

# DEVELOPMENT AND THE RULE OF LAW: A COMPARATIVE STUDY

## DESENVOLVIMENTO E ESTADO DE DIREITO: UM ESTUDO COMPARATIVO

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### ABSTRACT

The paper aims to set grounds to analyse the correlation between Development and Rule of Law indicators in Brazil, comparing Worldwide Governance Indicators (WGI), which are perception indicators, and GDP *per capita*, homicides, and child mortality, in a comparative perspective between Brazil, Italy and the United States. It is formulated a hypothesis of unsustainable growth of Brazilian GDP *per capita*. It is identified the need of effort to increase the Rule of Law indicators in order to obtain sustainable growth in Brazil.

**KEYWORDS:** Law. Development. Rule of Law. Economic Analysis of Law.

### RESUMO

O objetivo deste trabalho é analisar a correlação entre os indicadores de Desenvolvimento e Estado de Direito no Brasil, comparando Indicadores de Governança Mundial (WGI), que são indicadores de percepção, e PIB *per capita*, homicídios e mortalidade infantil, numa perspectiva comparativa entre Brasil, Itália e os Estados Unidos. É formulada uma hipótese de crescimento insustentável do PIB brasileiro *per capita*. Identifica-se a necessidade de esforços para melhorar os indicadores do Estado de Direito, a fim de obter crescimento sustentável no Brasil.

**PALAVRAS-CHAVE:** Direito. Desenvolvimento. Estado de Direito. Análise Econômica do Direito.

## 1 INTRODUCTION: ON THE CONCEPT OF RULE OF LAW

The goal of this article is to provide some grounds for the study of the correlation between social and economic Development and Rule of Law in Brazil in a comparative perspective. The concept of Rule of Law and its relation with Development is studied in broader sense, for later comparison with some data about Brazil in a comparative perspective with Italy and United States. The concept of Rule of Law and governance indicators, as well as objective

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data, should be taken into account, in order to provide some solid grounds for the study of Brazilian reality.

The European Union understands the Rule of Law as one of the founding principles stemming from the constitutional traditions of all its Member States and also one of the fundamental values upon which the European Union is based. As noted by PEERENBOOM<sup>1</sup>, the Rule of Law is a requirement to join the European Union (Article 2, of European Union Treaty)<sup>2</sup>.

The concept of Rule of Law is highly variable in its meaning, despite its importance in western culture. Its conception varies from deontological explanations, as the protection of basic human rights, to thick meanings such as the statement that it is a legal system, which in turn is largely related with a fair society<sup>3</sup>. According to TAMANAHA:

Some, including most legal theorists, believe that the rule of law has purely formal characteristics, meaning that the law must be publicly declared, with prospective application, and possess the characteristics of generality, equality, and certainty, but there are no requirements with regard to the content of the law. Others, including a few legal theorists, believe that the rule of law also necessarily entails protection of individual rights<sup>4</sup>.

TAMANAHA insists in a thinner concept of Rule of Law, not confusing nor contaminating it with the idea of democracy, but just as a public limitation of the sovereign power:

The core idea of the rule of law, the thread that has run for over two thousand years, breaking at times, and often frayed thin, but always picked up again and carried along, is that the monarch (and government officials) should operate within a framework of law—that the sovereign

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1 PEERENBOOM, 2004, p. 3.

2 Article 2 - The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail.

3 TREBILCOCK AND PRADO, 2014, p. 49.

4 TAMANAHA, 2003, p. 6.

is limited by the law. This idea existed long before liberalism was ever imagined. The inspiration underlying this idea is the attempt to limit government tyranny<sup>5</sup>.

In a later work, TAMANAHA describes a concept he calls “formal” or “thin”:

The rule of law, at its core, requires that government officials and citizens are bound by and act consistent with the law. This basic requirement entails a set of minimal characteristics: law must be set forth in advance (be prospective), be made public, be general, be clear, be stable and certain, and be applied to everyone according to its terms. In the absence of these characteristics, the rule of law cannot be satisfied<sup>6</sup>.

In 2004, the Secretary-General of the United Nations, in a report before the Security Council, adopting a “thicker” or “more substantial” concept of Rule of law, stated that:

The “rule of law” is a concept at the very heart of the Organization’s mission. It refers to a principle of governance in which all persons, institutions and entities, public and private, including the State itself, are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated, and which are consistent with international human rights norms and standards. It requires, as well, measures to ensure adherence to the principles of supremacy of law, equality before the law, accountability to the law, fairness in the application of the law, separation of powers, participation in decision-making, legal certainty, avoidance of arbitrariness and procedural and legal transparency<sup>7</sup>.

Nevertheless, CHESTERMAN<sup>8</sup>, in a quite extensive study on the Rule of Law, proposes the adoption of a more formal concept, in his conclusions:

In this core sense the rule of law reflects the history of efforts to restrain sovereign power that continue in many States today, including some established liberal democracies confronting what the modern sovereign claims are emergencies requiring ever-greater claims to executive

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5 TAMANAHA, 2003, p. 11.

6 TAMANAHA, 2007, p. 3.

7 SECRETARY-GENERAL, U. N., 2004.

8 CHESTERMAN, 2008.

authority. (...) anything resembling even this limited idea of the rule of law remains an aspiration<sup>9</sup>.

WALDRON<sup>10</sup> also identifies “legal certainty, predictability, and settlement, on the determinacy of the norms that are upheld in society, and on the reliable character of their administration by the state” as key elements on the concept of Rule of Law. And he adds some negative elements: “the Rule of Law is violated, on this account, when the norms that are applied by officials do not correspond to the norms that have been made public to the citizens or when officials act on the basis of their own discretion rather than norms laid down in advance”<sup>11</sup>. He also adds attention to the procedural understanding of Rule of Law, understood as impartial and fair application of the law<sup>12</sup>.

