An Economic Analysis of Judicial Performance

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Een economische analyse van het functioneren van de rechterlijke macht

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To the memory of Maria Olenka Lopes de Araújo

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I have always been fascinated with trying to understand the complex workings of society. Having grown up being exposed to both the developed and developing world, I cannot even remember when I first asked myself why conditions vary so dramatically from one country to another. But it was this very question that guided my studies and led to this PhD thesis.

When I was required to select a university major in 2008, it was crystal clear to me that I wanted to pursue a major that would help me answer this question. Perhaps, it was the influence of my economist grandmother (to the memory of whom this thesis is dedicated) that led me to choose Economics as my first major. I soon developed the suspicion, however, that economics alone would not satisfy my curiosity. Modern societies are commonly organised by laws that interact with the economy, and this interaction influences social welfare. Bearing this in mind, I decided to study both Economics and Law, thus starting the journey that has brought me to this milestone.

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Chapter 1

Introduction

"Commerce and manufactures can seldom flourish long in any state which does not enjoy a regular administration of justice"

Adam Smith

Institutions are constraints created by humans that shape life in society. They structure economic, political and social interactions and are of singular importance for economic development (North, 1991). The legal system can be regarded as a compendium of institutions. Constitutions, legal codes, precedents and other legal instruments are examples of man-made formal constrains that are intended to guide the interaction of society's members. Alone, however, these legal instruments are just letters on paper that people can choose to obey, or not to obey.

The main incentive that individuals have to follow the laws might be found in their enforcement, a task in which the judiciary plays a central role. Laws are generic, while each human interaction is specific. Courts exercise the state's monopoly over jurisdic-

tion, which literally means "to speak the law". They apply the generic rules to specific cases, thereby turning the law in the books into law in reality. In this sense, the judiciary occupies a strategic space in the interaction between the legal system and the economy.

As the epigraph opening this chapter exemplifies, the crucial dependence of commerce and production on a proper administration of justice is a time-honored belief held by economists. Especially in the past several decades, several empirical studies showing the connection between judicial quality and economic development have appeared in the literature (Ramello and Voigt, 2012). Considering that the quality of the court system matters for the economy, a natural line of inquiry presents itself: What are the underlying factors that might influence judicial performance?

This thesis aims to answer this question by analysing the courts performance from an economic perspective. Judicial performance is considered to be a multidimensional concept in which independence, efficiency and accessibility are critical facets. Using the Brazilian judiciary as a case study, this thesis applies economic tools to analyse each of these three dimensions. In order to better understand the underlying factors that might influence judicial performance, several fundamental questions must be addressed:

- How does judicial independence develop over time?
- What are the determinants of judicial efficiency growth?
- Which personal and institutional elements affect judicial accessibility?

1.1 Motivation

The importance of a functional judiciary for the economy received little attention in the study of economic development until some decades ago (Di Vita and Ramello, 2015).

With the flourishing of fields such as the New Institutional Economics and Law & Economics, the role of the courts has gained attention. This discussion crossed the borders of the academic debate and entered the agenda of policy makers, such as international organisations and governments.

The first clear attempt to include legal institutions in economic development programs might be traced back to the 1960s in the form of the Law & Development movement, as the next subsection discusses. The failure of this initial experiment provided lessons for subsequent endeavours, namely the judicial reform projects that were and are being conducted around the world. However, after decades of efforts, these programs are now coming under criticism (Pásara, 2013; Mendelski, 2013).

Considering the substantial amount of resources spent on these programs and the fact that most of the targeted countries are still underdeveloped, criticism is natural. It should be noted, however, that when these reforms were implemented, the available empirical knowledge about possible ways to improve the courts was limited. Indeed, an important by-product of these reforms efforts was the development of databases about judicial activity (Hammergren, 2002). The current discussion about these reforms, combined with the current data availability and the ongoing empirical revolution in legal studies, provide the main motivation of this thesis.

1.1.1 Law & Development

The attempts of developed nations to support legal institutional development in emerging countries can be traced back to at least the 1960s. In this decade, a movement known as Law and Development emerged. It was led by prominent American law scholars and supported by private (such as the Ford foundation) and public institutions (such as the United States' Agency for International Development). The key assumption of this movement was that economic development would be a consequence of "social differ-

entiation" focused on the established standards existing in the developed nations (Salas, 2001).

The law would be a fundamental tool in this process (Prado, 2016). The economic success of the United States of America was considered to be connected to the quality of American law. Hence, in order to achieve the same level of development, Latin American and other developing countries should reform their legal system based on the American model, and use USA rules as a model for rewriting pertinent legislation (Nichols, 1997). In other words, the Law and Development movement promoted legal transplantation.

Obviously, this process would require appropriate human resources. Emerging countries needed well-trained people to implement the needed legal reforms (e.g., write the codes and so on). Thus, education was a focal point of this movement. Lawyers, judges and other legal professions should receive proper education that would allow them not only to implement the reforms, but also to become legal activists in defence of the law's role in the development process (Messick, 1999).

The movement had a short life. In 1974 David Trubek and Mark Galanter, two leading scholars of the movement, announced its demise (Trubek and Galanter, 1974). The movement's belief that the law would be an engine of social change did not hold. Indeed, by the time that it faded, most Latin American countries were decaying into dictatorial regimes.

There are several reasons for its failure. For example, Messick (1999) argues that the movement lacked proper assessments of the law's impact on development. Thus, since the effects of the measures were unknown, there was no clear way to prioritise the movement's policies. Messick (1999) also stresses the lack of participation by local practitioners, especially compared to the presence of foreign consultants (who lacked

local knowledge, but had access to the funding) in dictating the reforms' content and pace. Nevertheless, a central reason for its failure, as discussed by Trubek and Galanter (1974), was the naivety of the movement's belief that the American legal system could be easily transplanted into the Latin American civil law jurisdictions..

The failure of the Law & Development movement provided important lessons for the development of legal institutional development programs (Messick, 1999). Perhaps the main lesson was that the simple adoption of "good" laws is not enough to achieve their intended goals. The enhancement of the institutions responsible for applying the law is of fundamental importance. Based on this lesson, the focus of these kinds of initiatives changed to judicial reforms.

1.1.2 Judicial Reforms

The World Bank is a leading international organisation when it comes to development programs, thus its evolution might represent the progression of development projects worldwide. It was established as the International Bank for Reconstruction and Development (IBRD) after World War II. Its primary role was to support the reconstruction of the affected countries (mainly in Europe) in an effort to avoid a repetition of the disastrous end of World War I.[1]

The countries affected by the war were in full recovery shortly after 1945. Hence, the focus of the IBRD shifted to its second role, namely to develop the resources and productivity capacity of the world, mainly of less developed countries (Mason and Asher, 1973). The focus on this new emphasis became clear in 1960 with the creation of a new institution dedicated to developing nations, the International Development Association,

[1]The Treaty of Versailles imposed heavy compensations upon the defeated nations (Keynes, 1920). The economic consequences associated with these reparations can be regarded as a factor that influenced the emergence of the extreme form of German nationalism that led the world into World War II (Henig, 1995).

which combined with the IBRD to form the two pillars of what today is known as the World Bank Group.

In its initial decades of functioning, the World Bank provided financial support mainly for infrastructure programs (loans for building bridges, power plants and so on). The rationale for this approach can be found in the Harrod–Domar economic growth model.[2] Poor countries have a plentiful supply of labour, but lack capital. This lack of capital reserves restricts investment and dooms economic progress. In order to promote the internal development of poorer countries, the World Bank is able to provide affordable loans to support infrastructure projects that, in turn, encourage the flow of private investments.

In 1990, Nobel Prize winner Robert Lucas Jr. questioned the traditional neoclassical prediction that, due to the diminishing returns of capital effect, capital would naturally flow from rich to poor countries (Lucas, 1990). Indeed, even after decades of favourable loans from international organisations, most developing countries were still poor. By that time, the New Institutional Economics was gaining prominence in the development debate. Bringing institutional design and performance to the centre of development studies debate, it provided a comprehensible explanation to the Lucas paradox.

For instance, the strong establishment of the rule of law would be essential to generate a stable and predictable environment in developing countries. In addition to directly improving business conditions, the rule of law is also crucial to overcoming other social problems that affect these nations, such as corruption and human rights violations.

[2]Model developed by Roy F. Harrod and Evsey Domar by the time of the World War II. Although contested, even by Domar himself, the model was the foundation for several financial aid programs launched in the decades after its publication (Easterly, 1997).

In this sense, since the nineties, the World Bank has been supporting reforms to improve the rule of law in emerging economies.[3] Initially, those programs were focused only on legislation reforms. However, the World Bank quickly realised that laws alone would not be enough to achieve the reform goals (World Bank, 2002). Therefore, it started to encourage and provide assistance to develop the institutions responsible for implementing and enforcing the law in these countries, mainly judicial reform programs. Although the modelling of the projects takes into consideration the particularities of each country, their common rationale is to improve judicial efficiency, accessibility and independence (Barron, 2005).

Latin America was the first region to receive these World Bank programs (Dakolias, 1996). This region was not randomly selected to first receive these projects. The post-independence period of Latin America's political history is a compilation of cyclical patterns of authoritarianism and democratisation. During the escalation of the Cold War, most Latin American countries entered the authoritarianism phase of the cycle. This cycle persisted until the third wave of democratisation, coinciding with the fall of dictatorial regimes in southern European countries (Hagopian and Mainwaring, 2005)[4].

The democratisation process began in the 1980s, and by the end of the decade most Latin American countries had new democratic constitutions. Latin America represents the largest geographical region with common features (such as culture, religion and proximity to the USA) attempting to build up democratic institutions. Moreover, after a period characterised by dictatorships and the repression of individual rights, the newly

[3]North American and West European efforts to support Latin American countries in implementing legal reforms designed to promote development can be tracked to before the 1990s. For instance, programs growing out of the law and development movement of the 1960s. Nevertheless, the political changes in Latin America that occurred during the 1990s created an environment that allowed these reforms to gain momentum (Corothers, 2001). The U.S. Agency for International Development (USAID) was the vehicle that provided bilateral support from the USA. The first support was directed to El Salvador in 1985 (Pásara, 2013).

[4]The beginning of this wave is commonly associated with the democratisation of Portugal, Spain and Greece in the end of the 1970s (Huntington, 1991).

enacted constitutions were generous in their provision of individual rights in an effort to gain public support for the young democracies (Prillaman, 2000). However, because of poorly performing judicial systems, the optimistic efforts of the leaders of these emerging democracies could result in a public outcry at the lack of rights enforcement, and threatened the sustainability of democratic institutions (Prillaman, 2000). In this context, the region received billions of dollars in financial and technical support directed at the promotion of judicial reform efforts (Deshazo and Vargas, 2006; Pásara, 2013).

Latin America was only the first region to receive these programs. Nations with transitional economies and countries in post conflict situations were the second big target of these projects. Although the World Bank is still the biggest supporter of the cause, other international organisations followed in its wake by adopting judicial reforms as an important tool in promoting economic development. For instance, the Europe Union has been a relevant player in promoting judicial reforms in its members and candidate countries with less developed institutions (Mendelski, 2012). Even if each country is a different case, the pioneering experience of judicial reforms in Latin America can be of relevance to the success of these new projects of judicial reforms in other parts of the world.

1.1.3 A Critical Reflection

Considering the growing relevance of judicial reform programs, there is an emerging critical reflection about them that has gained momentum in recent years (Skaar et al., 2004). After more than three decades of judicial reform programs, their design, efficacy and even necessity are now under critique (Pásara, 2013; Mendelski, 2013). Indeed, after years and billions of dollars spent, most targeted countries are still under developed. Furthermore, with new projects being developed around the globe, it might be neces-

sary to revise the previous initiatives in order to avoid the repetition of mistakes (Skaar et al., 2004).

The fact that these reforms were based on little practical knowledge is commonly pointed to as a main problem of these initiatives. The measures were initiated based mainly on general theoretical beliefs of the international agencies with little regard for the specific realities of the target country, or the successes or failures of previous programs (Pásara, 2013).

Latin America was indeed a lab for these programs (Domingo and Desai, 2018). There were no previous relevant experiences of judicial reforms when the programs started there. Basically, the only existing tool for the international agencies was the theoretical framework provided by recent studies in economic development theory. Consequently, an experimental approach was necessary. Naturally, based on this methodology, not all initiatives would provide the desired outcome.

However, as even some critics recognise, these projects had an overall positive effect in regions that would probably not have implemented these reforms without the initiative and support of international agencies (Pásara, 2013). Brazil might be a relevant example in this regard. Even if it still an emerging country with developing institutions, for the first time in its history it has sustained a democratic regime for more than 30 years. As this thesis will show, the enhancements in its judicial system might have played an important role in this achievement. In this sense, the Latin American experience can serve as a guide for current and future judicial reforms, and enhance their chances of success.

1.1.4 Economic Analysis of Courts

As the epigraph of this chapter highlights, the administration of justice has been regarded as an essential institution for the development of the market since the early days of economic science. Nevertheless, it is only in recent decades that the economic analysis of judicial systems has gained momentum, prominently in Law & Economics literature (Di Vita and Ramello, 2015). This field of study has developed two distinct strands. One focuses on the effects of the judicial systems on the economy, and the other on the internal dynamics of the judiciary itself.

For instance, there are a number of studies that analyse the effects of judicial efficiency on economic outputs (Ramello and Voigt, 2012). These analyses are critical for understanding the role that judicial quality plays in the process of economic development. Using the New Institutional Economics idea that institutions matter, these studies disentangle the effect the courts might have on the economy from those effects arising from other institutions.

Considering that institutions do affect economic outcomes, and that the courts are a relevant institution, the puzzle that confronts us is to determine how to improve the court systems in such a way that they support economic growth. The other strand of Law & Economics literature that investigates how courts impact the economy looks precisely into this question. Analysing the mechanics of the judiciary, this research agenda aims to elucidate the underling factors behind the performance of the courts (Voigt, 2016). It is to this research field, the analysis of the internal dynamics of the judiciary, that this thesis intends to contribute.

A common problem in both research agendas is the availability of data required to conduct empirical analyses. Indeed, initially the study of this field was restricted to theoretical models of litigation (Di Vita and Ramello, 2015). However, in recent years,

the data availability dealing with judicial activity has increased, facilitating the development of studies designed to empirically test the theoretical models.

Today, it is precisely those Latin American countries that participated in the judicial reforms programs discussed in the last subsection that have a comparative advantage regarding judicial activity data. The technological advancements introduced by these reforms facilitated the development of databases about the activity of these countries' courts. Indeed, the current richness of judicial data found in countries such as Brazil might be hard to find anywhere else, even in developed nations.

1.2 Scope of Research

This thesis aims to contribute to the strand of Law & Economics literature that concentrates on the economic analysis of courts, specifically to the study of the internal dynamics of the judiciary, by analysing judicial performance through a case study of Brazil. Although the link between the judiciary and economic growth is present as the background of this research, we do not intend to investigate this connection, since the object of this thesis is to analyse the factors affecting judicial performance and not how judicial performance affects society.

Judicial performance might have several definitions and interpretations. This thesis focuses on its analysis from an economic perspective, specifically considering the common conceptualisations adopted by specific academic literature and relevant international organisations. In this sense, judicial performance is considered to be a multidimensional concept including at least three elements: independence, efficiency and accessibility. The following chapter will offer a discussion and definition of these three elements.

In order to facilitate the empirical analysis of judicial performance in a single comprehensive study, we restrict our research to a case study of Brazil. Although a broader (such as a worldwide) analysis might allow us to generalise our results, there are several factors (the variety of legal systems, availability of data, etc.) involved in a multi-country analysis that would thwart a research project that intends to tackle the three dimensions of judicial performance.

The choice of Brazil is justified for several reasons. It is the largest country in Latin America based on metrics such as territory, population and economy. Consequently, it figures high when selecting a country from this region. In addition, other characteristics of Brazil favour its selection. Although Brazil is a federation composed of 27 federal entities, the legislation across the states is extremely homogeneous. This homogeneity simplifies an empirical analysis lacking in other more heterogeneous federations, such as the USA. This specificity facilitates the study of the court system, since diversity in legislation could interfere with the study of court efficiency, for example.

While this homogeneity has obvious benefits, it also comes with certain frustrations. The same similitude that allows us to compare the efficiency of the courts, makes an empirical study of judicial independence difficult, because the courts are too similar to determine their specific levels of independence. As a result, our analysis of judicial independence lacks an empirical foundation. Even our two chapters (Chapters 5 and 6) with an empirical foundations are limited by the availability of homogeneous data.[5] In both chapters, the methodologies employed are not sophisticated enough to substantiate causation claims.

For instance, in Chapter 5 where we discuss the dimension of efficiency, the usable database is restricted to the years 2009-2014 because of methodological and legal

[5]Chapter three explains the Brazilian judiciary and highlights other limitations.

reforms in Brazil.[6] Moreover, the database does not allow a classification of the cases considering their complexity. As a result, all the cases are considered to be equal, which might be a strong, but needed, assumption in the model. Hence, the results should be prudently regarded.

There are similar database constraints in Chapter 6 where we discuss the dimension of accessibility. The decision to take legal action might result from a two stage process. First, a conflict must take place ($t = 0$), subsequently (the second stage) one of the actors in the conflict must decide whether or not to take legal action ($t = 1$). The data available only allows for an analysis of the second stage. Since we cannot investigate the actual conflict, personal characteristics that might influence the nature of the conflict cannot be taken into account. Consequently, the results should be regarded with caution.

1.3 Thesis Outlook

Including our introduction, this thesis contains seven chapters. The second chapter presents an conceptual discussion of judicial performance that sets up our theoretical framework. After discussing the role of the judiciary in society, we formulate a tripartite model of judicial performance that views judicial performance as a multidimensional concept composed of judicial independence, judicial efficiency and judicial accessibility.

Considering that the following research is based on the experience of Brazil, the basic structure of the Brazilian court system is presented in Chapter 3. The purpose of this chapter is to provide the reader the requisite information to form a better understanding

[6]The database of the Brazilian National Council of Justice followed a different methodology before 2009. In 2015, the Brazilian Congress passed relevant legal changes, such as a new code of civil procedure.

of how the Brazilian judiciary works, so that (s)he can better follow the analysis and discussion developed in the subsequent chapters.

Chapter 4 focuses on an analysis of judicial independence. As presented in Chapter 3 and mentioned earlier in our introduction, Brazilian courts have a considerable degree of homogeneity regarding their independence. This characteristic prevented us from conducting a quantitative analysis of this judicial performance dimension. Instead, we adopt a historical methodology and analyse various aspects of Brazil's economic and legal histories to explore the development of judicial independence over time.

Chapter 5 is a study of judicial efficiency. However, rather than simply analysing the different levels of court productivity, here we attempt to elucidate the possible determinants of judicial efficiency change. In other words, we look into the factors that might be correlated with productivity change over time. To achieve our goal, we adopt an empirical method that is divided into two stages. First, Data Envelopment Analysis (DEA) is used to calculate Malmquist productivity measures, which are then decomposed in technical change (changes in the productivity frontier) and efficiency change (pure and scale efficiency). The second stage estimates fixed effect models to elucidate the factors that might be correlated with judicial productivity growth.

Chapter 6 turns to the analysis of judicial accessibility. The goal here is to analyse the possible personal and institutional factors that might influence the individual decision to take legal action. In other words: What are the individual and institutional elements that might be correlated with the decision to solve a conflict using the court system? The research conducted in this chapter is based on a database of an official face-to-face survey involving almost twenty thousand Brazilians.[7] Considering the kind of cases (labour, family, housing, basic services, social security and banking), logistic regressions are estimated to investigate the possible personal (such as gender, age and

[7]National Household Sample Survey ("Pesquisa Nacional por Amostra de Domicílio"- PNAD).

education) and institutional (such as residence, density of lawyers and court efficiency) variables that might be correlated with the decision to take legal action.

Chapter 7 presents our concluding remarks. The limitations of our analysis are discussed and open the venue for future research about judicial performance. Some policy implications are highlighted, and we outline the relevance of the findings of this thesis.

Chapter 2

Judicial Performance

"Parbleu, de ton moulin c'est bien être entêté; Je suis bon de vouloir t'engager à le vendre! Sais-tu que sans payer je pourrais bien le prendre? Je suis le maître. — Vous!... de prendre mon moulin? Oui, si nous n'avions pas des juges à Berlin."[1]

François Andrieux

The epigraph of this chapter is from an old French anecdote[2] *in which Frederick the Great, king of Prussia, tries to force a plebeian to sell him his property. After some discussion, the king argues that he was already being too cordial to the commoner. He could simply use his imperial power to confiscate the property, but instead, he was*

[1] Plebeian, your mill is good to be stubborn; I'm good to want to commit you to sell it! Do you know that without paying I could take it? I'm the master. - You! ... to take my mill? Yes, if there were no judges in Berlin. (own translation)

[2] "Le Meunier Sans-Souci" by François Andrieux.

willing to buy it. The plebeian did not accept the offer and responded saying that it could only be possible if there were no judges in Berlin. Surprised by this answer, the king changed his mind and left the commoner in peace. Although the story was written in a time of kings and emperors, it highlights the importance of the court system for society.

The relevance of the rule of law for the development of society is straightforward: Where the law is respected, more long-term contracts are established, the market flourishes, and economies grow (Bufford, 2006). However, one of the characteristics of the law is that it is general. Indeed, if the idea of the rule of law is that "be you never so high, the law is above you", the law should be universal in order to cover every case. Nevertheless, life in society is concrete. Each case is specific, thus there should be an institution that applies the law. As the plebeian invoked, this institution is the judiciary.

Although the theoretical connection between the rule of law and development might be clear, the transmission channels through which the activity of the court affects the actual social outcome might be less explicit. In order to shed a light on this topic, the first section of this chapter aims to analyse possible ways in which the court system can increase society's welfare.

However, the mere existence of the judiciary does not guarantee that it will fulfil its role in society. The degree to which the judiciary accomplishes its mission depends on the performance of the courts. Since the activities of the court are complex, the measurement of their quality is also multidimensional, as section 2.2 shows.

