIOD 1995-2015 AVERAGE VALUES).

INDEPENDENT VARIABLES	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
			Gini Index				Income share 10%			Income share 20%		
Constant	37.328 (12.52)***	47.993 (5.67)***	35.215 (11.09)***	49.1497 (5.04)***	29.864 (15.04)***	38.119 (6.37)***	28.481 (13.45)***	39.059 (5.64)***	44.417 (15.43)***	50.897 (7.09)***	43.291 (13.87)***	51.6329 (6.33)***
Corruption Perception Index (**cpi**)	-0.1024 (-1.69)*	-0.4702 (-1.68)*	0.03228 (0.33)	-0.6393 (-1.41)	-0.1073 (-2.64)*	-0.039334 (-1.99)**	-0.0192 (-0.29)	-0.531 (-1.65)*	-2.1257 (-2.12)*	-0.3513 (-1.48)	-0.054 (-0.56)	-0.4588 (-1.21)
Indicator of legislative complexity (**iilc**)	0.0394 (1.16)	0.1487 (1.65)*	0.04711 (1.40)	0.098 (1.73)*	0.0373 (1.66)*	0.1226 (1.87)*	0.0423 (1.89)*	0.0816 (2.02)**	0.0443 (1.35)	0.112 (1.42)	0.0484 (1.46)	0.0798 (1.67)*
GDP per capita, PPP (**GDPpcpp**)			-0.00024 (-1.73)*	0.0005 (0.98)			-0.0001 (-1.70)*	0.0004 (1.12)			-0.00012 (-0.94)	0.00032 (0.74)
Observations	67	67	67	67	67	67	67	67	67	67	67	67
R-squared	0.046		0.092		0.104		0.1456		0.0703		0.0841	
Estimation Methods	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS	OLS	2SLS

t statistics in parentheses. * r<0.05, ** r<0.01, *** r<0.001. In case of 2SLS we did not report the R-squared because it is not appropriate to estimate the goodness of fit.