BOTERO AND PONCE<sup>13</sup>, in their study about the methodology used to build the World Bank’s “World Justice Project” Rule of Law Index, also refer to “a formalist, or ‘thin’, definition and a substantive, or ‘thick’, definition”<sup>14</sup>, but recognizes that “a common theme throughout most of these conceptions is that law imposes limits on the exercise of power by government and private interests (...)”. Adding “(...) political power must be exercised in accordance with law rather than in an arbitrary or self-interested manner, and that disputes among private individuals and between them and the Sovereign must be subject to independent adjudication”<sup>15</sup>.

In short, we could adopt many concepts when addressing the Rule of Law. But, for the purpose of validity of the analyses, we could also conceive Rule of Law as a legal system with at least predictability, objectivity and impersonality which limits sovereign

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9 CHESTERMAN, 2008, p. 38-39.

10 WALDRON, 2008.

11 WALDRON, 2008, p. 6.

12 WALDRON, 2008 and 2011.

13 BOTERO AND PONCE, 2011.

14 BOTERO AND PONCE, 2011, p. 4.

15 BOTERO AND PONCE, 2011, p. 5.

power. In the other hand, it should be considered that the mere respect to the Law may not be sufficient to identify a State governed by the Rule of Law. This should be taken in account to address the relation between development and the Rule of Law, and the concrete implications of the existence of a Rule of Law in a determined State.

## 2 THE RELATION BETWEEN DEVELOPMENT AND RULE OF LAW

Assuming that the State can influence social and economic development, there could be various ways that such influence might take place.

The United Nations recognized that advances of the Rule of Law at a national and international level are essential for sustained and inclusive economic growth, sustainable development, eradication of poverty, reduction of child mortality and illiteracy<sup>16</sup>. The General Assembly mentioned its worry about the importance of the access to justice for all, encouraging the strengthening and improvement of the administration of justice and the Rule of Law.

According to COOTER AND SCHÄFER<sup>17</sup>, historically there are four theoretical approaches that stylize the causes of growth. The first approach would be the theory of state-led growth (1930-1975), that assumed free markets result in insufficient capital accumulation and slow growth, being the State's function to direct investment in state ownership, subsidies and regulation, in order to foster growth. The second broad approach, also known as “*Washington Consensus*” (1975-1990), would identify wrong pricing (allocation inefficiency) as an obstacle to development, favouring liberalization (privatization, deregulation, free trade) as a method to achieve development. The third approach (*Institutionalism* - 1990-2000) would focus on institutions<sup>18</sup>, supporting an understanding that

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16 Available on <http://www.un.org/ruleoflaw/rule-of-law-and-development/>

17 COOTER AND SCHÄFER, 2012.

18 See: North, D. C., 1990. *Institutions, institutional change and economic performance*. Cambridge university press; North, D. C., 1989. *Institutions and economic growth: An historical introduction*. *World development*, 17(9), 1319-1332; North, D. C., 1992.

institutions (social and legal norms) determine the consequences of an economic policy, therefore focusing state activity in designing “market-supporting institutions”. And the contemporary approach, according to which “institutions that matter most are legal”, emphasizing the quality of the legal norms supporting markets and organizations in order to foster development<sup>19</sup>.

ACEMOGLU findings supports that differences in colonial experience could be a source of exogenous differences in institutions<sup>20</sup>. And they add, suggesting research on legal institutions:

Institutional features, such as expropriation risk, property rights enforcement, or rule of law, should probably be interpreted as an equilibrium outcome, related to some more fundamental “institutions,” e.g., presidential versus parliamentary system, which can be changed directly<sup>21</sup>.

KAUFMANN, KRAAY, AND ZOIDO-LOBATÓN provided empirical evidence of a strong causal relationship from better governance to better development outcomes<sup>22</sup>. Based on subjective perceptions of respondents regarding quality of various aspects of governance, aggregated in six governance indicators (voice and accountability, political instability and violence, government effectiveness, regulatory burden, Rule of Law, and graft), KAUFMAN ET AL. concluded that, as measured by these indicators, governance matters “a great deal” for development outcomes, providing “new evidence of strong and positive causal relationship from governance to better development outcomes”<sup>23</sup>.

Kaufmann’s subsequent empirical studies have shown a

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Institutions and economic theory. *The American Economist*, 36(1), 3-6.; North, D. C., & Thomas, R. P., 1973. *The rise of the western world: A new economic history*. Cambridge University Press.

19 COOTER AND SCHÄFER, 2012, p. 195-197.

20 ACEMOGLU ET AL., 2000.

21 ACEMOGLU ET AL., 2000, p. 1395.

22 KAUFMANN, KRAAY, AND ZOIDO-LOBATÓN, 1999.

23 KAUFMAN ET AL., 1999, p. 18.

strong correlation between the Rule of Law and development. According to KAUFMANN, “a simple review of the recent data suggests a much higher correlation between FDI and governance than between FDI and macroeconomic variables”<sup>24</sup>.

It is fair to assume that, in general, should be a strong correlation between Rule of Law and development. However, we should look into the available data to try to find how does this general rule apply in each country. For the purpose of the comparison in this paper, aiming at understanding the current Brazilian situation in order to foster future studies, we shall use the World Bank’s six indicators of governance, as presented in Kaufmann’s work.

### 3 IDENTIFYING THE RULE OF LAW

Kaufmann and Kraay developed the Worldwide Governance Indicators (WGI), which aggregates six indicators related to governance quality over the period of 1994-2014.

Although subject to many criticisms, mostly rebated in KAUFFMAN ET AL<sup>25</sup>, the WGI “consist of six composite indicators of broad dimensions of governance covering over 200 countries since 1996: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption”<sup>26</sup>. As noted by the author, “These indicators are based on several hundred variables obtained from 31 different data sources, capturing governance perceptions as reported by survey respondents, nongovernmental organizations, commercial business information providers, and public sector organizations worldwide”<sup>27</sup>.