2.1 The Role of the Judiciary in Society

The primarily role of the courts is to act as a third party resolving the disputes that emerge among society's members (Saez Garcia, 1998). This activity naturally generates

a private good for the litigants; it ends their legal conflict. While this enterprise could also be completely delegated to private actors (such as mediators and arbitrators), it is historically a public activity. Why? As this section will show, the judicial activity produces positive externalities that increase the welfare of society.

2.1.1 Institution

Although the future is naturally uncertain, societies (some of them better than others) have managed to achieve a remarkable degree of development. Adam Smith is perhaps the most famous economist to recognise that the wealth of nations depends on the level of labour division among its participants. However, a deeper distribution of tasks leads to more interaction among individuals. Indeed, modern societies can be regarded as complexes of countless interactions among persons pursuing self-seeking goals. Each person has imperfect knowledge, not only of the natural future, but also of the social future, i.e., the behaviour of others.

Institutions are at the core of the development process (North, 1991)[3]. Societies are more or less developed depending on the institutions that they have (Acemoglu et al., 2005). Institutions are the incentives framework of a society, and considering that people react to incentives, Institutions shape an individual's behaviour (North, 1991). The legal system can be regarded as an example of a compendium of institutions. It represents the formal constraints that aim to frame a person's behaviour. Laws are an expression of the standard conduct that society expects from its members, thus it enhances a person's ability to form correct expectations about the behaviour of other members of society living under the same legal code.

[3]There is an emerging critical reflection concerning the connection between legal institutions and economic growth. As discussed by Xu (2014), some countries with dysfunctional legal institutions, such as China, have presented high rates of economic growth. However, when a larger time frame and pool of countries are considered, the chinese case seems to be exceptional.(Acemoglu, 2018)

2.1.1.1 Law actualisation

By itself, legislation can be regarded as a compilation of rules that society expects its members to follow. Regardless of being written in contracts or enacted by parliaments, rules are just dead letters on papers that people *can* decide to follow. Humans are not machines that can be programmed to follow some defined code. They are naturally free to choose their actions. Hence, law makers themselves cannot completely control social interactions. They can only try to enact society's desires and even if they are successful in this task, there is no guarantee that the law in the books will be the law in reality.

According to the standard economic model, people act trying to maximise their own utility (Aleskerov et al., 2007). In this sense, they do a cost-benefit analysis while deciding how to behave.[4] Consequently, an individual's behaviour will only be affected by the law if the rule alters either the costs or the benefits of the actions that the person can take. A rule is normally associated with a constraint (thus a cost), since in the absence of norms an individual is completely free to behave as he wants. Even though rules do exist,[5] the mere existence of a norm does not guarantee that an individual will take it into consideration.

Consequently, following the standard economic model, the effectiveness of a norm relies not only on its existence, but also on the costs associated with its disrespect. The cost of not complying with the law is a sanction.[6] In this sense, when a person decides whether or not to comply with a law, his reasoning should take into account that if he does not comply he *should* face a sanction. However, since it is not in the best interest of the violator to apply a sanction to himself, it should be externally enforced. Because the

[4]The hedonistic calculus, or in the words of Bentham: "nature has placed mankind under the governance of two sovereign masters, pain and pleasure" (Bentham, 1948, p.125).

[5]Indeed, as an ancient Roman aphorism says *Ubi homo, ibi societas, ubi societas, ibi jus* (Where men are, society is. Where society is, the law is), so the existence of norms is as normal as the existence of society.

[6]It can also be regarded as a price (Cooter, 1984). In any case, it is a cost.

sanction application is an external non-natural phenomenon, it becomes a probability in his decision-making process. As a result, the decision to comply or not with the law is a function not only of the sanction, but also of the probability of bearing it, as it was clearly demonstrated by Becker (1968). Hence, in shaping human interaction, the development of enforcement mechanisms is as important as the development of the laws themselves.

In modern societies, the interpretation and application of the law, thus its enforcement, is done by the judiciary. By punishing violators of the law the courts provide both specific and general deterrence. Specific deterrence is intended to deter the offender from repeating his transgression in the future. General deterrence intends to make the general population aware that transgression of the law results in official sanction. It shows potential wrongdoers that the violation of rights is likely to be punished (Rowe Jr., 1989). In this sense, the judiciary is a key institution in society. It actualises the law in the books into law in reality. Consequently, it helps individuals to formulate correct expectations about the future.

2.1.1.2 Rule creation

If, as mentioned at the beginning of this section, the judiciary's primarily role is to act as a third party resolving, according to publicly available rules, the disputes that emerge among society's members (Saez Garcia, 1998), then this activity generates both a private and a public good (Landes and Posner, 1979). By deciding a case, the courts clarify who among the parties behaved according to the law. This act should put an end to a dispute and reduce the degree of uncertainty for the parties. In such way, the judiciary produces a private good for the plaintiff and the defendant.

At the same time, the decision also creates a precedent. A piece of information that illustrates how the law is interpreted in a concrete case. This can be useful for the entire

society, since potential litigants of similar cases (individuals that are facing, or will face, a similar situation) can be better informed. Therefore, the production of the solution of a particular dispute (which is a private good) has, as a by-product, the creation of a public good (the precedent) (Landes and Posner, 1979).

The fact that the court ruled in one direction creates the expectation that it will do the same in another similar case. In this sense, precedents can also create benchmarks for settlements. Since the courts are the ultimate dispute resolution method, their opinion is important for negotiations in the shadow of the law (Depoorter, 2010). Negotiations can be better conducted if the parties have a clue about of how the case would be hypothetically decided by the court. Hence, precedents can contribute to a decrease in transactions costs (Lee, 2000). Furthermore, by increasing the information available to the rest of the community, precedents might reduce the uncertainty level for the entire society.

2.1.1.3 Popular support for the rule of law

Most developed societies are based on the rule of law, which means that the law should apply to every citizen alike. It is commonly associated with the brocardo "be you never so high, the law is above you". It is the antipodes of the rule of man, in which one person (or group) arbitrarily exercises power over the others (such as in dictatorships). In this sense, the rule of law protects individuals from the arbitrariness of their peers.

The idea that violations of an individual entitlement will be seriously judged by an entity of the society enhances the individual sentiment of being part of a community (sense of belonging). The simple belief that the group shares each individual's sense of fairness by providing an impartial third party to solve conflicts, tends to foster popular support for the state, thus for the rule of law (Sutil et al., 1993). Especially in dynamic

societies, such as democracies, the popular support for the rule of law depends on the people's belief in the rule of law itself (Prillaman, 2000).

Since the judiciary is the branch of the state responsible for applying the law, it is the natural guarantor of the rule of law. Considering that the popular support for the rule of law is based on the belief of its real existence, the court system plays an important role in cultivating this belief (Prillaman, 2000).

2.1.2 Conflict Resolution

In the state of nature, each individual has complete freedom. This individual power embodies the ability to unrestrictedly defend one's rights. However, once a person enters into a social contract, an individual cedes part of his freedom to the state. In exchange, the state promises to provide mutual preservation (Hobbes, 1968).

A notorious clause in this contract is the renouncement of the complete right of self-defence. Under the social contract, the individual can no longer use all the means to protect himself, but only the ones accepted by the law.[7] The state is the promisor of this clause. As defined by Weber,[8] the state monopolises the legitimate use of physical force. However, as soon as it gains this monopoly it also accepts the obligation to protect its citizens' rights.

A modern state performs this duty through three branches: legislative, executive and judiciary. The first branch is responsible for enacting the rules within a society. The executive's task is to execute the law, which can only be well accomplished if the law is interpreted and enforced. It is the function of the judicial branch to interpret and

[7]Even tough self defence is still allowed in most jurisdictions, it is an exception. Indeed, it is only accepted when the law allows it.

[8]"A human community that (successfully) claims the monopoly of the legitimate use of the physical force within a given territory" (Weber, 1965, p. 78).

enforce the enacted rules. In fact, the main function of the judiciary is to exercise the state's monopoly over jurisdiction (from the Latin *iuris*, "law", and *dicere*, "to speak").

Considering that the emergence of the state itself is related to dispute resolution,[9] judicial activity is a fundamental to any modern society. Adopting a Lockean approach, the judiciary is critical for the existence of a social contract, since nobody would cede the right of self-defence without the guarantee that the state provides a way to protect the violation of his rights (Maher, 2010). Furthermore, considering Rawl's veil of ignorance (in which the individual does not know his place in society), people would prefer a society that provides a conflict resolution system accessible to everyone. In this sense, the judiciary assures society's members that there is an ultimate impartial third party that will resolve their disputes according to publicly available principles and rules (Saez Garcia, 1998).

Furthermore, people tend to have a general sense of fairness, as shown in the ultimatum game with sanction (Güth and Kocher, 2014). A situation in which a wrongdoer remains unpunished violates this common belief. The judiciary is the state branch responsible for satisfying this aspiration at societal level. It is the alternative to self-defence (Maher, 2010).

In the absence of an official solution of conflict resolution, individuals would tend to engage more in self-help. As discussed by Black (1983), when legal protection fails, informal social control (under the characterisation of self-help) can be morally justified. A step further in this approach would be the emergence of crime control vigilantism (Rosembaum and Sederberg, 1974). The availability of a robust structure to punish wrongdoers reduces the likelihood of victims engaging in socially undesirable

[9] According to Hobbes (1968), the state would emerge to establish social peace among human beings that are naturally bellicose.

conducts (such as physically injuring the perpetrator), and undermines the appearance of unsavoury activities such as vigilantism.

Moreover, as the literature on drug prohibition has shown (Rasmussen et al., 1993; Cooney, 1997; Fryer et al., 2005), the unavailability of non-violent dispute resolution mechanisms is associated with criminality. For example, since drugs are illicit, dealers and consumers cannot use official institutions (such as the judiciary) to resolve their disputes. Hence, they need to use their own methods, mainly violence, to overcome their problems.

In this sense, provided there is a legitimised state, the judiciary is the preferable dispute resolution mechanism in a society (Maher, 2010). It exists to ensure individuals that their rights will be defended by the state[10] according to the law, which should reduce the use of self-defence, and thus violence. Consequently, judicial activity positively contributes to society's welfare.

2.2 Judicial Performance

The mere existence of the judiciary does not guarantee that it will fulfil its role in society. The degree of accomplishment of its mission depends on its performance. However, the judiciary executes a complex social activity, which also makes the measurement of its quality a complicated task.

Ideally, the main product of the judiciary is the promotion of justice (Prillaman, 2000). However, justice is a complicated concept that has been discussed since Aristotle (if not even much earlier) without an agreed consensus. Prillaman (2000) argues that regardless of our conceptualisation of justice, nowadays a judiciary approaches "quality justice" when it is simultaneously accessible, efficient and independent. Staats

[10]Moreover, considering an independent judiciary, the courts should protect the rights of an individual from violations executed not only by other individuals but also by the state itself (Voigt et al., 2015).

et al. (2005) expand the dimensions of judicial performance by adding effectiveness and accountability.

Dakolias (1999) proposes that an effective judiciary should be predictable, resolve cases in a reasonable time frame, and be accessible to the public. Following this proposition, she defines judicial performance in five dimensions: efficiency, access, independence, fairness, and public trust. Drawing, at least in part, on the discussions of scholars, the World Bank judicial reform projects were based on four pillars: efficiency, access to justice, independence and accountability (Barron, 2005).

Although there might be no common definition of judicial performance, its multidimensional characteristic is well accepted (Hammergren, 2007). Furthermore, if the number of dimensions might be disputable, there are three central dimensions of judicial performance: efficiency, accessibility and independence. Indeed, this tripartite concept seems the most adequate[11] because fairness, accountability and public trust can be considered as part of judicial independence, while effectiveness could be related to efficiency.

The three dimensions are closely connected and interdependent. For instance, an enhancement in judicial accessibility, not followed by an improvement in efficiency, might lead to a situation of access for everyone but justice for no one. On the other hand, a decrease in efficiency leads to a longer court delay which might be an unjust and unfair way to reduce court demand (Vereeck and Muhl, 2000).

Moreover, an increase in efficiency, without a correspondent amelioration in independence, might only aggravate the problems related to the lack of judicial independence, since more problematic (without autonomy and impartiality) decisions will be taken. Furthermore, initiatives to improve judicial independence, such as an increase in court

[11] Indeed, Hammergren (2002) lists access, independence and efficiency as the values emphasised in the judicial reform agenda.

fees (to boost courts' revenues, thus their independence from the other branches of the state), tends to negatively affect judicial accessibility.

Considering the conceptual complexity and relevance of each dimension of judicial performance for this thesis, the following sections will discuss the concepts and related subjects to judicial accessibility, efficiency and independence.

2.2.1 Accessibility

Development is the expansion of real freedoms (thus rights) that people enjoy (Sen, 1999). The central role of the judiciary is to turn rights into a real possibilities, instead of dead letters. However, the judiciary itself is naturally inert, only being able to act when provoked. Hence, the capacity of the courts to perform their task as an engine of economic development relies on the disposition of the affected parties to use the court system.

The enforcement of individuals' rights is essential for development, since the absence of effective mechanisms for their vindication makes the mere possession of rights meaningless (Cappelletti and Garth, 1978). The right to use the courts is one of the most fundamental rights, because it is the right that guarantees the defence of all other rights.[12] Consequently, if justice is important for development, it can only matter if people can approach it. Inaccessible justice is no different than no justice.

A basic concept of citizenship entails a sense of fairness, legality, access, and universality (Caldeira and Holston, 1998). In this sense, judicial accessibility is a core element of citizenship. If the social contract exists to protect rights (especially considering that by engaging in this contract people give up part of their ability of self-protection), a

[12] As the United States Supreme Court once defined: "The right to sue and defend in the courts is the alternative of force. In an organised society, it is the right conservative of all other rights, and lies at the foundation of orderly government." (Chambers v. Baltimore & Ohio Railroad, 207 U.S. 148).

rational individual would only sign this agreement with the belief that the state will provide him ways to guarantee his rights. In a modern society, this ultimately means the judiciary. When the rights of a citizen are violated (by another individual, or even by the state), he should have at his disposition access to the legal tools to guarantee his rights. The failure of this provision might jeopardise the foundations of a civilised society (Alschuler, 1986).

Regardless of the judicial procedure outcome, the mere promise that the claims of each person will be taken seriously tends to foster the sense of community, thus the rule of law.[13] Individuals (especially the ones from low income classes) that are granted access to the courts tend to have more favourable attitudes toward the rule of law and more trust in democracy than individuals that have never used the judiciary (Sutil et al., 1993). Indeed, an accessible judiciary breeds an understanding of how the legal system works, and confidence based on comprehension is more reliable than confidence based on awe (Goldstein, 1993).

The judiciary should be equally accessible to all members of society. Considering Rawl's veil of ignorance, behind which a hypothetical citizen is deprived of knowledge of his situation in society (ethnic group, class, and gender etc.), a rational person would choose to live in a society in which the judiciary is accessible to all its participants.

Although the discussion about the concept of justice is an unsettled definition, it can be associated with fairness, or the absence of discrimination (Rawls, 2001). In general, people have a preference for fairness, as repetitions of the ultimatum game have shown (Güth and Kocher, 2014).

[13] As discussed by Rowen (2008), a sense of community is a main element in the development of the rule of law.

In democratic societies, this preference can be found in the principle of equal justice under the law. This means that justice should be the same, in both substance[14] and availability, to all members of society. In this sense, in order to promote justice, the courts should be equally available to all citizens, regardless of their characteristics. For instance, a judiciary which is not as available to the poor as it is to the rich (to women as it is to men, and so on) is as unjust as a court that in its decisions favours the rich against the poor.

Certainly, not every conflict should be solved by the courts. Resources are limited, and the judiciary is an expensive social institution. Hence, as in any other activity, the demand for court services should have a socially desirable level (Shavell, 1999). However, under the light of the equal justice under the law principle, the socially desirable level of court demand should be reached regardless of personal and institutional factors. In this sense, the idea of judicial accessibility should be interpreted using a capability approach (Sen, 1999). It should not be misunderstood as taking every conflict to the court system, but that every person should have the same opportunity to take legal action (equal access).

2.2.2 Efficiency

A conflict emerges when two parties with different pretensions do not reach an agreement (Carnelutti, 1936). It naturally creates uncertainty, since it is undecided which pretension will prevail. The judiciary exists to provide justice to the society by solving, according to publicly available principles and rules, the conflicts. The courts terminate the legal uncertainty created by the conflict, restoring the peace between the litigants. As a by-product, the judiciary also creates a precedent that might be useful for the

[14]Substantial justice equality is related to judicial impartiality. We present a more detailed discussion of this concept in our section on judicial independence.

entire society, since it clarifies how similar conflicts would be judged, decreasing the uncertainty level of society as a whole.

Uncertainty should, *ceteris paribus*, increase over time because the quantity of unknown factors should also increase as time passes. Assuming that the parties have positive discount rates,[15] an instantaneous judicial decision should have a higher value than the same decision achieved years later. Consequently, a system in which the decision is reached by the simple flip of a coin would be tremendously fast, but it would promote random decisions instead of justice. On the other hand, as the time to deliver a decision increases, the uncertainty about the decision also increases. Indeed, the hypothetical limit situation (a court decision after an infinite period of time) is not different than a nonexistent court. Hence, judicial inefficiency is injustice institutionalised.

The promotion of justice needs time. In modern societies, judicial decisions are the product of the cognition of the judges, based on the arguments and evidence provided by the parties following procedures established in the law. As a consequence, the amount of time needed depends on the law and the productivity of the courts. The quality of the legislation (namely, its consistency and clarity) can certainly affect judicial efficiency, as discussed by Vita (2012). However, even the most efficient laws need to be ultimately enforced by the courts. Hence, although both factors are important, the productivity of judicial administration is essential for timely decisions.

2.2.2.1 Judicial administration

In consumer theory, the axiom of dominance states that people prefer more than less. If two bundles of the same goods (x,y) are compared, consumers prefer the one that has more of the two goods. In the case of judicial efficiency, these two goods can be seen as

[15]This assumption might not hold in cases that the defendant has an interest to delay the procedure (such as in liability claims). However, at aggregated level (societal point of view), the assumption holds.

speed and quality (Voigt, 2016). Consumers of justice (litigants and the society) want faster and better decisions.

However, the same microeconomics that considers that people prefer more to less, also admits that resources are limited. This is not different in the case of justice. Courts do not have unlimited resources. Justice should be delivered observing the capital (both physical and human) constraints of the courts. Consequently, to better deliver justice, courts should maximise the management of their resources. In other words, they should be efficient.

Productive efficiency is commonly associated with production maximisation. It can be achieved by either producing the maximum output with a given amount of inputs (output oriented) or by using minimum resources to produce a given output (input oriented). It can be simplified in mathematical terms as:

$$Efficiency = \frac{output}{input}$$

In this sense, a production can be defined as efficient when either its output is maximised or its inputs are minimised.[16]

Judicial activity can be thought of as a kind of production process. Judges and their staff (human resources), using their material resources, operationalise the court demand (cases) in order to produce an output (judgements). There are different ways to combine the inputs in order to produce the output. Naturally, different combinations might lead to different degrees of outputs. The same inputs might generate a different output depending on how the production is organised. In the case of the judiciary, judicial administration describes the organisation of production.

[16]Considering that court demand might not directly be under control of the judicial administration, output maximisation seems a better interpretation of efficiency when it comes to the courts' activity.

Voigt and El-Bialy (2016) discuss a list of characteristics of court organisation that might affect judicial efficiency, such as size and degree of specialisation of the courts, and judges' incentives. Small and highly specialised courts might increase court output. Since each court would only deal with specific kinds of cases, the judges would be specialised in these cases, thus more productive. However, low diversity of cases might make the judges disinterested. Furthermore, this setup requires a higher number of courts, consequently more costs which might decrease overall efficiency.

On the other hand, courts that are too big and nonspecialised might also lead to less efficient courts. Big courts suffer from complexity problems, such as being more difficult to monitor and supervise. Judges might find it easier to avoid their work by hiding behind their co-workers (Posner, 2000). Moreover, nonspecialist judges are also expected to be less efficient than specialised ones. The incentives that the judges face should also be relevant for court efficiency. Indeed, Posner (1993) argues that judges are humans, as everybody else, thus they try to maximise their own utility. Although judges' utility might have several dimensions (such as reputation), remuneration is naturally an important factor.

Investment is, by definition, an expenditure related to an expected increase on future production, thus it should affect productivity. Specifically, investment in technology (such as in information technology) is expected to positively influence judicial productivity. As Palumbo et al. (2013) suggested, spending on computerisation should smooth court functioning and improve its efficiency, mainly by promoting new case-flow management techniques. A good degree of information permits the introduction of better procedures to monitor and enforce judicial deadlines. Furthermore, it can contribute to improve courts' accountability and transparency (Kourlis and Gagel, 2008).

A main concern that arises when we see improved productivity (in any production process) is that it not be caused by a decrease in quality. As discussed previously, a

system in which, instead of analysing the cases, the judges just flip a coin to decide a case would be tremendously efficient from a quantitative perspective. However, the judiciary should reduce uncertainty, resolving disputes in a predictable manner. Consequently, quality is as important as quantitative efficiency. Nevertheless, it is not always clear as to how we might measure the quality of the decisions.

Law is not an exact science. Decisions are not the product of some mathematical equation. Consequently, their quality cannot be objectively analysed as can their quantity. However, the legal system itself has an endogenous control of judicial quality: the appellate system. Decisions of the first instance judge can be subject to an appeal to a higher court. The second degree court is composed by several senior judges whose main task is to revise lower judges' decisions. Certainly, this is not a perfect measurement of decisions' quality, especially since the second degree judges can also make mistakes. However, within the structure of the judicial system, decisions of appeals can be seen as an official assessment of judicial decisions' quality.

In this sense, the quest for judicial efficiency can be thought of as the attempt to maximise the amount of judicial activity product without decreasing the output's quality. In other words, to produce more decisions considering the resources, without a reduction in quality.

2.2.3 Independence

The main task of the judiciary is to act as a third party in solving conflicts according to publicly available rules, thus enforcing the rule of law. Consequently, independence is a core characteristic that the courts should have. Indeed, the lack of independence might make the judiciary promote the rule of persons instead of the rule of law (Voigt, 2008). But what is judicial independence?

As Janus is depicted in Roman mythology with two faces (one looking to the future and the other to the past), judicial independence is a concept with two facets. One facet concerns the independence of the courts from other branches of the state (autonomy), while the other concerns the ability of the courts to rule without being influenced by a litigant (impartiality) (Staats et al., 2005). In the anecdote that opened this chapter, the courts in Berlin should decide purely based on the law, regardless of the interests of other state powers (in this case the monarchical power), or the relative prestige of the litigants.

Nevertheless, if judicial independence might be a condition for the rule of law, it can also be a threat to it. Considering that judges are normally not elected, their complete independence could result in the emergence of the tyranny of the judges. Moreover, there would be no guarantees that a fully independent judge would be impartial. In this sense, judicial independence should be combined with judicial accountability.

2.2.3.1 Autonomy

The judiciary, as an institution, should be independent from external unwarranted political influence. This notion is present in political science since at least the emergence of Montesquieu's separation of powers theory. Since the state is the most powerful institution within a society, the misuse of this power could result in undesirable outcomes. To prevent it, Montesquieu developed his *trias politica* model, in which the state's power would be divided into separate and independent branches. Most modern democracies adopt this framework, which is usually composed of the executive, the legislative and the judiciary.

Considering that the main goal of this design is to limit power, it is an important condition that each branch is independent from the others. Since in this model the functioning of the state depends on the three branches, a checks and balances system

should emerge in which each branch should be constrained by the others (Madison, 2014).

In such a way, the judiciary should be able to prevent another branch of abusing its constitutional power. For example, while the legislative's main task is to enact new laws, the executive might also create legislation (such as regulations). In both cases, the new rules should be in consonance with the constitution. Nevertheless, they might attempt to extend their powers by passing unconstitutional laws. To protect society from these abuses, most jurisdictions adopt judicial constitutional review in which the judiciary can suspend laws that are not in accordance with the constitution. It is one of the main mechanisms of checks and balances performed by the judiciary. However, such an act of defiance can only be well-performed if the courts are independent (Larkins, 1996).

The judiciary should also arbitrate conflicts between the executive and the legislative. These conflicts might escalate into power games, which might damage the entire democratic system. Only independent judiciaries can accomplish this task well (Feld and Voigt, 2003). Indeed, in a situation of conflict between powers without judicial independence, the courts can be used by one power against the other, thus contributing to an escalation of the conflict, instead of promoting its solution.

Moreover, judicial autonomy is also important from the perspective of individual citizens. A main goal of constitutions is to limit government's power over individuals. Considering the imbalance of power between the public administration and a citizen, when a conflict (such as an expropriation) between them emerges, an independent organisation is needed to, based on constitutional rules, adjudicate the dispute.

In this sense, associated with judicial accessibility, judicial independence is important to maintain popular support for the rule of law. Indeed, according to Acemoglu and Johnson (2005), for long-run economic growth, the protection of individual rights

(especially property rights) might be more relevant than public enforcement of private contracts.

2.2.3.2 Impartiality

In addition to being independent from the other branches of the state, the court system should be independent from the litigants. Indeed, if its primary role is to assure society's members that there is an ultimate third party that will resolve their disputes according to publicly available principles and rules (Saez Garcia, 1998), it should be independent from the parties of the dispute. This is the substantial side of the equality under the law principle.

Perfect impartiality (to decide a case completely based on the law without any bias or prejudice) is a utopian concept, consequently it should be regarded as an relative concept. Judges are humans who cannot be completely isolated from the social world. They do have their own beliefs and prejudices. Moreover, judicial proceedings can be seen as processes in which the parties (by presenting their own versions of the case, own proofs and so on) try to *lawfully* influence the judge to adjudicate in their own favour. Consequently, in reality, judicial impartiality should be considered as an absolute concept. Judges are impartial when they render sentences based only on their own conviction about the case, insulated from unlawful influence (such as bribes) of the litigants.

Judicial impartiality is a key element in building popular support for the rule of law. Tyler (1984) shows that litigants that lose a case are more willing to accept the verdict if they believe that they were subjected to a fair trial with an impartial judge. Indeed, an impartial judge is in the best interest not only of the parties, but of also the society as a whole. The best option for each litigant would be a judge on his side, while the worst

option would be an adjudicator on the other side. As a result, an impartial judge should be the optimal solution for both litigants.

2.2.3.3 Accountability

In order to promote the rule of law, the judiciary must be independent from both the other branches of the state and from the litigants. However, the judiciary is composed of humans, as is any other state power. Thus, there is no guarantee that judges will follow some altruistic behaviour and not their own interests. As anyone else, they might pursue their own interest (maximise their own utility, by focusing on prestige, income, leisure and so on), as discussed by Posner (1993), instead of the public interest (the rule of law). Without any control, judicial independence might promote the rule of the judges, instead of the rule of law. Hence, judicial independence alone can be a threat to the rule of law. Furthermore, since in several jurisdictions judges are not elected, a situation of tyranny of judges might not be ruled out.

Judicial independence might also bring public censure to the judiciary itself. Consider a purely independent judge trying to maximise his income by receiving bribes. Moreover, independence might also be problematic for the other dimensions of judicial performance. For instance, a complete independent judge might choose to decide to prioritise cases that might increase his prestige (such as high profile cases), and render decisions for all the other cases only after unnecessarily long delays. Although, in line with his own utility function, this would affect judicial accessibility and efficiency.

The fact that the courts should be independent to arbitrate disputes between the other branches of the state does not guarantee that the judiciary itself, as with any other branch, might not enter in a conflict with another power (e.g. if the legislative enacts laws against the courts' interests). Given this scenario, the courts might use their

constitutional control power to pressure the executive or the legislative by suspending the effect of important executive acts or laws enacted by the legislative branch.

Even if the judges exercise an important role in society, they are still public employees. Their remuneration comes from the taxes that society (hence, the litigants) pays. Hence, they should work for and in society's interest. However, judicial autonomy is at the core of judicial independence, thus limitation of the courts activity might be, *prima facie*, a contradiction (Cappelletti, 1983).

Absolute independence would mean that the judges are above the law. However, judicial independence is not an absolute value. The independence of the judges is provided by the society through the law. Hence, courts above the law are not only in contradiction with the rule of law principle, but also democratically unsustainable in the long run (Dasgupta and Agarwal, 2009). On the other extreme, complete accountability would mean that the judges are fully under control of some external force (such as another branch of the state). Consequently, this kind of accountability would reduce the judiciary to some sort of government agency (ENCJ, 2017).

A key element in the solution to this puzzle is the definition of accountability. Briefly, it means answerability and responsibility (White, 2002). The judiciary should be held accountable to its decisions. In other words, the courts should not be able to behave with complete freedom, but rather to behave considering its liability to some principal. The question is then to whom are the judges accountable?

In a democratic society, the straightforward answer would naturally be to the people. As the president and the members of the parliament, the judges would also be accountable to the citizens. Yet, if the president is accountable to the majority that elected him, the member of the parliament to the constituents that voted for him, to whom would a judge be precisely accountable?

Furthermore, even if this entity could be measurable, then would the judge be expected to follow its opinion? How would this opinion be measured? Elections or indirect accountability (through another branch of the state) would be the natural solution. Nevertheless, as this opinion changes, would this judicial precedent also need to change? If the rule of law exists to promote some certitude, this kind of system would be promoting exactly the opposite (White, 2002).

As the independence of the judiciary is provided by society through the law, the judiciary is also accountable to society through established legal procedures. Judicial independence is not an end in itself. Neither is judicial accountability. Both exist to promote the rule of law. Thus the solution for this apparent contradiction should also be in line with the same goal. same goal. Neither judicial independence nor accountability are goals, but rather means to achieve the rule of law (Ferejohn and Kramer, 2002).[17]

The accountability of the members of the judiciary might not be focused on a specific group of people, but applied to the entire society. Consequently, judges should not base their decisions on the opinion of a majority, but on the rule of law because this is ultimately in the interest of the entire society. The system, thus, should be designed to create incentives to make the judges render decisions according to the law.

A key mechanism of judicial accountability is the appeal system. If an appeal is a chance to reverse a decision for the parties, for a judge it might impact his reputation, influence, prestige, thus his career (Levy, 2005). Consequently, it provides an incentive for judges to render high quality decisions. The appeal system is, thus, a natural control structure for judicial accountability.

[17]Indeed, one value might even reinforce the other. Contini and Mohr (2008) discussed concrete cases (from Italy and Denmark) in which judges had side-jobs as private arbitrators (a clear threat to their independence). In both countries accountability mechanisms took place to constrain judges from arbitrating.

Voigt (2008) cites other internal mechanisms that can foster judicial accountability without damaging judicial independence, such as publicity of judicial decisions and proceedings, requirement of decisions with extended reasoning, codes of judicial conduct and complaint agencies. Making judicial decisions available to the public is standard in most civil law democratic systems. If judges exercise a public duty, it follows that their work should be available to the larger public.[18] Proceedings should be open to every society's member, and the general public should be able to analyse the court rulings. In addition to informing the public of the court's precedents (thus, promoting the role of the judiciary in society), the public nature of judicial activity facilitates the discovery of errors committed by the judges (since more people will analyse it). While judicial transparency might create incentives for the judges to follow the rule of law via public scrutiny, it might also increase public awareness about judicial activity. This should increase the general confidence of the citizenry and raise the legitimacy of the court system (Bühlmann and Kunz, 2011).

Requiring judges to provide extended reasoning in their decision might be interpreted as an attempt to impel them to put more effort in their decisions. Furthermore, it would allow the reader (such as a second degree judge) to understand the line of reasoning adopted by the judge. As a result, this would facilitate the verification of a judge's work in accordance with the law. Nevertheless, it does not prevent a situation in which a judge fills his decisions with several pages of nonsense text just to justify the adherence to the request of "extended reasoning". Consequently, this measure should be accompanied by the establishment of judicial conduct codes. The definition of standards for acceptable judicial behaviour allows for a more complete evaluation of the judge's effort.

[18]Naturally, this rule accepts exceptions. Some specific information might require confidentiality, such as parts of the cases involving the intimacy of the parties. Nevertheless, even in the presence of these private information, the general ruling should be public.

Still, all these measures could be of little efficacy if no effective punishment for judges' misconduct exist. In the past several decades, jurisdictions (usually known as judicial councils) have been established to fill this gap by acting as external oversight bodies (Garoupa and Ginsburg, 2008). These agencies are usually responsible for enhancing judicial accountability, such as by taking disciplinary actions against judges. Although their structure varies from country to country, they are an attempt to enhance the accountability of the judiciary by taking disciplinary actions against judges. At the same time, since they are not controlled by another state branch, these judicial councils also minimise the potential loss of judicial independence.[19]

2.3 Concluding Remarks

This chapter represents an effort to clarify the theoretical framework of this thesis. First we highlighted that the judiciary is a relevant and important institution for society. The judiciary contributes to the application of the law, the creation of rules and fosters public support for the rule of law. We pointed out that a judicial system that does not function properly is as bad a not having a judicial system. But how do we determine if a judiciary is fulfilling its proper function? To address this issue, we offered a discussion of judicial performance as a multidimensional concept involving judicial accessibility, efficiency and independence.

The idea behind judicial accessibility is that the courts should be equally accessible to all members of society. When there is discrimination in access to the courts, we are left with little more than a partial judicial system. However, accessibility does not imply that every conflict should be taken to the court, only that every citizen should have the

[19] Although judicial councils are intended to improve judicial accountability, this initiative might have negative side effects. As estimated by Voigt and El-Bialy (2016) using a dataset of the European Commission for the Efficiency of Justice, the existence of judicial councils is correlated with lower resolution rates (thus judicial inefficiency).

same capability to take legal action. Thus, in our thesis, we adopt a capability approach when discussing judicial accessibility.

The promotion of justice requires resources. More resources might result in a better judiciary, however it might not be economically viable. Furthermore, there are no guarantees that these resources are being well applied. It is in this context that the concept of judicial efficiency emerges. It is interpreted as the productivity of the courts. Namely, the maximisation of judicial activity output based on the level of inputs. If the courts produce efficiently, the same level of inputs will produce more decisions. However, this quantitative optimisation might not take into consideration the quality of the decisions. Consequently, the study of court activity optimisation must also consider the quality of the judicial outcome.

Judicial independence implies that the judiciary should be independent from the other branches of the state (autonomy) and from the parties involved in a conflict (impartially) in order to promote the rule of law. Nevertheless, independence alone might create a situation of tyranny of the judges. In order to prevent this situation, independence must be constrained by accountability. In a first glance, independence and accountability might be construed as contradictory concepts. However, when discussing the judicial system, a deeper analysis can offer the argument that accountability can actually foster judicial independence.

Chapter 3

The Structure of the Court System

"Nossa Constituição é uma mistura de dicionário de utopias e regulamentação minuciosa do efêmero."[1]

Roberto Campos

The analyses that will come in the following chapters are based on the Brazilian judicial system. In this chapter we provide an overview of the Brazilian legal system, specifically its judiciary. The relevance of this chapter is two-fold. First, it familiarises the reader with the judicial structure of Brazil. Second, it will explain some limitations encountered during this research that prevent a more complete analysis. After reading this chapter, the reader will be able to better comprehend the reasoning behind the selection of methods used in this dissertation. For instance, by discussing the courts' similarities, this chapter justifies the adoption of empirical strategies in the analyses of

[1] Our Constitution is a mixture of a dictionary of utopias and the miniscule regulation of the ephemeral. (own translation)

judicial efficiency and accessibility, while a different approach is used in the judicial independence chapter.

Therefore, the chapter begins by presenting a brief description of the Brazilian legal system. Then the judiciary itself is described, highlighting the relevance of the state courts in the system. After the general court system is presented, the focus shifts to the state courts, the main object of empirical analysis in the coming chapters. Their structure, competence and jurisdiction, the state judges, legal fees, legal aid and alternative dispute resolution methods are discussed.

3.1 The Legal System

Brazil is a civil law jurisdiction. Its legal system is based on statues among which the federal constitution is the supreme law. The current constitution (enacted in 1988) established Brazil as a federal republic composed of the Union (the federal government based in Brasilia), 27 federal units (26 states plus the federal district) and the municipalities. Although the constitution provides some autonomy in the law-making process for the states (as well as for the federal district and the municipalities), most Brazilian legislation is made at the federal level. Consequently, the Federal Republic of Brazil has a relatively uniform legislation, if compared to other federal states, such as the United States of America.

For example, the Union has exclusive power to legislate on civil, criminal, procedural, electoral, commercial, and labour law.[2] The law-making process is conducted by the National Congress composed of the Chamber of Deputies and the Senate. The composition of the Chamber of Deputies is balanced by the population of each state (the most populous states have more members than the less populated), while each state is allotted

[2] Art. 22 of the Constitution of the Federative Republic of Brazil.

three seats in the Senate. Bills are usually[3] initiated by the Chamber of Deputies. The Senate acts as a revision chamber, before being sent for sanctioning by the president of the republic. Once a bill has been sanctioned by the president, it is published in the official gazette ("Diário oficial").

Laws fall into two categories: supplementary and ordinary laws. Supplementary laws regulate certain provisions reserved for these special laws by the constitution itself (for instance, to regulate rearrangements in the division of territories). These laws must be approved by a majority of all members of the National Congress, not only the ones present during the voting process. Ordinary laws are regular bills, such as the civil and penal codes, that can be approved by a simple majority (in both houses).

The constitution can be amended following a proposal supported by at least one third of the Senate or the Chamber of Deputies, the president of the republic or more than half of the states' legislative chambers.[4] The proposal is voted on twice in each chamber of the National Congress (four votes in total), being promulgated if approved by at least three-fifths of the votes of the respective members. The National Congress itself is vested with the power to promulgate a constitutional amendment, it is not subject to presidential sanction.

Every piece of legislation, including constitutional amendments, can be subject to judicial constitutional control. This judicial process can occur in two ways: either diffuse or concentrated control. Diffuse control occurs when any judge, while deciding a concrete case, either supports or opposes a piece of legislation. Concentrated control occurs when the Supreme Court decides on constitutional cases, or presents more abstract interpretations of legislative enactments.

[3] If a bill is proposed by a senator, the Senate becomes the initiating chamber.
[4] Art. 60 of the federal constitution.

Since the enactment of the 45th constitutional amendment, the Supreme Court has the authority to establish binding decisions.[5] These rulings are similar to stare decisions in the North American system, in the sense that the entire nation should follow them. None of the other judicial decisions have binding power, thus a judge is normally not restricted by the jurisprudence of upper courts.

3.2 The Judicial System

The Federal Constitution also establishes the guidelines for the organisation of the judiciary. The highest court in Brazil is the Supreme Federal Court. This court is composed of eleven members appointed by the president of the republic, and subject to approval by the Senate. The main task of this court is to safeguard the constitution,[6] thus it deals mainly[7] with constitutional cases (such as concentrated and diffuse constitutional review).

In theory, every case that deals with constitutional matters initiated by the Brazilian courts has the potential of reaching the Supreme Court as a final appeal. Since the Federal Constitution deals not only with the organisation of the state, but with a variety of other topics (such as divorce[8]), almost every case can be considered as a constitutional matter. In order to limit the number of appeals to the Supreme Court, the 45th constitutional amendment restricts the possibility of filling a last appeal to the Supreme Court to cases with "general repercussion" (Mendes, 2009).

The president of the Supreme Court is also the president of the National Council of Justice which is a judicial agency created in 2004 by the 45th constitutional amendment,

[5] Article 103-A. of the Federal Constitution.
[6] Art. 102 of the Federal Constitution.
[7] Article 102 of the constitution presents the competence of the Supreme Court. On top of constitutional matters, it is also responsible to judge, for example, common criminal offences perpetrated by the president of the republic and members of the parliament.
[8] Art. 226 of the Federal Constitution.

and is responsible for supervising the entire judiciary. In addition to administrative duties (such as receiving and judging complaints against members of the judiciary), the National Council of Justice also collects and publishes statistics about the Brazilian judiciary, such as the ones used in this thesis.

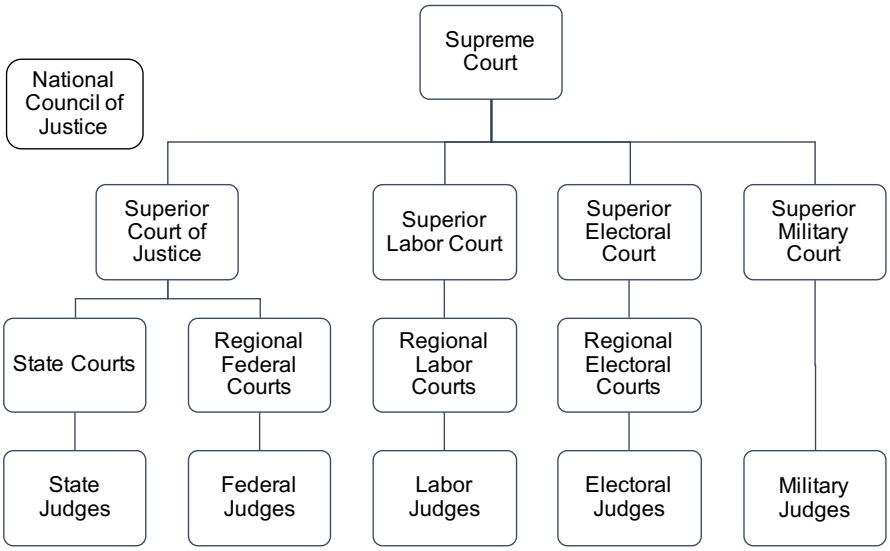
Under the Supreme Court, there are the specialised and common court systems. Specialised courts include labour, military and electoral justices. These courts are independent bodies within the judiciary, and have the competency to decide the cases related to their specialisation. In general, each of common courts has three levels: first instance judges, second degree courts and a superior court located in Brasilia. However, the organisation of these courts is not homogeneous throughout the country. For instance, although generally each state has its own second degree labour court, some states share the same court, while the state of São Paulo has two labour courts. These sorts of idiosyncrasies hinder a general empirical analysis of these courts.

The common court system is responsible for dealing with the cases that are not under the jurisdiction of the specialised courts. Above this dual court system, the Superior Court of Justice acts as the last degree court for federal and state courts, and is beholden only to the Supreme Court. The federal justice might also be regarded as a specialised judiciary, since it only deals with some cases specified in the constitution[9] (basically cases involving the Union, indigenous communities, international cases and other specific proceedings). It is composed by federal judges (first instance) and federal courts. As in the case of the specialised courts, the analysis of the federal justice is also complicated by the lack of a uniform division.

Most of the judicial activity in Brazil takes place at the level of the state courts. For instance, in 2014, the state courts received about 70% of the new cases filed in the entire

[9] Article 109 of the Federal Constitution.

Figure 3.1: Structure of the court system



Brazilian judicial system.[10] This might be explained by the fact that their competence is residual: everything that the constitution does not specify to another judiciary branch should be judged by them. Consequently, they receive the majority of the conflicts that reach the Brazilian judiciary. Considering that most of the judicial activity in Brazil takes places in the state courts, our research is focused on them. Therefore the other types of courts will be discussed only as they relate to the state courts.[11]

[10] According to the database used in chapter five.

[11] The fact that the other court systems do not follow the Brazilian standard borders (for example, some states share the same labour court, while other states have more than one) frustrates their analysis. This is especially true from an empirical perspective, since most of the data in Brazil is collected at state level.