Each indicator consists of a series of data, with a specific conceptual frame, as follows:

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24 KAUFMAN, 2004, p. 4.

25 KAUFFMAN ET AL, 2007.

26 KAUFMANN, 2011, p. 2.

27 KAUFMANN, 2011, p. 2.

**a. Control of Corruption** captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the “capture” of the state by elites and private interests. Estimates give the country’s score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.

**b. Government Effectiveness** captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies. Estimates give the country’s score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.

**c. Political Stability and Absence of Violence/Terrorism** measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Estimates give the country’s score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.

**d. Regulatory Quality** captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Estimates give the country’s score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.

**e. Rule of Law** captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimates give the country’s score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.

**f. Voice and Accountability** captures perceptions of the extent to which a country’s citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Estimates give the country’s score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.

It should be noted that, although called “Governance Indicators” and having a “Rule of Law” indicator, the WGI allows the investigation of the existing Rule of Law in a broader sense, because it relies not only on the existence of rules of society, also on the real government experience in a determined country. In other words, not only the “Rule of Law Indicator” should be taken in



account, but all the indicators WGI, because they can provide more information about various aspects of the reality of the Rule of Law in a determined country.

We also should stress that WGI captures perceptions, and although pretty accurate, some factual data may shed some new light on the debate.

For that reason, we include another three indicators that rely on actual data, trying to seek confirmation of the expected results. The indicators we will use are GDP *per capita*, homicide per 1000 inhabitants and child mortality. These data is chosen for various reasons. The GDP *per capita* is capable of showing the comparative economic development of a country, although it may raise some questions about the actual distribution of income and inequality rates. For that reason, and given Gini Index data or other inequality index data is not available in a time series for Italy and United States, we try to find accessible data capable of weighing the WGI and GDP *per capita*. For that matter, and given the difficulties of obtaining quantitative data on contract enforcement or property rights, for example, we propose to use homicide per 1000 inhabitants and child mortality also as *proxies* of Rule of Law. In fact, a basic rule in any give society is the right to live, with special attention and care for the younger, and it would be fair to assume homicides and child mortality happen in violation of laws.

The analyses compare Brazilian data with Italy and the United States. The choice of Italy, besides the strong cultural bonds that inspires Brazilian legal system, is the scope of a broader ongoing research on comparative legal studies between Brazil and Italy taking place at Federal University of Minas Gerais (UFMG) and the University of Trento. The United States data is used as a control group with some aspects of development that should be taken in account with some caution.

#### 4 COMPARATIVE DATA

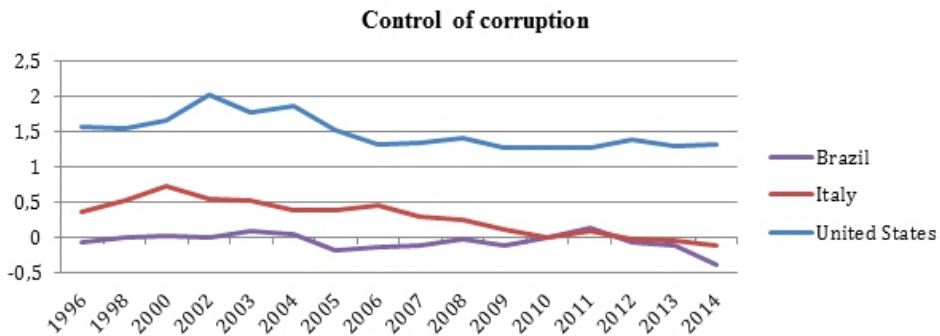
The comparative data related to the WGI for Brazil, Italy and the United States have been extracted from the World Bank's report from 2015.

## A. CONTROL OF CORRUPTION

As seen in Table 1 (In Annex 1), regarding control of corruption, data shows that Brazil has a very weak and stable reputation or perception on Control of Corruption, experiencing a significant decrease in this perception in the last few years.

It is also observable that the U.S. and Italy have also experienced some decrease in the indicator, although differently for both. While the U.S. has a slight decrease, maintaining a positive perception on control of corruption, Italy has inverted the overall perception over the past years, showing negative perception after 2012.

**FIGURE 1**



Source: WGI, 2015

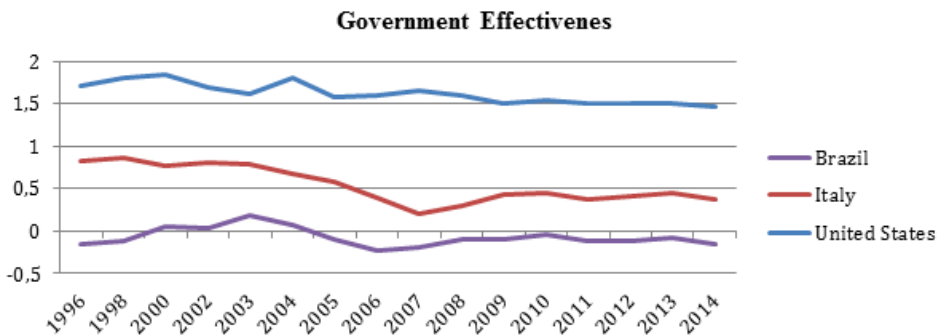
## B. GOVERNMENT EFFECTIVENESS

As seen in Table 2 (Annex 1), regarding government effectiveness, the analysed countries tend to show a certain degree of stability in the perception of the indicator. All three countries experienced a slight decrease in the perception roughly from 2000-2007, but maintain a generally stable difference of perception from one another.