3.2.1 State Courts

3.2.1.1 Structure

Every federal unit (26 states and the federal district which is considered in this work as a state) has its own first instance judges (state judges) and second degree court (state court). Although, federal law (Federal Constitution and the National Judiciary Organic Law) provides the general guidelines for their framework, the states are responsible for the organisation of their own judiciary. As a consequence, each state has a different judicial structure with regards to the quantity of judges and public servants, their remuneration, the number and specialisation degree of the judicial districts, the budget, and so forth.

Although each state has its own constitution and organic law of the judiciary, the general organisational structure of the courts follow a similar pattern in all of the states. There is a second degree court ("Tribunal de Justiça") located in the capital of the state, and district courts ("Comarcas") spread across the state and presided over by first degree judges.[12] The number and distribution of district courts is defined by each state.[13]

For administrative purposes, there are three categories ("entrâncias") of district courts based on their size. Small courts ("primeira entrância") typically have only one judge and are located in small towns. The second category of district courts ("segunda entrância") are of medium size. The largest district courts ("terceira entrância") compose the third category, and are usually served by several judges and located in larger cities. Although there is no hierarchy among the groups, a judge typically begins his career in a *primeira entrância* court and progresses through the order of the district court categories.

[12]The territory of each state is divided into municipalities (the smallest administrative unit in Brazil).

[13]The distribution of district courts does not necessarily adhere to the municipalities' borders, since the creation of a municipality and that of a district court might follow different methods.

Some of the larger district courts might be divided into smaller specialised sections ("varas"). These specialised sections are usually served by one judge. The number, degree of specialisation and so forth of the sections are defined by each state. For instance, some district courts might have highly specialised sections (such as a section only dealing in bankruptcy law), while smaller district courts might have a single judge who is competent to decide every kind of conflict that emerge within the territory in which the district court has jurisdiction. This idiosyncrasy prevents a deeper analysis (such as distinguishing criminal and civil cases) in the empirical part of this study, since a same judge might preside over both criminal and civil cases.

3.2.2 Competence and Jurisdiction

The state courts exert jurisdiction over the conflicts that emerge within the territory of the state, except for those cases that are directed to the federal, labour, electoral or military courts. In civil cases, the general rule for determining the competent judge is based on the domicile of the defendant.[14] For criminal cases, the general rule is that the court with jurisdiction over the place where the crime was committed is competent to judge the case.[15]

In general,[16] a case is initiated when the plaintiff (or the prosecutor, for most criminal cases) files a petition with the competent district court. Most of the cases require the assistance of a lawyer.[17] The case is then randomly distributed to a judge serving in the competent district court. The federal constitution adopts the principle of natural judge,[18] which means that the judge who receives the case must complete all its proceedings in

[14] Art. 94, Federal Law 5869/73 (Code of civil procedure in force until 2015). There are a few exceptions, such as in cases involving minors.

[15] Art. 70, Federal Decree-Law 3689/41 (Code of criminal procedure).

[16] There are a few exceptions, such as in criminal cases when the defendant is a judge or the mayor of a municipality.

[17] There some exceptions, such as to file an *habeas corpus* or cases that the value does not exceed the equivalent to twenty monthly minimum wages in the special courts.

[18] Federal constitution, art. 5th LIII.

the first degree (since receiving the case until the sentence is published). In the case of an appeal, the litigant must file the appeal with the judge who first presided over the case. The original presiding judge then sends the appeal to the state court (located in the capital of the state).

Each state defines the size and structure of its second degree court ("Tribunal de Justiça"). Nevertheless, 1/5 (20%) of all judges serving as second degree judges ("desembargadores") should come from outside of the judicial system,[19] while the remaining 4/5 (80%) are former first degree judges who have been promoted to serve as a second degree judge.[20] Any judge serving the second degree court is appointed by the governor of the state. Once a vacancy emerges, the governor selects a name (from a list prepared by either judges, lawyers or prosecutors) and submits it the state legislature for approval. Once a person becomes a second degree judge, (s)he has the same guarantees and status of the others, regardless of their origin.

If a litigant desires to appeal a second degree court decision, (s)he must first file an appeal in that court itself, which will then send the case to the Superior Court of Justice situated in Brasilia.[21] Nevertheless, the state courts are the last degree to discuss matters of fact, since the superior court can only discuss matters of law.

Jury trials only exist for special criminal cases, namely intentional crimes against life, such as first and second degree murder, instigation of suicide, abortion and forced abortion.[22] All the other cases are decided by state judges. The decisions from the jury can only be appealed in very particular circumstances, if for example there are errors during the proceedings.

[19] Either from the body of prosecutors or the bar association. In any case, the candidate should have more than ten years of experience.

[20] Federal constitution, art. 94.

[21] Above the Superior Court of Justice there is only the Supreme Court, which only accepts appeals based on constitutional law.

[22] Federal constitution, art. 5th XXXVIII.

The state courts can also establish "special courts" (both civil and/or criminal) that are specialised in handling only small claims. These courts follow different procedures that are usually more informal. For instance, claims that do not exceed the equivalent to twenty monthly minimum wages can be filed without the assistance of a lawyer. In any case, the competence of these special courts is restricted to claims that do not have a value exceeding forty monthly minimum wages.[23]

3.2.3 State Judges

In order to begin a career as a first degree state judge, a candidate must first present his academic and professional credentials, and then take a series of civil service entrance examinations.[24] The most basic academic credential is a Bachelor of Laws, which requires 3700 credit hours representing about five years of coursework at a university. Candidates with a Master or Doctorate degree receive extra points in the selection process. The professional credential is proof of at least three years of legal practice acquired after the conclusion of the law degree. Attended these requirements, each state court is responsible for hiring their own judges (implementing new requirements, organising their own examinations and so on).

Once a candidate becomes a judge, he has a probationary period of two years. When the probation is over, he acquires life tenure (subject to mandatory retirement at the age of 70[25]). Since the 45th constitutional amendment, the National Council of Justice has the power to promote compulsory retirement of judges. Nevertheless, they can only lose their position (meaning their remuneration) after a judicial procedure in which he is found guilty in a special (or criminal) judicial case. Additionally, the federal constitution guarantees that a judge cannot be reallocated without his consent, neither have

[23] Federal law 9.099/95.
[24] Federal constitution art. 93, I.
[25] In the end of 2015 the mandatory retirement age was extended to 75 years.

Figure 3.2: Number of judges per 100.000 inhabitants (year 2013)

TJAC	7,60
TJAL	4,12
TJAM	3,70
TJAP	9,39
TJBA	4,23
TJCE	4,41
TJDF	11,97
TJES	7,40
TJGO	5,44
TJMA	4,18
TJMG	5,19
TJMS	7,19
TJMT	7,67
TJPA	4,69
TJPB	6,54
TJPE	4,56
TJPI	5,09
TJPR	7,36
TJRJ	4,92
TJRN	6,34
TJRO	8,39
TJRR	9,02
TJRS	6,92
TJSC	6,81
TJSE	6,88
TJSP	5,73
TJTO	8,39

his remuneration reduced.[26] On the other hand, he cannot have any other professional activity (except to be a professor).

According to CNJ (2013), Brazil had a total of 16.812 judges in 2013. Among them, 11.409 were state judges (67,86%). CNJ (2013) (2013) statistics also provide some sociodemographic information: in 2013 the average age of state judges was 45.1 years, 65.5% were males and 34.5% were females, 82.8% were white and 17.2% non-white, 10.2% held a master's degree, while 2.3% held a doctor's degree, and 12.8% were professors.[27] Figure 3.2 shows the national distribution of state judges.

The state court of Amazonas (TJAM) had the lowest number of state judges per 100,000 inhabitants, 141 judges for a population of more than 3.8 million. In contrast, the court of the federal district (TJDF) had 334 judges for a population of around 2.8

[26]Federal constitution art. 95.

[27]The requirements to serve as a professor depend on the university. Although higher education levels (Master and PhD) are preferred, a Bachelor of Law can be enough. In Brazil, master and PhD programs take, usually, two and four years respectively.

million. São Paulo had the court (TJSP) with the highest number of judges, 2,501. The court with the lowest number of judges was in Roraima (TJRR), which had only 15 judges.

3.2.4 Legal Fees

In general, while court fees might represent a relevant barrier for access to justice, (especially in developing countries), they might also favour judicial independence by creating an autonomous sources of revenue for the judiciary. In Brazil, court fees vary depending on the court. In the federal court system, the fees have a national structure,[28] fluctuating between R$5.32[29] and R$ 1,915.38[30] depending on the claim value. They should be paid by the plaintiff at the moment that he files the case. He can recover the value if the final decision is in his favour. The labour court system, which is maintained by the federal government, also has a uniform national fee structure. Labour court fees represent 2% of the decision (or settlement) value, and should be paid by the defeated party. Consequently, they are due upon the conclusion of the case.[31]

In the case of the state courts, each state can define its own fees. There is no uniformity even in the structure of the fees. Some states adopt systems based on percentages of the claim value. Other states charge fixed amounts depending on the value of the case. In some states, the fee is calculated based on the type of case. Other courts have their fees structured as a mix of the previous models. This idiosyncrasy prevents the inclusion of court fees in our empirical analyses.

Lawyers have the liberty of contractually defining their fees with their clients (including to choose contingent fees). Nevertheless, lawyers are regulated by national law[32]

[28] Federal law n. 9.289/96.
[29] Around 0.80 euros (as of June 16, 2018).
[30] Around 443.10 euros (as of June 16, 2018).
[31] Federal law n. 10.537/02.
[32] Federal law n. 8.906/94.

that states it is a professional misconduct to charge fees below a certain amount. This minimum fee is defined by the bar association of each state and usually varies according to the kind of case. In most cases, in addition to the contractual fee, the lawyer representing the winning party has the right to request between 10% and 20% of the judgement value from the defeated party (court-awarded attorney fees).

3.2.5 Legal Aid

Legal aid is an important tool in promoting access to justice, especially in developing countries. It can be provided in the form of financial support (such as waivers of court fees), as well as services (such as providing free of cost professional legal assistance).

Since 1950, litigants that cannot afford to pay court fees have the right to request a fee waiver.[33] The party can acquire this benefit by simply signing a document stating that he does not have the means to pay the court fees without jeopardising his own subsistence or that of his family. Although, he does not need to provide any proof of his condition, the fine for a false declaration of poverty can reach ten times the original value of the court fees.[34] Nevertheless, the declaration of poverty creates a *praesumptio iuris tantum* (rebuttable presumption), which combined with the fact that the part interested in the payment of court fee (the judge) is naturally neutral, might stimulate the misuse of this benefit.

The federal constitution weighs in on the matter of legal assistance by establishing that the states must create a public legal defence bureau ("Defensoria Pública").[35] Each state is responsible for organising its own public legal assistance bureau. This bureau is an institution responsible for providing professional legal defence for individuals who cannot afford to pay a lawyer, and is primarily staffed by former lawyers who

[33]Federal law 1060/50.
[34]Federal law 1060/50, art. 4th § 1st.
[35]Federal constitution art. 134.

have passed a civil service entrance examination to become a public legal defender ("Defensor público"). The primary function of a public legal defender is to assist people in need, in both criminal and civil cases.

Since the promulgation of the current federal constitution (1988), all states passed laws creating their public legal defence bureau. Nevertheless, some federal units did not in fact establish their bureaus in the period analysed in the empirical part of this study, and in some states, the existing bureaus do not cover all the court districts. According to Moura et al. (2013), in 2013, 72% of the court districts in Brazil did not have a public legal defence bureau.

3.2.6 Alternative Dispute Resolution

It was not until 1996 that Brazil enacted an arbitration act.[36] The constitutionality of this act was questioned, and the Supreme Court only declared that it was in accordance with the constitution at the end of 2001.[37] However, it is not a common method of dispute resolution in Brazil, used mainly by corporations. According to Lemes (2014), from 2010 until 2013 only 603 new cases were filed in the seven main arbitration chambers. Furthermore, a mediation act was passed more recently in 2015.[38]

For the general public, most consumer-related conflicts are referred to the consumer protection agency ("Procuradoria de Proteção e Defesa do Consumidor - PROCON"), the principal alternative institution for the judiciary. PROCON is a public institution that mediates conflicts between consumers and providers of goods and services. This kind of alternative dispute resolution is relatively simple (for instance, it does not require hiring a lawyer), and is popular among Brazilian consumers.[39] The consumer makes

[36] Federal law n. 9.307/96.
[37] Supreme Court precedent n. SE5206 (12/12/2001).
[38] Federal law 13140/15.
[39] For instance, in most states, it is mandatory for every commercial location to have the "PROCON" telephone number clearly visible for its consumers.

a complaint, an administrative procedure is initiated, the business is informed of the complaint and invited to negotiate the conflict.

Each state is responsible for organising its own consumer protection agency.[40] Since the federal constitution does not restrict the protection of the consumers to any administrative level, some municipalities have also created their own agencies. Regardless of their structure, they are used to mediate conflicts between consumers and producers. Consumer protection agencies do not have enforcement power. Nevertheless, they can take cases (such as repeated violations of consumer law) to the prosecutor's office, which can take legal action against the violators that might be quite costly (such as civil public action).

In any case, the right to take legal action (file a case) is a constitutional guarantee of every citizen. Every injury or threat to a right can be taken directly to the judiciary.[41] The consumer protection agency is just an option of mediation provided by the state.

3.3 Concluding Remarks

The first conclusion that can be drawn from this brief description of the Brazilian legal system and its judiciary is related to the considerable homogeneity of Brazilian legislation. The fact that most of Brazil's laws are established at the federal level facilitates an economic analysis of Brazil's courts. For instance, our comparison of the court's efficiency in Chapter 5 is facilitate by the fact that procedural law applies alike in all federal units. Furthermore, the fact that the civil code is also the same all over the country allows for a better analysis of the factors that might influence the decision of Brazilians when taking legal action.

[40] Federal law 8078/90.
[41] Federal constitution, art. 5, XXXV.

The uniformity of key aspects of the structures of state court, as highlighted in this chapter, permits us to compare their efficiency (also in Chapter 5). It is because of this uniformity that we decided to focus on the state court system rather than the other Brazilian judicial structures. Nevertheless, this very uniformity in organisation also imposes limitations on our research. The structure of state courts also prevents a deeper study of court efficiency. For instance, the fact that a single judge can deal with both criminal and civil cases poses challenges for an empirical analysis. Furthermore, the fact that judges are appointed in the same way, have the same guarantees and so on all over the country, frustrates an empirical analysis of judicial independence within Brazil.[42] Another frustration is the erratic manner in which court fees are structured among state courts, hindering the inclusion of this variable in the analysis of judicial accessibility.[43]

Having presented an overview of the Brazilian judicial system and a discussion of how the structure of its judiciary impacts our research, each of the following chapters will provide the reader with complementary information regarding more specific aspects of the courts that might affect their independence, efficiency and accessibility.

[42]Moreover, to the best of our knowledge, there are no measures of *de factor* judicial independence among Brazilian states.

[43]Although some of these limitations depend on the research question, the design of the research questions was also influenced by the availability of data.

Chapter 4

Developing Judicial Independence

> "All the rights secured to the citizens under the Constitution are worth nothing, and a mere bubble, except guaranteed to them by an independent and virtuous Judiciary"
>
> Andrew Jackson

Judicial independence is commonly regarded as an important institutional characteristic for the economic development of market based economies. Nevertheless, the development of this feature is still not yet completely understood.

Analysing the Brazilian case, this chapter aims to shed a light on the factors behind the emergence of judicial independence. It adopts a historical perspective, combining the evolution of the Brazilian judiciary with insights from economic history. The analysis concludes that the development of judicial independence gained momentum in the last decades. On the side of institutional path dependence and economic factors, measures promoting judicial accountability, which at first glance could be seen as a threat

to independence, actually appear to be a relevant booster in the development of de jure judicial independence.

4.1 Introduction

Institutions are human made constructions. They do not come out of thin air. They are the product of the social learning process. In this sense, time can be regarded as the dimension in which institutions evolve (North, 1994). Institutional evolution might not follow a linear pattern, since there are uncountable factors that might affect their development. Path dependence might play an important role in this dynamic (Acemoglu and Robinson, 2008). The institutions of yesterday might largely explain the institutions of today, especially in the absence of abrupt changes (such as popular revolutions).

Democracy, the rule of law and other related features are especially relevant aspects of institutions that promote economic development (Acemoglu et al., 2003). Constitutions are of particular relevance, since they support the regulation of long-term patterns of interactions (Hardin, 1989). They facilitate cooperation among members of society, which is of singular relevance for economic growth (Persson and Tabellini, 2005). Nevertheless, constitutions might be just ink on paper if not enforced, which in a tripartite democracy is the competence of the judiciary. By guaranteeing the rule of law, the courts support people to celebrate more contracts, thus fostering economic development (Elster, 1995).

Nevertheless, the simple existence of the judiciary does not guarantee its effective role in promoting development. The courts need to be independent to fulfil their function (Voigt et al., 2015). The independence of the judiciary is not the result of an instantaneous process. It is a social construction, thus it evolves along with other social

dynamics over time. In this sense, the present chapter intents to analyse the historical development of judicial independence in Brazil.

4.2 Portuguese Influence

The institutions of a country are products of its history. The countries of Latin America were European colonies for more than half of their documented history. Hence, the foundations of their legal systems were influenced by their former metropolises. Brazil was colonised by Portugal in 1500 and remained under its control for more than 300 years. Consequently, the fundamentals of Brazilian institutions are naturally tied to Portugal. Nevertheless, it is the independence process of Brazil that makes its early institutional development a unique case when compared to other Latin American countries.

Most of the countries in the region began their fight for independence[1] during the early years of the 19th century. In the case of the Iberian colonies in South America, almost all independence procedures involved some kind of military conflict that resulted in an institutional divorce from the metropole. Brazil, however, represents a special case. Besides being the only country in the Americas that gained its independence from Portugal, Brazil had an unusual independence process that influenced its institutional development (Hammergren, 2007).

In 1808, escaping from the Napoleonic forces, the Portuguese Royal Court abruptly moved to Brazil, transferring the capital of the entire kingdom from Lisbon to Rio de Janeiro. While its neighbours were planning their independence, Brazil suddenly became the capital of the whole Portuguese Empire. This "metropolitan reversal" strength-

[1] Adopting a Westphalian concept, a key characteristic of a sovereign state is to be able to independently develop its own institutions.

ened the Portuguese influence on Brazilian institutions that were established and modelled directly by the king, as described by Gomes (2007).

This *sui generis* situation lasted until 1821 when a liberal revolution in Portugal forced the king to return to Lisbon. heir in Brazil who, in 1822, declared Brazil's independence from Portugal and established the Empire of Brazil, declaring himself its first Emperor. Hence, while the other countries were breaking their connections to their kings, Brazil became independent having the son of the Portuguese king as its first leader. The Empire of Brazil lasted until 1889 when the republic was declared[2] and the imperial family was sent back to Portugal. In this sense, Brazil remained under Portuguese influence until almost the 20th century.

Another example that corroborates the extensive Portuguese influence on the development of Brazilian institutions is related to the development of human capital. In addition to the common problems created by extractive colonisation, the Portuguese approach was even more problematic from an educational perspective. The development and spread of knowledge was revolutionised in the 15th century when Johannes Gutenberg invented mechanical movable type printing. It facilitated the spread of knowledge over time and space, thus affecting the conditions of institutional development. However, typography was forbidden in Brazil until the arrival of the Portuguese Crown in 1808. People who tried to use a printing press were arrested. The machinery was then confiscated and sent to Lisbon. For comparison, the Spanish colonies in the Americas, while also enduring an extractive model, were allowed to use printing presses. Indeed, Lima (in Peru) had a regularly printed newspaper as early as the 16th century (Caldeira, 2017). Brazil not only lacked printing capabilities, but the only import printed materials available to the general public were subject to censorship by authorities in Lisbon.[3]

[2]During this period Brazil had two Emperors, both direct descendants of the Portuguese dynasty.

[3]According to the colonial pact, Brazil could only trade with Portugal. Every good that arrived in the colony, such as books, should be previously filtered in the metropole (Caldeira, 2017).

Universities were also outlawed. In 1630, Salvador (at that time the Brazilian capital) already had sufficient resources to establish a university to educate its people. An application for a "university license" was sent to Lisbon, but it was summarily declined. Any attempt to develop the educational system in Brazil met the same end (Caldeira, 2017). It was not until 1808 that the country received its first Faculty of Medicine in Salvador. One result of this approach was that by the beginning of the 19th century less than 2% of the Brazilian population was literate. For comparison, at that time the male literacy rate in the United States of America was around 70% and between 20% and 30% in Spanish America (Caldeira, 2017).

The unique independence process, combined with the restricted development of human capital, promoted political stability as much as it enhanced the Portuguese influence on the development of Brazilian institutions. For instance, some laws from the colonial period were valid even in the 20th century. Most of the legal scholars who wrote the first Brazilian codes were trained in Portugal at the University of Coimbra. Even today, lawyers of both countries can practice law in the other jurisdiction without the necessity of passing another bar exam.

The consequences of Portuguese influence in Brazilian institutions is apparent even today. In their analysis of institutional development in Brazil, Naritomi et al. (2012) found that the parts of the country that were affected the most by the colonial regime have worse governance and access to justice today when compared to the parts that had less Portuguese influence.[4] In this sense, the study of Brazilian institutions requires the analysis of its historical foundations, namely the colonial and imperial times.

[4]According to (Palumbo et al., 2013), in 2013, a civil case would take 425 days to be processed by a 1st instance court in Portugal. The OECD average is 240 days and, in this group, Portugal was only faster than Italy.