The U.S. has maintained a very high perception of government effectiveness, with a slight downward tendency across the entire period (1996-2014). Brazil, in the other extreme,

shows remarkable stability in the perception of government (in) effectiveness, with virtually the same indicated negative perceived value from 1996 to 2014. Italy shows a slightly different picture, with a decrease of the perceived value in the analysed period, with a downward tendency in the period of 2003 to 2007 – a decrease the country has not recovered from.

**FIGURE 2**



Source: WGI, 2015

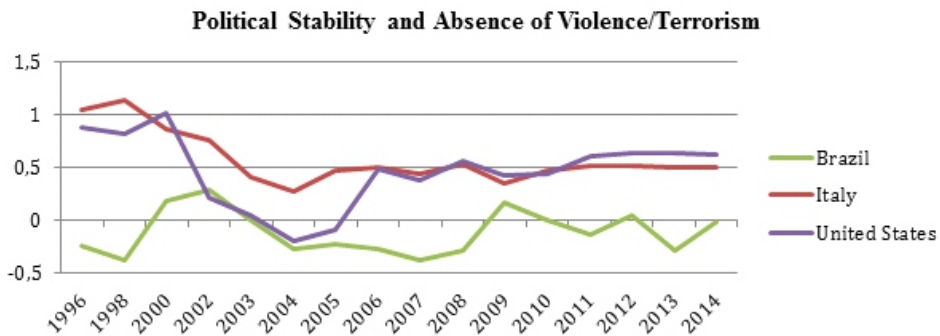
**C POLITICAL STABILITY AND ABSENCE OF VIOLENCE/ TERRORISM**

As seen in Table 3 (Annex 1), political stability and absence of violence / terrorism is an indicator with greater variation than the previously analysed indicators. The United States show a steep decline in the period ranging from 2000 to 2004, probably due to the occurrence of the September 11<sup>th</sup>, 2001, terrorist attacks against the World Trade Center and the aftermath of those attacks. That decline, however, is counterbalanced in the following years, with a considerable increase in 2005-2006, and reasonable stability from 2006-2014. Over the entire period, however (1996-2014), the US has not yet recovered its' late 1990s perception.

Italy shows a steady decline in the period from 1998 to 2004, but has been stable in the following decade (2004-2014). Brazil, on the other hand, shows considerable instability in the

period. Following a presidential impeachment process in 1992, the graph shows a slight decrease of perception from 1996 to 1998. Afterwards, there is steep incline from 1998 to 2002, and immediately after an also sharp decrease in perception from 2002 to 2004, maintaining relatively low values from 2004 to 2008. The period from 2009 to 2014 shows alternating short periods of increase and decrease in perception. In spite of the instability, Brazil showed a slight improvement over the course of the entire period (1996-2014).

**FIGURE 3**



Source: WGI, 2015

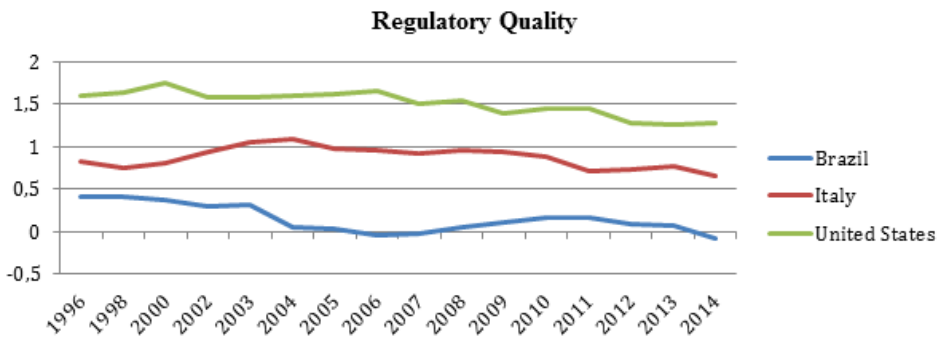
#### D. REGULATORY QUALITY

As seen in Table 4 (Annex 1), the perception of regulatory quality is rather stable in Italy, with a slight decrease over time. After a short period of improvement during the 1998-2003 period, Italy showed a tendency of decrease in perception over 2004-2011. The end result for the entire period is a slight decrease of perception of regulatory quality in Italy from 1996 to 2014.

The US and Brazil, however, show a different scenario, with a more perceptible downward tendency over the entire period (1996-2014). The US has shown steady decrease in perception, with only mild moments of increase in 1998-2000, 2007-2008 and 2009-2011. However, over the entire period, the perception of regulatory quality has gone down.

Brazil, on the other hand, showed significant decline over 1999-2006, with a slight recovery during the 2008-2011 period, quickly followed by another downward tendency in the following years. The result, over the entire period, has shown a general tendency of decrease in the perception of regulatory quality in Brazil.

**FIGURE 4**



Source: WGI, 2015

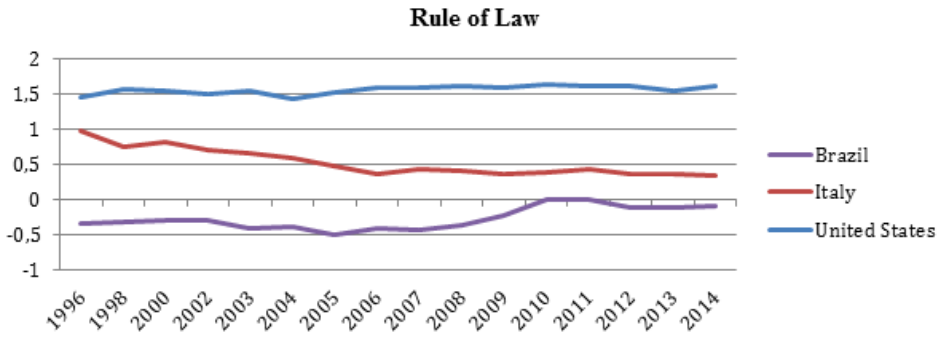
## E. RULE OF LAW

As seen in Table 5 (Annex 1), the US has shown consistent stability in the perception of Rule of Law. Over the course of the entire analysed period, the indicator has hovered around 1,5, with a slight increase tendency over nearly twenty years.