4.2.1 Colony

An episode of European commercial expansion in the late 15th century was the official discovery of Brazil on April 22, 1500 by Portugal. The Treaty of Tordesillas is the formal declaration giving the Portuguese the right to take possession of the land. The Portuguese did not immediately find precious metals on the coast, as the Spanish found in their American colonies. Instead, the Portuguese encountered Brazilwood[5] and groups of native people. By that time, Portugal was developing its lucrative spice commerce with India, and gave little importance to Brazil. In the first three decades after taking possession of the land, the Portuguese only traded Brazilwood with the indigenous people.[6]

However, since other European countries (especially France) started to send expeditions to Brazil, Portugal decided, in 1530, to send a large expedition to establish the first villages, thus truly beginning the colonisation of Brazil. The mission was led by Martim Afonso de Sousa who personalised all the powers, including the judiciary (Caldeira, 2017). The Brazilian judiciary, thus, began as a highly centralized institution that was closely connected to the administrative power. In 1534, the country was divided into 14 Captaincies (smaller administrative units and hereditary fiefs granted each by the king to a single donee, a *donatário*). Each donee was responsible for his Captaincy. They should not only administrate their land but also resolve the conflicts that emerged within their territory.

It soon became apparent that the concentration of powers was problematic. In 1549, the king appointed Pero Borges as an "Ouvidor-mor", who was responsible for the

[5] A kind of tree from which Brazilin (a red pigment which can be used as ink) can be extracted.

[6] Another fact that might point to the deep influence of Portugal in Brazil might the kind approach to the indigenous people. The Spanish had an often bellicose relationship with the native people of their colonies. Portugal followed a different approach. Considering its limitations to defend the long Brazilian coast, since the beginning the Portuguese promoted miscegenation as a way to form alliances with the indigenous, so that they would help to keep Brazil under Portuguese control (Caldeira, 2017).

application of the royal justice in Brazil (Figueiredo, 2013). The Captaincies were expected to follow this example and have their own "Ouvidor" to be responsible for the application of the law in their territory. This can be interpreted as the first tentative step to create an independent judicial power in Brazil. The fact remains that although Pero Borges was the highest judicial authority in the country, his decisions were subject to the agreement of the general governor. In case of disagreement, the case was sent to be decided in Lisbon. Furthermore, in the Captaincies, the "Ouvidores" shared their jurisdiction with the municipal council (Martins Filho, 1999).

These early attempts by the king to establish an independent judiciary in Brazil were also hampered by questions of impartiality. Less than two years before his nomination as Brazil's "Ouvidor-mor", Pero Borges was found guilty of receiving bribes while supervising the construction of a public aqueduct in Portugal (Almada, 1889).

The embodiment of justice in one person favoured arbitrary behaviours. Moreover, the "Ouvidores" were prone to be captured by the governors, since their decisions were subject to the agreement of the executive. To promote judicial independence in Brazil, the Portuguese king decided to create a collegiate body to replace the figure of the "Ouvidor-mor". In 1609 the first tribunal was established in Brazil, the "Tribunal da Relação da Bahia" which had the Portuguese Supreme Court ("Casa da Suplicação") in Lisbon as its appellate court (Schwartz, 2011). The governors pressured and in 1626 the tribunal was dissolved. It was reestablished only in 1652. The influence of the Catholic Church was also present. Before each session of the tribunal, a mass was celebrated asking God to guide the work of the judges towards justice (Martins Filho, 1999).

Regarding the independence of the judiciary in the administrative divisions, a king's charter was issued in 1708 stating that the "Ouvidores" were "of the Crown" and not "of the donees" (Martins Filho, 1999). As time passed and the colony developed, new tribunals were established to accommodate the growing demand for judicial services.

For instance, to deal with the judicial cases from the South, a court was established in Rio de Janeiro in 1751. Accountability was a natural problem, especially considering the distance between the metropole and the colony. The establishment of a collegiate body as the highest judicial level in the colony can be seen as a relevant first step to deal with this problem.

The sudden transference of the Kingdom's capital to Brazil, in 1808, brought about abrupt institutional developments in the former colony. In a short period of time, the King established the first Brazilian Bank ("Banco do Brasil"), cancelled the prohibition of typography in Brazil (as well as industrial activities), created schools, libraries, museums and an entire bureaucratic apparatus (Gomes, 2007). The judicial relationship between Brazil and Portugal was inverted. The centre of judicial activity of the Portuguese Kingdom was shifted from Lisbon to Brazil, as the court of Rio de Janeiro became the Supreme Court of the Portuguese Kingdom.

All these changes required resources that the escaped royal family lacked. To finance the expeditious institutional development, the Crown relied on the local elite. As Gomes (2007) discusses, the King exchanged noble titles and nomination to public positions for contributions to the treasury. If on the one hand the King's arrival promoted an unprecedented development of the colony, on the other it fostered cronyism, with its nefarious consequences to judicial independence.

4.2.2 Empire

The declaration of independence in 1822, allowed Brazil to have its first own constitution. It was imposed by the Emperor two years after independence, in 1824. In a time that the Spanish Empire in South America was fragmenting, a key concern in Brazil was to keep the cohesion of its territory. The fragmentation was prevented by keeping the

power centralised in the capital and concentrated in the hands of the Emperor (Fausto, 1995).

The Brazilian Empire was defined as a unitary State having all the powers centralised in Rio de Janeiro. In addition to the standard three powers (executive, legislative and judiciary), this charter also established the "Moderator power" which was vested in the hands of the Emperor himself and was supposed to solve conflicts among the other three. In practice, it gave the King the right to intervene in the other powers.

The judiciary was, in theory, an independent power. Nevertheless, in practice, it was dependent, not only on the Moderator power, but also on the legislative branch (Nogueira, 2012). The constitution itself (article 15), attributed to the legislative the competence to interpret the laws (additionally to enact them). In reality, the interpretation of the laws was made by the Executive, which also had the power to reallocate and even promote the involuntary retirement of judges.

Furthermore, it was a common practice among judges to, based on "doubts about the interpretation of the law", send cases to the Executive. Since the interpretation of the law was not their competence, if a judge attempted to interpret the law, it could be, in theory, regarded as an invasion of other power competence, which could lead to his removal (Koener, 1998). Besides highlighting the lack of judicial independence, this practice also undermined judicial efficiency, since the length of the proceedings could be indefinitely extended (Nogueira, 2012).

The Supreme Court did not have the powers to unify the interpretation of the law (which was not a task of the judiciary) or even create precedents (since it was not considered the last instance in the court system). This became even clearer in 1841 when a Council of State (composed by the Emperor, the ministers of the state and 12 ordinary

members) was created[7] and became responsible for unifying the interpretation of the law in Brazil.

The appointment of first degree judges was made either by the executive (either the Emperor or the president of the province) or elected by the population of the city (for judges of peace that were responsible for conciliation and small claims). In any case, the judges could be reallocated or compulsorily retired by the Emperor. This was not only a legal threat, but a real practice. As discussed by Martins Filho (1999), in 1850 the Emperor promoted the involuntary retirement of several judges because they decided criminal cases involving merchant of slaves against the Emperor's will.

Regarding judicial accountability, the law of 31/03/1824 recommended the judges to provide, on their sentences, the reasoning behind the decision. If on the one hand it was an important improvement, on the other it might also signal that discretion in the judicial decision making process was still problematic (Martins Filho, 1999).

4.3 An Unsteady Republic

The influence of Portugal in Brazil ended in 1889 when the republic was declared and the imperial family sent to Portugal. Unlike the popular revolutions that established the French and American republics, the republic in Brazil was a result of a military *Coup d'État* that followed the abolition of slavery in 1888 (Hudson, 1997). As the declaration of independence decades ago, the proclamation of the republic was a pacific process.[8]

Once again, the absence of a vigorous rupture paved the way to the continuity of old institutions. The marshal (Deodoro da Fonseca), who dethroned the emperor, governed

[7] Law n. 234 of 23 November 1841.

[8] As Caldeira (2017) discusses, the initial goal of the *Coup d'État* was not to declare a republic, but to oppose changes in the executive (against the nomination of some ministers). The leader of the movement (Deodoro da Fonseca) himself declared the revolt in the name of the emperor, but later, considering the success of the revolt (for instance nobody was killed in the process), changed his mind and decided to dethrone the emperor. The declaration of the republic was, thus, more an accident than a real revolution.

as dictator until a new constitution was enacted in 1891. Instead of choosing the new president through direct elections, the parliament appointed Fonseca as the first Brazilian president. A few months later he dissolved the parliament and was deposed by his vice president (Floriano Peixoto). In 1892, Peixoto declared state of siege concentrating the constitutional powers in himself.

The turbulent start of the republic was an omen of the following 100 years. A succession of *Coup d'états* (that normally lead the country into dictatorships) kept the republican powers concentrated in the executive to the detriment of judicial independence. Indeed, between 1889 and 1988 the only period that the powers were balanced was between 1946 and 1964. Nevertheless, this progressive time span ended with a military coup which soon suspended the constitutional guarantees, thus the judiciary's protection for more than 20 years. To better comprehend this period, the following sections analyse judicial independence in each Brazilian constitution of that time.

4.3.1 Constitution of 1891

In 1889 the first Brazilian Republic was established. After more than one year of negotiations, a new constitution was promulgated in 1891. This charter was influenced by the model of the United States of America (USA) which was seen by the writers of the new Brazilian constitution as an example of success.[9] In absence of the territory disintegration fear, one of the main remarks of this charter was to try to promote a decentralisation of the Brazilian administration, aiming to mimic the North American system (Baleeiro, 2002). The previous provinces gained the status of states and Brazil became a federal republic.

The judiciary was established as a dual court system, composed of federal and state courts. In theory, the judiciary gained independence, since according to the new con-

[9]The country was even named "United States of Brazil".

stitution, the judges could only lose their position after a judicial sentence and their remuneration was determined by law and could not be reduced. The Supreme Court finally acquired the power to unify the interpretation of the legislation. Following the American checks and balances system, the new charter empowered the Supreme Court giving it powers to judge common crimes committed by the chief of the executive. The judges could also declare the unconstitutionality of the laws, thus gaining prominence among the other powers.

Nevertheless, in reality, the executive kept its relevance after the new constitution. The first Brazilian president (Deodoro da Fonseca) declared a state of siege and tried to dissolve the Parliament just a few months after the constitution was promulgated. Although he was deposed by his vice president, declarations of a siege state were a common practice among his successors. Under a state of siege the constitutional guarantees were suspended and the power concentrated in the executive. During the lifetime of the 1891 constitution, several presidents used this provision to concentrate power in their own hands (Carone, 1988).

The maintenance of the *de facto* judicial dependence of the executive became clear in the first year of the 1891 constitution. After declaring a state of siege, the second president (Floriano Peixoto) decided to arrest and expel, without a judicial proceeding, a few writers and journalists. A *habeas corpus* in their favour was filed in the Supreme Court. Instead of independently judging the case, the court decided to hear the president who directly replied that he did not know "who will grant *habeas corpus* to the ministers of the Supreme Court tomorrow"(Caldeira, 2017). The writ was not only declined, but the court also declared itself incompetent to judge acts of the president.

4.3.2 Constitution of 1934

The last election under the 1891 constitution took place in 1930. Nevertheless, the defeated candidate (Getúlio Vargas) led a *Coup d'État* and instituted an interim government. The powers were centralised again in the federal capital, with the president even nominating himself the chief of most federal states.[10]

A new constitution was promulgated in 1934, keeping the interim president in power until the next planned election in 1938. The new charter created the specialised courts (labour, military and electoral) as autonomous judiciaries[11] on the side of the federal and state courts. As a way to protect the independence of the powers, the new constitution established that the state of siege could only be declared by the president if approved by the parliament (Poletti, 2012).

This constitution promoted an important step in the development of judicial independence regarding the appointment of the judges. Instead of being nominated by the discretion of the executive, the career of judge was restricted to the candidates approved in a public tender. The judges were granted life tenure, impossibility of salary reduction and of compulsory reallocation. Furthermore, it made the tribunals exclusively responsible for their own organisation.

4.3.3 Constitution of 1937

The constitution of 1934 had a short life. In 1937, months before the end of his term, president Vargas, supported by the army, decided to suspend the constitution of 1934

[10]The ascension of Vargas coincides with the depression that was affecting the developed world in the aftermath of the crash in the New York stock exchange. So far, the Brazilian economy was heavily based on the exportation of commodities. The sudden decrease in the international trade lead Vargas to adopt an import substitution model with strong presence of the state in the economy (Furtado, 1984). This economic model would guide the Brazilian economy until the last decade of the twentieth century.

[11]The labour courts were actually considered as administrative bodies.

and imposed a new charter concentrating the powers in his hands. The new constitution was supposed to be confirmed by a referendum which never took place, and Brazil stayed under a civic-military dictatorship until the end of the second world war.

The new constitution extinguished the federal and electoral justices. Judicial control of constitutionality was formally maintained. However, once a law was considered unconstitutional by the Supreme Court, the president could submit the law to the legislative which could overturn the court decision. Nevertheless, the president could legislate via Decree-Law. Moreover, he could disrespect court decisions that he considered against the national interest (Martins Filho, 1999). Judicial independence was thus a mere formality in the 1934 constitution.

4.3.4 Constitution of 1946

With the end of the Second World War, Brazil became a democratic country again. In October 1945, the army deposed Getúlio Vargas who had been in power since 1930. Elections were called and a new constitution was promulgated in 1946. The new charter made the judiciary independent again, stating that the executive, legislative and the judiciary were "independent and harmonised" powers.[12] Any attempt of intervention by the president in the other powers was defined as a crime.[13]

It was also the first Brazilian constitution to establish the universal guarantee of judicial protection to individual rights. It did so by clearly determining that the law could not block any claim of being taken to the courts[14] (Rulli Jr., 1998). The federal and electoral courts were established. The federal court system gained second degree courts (located between the federal judges and the Supreme Court). The labour justice became part of the judiciary, instead of an administrative body.

[12] Article 36.
[13] Article 89.
[14] §4 of art. 141.

The disrespect of court orders or attempts against the guarantees of the judiciary were reasons for federal intervention in the member states.[15] The judges had three important constitutional protections:[16] Life tenure (they could only be removed by a judicial sentence), irremovability (only a qualified majority, 2/3, of the tribunal above them could decide to reallocate a judge) and impossibility of salary reduction. Regarding judicial autonomy, article 96 brought a constitutional prohibition for judges to receive, in any case, values due to proceedings under their analysis.

4.3.5 Military Dictatorship

In 1964 the Armed Forces promoted another *Coup d'État*. This time, Brazil succumbed into a full military dictatorship in the lines of similar regimes that were taking place in Latin America at that time. In 1967 a new constitution was imposed. One year later the military regime issued the Institutional Act[17] Number Five ("AI-5") providing legal support to the regime. The powers were again concentrated in the executive which could even legislate.

"AI-5" gave the chief of the executive almost unlimited powers. Constitutional guarantees were suspended. Judicial independence perished with the suspension of key protections of the judges (such as life tenure and immovability). The president could remove, fire, retire and suspend magistrates. Furthermore, in 1977, a constitutional amendment was issued allowing the Supreme Court to, following a request of the attorney general (who was nominated by the president), assume the competence of any judicial proceeding in the country (Martins Filho, 1999).

[15] Article 7 of the 1946 constitution stated the situations in which the federal government could intervene in a state. Its item V clearly stated "to guarantee the execution of judicial order or decision" as one of the reasons.

[16] Article 95.

[17] Institutional Acts were the highest legislation during the dictatorship, since they overruled even the constitution. They were also not susceptible for judicial review.

4.3.6 Constitution of 1988

The military dictatorship lasted until 1985 when the redemocratisation process started. It was a negotiated transition which lead to the call of general elections in 1986. A constituent assembly was elected and, later, its members also automatically became the first deputies and senators of the new regime (until 1990 when new elections took place). For the first time in the Brazilian history, an expressive part of the population (around half of the population) voted in a constitutional assembly election (IBGE, 1987).[18] In 1988, a new constitution was promulgated which is still in force today.

The Brazilian constitution of 1988 was a result of the third wave of democratisation which was shaking the world (specially Latin America) at that time (Weyland, 2005). After more than 20 years of military repression, a new constitution established the legal basis of the longest real-democracy period in Brazilian history. Considering its problematic democratic history, the maintenance of the democratic system was one of the main challenges of this constitution.

Democracy needs a protected rule of law to develop (Habermas, 2001), for which the judiciary plays an important role. In this sense, the 1988 constitution formally granted the judiciary an independence level that was not present in any other Brazilian charter, namely institutional independence. For the first time, the courts had administrative and financial autonomy on top of functional independence of the judges. The new constitution provided the courts the power of self-government and the competence to elaborate their own budget proposals constrained only by legal limitations (Mendes, 2009).

[18]The previous elections had a number of voters well below 10% of the population, with the exception of the 1945 election in which around 10% of the Brazilian voted (Tácito, 2012).

The constitution also ensures functional independence to judges. On top of life tenure, impossibility of salary reduction and of compulsory reallocation, the new charter brought to the constitutional level aspects of the judges' career. The admission to the career is only possible through public exams, the promotion within the career is based, alternatively, on merit and seniority (Mendes, 2009).

Nevertheless, *de jure* independence does not necessarily mean that the courts are independent in reality. *De facto* judicial independence cannot be created simply by the enactment of a legislation. It is related to how the institutions work in practice, not in theory. After so much time of dependency, *de facto* judicial independence in Brazil did not immediately increase with the new constitution. It was (and still is) an ongoing process as the next subsections show.

4.4 The Construction of the *de facto* Independence

Until the last decade of the twentieth century, the judiciary was not a relevant actor in the prevailing Brazilian economic models. During the colonial period, the economy was guided to attend the Portuguese interest, namely to export the products demanded by Portugal (Brazilwood, sugar cane, gold, latex and so on). Under this economic model, the courts had an unimportant role. Furthermore, the political regime (monarchy) was a natural barrier to judicial independence.

The period of the first republic (1889-1930) saw the emergence of *de jure* judicial independence in Brazil. Nevertheless, it was a clear example that *de jure* judicial independence does not necessarily mean *de facto* judicial independence, since it perished under the successive declarations of a stage of siege.

The revolution of 1930 marked the adoption of the national-developmentalist model, based on the substitution of imports and a strong presence of the state in the economy.

This model did not foster judicial independence either. Indeed, an independent judiciary could be a barrier to the implementation of the state policies. Furthermore, the succession of *coups d'état* and dictatorships contributed to preventing the development of judicial independence in Brazil.

By the end of the twentieth century, the country passed through relevant structural transformations that foster the development of its *de facto* judicial independence, as the next sections will show.

4.4.1 Economic Background

The fall of the military dictatorship in the '80s coincides, not only with the decline of the cold war, but also with one of the worst recessions in Brazilian history. During the dictatorship, the expansion of the state presence in the economy increased the sovereign debt of Brazil and the lack of central bank independence paved the way to decades of high inflation rates. In response to the second oil crisis (1979), the developed economies increased their interest rates, directly raising the cost of capital in developing countries, which lead to the outbreak of the Latin American debt crisis.

In 1982, Mexico defaulted on its debt. Fearing to be the next, Brazil reached a credit agreement with the International Monetary Fund and began the process of renegotiating its sovereign debt (Hermann, 2005). The problem in the public finances, in an economy marked by the presence of the state, made the '80s a "lost decade" (marked by high inflation and unemployment rates) for the Brazilian economy.

In this sense, the 1988 constitution was enacted by a country passing through a re-democratisation process and economic recession. Although formal judicial independence (namely its constitutional protection) can be associated with political transformation, the development of *de facto* judicial independence can be related to economic

aspects. Since 1982, Brazil was constantly trying to solve its sovereign debt problem, mainly with the support of institutional organisations, such as the International Monetary Fund (IMF) and the World Bank. This kind of assistance normally requires that the receiving country adopt reforms proposed by the international agency.

In the case of Brazil, these reforms were initially focused on trade and investment liberalisation, domestic market deregulation, privatisation of public companies and other orthodox measures. In a nutshell, these reforms promoted a market-based economy based on the "Washington Consensus" (Williamson, 1990). These reforms were of structural nature and represent the rupture with the national-developmentalist model. However, since they might result in economic contraction in the short run, they are usually unpopular.

Consequently, these policy recommendations were initially resisted by the recently democratically elected governments (Almeida, 2014). Nevertheless, the economic situation of the country was so complicated[19] that it had the potential of threatening the redemocratisation process itself. In this sense, it was only after the election of the first directly elected[20] president (Fernando Collor de Mello) of the 1988 constitution that the reforms started to be implemented.

Collor de Mello became president on March 15, 1990 and on the same day passed a legislation[21] establishing the National Privatisation Program. Other policies in the same direction were adopted in the following months. Nevertheless, the most traumatic measure was taken in his plan to control inflation. Aiming to restrain the liquidity of the economy, his government decided to freeze the balance of every financial deposit that

[19]For instance, Brazil is a record holder in terms of longevity of hyperinflation. As discussed by Franco (2008), between 1980 and 1995, accumulated inflation in Brazil reached the mark of 20,7 trillions per cent.

[20]The first civil president after the dictatorship (Tancredo Neves) was indirectly elected (by the national congress) instead of by the direct vote of the Brazilians. He died before assuming office, thus Brazil was governed by his vice (José Sarney) until the next election, which took place in the end of 1989.

[21]Provisional Measure 155/90.

exceeded NCr$50,000[22] for 18 months. This measure spread panic in the population which saw its savings suddenly seized by the government (Castro, 2005). The judiciary, although formally independent,[23] did not prevent this confiscation.[24]

In 1992, a corruption scandal affected Collor de Mello's government leading him to resign while the congress was deciding his impeachment procedure. The reforms continued under the mandate of his vice-president (Itamar Franco), which lasted until the next elections in 1994. In this year, Brazil finally controlled its hyperinflation problem with the adoption of the Real Plan and reached a deal regarding its sovereign debt problem (Almeida, 2014). The success of the plan propelled its designer, finance minister Fernando Henrique Cardoso, to win the presidential elections of 1994, serving as Brazil's president from January 1995 until January 2003.[25] Cardoso continued to deepen the reforms during his terms.

The Real Plan had three main pillars: fiscal control, monetary reforms, trade and investment liberalisation (Franco, 1996). The first took the form of several measures to balance the government budget, such as restrictions on government spending and privatisations. The second was translated in a new currency (Real), which was initially fixed to the value of the American Dollar. The third was related to various reforms aiming to open the Brazilian economy to the international flows of goods and capital.