Italy has shown consistency in the decrease of perception of the Rule of Law, steadily approaching Brazil's level of perception of Rule of Law. Over the period of 1996 to 2006, the indicator has gone steadily down, showing a stable tendency in the 2006-2014 period.

Brazil's perception of Rule of Law, however, has a very different evolution. It remained stable during the 1996-2002 period, with a slight decrease tendency from 2002 to 2005. In the following years, from 2005 to 2010, the indicator takes a sharp turn upwards, remaining somewhat stable afterwards, although at a negative value.

**FIGURE 5**

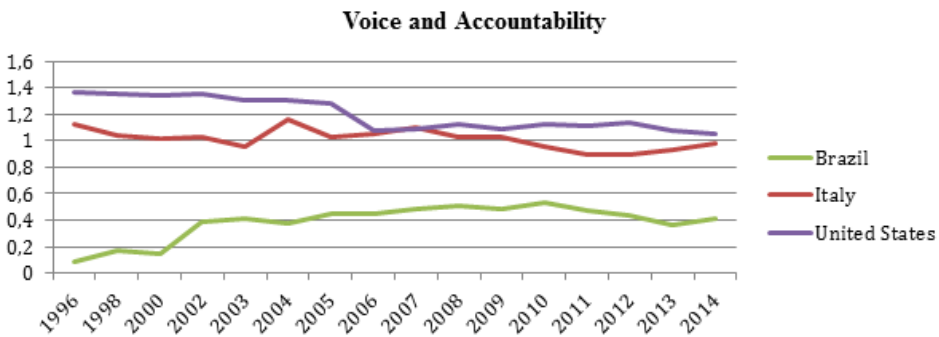


Source: WGI, 2015

**F. VOICE AND ACCOUNTABILITY**

As seen in Table 6, the perception of Voice and Accountability varies differently in the three countries. The US has shown an overall decrease tendency, with a specific downward trend during 2002 to 2006. Italy has shown a slight decrease tendency during the entire period, but with increase and decrease patterns over smaller periods. Brazil has shown an increase pattern over the entire period, with a very sharp increase in perception during the 1996-2002 period. From 2004 to 2010, a much weaker increase in perception has been identified, followed by a decrease over the period of 2010-2013.

**FIGURE 6**



Source: WGI, 2015

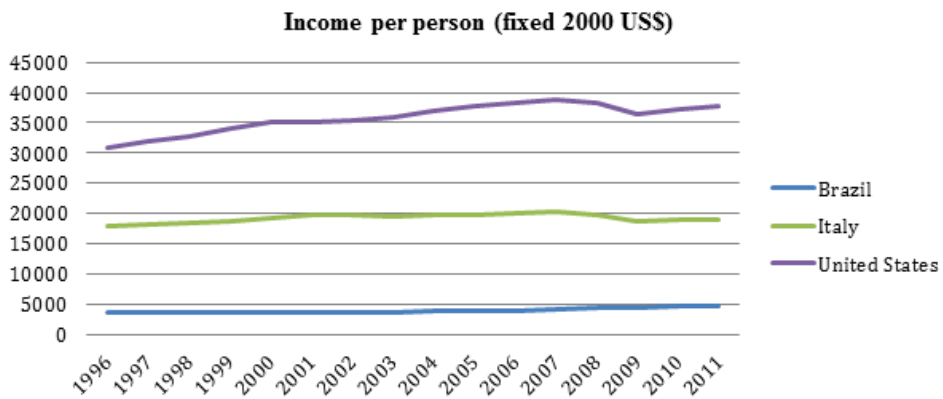
## 4.1 TAKING OBJECTIVE DATA INTO ACCOUNT

Aiming at a more comprehensive approach for legal research, it seems desirable to understand some objective data relating to the compared countries, in order to find some correlations between perception and reality. This paper proposes looking at income per person, yearly homicides rates and child mortality and as that objective data.

### G INCOME *PER CAPITA*

In the search for development, the income per person cannot be excluded from comparison, because it serves as a raw indicator of economic development. The indicator used shows Gross Domestic Product *per capita* in constant 2000 US\$. Inflation, but not the differences in the cost of living between countries, has been taken into account.

FIGURE 7



Source: World Bank, 2013

As seen in Table (Annex 1) and Figure 7, income per person in the compared countries have been consistently raising, except for a small decrease in Italy and United States around 2006-2008. Nevertheless, the compared income *per capita* in Brazil is significantly lower in 2011 (around U\$4.803,39), when compared

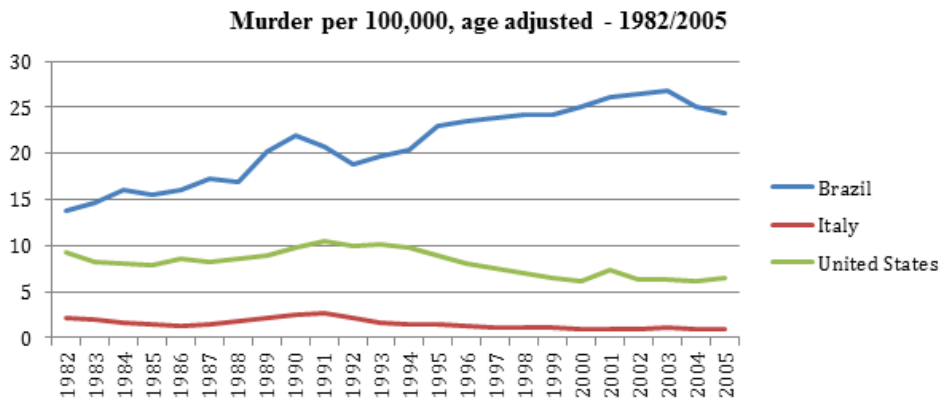
with Italy's (US\$18.937,25) and United States (US\$37.691,03) in the same year of 2011. Nevertheless, it should be noted that Brazilian GDP *per capita* has shown a significant increase.

## H. MURDER PER 100,000, AGE ADJUSTED - 1982-2005 AND 2007-2012

The “murder per 100,000” rate is believed to be capable of showing a concrete application of the Rule of Law. Indeed, while it can be very hard to measure the extent of enforcement of property rights or contracts in each country, due to lack of data or divergences in legal rules, homicide rates can be fairly used as a proxy of the respect/law enforcement in the protection of the most valuable right, protected in every single legal system.

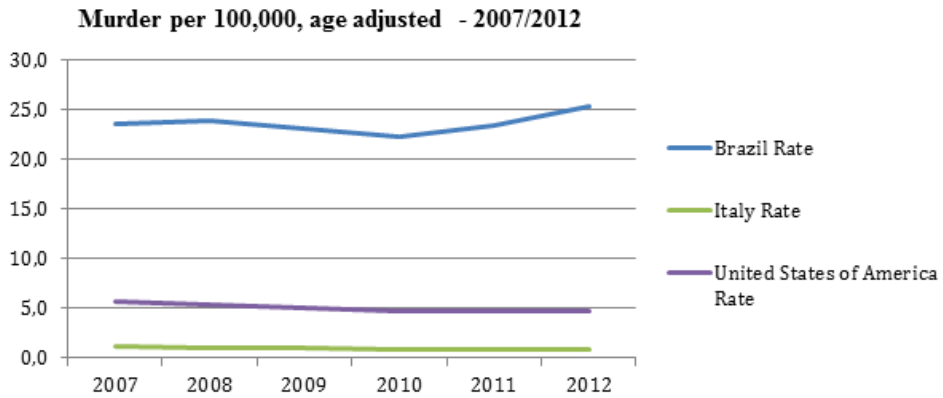
Data from the year 2006 could not be retrieved from a reliable source. For that reason, the data is separated for the periods of 1982-2005, taken from the World Bank report from 2014, and 2007-2012, taken from United Nations Office on Drugs and Crime's International Homicide Statistics database.

**FIGURE 8**



Source: World Bank, 2014



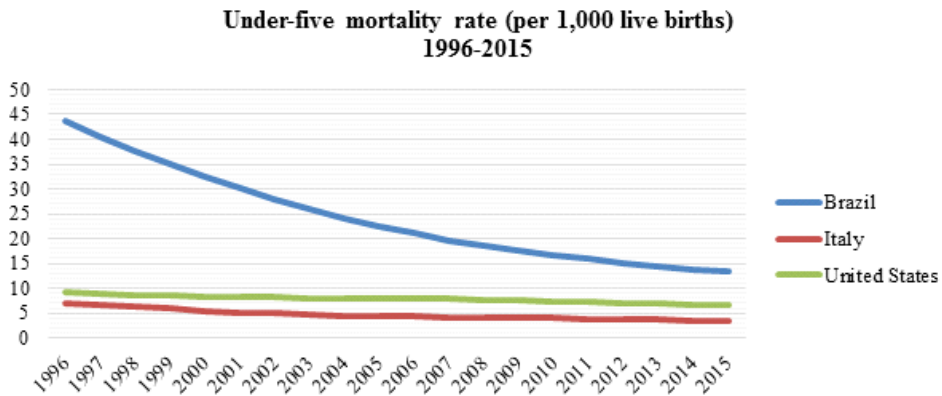
**FIGURE 9**

Source: UNDOC, 2014

As seen in Tables 8 and 9, the murder rate in Brazil has been rising significantly since 1982, showing a small decrease after 2003, but rising again after 2012. The United States homicide rate shows a small increase between 1989 and 1991, but a consistent decrease in the following years, except 2000-2001. Italy shows a comparatively very small rate of homicide, with a small increase between 1989 and 1991, and a consistent stability in the following years.

## I. CHILD MORTALITY

The child mortality rate, shown as Under-five mortality rate per 1,000 live births, expresses the probability that a child born in a specific year will die before reaching the age of five if subject to current age-specific mortality rates, expressed as a rate of per 1,000 live births. The child mortality rate is also believed to be capable of showing a concrete application of the perception of the Rule of Law, in special considering health measures. It is believed that these rates also can be fairly used as a proxy of the respect/law enforcement in the protection of children, also protected in every single legal system.

**FIGURE 10**

Source: CME, 2015

As seen in Table 9, child mortality in Brazil has been decreasing significantly in the period of 1996-2015, although it still carries a very high rate compared to U.S. and Italy. The Brazilian child mortality rate went from 43,6 in 1996 to 13,3 in 2015, while Italy decreased to half, going from 7 in 1996 to 3,4 in 2015. United States rate reduced approximately 30%, going from 9,2 in 1996, to 6,5 in 2015.

## 4.2 DATA CORRELATIONS

Some correlations with the data examined can show some surprises. Although it is known that correlation does not imply causation, some level of correlation was expected relating to the objective data and the subjective (perception) data.