The success of those measures, especially the maintenance of the peg against the American Dollar, required a strong influx of capital to the country since, in practice, Brazil was borrowing monetary confidence from the United States, namely from the

[22] Around 1200 American dollars according to the exchange rate of the time. NCr$ means "Cruzeiro novo" which was the Brazilian currency in the early 90s.

[23] The close connections between the executive and the judiciary can be illustrated by the fact that after assuming the presidency, Collor de Mello nominated his own cousin as minister of the Brazilian Supreme Court.

[24] Although several lawsuits against the measure were started all over the country, a final decision (such as a supreme court decision) was not reached on time (until the end of Collor's mandate).

[25] Before Fernando Henrique Cardoso, since 1926 only two elected presidents managed to finish their mandates in Brazil. Cardoso not only finished his term, but was also reelected in 1998.

American Federal Reserve. The high interest rates defined by the Brazilian Central Bank certainly contributed to attract money to the country. However, they were insufficient to attract enough capital to Brazil in the aftermath of the 1998 Russian crisis (Giambiagi, 2005).

By the end of the millennium, Brazil's international reserves were evaporating, under a speculative attack targeting its pegged currency. This situation lead the country to, once again, request support from the International Monetary Fund. The financial assistance came, accompanied by the usual reforms recommendations (Almeida, 2014). Nevertheless, the attack did not stop until the central bank decided to allow the currency to float in the beginning of 1999. The previous monetary arrangement (attached to the American Dollar) was then replaced by an inflation targeting regime.

This system is characterised by the monetary authority making a public promise to deliver a certain inflation rate (or range) (Bernanke, 2001). This regime is, thus, not based on the possession of international reserves in a hard currency, but on the simple promise made by the central bank. Consequently, its success relies on the credibility of that promise, which is intrinsically related to the quality of national institutions.

Indeed, the economic literature has given strong attention to the necessity of central bank independence for the success of the inflation targeting regime (Fuhrer, 1997). The intuition is that politicians care about the unemployment rate, since it affects their popularity. Consequently, they might be prone to influence the central bank to pursue low unemployment rates instead of its targeted inflation rate. As a result, the monetary policy would be time inconsistent and potentially suffer from an inflationary bias (Barro and Gordon, 1983). The solution to this problem would be the isolation of the central bank from political influence, usually by providing its directors mandates for a fixed time span.

The goal of the inflation targeting regime is to provide the necessary monetary stability to allow for the development of the national economy. Nevertheless, central bank independence might be just part of the institutional arrangement needed for the success of the inflation targeting regime. Indeed, the mandate that prevents the central bank directors from being fired by the government might be just ink on paper if the legislation cannot be enforced. The judiciary plays an important role in turning the law in the books into law in reality, thus in the maintenance of the rule of the law. However, in order to fulfil this task it should be independent.

As discussed by Feld and Voigt (2003), market economies rely on a strong state to guarantee property rights. Nevertheless, once the private agents trust in the government and invest, the same state's power might lead the governments to break their promises and actually expropriate property rights from private agents. The role of an independent judiciary would be, thus, to make the government stick to its promises, namely guaranteeing the rule of law. In this sense, the independence of the courts increases the credibility of the state commitments.

Although the courts might not be able to directly enforce the fulfilment of the inflation rate promised by the monetary authority, they might contribute to protect the central bank directors from political influence. The judiciary might contribute to turning formal central bank independence into real independence. Indeed, as empirically demonstrated by Tridimas (2011), there seems to be a correlation between central bank independence and judicial independence. Nevertheless, this relation is only statistically significant when *de facto* judicial independence is considered, instead of formal judicial independence.

This theoretical idea might find additional evidence in Brazilian economic history. The central bank of Brazil was formally established in 1964. Its creation law estab-

lished that its directors would have a defined fixed term.[26] Consequently, it was born as an independent central bank. Nevertheless, in 1967 the Brazilian president decided to replace the directory of the monetary authority against its will. One of its directors complained, arguing that the law provided him a mandate and that the central bank was the "guardian of the currency", but the dictatorial president himself declared that he was the guardian of the Brazilian money (Franco, 2017). As discussed in the previous sections, at that time Brazil was under a military dictatorship, thus without an independent judiciary to enforce the rule of law.

Furthermore, the change in the Brazilian monetary regime in the late '90s coincides with the increasing embracement, by international organisations, of the ideas of the New Institutional Economics. Although there might be no direct evidence that the financial supports packages provided by these organisations (mainly the International Monetary Fund) in the late 1990s and early 2000s clearly required institutional changes on top of the common orthodox policies, the idea that "institutions matter" was strongly present in Washington by that time (Burki and Perry, 1998).[27]

Consequently, it should not be a coincidence that Brazil implemented several relevant institutional reforms in the 2000s. Indeed, following the adoption of the inflation targeting regime in 1999, and the successive financial support packages that the country received in the turn of the millennium,[28] Brazil enacted a Fiscal Responsibility Law

[26] According to article 63 of the Law n. 4595/64.

[27] The connection between the financial assistance and the institutional reforms can also be observed in the communications between the Brazilian authorities and the international organisations. For instance, in a letter of intent in the context of a requested financial support addressed to the International Monetary Fund dated on 2004, the minister of finance and the president of the central bank wrote "Furthermore, significant improvements to the functioning of the judiciary are currently being considered in the Senate"((Palocci Filho and Meirelles, 2004a). In another letter of intent from the same year they wrote: "Looking forward, changes introduced to strengthen the bankruptcy law in the Senate will require that it return to the Lower House for reapproval. As a result, training of judges on the new law, which is an end-June structural benchmark, will be delayed. We therefore request that the test-date for this benchmark be moved to end-December 2004."(Palocci Filho and Meirelles, 2004b).

[28] Between 1998 and 2003, four support packages deals were celebrated between Brazil and the International Monetary Fund (Almeida, 2014).

(Complementary Law 101/2000[29]) already in 2000. It aimed to consolidate the fiscal stability that the country was trying to reach since the implementation of the Real plan. Another example of legal reform aiming to improve the business conditions was the enactment of a new business restructuring and bankruptcy law in 2005.[30]

4.4.2 Accountability as a Booster

The reforms passed in the wake of the Real plan contributed to improve the Brazilian institutional environment. Nevertheless, these legal innovations needed a judiciary able to guarantee their implementation. As the epigraph opening this chapter highlights, the independence of the courts is fundamental for the implementation of the legal rules. On paper, the Brazilian courts were independent since the promulgation of the 1988 constitution. However, as the Collor monetary plan revealed, their *de facto* independence was not on the same level.

The new charter marked a *de jure* disruption with the old institutions. Nevertheless, since, in reality, the democratisation was, as with all the other political transitions in Brazil, a negotiated process, institutional path dependency was still remarkable regarding the *de facto* institutions. The laws were new, but the judges were the same and old habits die hard. The challenge was then to improve the real independence of the courts in the new democracy.

In a tripartite democracy, the executive tends to be naturally stronger than the judiciary. Even if the courts might have autonomy to propose their own budgets to the parliament, in the end it is the executive that controls the tax revenues. The executive might also be more threatening, since it controls the police and the army. Furthermore,

[29]In the Brazilian legal system, a complementary law is above ordinary laws and only below the federal constitution. Its approval requires an absolute majority in the Parliament (art. 69 of the Federal Constitution).

[30]Federal Law n, 11.101/05.

considering that the executive is an elected power, it might use this democratic excuse to threaten judicial autonomy.

Indeed, in a democracy, both the executive and the legislative are elected by the population. Their legitimacy, thus, derive from the election. The election is also the main moment in which the population can make them accountable. If they lose their legitimacy, they are not re-elected and are thus out of the power. Adopting a sociological concept of legitimacy[31], the legitimacy of the executive and the legislative derive from the fact their members can be removed by the election. That is not case with the judiciary. Nevertheless, their decisions should be respected, especially by the other constituted powers. Naturally, it can only happen if the judiciary, although not elected, is also legitimate (Gibson, 2006).

Considering that judges are not elected, their legitimacy comes from the public confidence in the justice system (Bühlmann and Kunz, 2011). The institutional legitimacy of the courts relies on the citizen's belief that they are trustworthy. The population needs to trust in the judiciary, thus support it, so that it has enough power to decide against the other branches of the state. Consequently, if the legitimacy of a politician derives from the votes that he received, the legitimacy of the judges comes from the trust that the general public has in the judiciary. It is, thus, not concentrated (as in the group of electors of a politician) but diffuse within the society. In this sense, the political capital of the judiciary relies on the support that the courts receive from the population. The quest for improving *de facto* judicial independence should focus, then, on the enhancement of the legitimacy of the courts, which depends on the general public confidence on the judicial system.

[31] As the justification/support of something by the public for reasons that go beyond the fear of sanction or personal reward (Fallon, 2005).

Accountability is key in this process. Judges need to have the right incentives to correctly perform their tasks, namely to protect the rule of law. As judges are held accountable, thus trustworthy, the legitimacy of the judiciary increases, thus its *de facto* independence increases. In this context, the power of the judiciary to defend itself from the other branches of the state and also control them (in the traditional check and balances system) is increased by its own proper functioning. Consequently, even if apparently contradictory at first glance, accountability might actually be a booster for real judicial independence (O'Connor, 2008).

Moreover, regarding judicial impartiality, in a new democracy with *de jure* judicial independence, judges might feel comfortable to misbehave (for instance receiving bribes, nepotism and so on) without the threat of strong punishments typical of dictatorships. This kind of behaviour might damage the confidence of the public in the judiciary, thus its independence (Miller, 2004).

In such way, the necessity of strengthening judicial accountability in these cases might be even more important. Consequently, the enhancement of judicial accountability can foster judicial independence by dealing with both judicial autonomy and impartially. Hence, measures aiming to make judges accountable might, as a by-product, improve judicial independence (Brody, 2008).

Policies that increase transparency are particularly relevant. Transparency tends to create incentives for judges to follow the rule of law via public scrutiny, as well as increasing general public awareness about judicial activity. The positive effect of these measures is thus dual: they might increase the accountability of the judges and the confidence of the public on the courts.

4.4.3 Developing Judicial Accountability

The Brazilian macroeconomic situation in the early 2000s was clearly different from the scenario during the 80s and 90s. The main economic problems, namely hyper-inflation and uncontrolled sovereign debt, were overcome by the economic structural reforms passed in the 90s. The state's agenda, previously filled by attempts to stabilise the economy, gained space to develop other areas. In this context, supported by the consolidation of the New Institution Economics ideas in the international agencies, the Brazilian judiciary experienced important developments in the new millennium.

4.4.3.1 Transparency Measures

In 2002, Justice TV ("TV Justiça"), a television channel dedicated to the judiciary was created.[32] It is a channel owned and managed by the Brazilian judiciary that provides live broadcasts of the sessions of the Supreme Court and the Superior Court of Justice. In addition to the transmission of the courts sessions, the channel fills its programme schedule with programs related to the judiciary, such as explanations of court decisions, legal debates and legal education. Besides being broadcast as a regular TV channel, Justice TV can also be watched online (live on YouTube or on its own website[33]).

The creation of Justice TV is an important milestone in the development of judicial accountability in Brazil. Although publicity of judicial proceedings was already the rule, the ability to follow the sessions live opened the doors of the high courts to the general public. In this sense, it decreased the population's cost to information acquisition about the judiciary activity.

[32] Federal law n. 10.461/2002.
[33] http://www.tvjustica.jus.br

Another measure in the same direction was the adoption of electronic proceedings. Although at first glance this policy might intend to foster judicial efficiency, it can boost accountability as a by-product. Once the judicial proceedings are done electronically, their dissemination to a larger public is facilitated. In this sense, public scrutiny of judicial activity is simplified.

In this direction, Brazilian courts started to use electronic systems for their daily activities in the 2000s. Initially, some tribunals developed their own systems. Nevertheless, with the establishment of the National Council of Justice, a national system of electronic judicial proceedings ("Processo Judicial Eletrônico") was developed. It was released in 2011 and has been gradually adopted by other Brazilian courts (CNJ, 2018).

As in the case of Justice TV for the high courts, the "Processo Judicial Eletrônico" lowers the population's cost of information acquisition about the judicial proceedings. Although the judicial cases were already public (except in a few exception, such as cases involving underage), before the adoption of the electronic system, a citizen would need to physically go to the court to verify a case. With the electronic system, the citizens can follow the judicial activity online.

4.4.3.2 The 45th Constitutional Amendment

Nevertheless, the main landmark regarding the evolution of the Brazilian judiciary since the 1988 constitution came in 2004. In this year the congress enacted the 45th constitutional amendment to the 1988 charter that was aimed to reform the judiciary. After more than 15 years of democracy, the problems of the judicial structure were clear, thus a reform needed (Bank, 2004).

As discussed in the previous section, the 1988 charter came after a period of military dictatorship. After decades of military repression, the 1988 constitution was a product of a population craving for rights that were earlier repressed. In this sense, the new

charter is commonly nicknamed the "Citizen's constitution" because of its long list of individual rights (Tosta and Coutinho, 2015). As a result, the judiciary faced an explosion in the number of new cases filed, without a corresponding increase in the supply side.[34]

Given this scenario, public confidence in the courts was decreasing. In 1999, 89% of Brazilians considered the judiciary slow and 58% evaluated the court system as incompetent (Pinheiro, 2003). To address this scenario, the reform promoted changes in the judges' career. For instance, the original constitutional text prescribed that the judges should be promoted based, alternatively, on their seniority and performance. Since it was not clear how to measure the merits of a judge, the promotion of the judges was based on the discretion of the tribunals.

Under this framework and considering Brazilian history, an efficient judge and another with relevant personal connections would be on the same level for a promotion. The 45th constitutional amendment improved the system by establishing that the promotion of the judges should be based on objective measures of seniority and performance. In case of promotion for seniority, the judge with more years of practice in the list could only be dismissed by a qualified majority in the tribunal. For promotions based on performance, statistical databases to measure the efficiency of the judges were created.[35] Consequently the system was enhanced to align the incentives of the judges with those of society.

[34]Indeed, in a context of several years of hyperinflation, judicial efficiency was not a priority of the Brazilian state. In fact, the government profited from the inefficiency of the courts to decrease its expenditures with judicial claims. It even created a policy of appealing all unfavourable decisions that it suffered on court, so that the inflation would decrease the value of the claim (Arantes, 2010).

[35]Such as the database used in the efficiency chapter of this thesis.

Furthermore, misconducts related to corruption were also a problem.[36] The freedom of press that came with democratisation, made the population aware of the repetition of corruption scandals involving judges, which increased the perception of the population that the judges were unaccountable (Brinks, 2005). Indeed, although the first degree judges could have disciplinary taken action against them by the second degree court, the second degree judges could only be judged by their peers, which was naturally problematic (Mendes, 2016). To change this situation, the reform formally introduced the National Council of Justice ("Conselho Nacional de Justiça"), which was established in 2005.

The Brazilian Council of Justice is a body of the judiciary composed of nine judges (from different tribunals), as well as two prosecutors, two lawyers, and two laymen appointed by the legislature.[37] The members are appointed for a two-year term in office and the president of the Supreme Court is also the president of the Council. The National Council of Justice (NCJ) has competence to take disciplinary action against the members of the judiciary, namely the judges. It is also responsible for overseeing the budget and administrative matters of the entire judicial branch.[38]

Since its establishment, the NCJ has developed important measures regarding the development of judicial accountability in Brazil. In the same year of its creation, the Council published a resolution[39] prohibiting nepotism in the judicial branch. This rule impeded judges from hiring their family members as employees of the courts in which they work. To circumvent the NCJ resolution, the judges simply began a practice called

[36]For example, in the end of the 90s, an emblematic public funds embezzlement case involving a second degree judge was highlighted by the press. As the first Portuguese judge sent to Brazil centuries ago, the president of the Labour court of Sao Paulo was accused of misappropriating more than half the value of a public construction (Ribeiro, 2011).

[37]Federal Constitution, article 103-B.

[38]For instance, it is the NCJ that develops the statistics about judicial activity in Brazil, such as the databases used in the other chapters of this thesis.

[39]Resolution of the National Council of Justice number 07/05.

"surrogacy", a term used to describe one judge employing the family member of other judge and vice versa.

The first years of the NCJ were marked by discussions about its adequacy to interpret the constitution. The second degree courts, in an effort to resist the rules of the NCJ, initiated a procedure, via diffuse constitutionality control, to declare the 45th constitutional amendment, and thus the NCJ, as unconstitutional. It was only after several decisions made by the Supreme Court that the constitutionality of the 45th amendment was recognised. Although the Supreme Court's ruling gave legitimacy to the NCJ, the judges did not immediately fall in line with NCJ resolutions. For instance, the "surrogacy" problem was only solved in 2008, when the Supreme Court published its binding precedent[40] number 13 prohibiting this practice (Mendes, 2016).

4.4.3.3 Operation Car Wash

The measures to fortify the judiciary seem to be already showing their practical results. The confidence in the justice system among the Brazilian population, measured by the World Values Survey, shows that 40% of the respondents have "Quite a lot" confidence in the courts in 2010-2014, against only 25% in 1989-1993.[41]

Although the practical measurement of *de facto* judicial independence is complicate, a set of objective indicators such as judges' removals can be used in this assessment (Feld and Voigt, 2003). In this sense, with a dozen years separating one study from the other, Feld and Voigt (2003) and Voigt et al. (2015) might provide another evidence supporting the claim that the Brazilian *de facto* judicial independence improved in the last years. The result for Brazil found in the first study was 0,494, while in the second

[40] A binding precedent is a kind of decision issued by the Supreme Court which has "a binding effect upon the lower bodies of the Judicial Power and the direct and indirect public administration, in the federal, state, and local levels" according to the Article 103-A of the Federal Constitution.

[41] For the same period: "None at all" fell from 27% to 24%, "Not very much" from 28% to 25%, and "A great deal" from 19% to 11%.

it increased to 0.825.[42] Consequently, some improvement might have happened in the period separating both studies. Nevertheless, the main evidence of the increase in real judicial independence might be found in the Car Wash operation.

The Car Wash operation ("Operação Lava Jato") is a criminal investigation which started in Brazil in 2014. Initially as a small investigation about money laundering involving a few gas stations, it escalated to uncover an unprecedented web of corruption which is being covered by the international media as the largest corruption case in modern history (Padgett, 2017).

In a nutshell, it revealed a corruption scheme involving private companies bribing politicians for favours (such as contracts for public infrastructure projects). As consequences of the investigation (taking place mainly in a first instance court in the state of Paraná), President Dilma Roussef (chef of the Executive from 2010 until her impeachment in 2016) was impeached and her predecessor (Luiz Inacio Lula da Silva) convicted of corruption and sentenced to jail. For the first time in its history, the Brazilian Senate had one of its sitting senators arrested because of a Supreme Court order (Gallas, 2016). Such strong decisions against the other branches might indicate an increase in *de facto* judicial autonomy.

Several powerful businessmen, part of the Brazilian elite, were also sent to jail. The most notorious was the chef of Latin America's largest construction firm, Odebrecht, a company with annual revenue of 46 billion American dollars (Connors and Kiernan, 2015). In a country that expressions such as "only the poor get arrested" were common (Watts, 2017), these incarcerations might signal improvements in judicial impartiality.

Popular support played an important role in backing the judicial activity. Several protests against corruption and showing direct support to the judicial decisions took

[42]The indicators vary between 0 and 1 (greater values represent a higher degree of *de facto* judicial independence).

place over the country. Some of them directly following attempts of the executive or legislative to influence court rulings (Press, 2016).

4.5 Concluding Remarks

The development of the Latin America's institutions can be traced back until at least the fourteenth century when it was divided in several European extractivist colonies. This kind of colonisation is particularly problematic for the institutional development of the colonies (Acemoglu et al., 2000). Concentration of power and corruption are two of its consequences that are particularly problematic regarding judicial independence. The first might influence the autonomy of the judiciary while the second might endanger its impartiality.

The development of the Brazilian institutions was specially influenced by its metropolis, perhaps more than in any other main Latin American country, due to its unique historical relation with Portugal. Indeed, after more than one hundred years of the proclamation of the republic, the institutional influence of Portugal is still there (Naritomi et al., 2012).

The first century of complete independence in the Brazilian history was marked by political and economic instabilities that prevented the development of complete judicial independence. The succession of *coups d'état*, states of siege and dictatorships prevented, specially, the flourishing of *de facto* judicial independence.

The democratisation process that took place in the second half of the 80s brought, with the Constitution of 1988, the hope for the establishment of a genuinely independent judicial branch. However, the dimension of the economic problems faced by the country might have initially obfuscated this aspiration. On the other hand, this problematic beginning might have also revealed the dangers of an unaccountable judiciary.

The overcoming of the macroeconomic problems and the support from international agencies paved the way for the development of the *de facto* judicial independence in Brazil. The issue was then how to implement judicial independence in practice. Surprisingly, the enhancement of judicial accountability, which might be at a first glance an antonym for independence, emerged as a key element in this process.

Although the construction of *de facto* judicial independence in Brazil is still an ongoing process, it appears to be already showing results. For instance, the Operation Car Wash, in which the judiciary took strong decisions against both the other branch of the states and the economic elites, was unimaginable in the past. The popular support for the judicial actions was remarkable, which might support the idea developed in this chapter that accountability can be a booster for the development of practical judicial independence.

Chapter 5

Determinants of Judicial Efficiency Change[1]

"True freedom requires the rule of law and justice, and a judicial system in which the rights of some are not secured by the denial of rights to others."

Jonathan Sacks

Judicial efficiency matters for economic development. The literature analysing the link between judicial efficiency and economic outputs is already vast and still proliferating (Ramello and Voigt, 2012). However, from a policy perspective, once the effects of judicial efficiency on the economy are known, it becomes even more important to comprehend the drivers of judicial productivity change.

[1]This chapter was, in part, published in the first issue of the 14th volume of the *Review of Law & Economics* under the title "Determinants of Judicial Efficiency Change: Evidence from Brazil" with Aléssio Tony C. Almeida.