Some correlations obtained are as follows:

**TABLE 11**

Correlation Income <i>per capita</i> x Corruption (1996-2011)	
Brazil	0,047105
Italy	0,220453
United States	-0,37543

**TABLE 12**

Correlation Income <i>per capita</i> x Effectiveness (1996-2011)	
Brazil	-0,3459763
Italy	-0,4336079
United States	-0,5362191

**TABLE 13**

Correlation Income <i>per capita</i> x Stability (1996-2011)	
Brazil	-0,04174
Italy	-0,56549
United States	-0,48106

**TABLE 14**

Correlation Income <i>per capita</i> x Regulatory (1996-2011)	
Brazil	-0,57151
Italy	0,578759
United States	-0,34142

**TABLE 15**

Correlation Income <i>per capita</i> x Rule of Law (1996-2011)	
Brazil	0,618466
Italy	-0,47824
United States	0,538136

**TABLE 16**

Correlation Income <i>per capita</i> x Voice (1996-2011)	
Brazil	0,768715
Italy	0,061695
United States	-0,74749

**TABLE 17**

Correlation Income <i>per capita</i> x Murder (1996-2011)	
Brazil	0,791958
Italy	-0,59259
United States	-0,70287

**TABLE 18**

Correlation Income <i>per capita</i> x Child Mortality (1996-2011)	
Brazil	-0,844098417
Italy	-0,609828155
United States	-0,849859801

Consistent discrepancies can be found when correlating subjective variables and objective data. As such, Brazil and the United States, on one side, and Italy, on the other, show very different correlation between income *per capita* and perceived regulatory quality. While Italy shows some positive correlation between the two variables (+0,57), the United States (-0,34) and Brazil (-0,57) show significant negative correlation. The same happens with Rule of Law and income *per capita*, however with mirrored results; in this case, its Brazil (+0,61) and the United States (+0,53) which show a positive correlation, while Italy (-0,47) shows a negative correlation. Finally, the correlation between voice and accountability and income *per capita* shows no similarity between the three countries. While Brazil presents a strong positive correlation (+0,76), Italy shows a very negative strong correlation (-0,74) and the United States shows almost no correlation at all (+0,06).

Analysing the aggregate data, some conclusions might be preliminarily drawn. Either the subjective indicators are unreliable, which has already been negated by the authors which proposed those indicators; or different countries suffer different impacts from their institutions; or unknown variables are also at work. For instance, the fact that Italy shows a positive correlation between Regulatory Quality and income *per capita*, while Brazil and the United States show a similar positive correlation regarding the Rule of Law and

income *per person*, might show that Italy is more influenced by its Regulatory Quality than Brazil or the United States, which are, in turn, more influenced by the Rule of Law. These, however, are merely hypothetical conclusion attempting at understanding the surprisingly different correlations found.

Further examining the correlation tests, it strikes as a question the unlikely and unexpected strong positive correlation between income *per person* and murder rate in Brazil (+0,79), with significant comparative discrepancy with Italy (-0,59) and United States (-0,70). This positive correlation, if it was to be considered as an indicator of the existence of any causality, would suggest that as the GDP *per capita* improves in Brazil, so does the homicide rate; and when GDP *per capita* reduces, so does the homicide rate.

Since that is no evidence in scientific findings that this correlation may be correct, i. e., there is no evidence that increase in GDP *per capita* may cause increase in homicide rates (or vice versa), we should consider different hypothesis to explain this unexpected correlation. We propose the hypothesis that Brazilian GDP *per capita* presented an abnormal raise, inconsistent with sustainable growth models. The anomaly in Brazilian GDP growth had already been notices in another paper<sup>28</sup>. In that work, the negative correlation between GDP *per capita* and patent grants was identified, which was inconsistent with sustainable growth models. Therefore, the issue does not seem to be with the correlation obtained from the data (GDP *per capita* and patents or homicides) but, instead, from the very foundation of one of the variables – the GDP *per capita* of Brazil and its economic reasons.

## 5 CONCLUSIONS

This preliminary study of the data can reveal that there might be extensive problems with Brazilian concept and enforcement of Rule of Law, with extensive, concrete and troubling impacts in social and economic development. Brazilian problems in Rule of Law may be very far from only perceptions, as actual data shows.

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28 LARA, 2015.

It is implied that recent increase in Brazilian GDP *per capita* is not economically sustainable, according to the scientific literature on growth models available at the moment.

Further studies should be in the direction of understanding legal foundations, if any, for the increase of murder rates as GDP *per capita* increases in Brazil.

On the other hand, one may work with the hypothesis that Brazil must fight to increase Rule of Law indicators in order to reach sustainable GDP *per capita* growth and reduce homicide rates and child mortality rates.

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ANNEX 1  
TABLES

Table 9 – Control of Corruption

Country	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil	-0.07213	0.00139	0.0235286	0.0130440	0.032090	0.052835	-0.16998	-0.13756	-0.11671	-0.02046	-0.11678	-0.00068	0.145704	-0.07391	-0.11824	-0.37831
Italy	0.359374	0.519977	0.720844	0.536818	0.530894	0.37816	0.397337	0.459131	0.30391	0.24982	0.125172	0.00498	0.081724	0.02767	-0.03961	-0.11002
United States	1.565774	1.547943	1.655764	2.01139	1.766018	1.856597	1.523864	1.315014	1.33947	1.40943	1.262599	1.259663	1.265102	1.37765	1.283048	1.322833

Source: WGI, 2015

Table 10 – Government Effectiveness

Country	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil	0.148028463	-0.11220808	0.0529489	0.03356246	0.17972721	0.06615094	0.099332921	0.229909167	-0.19923079	0.0933285754	0.095650554	0.039381128	0.117902249	0.124311067	-0.07877472	0.154615194
Italy	0.822708905	0.86874097	0.7680444	0.80065870	0.79610699	0.67469066	0.577065527	0.387619287	0.21361592	0.290852278	0.424612284	0.446260303	0.379318178	0.41013974	0.45158010	0.376326591
United States	1.71241188	1.79736709	1.8426252	1.69627904	1.60632789	1.79992759	1.573011994	1.602899909	1.64693513	1.602669954	1.504397154	1.549408078	1.512122869	1.511175156	1.50126624	1.457500935