Using data dealing with Brazil's state courts for the period of 2009 to 2014, this chapter analyses judicial productivity change and its possible determinants over time in a two stage approach. First, data envelopment analysis is used to calculate Malmquist productivity measures which are decomposed into: technical change (frontier-shift effect) and efficiency change, which is composed of pure efficiency change (catch-up effect) and scale efficiency change (size effect). In the second stage, fixed effect models are estimated to evaluate the determinants of judicial productivity growth.

The first stage results show a trend of slight improvement in judicial productivity, which is defined mainly by efficiency change, since technical change deteriorated during the period covered in our analysis. The second stage findings suggest that there is not a trade-off between judicial quality and efficiency improvement, while judges' remuneration, legal complexity and the use of technology affect judicial productivity, however, not always in the expected direction.

5.1 Introduction

Legal system effectiveness relies, among other factors, on efficient courts. An unenforceable law is no different than a nonexistent rule. Economic agents react to incentives and the legal system is the basic formal incentive framework of a society. However, an inducement mechanism only works if the incentives are credible, otherwise a rational agent would be indifferent to following or not following the norm. The law's credibility derives mainly from its enforceability, a task in which the judiciary plays a central role.

As the New Institutional Economics continues to demonstrate, institutional design and performance are key factors for economic development. The firm establishment of the rule of law is essential to generate a stable and predictable environment in developing countries. In addition to directly improving the conditions of doing business, the

rule of law is also crucial to overcome other social problems that affect these nations, such as corruption and human rights violations. In this sense, since the 90s, the World Bank has been supporting justice reforms in emerging economies. Initially, those programs were focused on legislation reforms. However, quickly the Bank realised that laws alone would not be enough to achieve the reforms goals (World Bank, 2002). Therefore, it started to encourage and provide assistance to develop the responsible institutions to implement and enforce the law in these countries, thus mainly judicial reforms programs.

This new approach stimulated the creation of judicial statistics databases in several countries which favoured the development of empirical studies on judicial efficiency.[2] Indeed, some research has been conducted even on a cross-country basis (Buscaglia and Ulen, 1997; Dakolias, 1999; Blank et al., 2004). Although it is undeniably important to assess the quality of legal institutions using a comparative perspective, cross-nation judiciary efficiency analyses are affected by the diversity of legislation, which lessens their ability to reveal the managerial determinants of court efficiency.

Consequently, since at the national level several factors that cannot be controlled by the courts (such as legislation) but can affect their efficiency are intrinsically controlled by the data, within-country assessments have been more common (Pedraja-Chaparro and Salinas-Jimenez, 1996; Rosales-López, 2008; Yeung and Azevedo, 2011; Garcia-Rubio et al., 2011; Dalton and Singer, 2013). However, most of these studies are cross-sectional analyses that neglect the time variable. Time is the dimension in which institutions evolve (North, 1994), thus it is a crucial variable in revealing the determinants of judicial efficiency growth.

This chapter employs a two stages approach to analyse changes in judicial efficiency and the variables possibly correlated to it. First, data envelopment analysis (DEA) is

[2]For a literature survey on this topic see Voigt (2016).

used to calculate the Malmquist index (a measure of productivity growth). The use of a productivity change index is preferable since it allows for an analysis of judicial performance evolution over time, including technical (innovation aspects) and efficiency variations. In the second stage, fixed effects models are estimated to assess the role of relevant variables on productivity growth, such as decision quality, courts and external factors. As done by Posner (2000); Rosales-López (2008); Mitsopoulos and Pelagidis (2010); Dimitrova-Grajzl et al. (2016), the reversal rate is used as a proxy for the quality of judicial decisions. To the best of our knowledge, this is the first study that deeply analyses judicial efficiency change and its correlated factors.

The data used is from the 27 Brazil's state courts, and covers the period of 2009 to 2014. As discussed in chapter three, this country's particularities, especially its continental dimensions, population and cultural diversity.[3] combined with its relatively uniform legislation provide a singular database. Moreover, during the period covered in this study, there was no relevant legislation change (especially procedural law), while at the same time it is a period that encompasses different levels of economic performance.[4]

The remainder of this chapter is structured as follows. The second section briefly discuss the relevance of judicial efficiency. Sections 5.3 and 5.4 present the methodology and the data used. Section 5.5 reports the results, while section 5.6 concludes.

5.2 Judicial Efficiency Matters

Transaction costs are a major obstacle for market efficiency (Coase, 1960). Among them, enforcement costs are crucial. Contracts can only be efficiently concluded if the parties believe that the counterpart will comply with the agreement's clauses and if the

[3]Cultural traits might affect court efficiency, especially through the demand side (Landes, 1971; Vereeck and Muhl, 2000) However, in this chapter those issues are controlled using fixed effects regressions, admitting that these features do not have an abrupt change in the short run.

[4]Since a 7.5% GDP growth (2010) until a 0.1% GDP stagnation (2014).

promisor ultimately breaches the contract, the promisee will be able to take an appropriate action against him to resolve the dispute. However, this action is not cost-less. To force a contractor to perform his promise (or to pay damages), in a modern society, requires the use of the judiciary.[5] Consequently, the cost of a lawsuit is essentially a transaction cost, thus the higher it is, the less efficiently allocated the resources will be within a society.

A lawsuit's costs can be classified as direct and indirect. The direct cost of a lawsuit is the amount of money that the parties must spend to use the courts (lawyers' remuneration, courts' fees and so on), whereas indirect costs can be defined as being non-monetary, namely opportunity costs (the time it takes, the decision's quality and so forth). Henceforth, the indirect costs of a lawsuit are intrinsically correlated to judiciary efficiency.

The high costs of enforcing contracts are the most important source of both historical stagnation and current underdevelopment of developing countries (North, 1990). According to Williamson (1985) a high performance economy is characterised by a significant number of long-term contracts. Efficient courts are essential for the proliferation of these contracts. In the absence of a well-functioning judiciary, firms might prefer vertical and conglomerate integration, boosting market concentration that might damage economic growth. In this sense, court efficiency is a key element that distinguishes between low and high performance economies.

An efficient judicial system might also indirectly enhance economic development. Expectations play a central role in the economy. The belief that your property will be respected is a vital incentive to invest. Indeed, as demonstrated by Torstensson (1994); Dincer (2007) and Besley and Ghatak (2010) property rights do affect economic perfor-

[5] Although Alternative Dispute Resolution (ADR) options might exist, the state, thus the judiciary, is still the ultimate monopolist of the legitimate use of physical force.

mance. In the case of developing countries, property rights' definition and protection might play an even stronger role (Sherwood et al., 1994). As found in Field (2005), strengthening property rights in urban slums increases residential investment. This is critical in order to overcome the favelas' conditions in which a large part of the developing countries population lives. Furthermore, as shown by Lichand and Soares (2014) using Brazilian data, by securing property rights and enforcing contracts, the judiciary might also incentivise entrepreneurship, which is fundamental for long-term growth and aggregate productivity.

Judiciary efficiency is also important in crime deterrence. Considering Becker (1968), the crime level in a society would be a function of, among other factors, the probability of being apprehended and convicted. Briefly, rational criminals balance the utility they can get by committing a wrongful act and the expected disutility of its punishment. Since the expected penalty depends on the probability of being arrested and sentenced, an efficient judiciary should discourage crimes, hence decrease crime levels, thus foster social welfare.

Moreover, as the literature on drug prohibition has shown (Rasmussen et al., 1993; Cooney, 1997; Fryer et al., 2005), the unavailability of non-violent dispute resolution mechanisms (mainly courts) is associated with criminality. Concisely, since drugs are illicit, dealers and consumers cannot use official institutions (police, judiciary and so on) to resolve their disputes. Hence, they need to use their own methods, mainly violence, to overcome their problems. Analogically, it is straightforward to suppose a correlation between inefficient judicial systems and crime rates, since the extreme case (a completely inefficient judiciary) would be no different than courts' unavailability.

Judicial inefficiency can also indirectly influence social welfare through inadequate human rights protection and increased levels of corruption. Excessive pretrial detention is a clear example of how courts' backlogs can directly violate an individual's funda-

mental rights. Additionally, it also contributes to prison overcrowding, deteriorating the conditions of the entire penitentiary system (Hafetz, 2002). Moreover, a weak judicial system is a condition to corruption (Jain, 2001). Indeed, corruption can be both cause and consequence of judicial inefficiency (Damania et al., 2004; Ismail and Rashid, 2014).

5.3 Methodology

This empirical analysis is comprised of two stages. The first builds a productivity index of the courts using nonparametric efficiency measures. The second stage evaluates the relationship between productivity growth, and relevant factors that might affect it as established by the literature.

According to Farrell (1957), the empirical measurement of productive efficiency involves relations between inputs and outputs from a production function. Since this function has an unknown functional form, Bogetoft and Otto (2011) emphasise that the construction of the efficiency frontier can be performed by parametric models (such as Stochastic Frontier Analysis, SFA), and non-parametric models (such as Data Envelopment Analysis, DEA). The choice between DEA and SFA approaches involves issues related to flexibility on the functional form of the efficiency frontier, error term, data quality, and multiplicity of inputs and outputs.

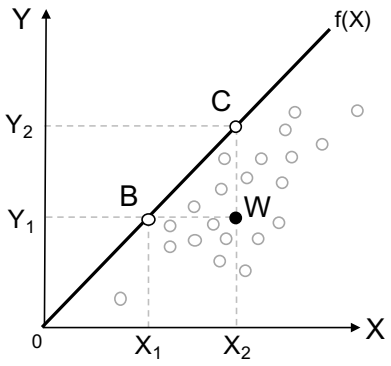
In the case of this study, following the literature on judicial efficiency (Kittelsen and Forsund, 1992; Garcia-Rubio et al., 2011; Voigt, 2016), we adopt the DEA approach,[6] because of its flexibility in the construction of the frontier (moulding itself to the data set evaluated).

[6]The mathematical formulation used to calculate the efficiency by DEA method was introduced by Charnes et al. (1978).

This methodology is based on the concept of Pareto efficiency (Lewin et al., 1982). A court is considered inefficient if another similar court (or group of courts) produces at least the same output using less inputs. Consequently, a court is defined as efficient if none of its similar peers can produce more output considering the given inputs. In such a way, the efficient courts establish parameters (value "1") to which the remaining courts are compared.

Figure 5.1 illustrates the production process of a court with the simple case of an input (x) and an output (y), assuming a function $f(X)$ with constant returns to scale (CRS).

Figure 5.1: Measurement of technical efficiency



Technical inefficiency implies that a productive unit is not achieving the maximum output from a particular combination of inputs, or that given the production level it would be possible to reduce the use of inputs (Farrell, 1957). In Figure 5.1, the unit W is technically inefficient because of its position below the efficient production frontier $f(X)$. Guiding the calculation for the output, the inefficiency of W is given by the ratio between the straight-line segments $\overline{X_2W}$ and $\overline{X_2C}$. In this example, B and C units define the frontier and are considered technically efficient.

Observing the behaviour of judicial efficiency over time, Kittelsen and Forsund (1992) highlight the need to understand how the rate of productivity change is occurring between different courts. This distinction is important because efficiency is a comparative measurement, and the efficiency level of a court might appear to increase over time simply due to a frontier shift rather than an improve combination of inputs and outputs. Caves et al. (1982); Kittelsen and Forsund (1992) and Färe et al. (1994b) study the growth in total factor productivity (TFP) based on the productivity index introduced by Malmquist (1953). In the case of the judiciary, Kittelsen and Forsund (1992) apply the Malmquist index to estimate the rate of productivity change of the Norwegian courts between 1983 and 1988.

5.3.1 Stage 1: Malmquist Index

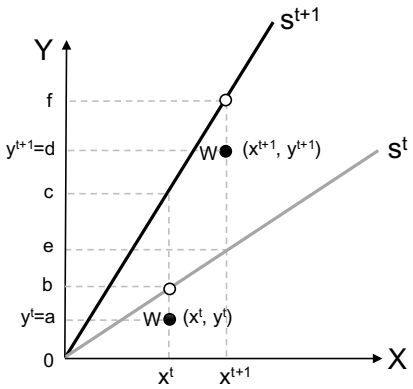
According to Kittelsen and Forsund (1992); Färe et al. (1994b) and Färe and Grosskopf (1996), the Malmquist index measures the total factor productivity (TFP) change over time, where this indicator can be decomposed into two main components: efficiency change (EC) and technical change (TC).

The former, also known as catch-up effect, measures relative efficiency over time, indicating whether production converges to or diverges from the frontier. If EC>1, there is a convergence process in which courts with initial low productivity levels adopt more efficient techniques that were already implemented by other courts. The TC, also known as frontier-shift effect, captures the change in productivity that is due to innovation. In other words, the adoption of techniques that move the frontier. This index, based on input and output data using DEA, was developed by Färe et al. (1994b).

Figure 5.2 exemplifies the idea of Malmquist index, $m(\cdot)$, considering the frontiers (S) of the periods t and $t+1$. This exposition is based on the model proposed by Färe et al. (1994b), assuming that technology (S^t) can produce outputs y^t from inputs

x^t. Production points must be feasible for the technology of the reference period, i.e., $(\mathbf{x}_t, \mathbf{y}_t) \in S^t$ and $(\mathbf{x}_{t+1}, \mathbf{y}_{t+1}) \in S^{t+1}$. Figure 5.2, for example, production point (x_t, y_t) is feasible in the technology of the period $t+1$, but the point $(x_{t+1}, y_{t+1}) \notin S^t$ indicating that S^{t+1} is higher than S^t.

Figure 5.2: Example of productivity change (output-based)



Source: Färe et al. (1994b).

In this example, calculating the output-based distance functions[7], $d(\cdot)$, for unit W is given by: $d^t(x_t, y_t) = a/b$, $d^{t+1}(x_{t+1}, y_{t+1}) = d/f$, $d^t(x_{t+1}, y_{t+1}) = d/e$ and $d^{t+1}(x_t, y_t) = d/f$. The functions $d^t(\cdot)$ and $d^{t+1}(\cdot)$ represent respectively the distances of the production point for the frontiers S^t and S^{t+1}. By comparing the production points with the technology of different periods, the distance functions $d^{t+1}(x_t, y_t)$ and $d^t(x_{t+1}, y_{t+1})$ can assume values smaller, equal or greater than one.

Although the technical efficiency of unit W has reduced, $[d^{t+1}(x_{t+1}, y_{t+1})]^{-1} < [d^t(x_t, y_t)]^{-1}$, the production frontier between the two periods had a noticeable change.

[7]The output-based distance function is defined as maximum proportional expansion of the outputs, given inputs.

That is why Kittelsen and Forsund (1992) maintain that to fully understand judicial productivity, it must be analysed over time.

Färe et al. (1994b) calculate the Malmquist productivity index using a geometric mean of two reasons. The first employs, as a reference, the frontier of the period t and then the frontier of the period $t+1$. This indicator is a geometric mean of two ratios of function distance,[8] and considers the technical frontier at different moments and the relationship between outputs ($\mathbf{y}$) and inputs ($\mathbf{x}$). Equation 5.1 expresses the Malmquist index:

$$m(\mathbf{x}_{t+1}, \mathbf{y}_{t+1}, \mathbf{x}_t, \mathbf{y}_t) = m = \left[\frac{d^t(\mathbf{x}_{t+1}, \mathbf{y}_{t+1})}{d^t(\mathbf{x}_t, \mathbf{y}_t)} \times \frac{d^{t+1}(\mathbf{x}_{t+1}, \mathbf{y}_{t+1})}{d^{t+1}(\mathbf{x}_t, \mathbf{y}_t)} \right]^{1/2}. \tag{5.1}$$

An improvement in judicial productivity between periods t and $t+1$ is revealed by $m > 1$, while $m < 1$ indicates a decline in TFP. Equation 5.2 shows the Malmquist index decomposed into change of TC (or frontier-shift effect) and EC (or catch-up effect):

$$m(\mathbf{x}_{t+1}, \mathbf{y}_{t+1}, \mathbf{x}_t, \mathbf{y}_t) = TC \times EC, \tag{5.2}$$

where: $EC = \dfrac{d^{t+1}(\mathbf{x}_{t+1}, \mathbf{y}_{t+1})}{d^t(\mathbf{x}_t, \mathbf{y}_t)}$ and $TC = \left[\dfrac{d^t(\mathbf{x}_{t+1}, \mathbf{y}_{t+1})}{d^{t+1}(\mathbf{x}_{t+1}, \mathbf{y}_{t+1})} \times \dfrac{d^t(\mathbf{x}_t, \mathbf{y}_t)}{d^{t+1}(\mathbf{x}_t, \mathbf{y}_t)} \right]^{1/2}$. The TC is calculated as a geometric mean of two shifts.

The DEA approach calculates the functions' distance $d(\cdot)$. In short, to calculate m_i it is necessary to resolve four linear programming problems.

[8] The function distance shows the degree of efficiency of a court in relation to the frontier technical reference.

$$\theta_i = [d^t(\mathbf{x}_t, \mathbf{y}_t)]^{-1} = \max_{\phi_i, \boldsymbol{\lambda}} \phi_i$$
$$\text{s.t. } -\phi_i \mathbf{y}_{it} + \mathbf{Y}_t \boldsymbol{\lambda}_t \geq 0 \quad \text{(A)}$$
$$\mathbf{x}_{it} - \mathbf{X}_t \boldsymbol{\lambda}_t \geq 0$$
$$\boldsymbol{\lambda}_t \geq 0$$

$$\theta_i = [d^{t+1}(\mathbf{x}_{t+1}, \mathbf{y}_{t+1})]^{-1} = \max_{\phi_i, \boldsymbol{\lambda}} \phi_i$$
$$\text{s.t. } -\phi_i \mathbf{y}_{it+1} + \mathbf{Y}_{t+1} \boldsymbol{\lambda}_{t+1} \geq 0 \quad \text{(B)}$$
$$\mathbf{x}_{it+1} - \mathbf{X}_{t+1} \boldsymbol{\lambda}_{t+1} \geq 0$$
$$\boldsymbol{\lambda}_{t+1} \geq 0$$

$$\theta_i = [d^t(\mathbf{x}_{t+1}, \mathbf{y}_{t+1})]^{-1} = \max_{\phi_i, \boldsymbol{\lambda}} \phi_i$$
$$\text{s.t. } -\phi_i \mathbf{y}_{it+1} + \mathbf{Y}_t \boldsymbol{\lambda}_t \geq 0 \quad \text{(C)}$$
$$\mathbf{x}_{it+1} - \mathbf{X}_t \boldsymbol{\lambda}_t \geq 0$$
$$\boldsymbol{\lambda}_t \geq 0$$

$$\theta_i = [d^{t+1}(\mathbf{x}_t, \mathbf{y}_t)]^{-1} = \max_{\phi_i, \boldsymbol{\lambda}} \phi_i$$
$$\text{s.t. } -\phi_i \mathbf{y}_{it} + \mathbf{Y}_{t+1} \boldsymbol{\lambda}_{t+1} \geq 0 \quad \text{(D)}$$
$$\mathbf{x}_{it} - \mathbf{X}_{t+1} \boldsymbol{\lambda}_{t+1} \geq 0,$$
$$\boldsymbol{\lambda}_{t+1} \geq 0$$

where: $\mathbf{x} = \{x_1, x_2, \ldots, x_N\}$ and $\mathbf{y} = \{y_1, y_2, \ldots, y_M\}$ represent vectors of inputs and outputs used in t and $t+1$; $\mathbf{X} = \sum_{i=1}^{I} \mathbf{x}_i$ and $\mathbf{Y} = \sum_{i=1}^{I} \mathbf{y}_i$, where I is the total number of courts evaluated; $\boldsymbol{\lambda} = \{\lambda_1, \lambda_2, \ldots, \lambda_I\}$ is a vector of weights, ϕ_i is the efficiency score $\in [1, \infty]$ and $\theta_i = (\phi_i)^{-1}$ represent the efficiency score $\in [0, 1]$ for the i-th court.

In two problems (A, B), the functions' distance evaluate the courts with the corresponding technology available (contemporary frontier), and others evaluate the production plans in a given period with the technology of another moment in time (C, D). Following Färe et al. (1994b), this study uses the output-based Malmquist index with $\mathbf{x}_t \in \mathbb{R}_+^N$ and $\mathbf{y}_t \in \mathbb{R}_+^M$. The efficiency change (EC) and technical change component are calculated under constant returns to scale (CRS), while the pure efficiency change (PEC) is obtained by variable returns to scale (VRS) in order to evaluate the scale effect.[9]

To calculate the rate of productivity growth between 2009 and 2014, the Malmquist method of assessment with adjacent periods is adopted, i.e.:

$$m(\mathbf{x}_{t+1}, \mathbf{y}_{t+1}, \mathbf{x}_t, \mathbf{y}_t), m(\mathbf{x}_{t+2}, \mathbf{y}_{t+2}, \mathbf{x}_{t+1}, \mathbf{y}_{t+1}), ..., m(\mathbf{x}_{t+n}, \mathbf{y}_{t+n}, \mathbf{x}_{t+n-1}, \mathbf{y}_{t+n-1}).$$

[9] CRS indicates that a change in inputs implies changes in the same proportion of outputs. In turn, the variable returns to scale includes three cases: constant, decreasing and increasing returns.

In the VRS model the constraint $\sum \boldsymbol{\lambda} = 1$ is included in $d(\cdot)$ equations. When calculating the efficiency scores, the optimal level of inputs and outputs can be projected. Thus, the goals projected by the DEA model in order to make each court efficient using Equation 5.3.

$$x^*_{m0} = x_{m0} - s^-_{m0} = x_{m0} - X_m\boldsymbol{\lambda} \tag{5.3}$$

$$y^*_{n0} = \theta^{-1}y_{n0} + s^+_{n0} = \theta^{-1}y_{n0} + Y_n\boldsymbol{\lambda} \tag{5.4}$$

where: x^*_{m0} and y^*_{n0} are targets for inputs and output; s^- and s^+ are negative (reduction of inputs) and positive slacks (shortage of outputs). A court is considered efficient if, and only if, $s^- = s^+ = 0$.