Source: WGI, 2015

Table 11 – Political Stability and Absence of Violence/Terrorism

Country	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil	-0.246358603	-0.37112671	0.177808664	0.286004037	0.000221271	-0.276675016	-0.231576845	-0.277748019	-0.377915233	-0.292797953	0.164363906	0.0057122	-0.13636902	0.045203622	-0.282447517	-0.01384575
Italy	1.037043571	1.126131296	0.85292874	0.75817436	0.408018172	0.274958283	0.468802571	0.502487421	0.436486512	0.529223979	0.340511918	0.474065630	0.50578367	0.513671637	0.499329835	0.498162657
United States	0.871050894	0.821419656	1.01321912	0.205267698	0.49665824	-0.19598332	-0.089463525	0.488445461	0.373512447	0.560430706	0.427456498	0.43530172	0.59717476	0.632173896	0.634952545	0.620341301

Source: WGI, 2015

Table 12 - Regulatory Quality

Country	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil	0.41198	0.4035968	0.367503	0.286742	0.313238	0.049405	0.033309	-0.03988	-0.03126	0.053223	0.104084	0.1565	0.167919	0.087355	0.063943	-0.0726
Italy	0.825698	0.739109	0.813379	0.92905	1.051412	0.992466	0.965029	0.951116	0.921969	0.951686	0.94169	0.888673	0.706096	0.732498	0.77132	0.66141
United States	1.59092	1.638246	1.739398	1.580935	1.576547	1.589688	1.617003	1.648157	1.49892	1.542707	1.39724	1.436496	1.449534	1.282547	1.252362	1.271839

Source: WGI, 2015

Table 13 - Rule of Law

Country	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil	-0.33111	-0.31047	-0.30229	-0.30335	-0.40344	-0.39157	-0.49236	-0.41308	-0.43301	-0.36848	-0.21717	-0.00375	-0.00588	-0.11009	-0.11939	-0.08224
Italy	0.982156	0.756406	0.802741	0.70143	0.661474	0.578616	0.468319	0.351066	0.435167	0.417315	0.350937	0.378263	0.420625	0.360748	0.356985	0.337016
United States	1.450227	1.552708	1.53514	1.49329	1.546167	1.430703	1.525993	1.572891	1.57673	1.612397	1.57533	1.629838	1.605058	1.604821	1.535727	1.61582

Source: WGI, 2015

Table 14 - Voice and Accountability

Country	1996	1998	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brazil	0.092392	0.172170	0.150481	0.392553	0.410508	0.371802	0.445943	0.453466	0.489638	0.512928	0.486521	0.529738	0.473597	0.431970	0.367191	0.409628
Italy	1.129325	1.042755	1.018049	1.024961	0.951116	1.15553	1.024081	1.052934	1.103704	1.022851	1.025065	0.951677	0.898432	0.891268	0.934859	0.977669
United States	1.36585	1.35923	1.346335	1.35406	1.303579	1.310461	1.27559	1.078995	1.088106	1.119723	1.085644	1.121874	1.12422	1.133208	1.075796	1.050316

Source: WGI, 2015

Table 7 - Income per person (fixed 2000 US\$)

Country	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Brazil	3627.62	3693.27	3639.182	3594.87	3696.147	3692.84	3739.919	3733.992	3899.25	35976.619	4090.556	4297.82	4478.809	4424.759	4716.614	44803.398
Italy	17866.9	18190.67	18448.79	18713.35	19388.28	19737.24	19763.84	19601.26	19744.89	19781.96	20102.23	20291.23	19903.46	18697.22	18944.41	18937.25
United States	30827.99	31831.46	32847.35	34053.36	35081.92	35116.22	35427.91	3602.13	36931.39	37718.01	38349.4	38871.08	38208.76	36539.23	37329.62	37691.03

Source: World Bank, 2013

Table 8 - Murder per 100,000, age adjusted (1982-2005)

Murder per 100,000, age adjusted	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Brazil	13.83	7.68	14.67	16.07	15.58	16.07	17.22	16.99	20.21	21.87	19.72	20.44	22.94	23.54	23.92	24.15	24.27	25.05	26.06	26.53	26.85	25.29	25.08	24.40	24.40
Italy	2.08	2.56	1.90	1.62	1.45	1.20	1.54	2.61	2.15	2.55	2.10	2.29	1.47	1.41	1.36	1.15	1.19	1.58	0.97	0.90	0.91	1.06	1.04	0.89	0.70
United States	9.29	6.99	8.28	8.00	7.95	8.59	7.98	8.27	7.75	6.10	9.97	10.19	9.73	8.91	8.09	7.59	6.92	6.49	6.20	7.34	6.38	6.37	6.17	6.30	6.41

Source: World Bank, 2014

Table 9 - Murder per 100,000, age adjusted (2007-2012)

Country	2007	2008	2009	2010	2011	2012
Brazil	23.5	23.9	23.0	22.2	23.4	25.2
Italy	1.1	1.0	1.0	0.9	0.9	0.9
United States	5.6	5.4	5.0	4.7	4.7	4.7

Source: UNDOC, 2014

Table 10 - Under-five mortality rate (per 1,000 live births)

Under five mortality	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Brazil	43.6	40.6	37.7	35	32.4	30.1	27.9	25.9	24.1	22.5	21	19.7	18.6	17.6	16.7	15.9	15.1	14.4	13.8	13.3
Italy	7	6.6	6.2	5.9	5.5	5.2	5	4.7	4.5	4.4	4.3	4.2	4.1	4.1	4	3.9	3.7	3.6	3.5	3.4
United States	9.2	8.9	8.7	8.6	8.4	8.3	8.2	8.1	8.1	8	7.9	7.8	7.7	7.5	7.4	7.2	7.1	6.9	6.7	6.5

Source: CME, 2015