We identify the type of returns to scale from the following inequality: if $\theta_{VRS} = \theta_{CRS}$, the court operates with optimal scale; if $\theta_{VRS} \neq \theta_{CRS}$ and the scores calculated under decreasing returns ($\sum \boldsymbol{\lambda} > 1$) and VRS are equal, the court operates with excess of inputs (decreasing scale); otherwise, the court operates with increasing scales (Färe et al., 1994a; Ramanathan, 2003).

The changes in scale efficiency (SC), based on Färe et al. (1994b), is defined by: $SC = \dfrac{EC}{PEC}$, where EC and PEC respectively are calculated by DEA-CRS and DEA-VRS. Therefore, we can verify using the Malmquist index the scale effect over time:

$$m = TC \times EC = TC \times (PEC \times SC) \tag{5.5}$$

5.3.2 Stage 2: Econometrics with Panel Data

The procedures described in the first stage allow for the calculation of the judicial productivity growth rates for the period under analysis. Then, to assert the relationship of

its possible determinants, a panel data with fixed effects model is estimated according to the Equation 5.6:

$$\ln m_{it}^{j} = \beta_0 + \beta_1 RR_{it} + \mathbf{CF}'_{it}\boldsymbol{\gamma} + \mathbf{EF}'_{it}\boldsymbol{\alpha} + \delta_t + a_i + \epsilon_{it} \tag{5.6}$$

where: $\ln m_{it}^{j}$ represents the indicator j of the State Court i in period t, with $j =$ Malmquist index (m), efficiency change (EC), technical change (TC); RR is Reversal rate, used as a proxy for judicial decision quality; $\mathbf{CF}$ is a vector with information about courts' factors, including remuneration of judges and judicial staff, investment rate, technology resources used by each court (investment and electronic filing); $\mathbf{EF}$ is a vector that include external factors to the courts such as gross domestic product (GDP) per capita and an index for legal particularities (rate of criminal cases); a_i is the fixed effect involving the environment conditions of each Courts i (such as cultural diversity, moral aspects etc.); δ_t captures the fixed effect of time in the year t; ϵ_{it} is the random error term.

The result of the parameter β_1 aims to capture if the quality of the decisions is related to judicial productivity growth. Although *ceteris paribus* increases in efficiency are beneficial for judicial performance in general, a possible concern about improving judicial productivity is that it does come at the cost of a decrease in the quality of the decisions. Consequently, the analysis of judicial productivity growth should take into consideration variations in the quality of the decisions. Following Posner (2000); Rosales-López (2008); Mitsopoulos and Pelagidis (2010); Dimitrova-Grajzl et al. (2016), the percentage of judgements reversed by the upper court (over all sentences that were appealed) is used as a proxy for judicial output quality. Will the courts with a higher quality index (lower reversal rate) have productivity losses? The estimation of the β_1 coefficient aims to answer this question.

According to the fair wage-effort hypothesis (Akerlof and Yellen, 1990), salary and effort, thus productivity, are positively correlated. Moreover, the public choice model of judicial decision making predicts that judges,[10] as everybody else, follow self-interest rules (Posner, 1993; Shepherd, 2011). Indeed, as Posner (1993) proposed, judges are rational agents and utility maximisers. Furthermore, Deyneli (2012) highlights that higher remuneration might incentivise productivity and reduce the chances of corruption. In addition to the incentives-effort effect, higher remuneration can also make career choice of becoming a judge's more attractive for high quality workers. However, Choi et al. (2009) suggest that higher wages would only affect judicial efficiency if judges could be sanctioned due to bad performance (mainly facing termination risk) and if the judge's selection process is sophisticated enough to screen out low-ability candidates.

Investments are expected to increase future production, thus they should affect productivity growth. Specifically, the technology investment rate is expected to positively influence the dependent variable since it improves the degree of informatisation. As Palumbo et al. (2013) suggested, spending on computerisation should smooth court functioning and improve its efficiency, mainly by promoting new case-flow management techniques. Indeed, a good degree of informatisation permits the introduction of better procedures to monitor and enforce judicial deadlines. Furthermore, it can contribute to improving courts' accountability and transparency (Kourlis and Gagel, 2008).

Electronic filing is a proxy for the diffusion of information and communication technologies (ICT) among courts. As discussed above, the use of new technologies should increase courts' efficiency, thus a higher percentage of new cases filed electronically is expected to be positively correlated with court productivity.

[10]Due to data limitation, the remuneration of judges and justice staff is used as a proxy for judges' wages. Indeed, notwithstanding the fact that the judge is the main decision maker, it is plausible to assume that the court's output is a result of the judge's and his staff's efforts combined.

We consider GDP per capita and the rate of criminal cases as the external factors,[11] in the sense that they might influence the courts' efficiency, but cannot be controlled by the court. The former is used to estimate the relationship between socioeconomic factors and judicial productivity, as done by Djankov et al. (2003); Gorman and Ruggiero (2009). The latter is used as a proxy for particularities of the substantive/procedural law. In a cross-country analysis, Djankov et al. (2003) found that legal formalism might affect judicial efficiency. Criminal and civil cases are formally distinct, following a different path in the judiciary. For instance, since criminal and non-criminal cases have diverse burden of proof standards (Fleming Jr., 1961), they have different complexity levels. In this sense, the rate of criminal cases tries to capture the correlation between legislation and judicial productivity.

5.4 Data

The data used in this chapter was extracted from the database of an annual report developed by the Brazilian National Council of Justice ("Conselho Nacional de Justiça"), the Courts in Figures ("Justiça em Números"). It covers all cases (both civil and criminal[12]) handled by the 27 Brazilian states courts from 2009 to 2014. The monetary variables were deflated using the National Consumer Price Index ("Índice Nacional de Preços ao Consumidor") calculated by the Brazilian Institute of Geography and Statistics ("Instituto Brasileiro de Geografia e Estatística").

[11] Another interesting external factor would be the number of lawyers, as discussed by Mora-Sanguinetti and Garoupa (2015), and Carmignani and Giacomelli (2010) However, due to data limitations this information could not be inserted in the model.

[12] A limitation of this study is assuming that all cases have the same level of complexity. The existence of cases with different complexity levels might affect the estimation of the productivity scores. A possible way to overcome this limitation would be to classify the cases according to their level of complexity. However, the available data of the Brazilian Courts in Figures does not allow such differentiation. Consequently, the final results of this study should be viewed with caution.

Table 5.1 shows the set of variables selected to create the productivity index. The selection of inputs and output was based on previous published studies on judiciary efficiency, such as Beer (2006), CNJ (2015), Deyneli (2012); Garcia-Rubio et al. (2011); Kittelsen and Forsund (1992); Yeung and Azevedo (2011). The input variables are represented by human, material[13] and monetary resources, while the output captures the number of resolved cases in each court.

Table 5.1: Variables selected to evaluate judicial productivity

Variable	Description	Mean	SD	Min	Max
Inputs					
Court expenditures	Total expenditure of the State Courts in R$ millions, except expenses with retired staff and investment				
	overall	1156.6	1466.2	100.0	8093.4
	between		1476.6		
	within		192.5		
Judges	Total number of judges				
	overall	422.5	482.4	32.0	2566.0
	between		489.3		
	within		27.2		
Judicial staff	Civil servants, servants requested from other government agencies or entities, employees without formal affiliation to public service				
	overall	9274.2	12102.3	985.0	66365.0
	between		12237.4		
	within		1167.3		
Workload	Total of cases being processed (new cases plus pending cases)				
	overall	2709823.0	4875838.0	103676.0	26500000.0
	between		4936199.0		
	within		405508.0		
Output					
Judgments	Total of resolved cases				
	overall	691103.2	1042959.0	33789.0	5937348.0
	between		1051163.0		
	within		130902.7		
Observations	overall	162			
	between	27			
	within	6			

The variables used in the second stage are reported in Table 5.2. According to Posner (2000); Rosales-López (2008); Mitsopoulos and Pelagidis (2010), and Deyneli (2012),

[13]Considering that a judgement can only be delivered if a case was filed, workload is considered as an input. Since the judgements of a certain year encompass new and pending cases, both are considered in workload. This choice was adopted following CNJ (2015).

the selected variables aim to identify the effect of a decision's quality (measured by the reversal rate), courts' factors (remuneration, investment rate, technology rate, and electronic filing) and external factors (GDP per capita and rate of criminal cases) on the growth of judicial productivity

Table 5.2: Explanatory variables used in the regression models

Variable	Description	Mean	SD	Min	Max
Reversal rate	Rate of appeals reversed by the upper court				
	overall	0.37	0.14	0.00	0.94
	between		0.12		
	within		0.09		
Remuneration	Average remuneration of judges and justice staff				
	overall	104,575.10	22,498.10	70,709.28	161,867.10
	between		20,745.04		
	within		9,415.66		
Investment rate	Percentage of investment in relation to total expenditure				
	overall	4.69	3.89	0.04	17.35
	between		2.88		
	within		2.65		
Technology investment rate	Percentage of spending on information technology in relation to the total expenditure				
	overall	3.97	2.01	0.00	12.04
	between		1.32		
	within		1.53		
Electronic filing	Percentage of new electronic cases over total filed cases				
	overall	30.44	26.48	0.00	1.00
	between		19.83		
	within		17.88		
GDP per capita	Gross domestic product per capita				
	overall	20,032.89	12,145.01	6,888.60	75,466.46
	between		12,021.13		
	within		2,703.24		
Rate of criminal cases	Percentage of new criminal cases in relation to total cases				
	overall	4.03	2,13	0.81	11.20
	between		2.02		
	within		0.76		
Observations	overall	131			
	between	27			
	within	4.9			

Since the goal is to study the determinants of productivity growth rate and its components (efficiency change and technical change), the regression model is performed

for 5 periods. Given the existence of missing values in the reversal rate, a panel data model with fixed effects is estimated to an unbalanced panel, reducing the total number of observations from 135 to 131.

5.5 Results

5.5.1 Judicial Efficiency

Productivity growth and its components were calculated for the 27 Brazilian state courts over the period of 2009-2014. As one of the basic components of the Malmquist index is the efficiency change, Table 5.3 reports the evolution of pure technical efficiency over time for each Brazilian state court.

Table 5.3: Technical efficiency (VRS)

	year						Total (2009-2014)				
Court	2009	2010	2011	2012	2013	2014	Mean	SD	Min	Max	Count Eff*
Rio de Janeiro (RJ)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	6
Roraima (RR)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	6
Rio Grande do Sul (RS)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	6
Sao Paulo (SP)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	6
Acre (AC)	1.00	1.00	1.00	1.00	1.00	0.95	0.99	0.02	0.95	1.00	5
Mato Grosso do Sul (MS)	1.00	1.00	1.00	1.00	0.81	0.85	0.94	0.08	0.81	1.00	3
Rondonia (RO)	0.76	0.94	1.00	1.00	0.92	0.93	0.92	0.08	0.76	1.00	1
Distrito Federal (DF)	0.82	0.77	0.95	0.91	1.00	1.00	0.91	0.09	0.77	1.00	2
Minas Gerais (MG)	0.93	1.00	0.83	0.85	0.88	0.93	0.90	0.06	0.83	1.00	1
Para (PA)	1.00	0.93	0.78	0.84	0.90	0.96	0.90	0.07	0.78	1.00	1
Parana (PR)	0.87	0.86	0.97	0.78	0.84	0.99	0.89	0.07	0.78	0.99	0
Amazonas (AM)	0.77	0.77	0.88	1.00	1.00	0.86	0.88	0.09	0.77	1.00	2
Goias (GO)	0.90	0.75	0.73	0.92	0.98	1.00	0.88	0.11	0.73	1.00	1
Amapa (AP)	1.00	0.57	0.81	0.89	1.00	1.00	0.88	0.16	0.57	1.00	3
Sergipe (SE)	0.87	0.95	0.82	0.77	1.00	0.81	0.87	0.08	0.77	1.00	1
Maranhao (MA)	0.76	0.71	0.99	0.86	0.97	0.87	0.86	0.10	0.71	0.99	0
Alagoas (AL)	0.44	0.92	0.94	0.96	0.88	0.90	0.84	0.18	0.44	0.96	0
Rio Grande do Norte (RN)	1.00	0.74	0.82	0.88	0.76	0.72	0.82	0.10	0.72	1.00	1
Ceara (CE)	0.91	0.58	0.63	0.81	0.77	0.93	0.77	0.13	0.58	0.93	0
Tocantins (TO)	1.00	0.48	0.71	0.68	0.79	0.87	0.76	0.16	0.48	1.00	1
Santa Catarina (SC)	0.77	0.70	0.76	0.76	0.78	0.60	0.73	0.06	0.60	0.78	0
Bahia (BA)	0.96	0.84	0.60	0.69	0.57	0.62	0.71	0.14	0.57	0.96	0
Paraiba (PB)	0.54	0.52	0.77	0.61	0.91	0.87	0.70	0.15	0.52	0.91	0
Pernambuco (PE)	0.72	0.63	0.53	0.47	0.80	0.66	0.63	0.11	0.47	0.80	0
Espirito Santo (ES)	0.68	0.46	0.55	0.53	0.60	0.69	0.58	0.08	0.46	0.69	0
Mato Grosso (MT)	0.46	0.36	0.44	0.46	0.62	0.77	0.52	0.13	0.36	0.77	0
Piuai (PI)	0.30	0.36	0.30	0.38	0.55	0.77	0.44	0.17	0.30	0.77	0
Total	0.83	0.77	0.81	0.82	0.86	0.87	0.83	0.03	0.77	0.87	-

Note: SD = standard deviation; *Count Eff = amount of times that the DMU was efficient in the period.

Under the assumption of variable returns to scale (VRS), Table 5.3 shows that most Brazilian State courts were technically inefficient between 2009 and 2014. On average, the overall level of pure efficiency was 0.83, indicating that the number of judgements (output indicator) could increase by about 20% per year. Between 2009 and 2014, the courts of Rio de Janeiro (RJ), Roraima (RR), Rio Grande do Sul (RS), Sao Paulo (SP), and Acre (AC) show the best performance in terms of higher production results with lower input use. Among the most efficient courts, there are courts located in both more (RJ, RS and SP) and less (RR and AC) developed states in Brazil.

At the bottom of the ranking, the courts of Piaui (PI) and Mato Grosso (MT) have the worst technical performance over time. For example, given the resources used, the Court of PI should have increased its judicial production by 2.33 times in 2009. Based on a global average (2009-2014), considering the score of 0.44 and taking into account the benchmark units, the Court of PI would need to increase its production by 127.3% per year to optimise the input-output relationship.

Most relevant literature on judicial efficiency (Castro and Guccio, 2014; Schneider, 2005; Yeung and Azevedo, 2011; Deyneli, 2012) relies on the assumption that courts operate with constant returns to scale (CRS), which implies that the courts' sizes are optimal. However, as Voigt (2016) discusses, this is not always the case. Courts may operate with variable returns to scale (VRS). Some judicial units might have increasing return to scale, while others might be already too large.

Table 5.4 shows the scale efficiency of the courts in the period, including the dominant scale types of the court in each period. These results complement the previous analysis, because the courts may be technically efficient and operate in an incorrect production scale or be doubly inefficient (in technical and scale terms). Moreover the court can operate on an optimal scale of production and have technical efficiency.

Table 5.4: Scale efficiency

		year						Total
Court	**Scale***	2009	2010	2011	2012	2013	2014	2009-2014
AC		0.85	1.00	1.00	1.00	1.00	0.92	0.96
	constant	increasing	constant	constant	constant	constant	increasing	
AL		0.74	0.71	0.68	0.68	0.87	0.83	0.75
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
AM		0.80	0.79	0.72	0.88	1.00	0.76	0.83
	increasing	increasing	increasing	increasing	increasing	constant	increasing	
AP		1.00	0.98	0.92	0.98	1.00	1.00	0.98
	undefined	constant	increasing	increasing	increasing	constant	constant	
BA		0.73	0.85	0.92	0.88	0.90	0.99	0.88
	undefined	increasing	increasing	decreasing	decreasing	increasing	decreasing	
CE		0.99	0.97	0.97	0.97	0.99	0.95	0.98
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
DF		0.83	0.89	0.83	0.83	0.78	0.85	0.84
	decreasing	decreasing	increasing	increasing	decreasing	decreasing	decreasing	
ES		0.93	0.94	0.98	0.98	0.96	0.95	0.96
	increasing	decreasing	decreasing	increasing	increasing	increasing	increasing	
GO		0.94	1.00	0.99	0.96	1.00	1.00	0.98
	increasing	increasing	increasing	increasing	decreasing	increasing	constant	
MA		0.86	0.80	0.85	0.83	0.80	0.84	0.83
	increasing	increasing	decreasing	increasing	increasing	decreasing	increasing	
MG		0.81	0.77	0.86	0.86	0.83	0.86	0.83
	decreasing	decreasing	decreasing	increasing	increasing	decreasing	decreasing	
MS		1.00	1.00	0.99	1.00	0.99	1.00	0.99
	constant	constant	constant	increasing	constant	decreasing	increasing	
MT		0.93	0.95	0.99	0.99	1.00	0.99	0.98
	undefined	decreasing	increasing	decreasing	decreasing	increasing	increasing	
PA		1.00	0.95	1.00	0.99	0.88	0.87	0.95
	increasing	constant	increasing	increasing	increasing	increasing	increasing	
PB		1.00	0.98	0.99	0.99	0.88	0.93	0.96
	decreasing	decreasing	decreasing	increasing	increasing	decreasing	decreasing	
PE		0.99	0.97	0.96	0.97	1.00	1.00	0.98
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
PI		1.00	0.93	0.90	0.93	0.96	0.80	0.92
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
PR		0.99	0.98	0.98	1.00	0.99	0.98	0.99
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
RJ		1.00	1.00	1.00	1.00	1.00	1.00	1.00
	constant	constant	constant	constant	constant	constant	constant	
RN		0.98	0.95	0.96	0.97	0.95	0.99	0.96
	decreasing	decreasing	decreasing	increasing	decreasing	decreasing	decreasing	
RO		0.98	0.91	1.00	0.97	0.91	0.99	0.96
	increasing	increasing	increasing	constant	increasing	increasing	increasing	
RR		0.63	0.62	0.53	0.67	0.55	0.90	0.65
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
RS		1.00	1.00	1.00	1.00	1.00	1.00	1.00
	constant	constant	constant	constant	constant	constant	constant	
SC		0.99	0.96	0.99	0.99	1.00	1.00	0.99
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
SE		0.97	0.99	0.89	0.99	0.96	0.97	0.96
	increasing	increasing	decreasing	decreasing	increasing	increasing	increasing	
SP		1.00	0.66	0.83	0.85	0.79	0.84	0.83
	decreasing	constant	decreasing	decreasing	decreasing	decreasing	decreasing	
TO		0.70	0.90	0.85	0.90	0.95	0.93	0.87
	increasing	increasing	increasing	increasing	increasing	increasing	increasing	
Total		0.91	0.91	0.91	0.93	0.92	0.93	0.92

Note: *Return to scale dominant over time.

Most State Courts of Brazil operate with increasing returns to scale over time (see Table 5.4), indicating that in addition to pure technical inefficiency the courts have problems related to incorrect scale functioning. Among the technically efficient courts, only Rio de Janeiro (RJ) and Rio Grande do Sul (RS) do not have scale problems between 2009 and 2014, operating at optimal scale of production. On the other hand, Roraima (RR) and Sao Paulo (SP) feature scale inefficiency, the first of which operates with increasing returns and the second works with decreasing returns.

Table 5.5 reports a basic description (average information) about efficiency scores, inputs and output of the Brazilian courts by type of returns to scale. The courts with increasing or decreasing returns present more problems in the input-output relationship (technical efficiency problem) than in incorrect scale production. Evaluating the production, the units with optimal scale of production have an output, on average, higher in 11.9% than those operating with decreasing returns. While the inputs show even more pronounced differences, reflecting the fact that the courts with decreasing returns also consume excessive human and financial resources – particularly in the number of judges and the courts expenditures.

Table 5.5: Description of inputs, output and scores of judicial efficiency by type of returns to scale (2009-2014)

	Returns to scale			
Variable	**Increasing returns**	**Constant returns**	**Decreasing returns**	**Total**
Efficiency				
Technical (VRS)	0.79	1.00	0.81	0.83
Scale	0.91	1.00	0.89	0.92
Inputs				
Expenditure (constant 2014 R$ millions)	714.79	1,575.71	2,057.25	1,156.60
Judges	301	511	691	423
Staff	5,746	12,839	16,302	9,274
Workload	1,406,513	4,602,358	4,874,524	2,709,823
Output				
Judgements	381,670	1,253,334	1,120,370	691,103

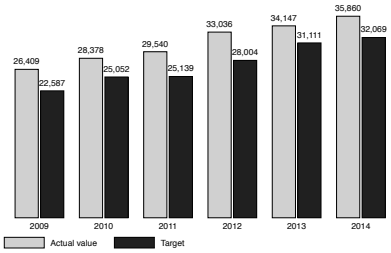
In order to transform technically inefficient courts into efficient ones, what would be the optimal adjustments to inputs and output in the aggregate? To answer this question Figure 5.3 shows the cumulative adjustments, based on DEA-VRS model, to the inputs and outputs to increase judicial efficiency. Therefore, this illustration presents accumulated actual values of inputs and outputs, as well as their values projected by the DEA results for each year.

Although the efficiency model is output-oriented, courts exhibit excesses in the use of inputs, such that assuming the possibility of all courts adjusting their inputs and outputs, there would be global reductions in all considered inputs and an average expansion of output by 13.26%. Among the inputs, those with higher slacks were the court expenditures and the number of judges, which on average would need to be reduced respectively by 12.6% and 11.7% in the period. What is noticeable regarding these results is that in order to achieve technical efficiency, inefficient courts should increase their relative production and necessarily minimise the use of financial and human resources.

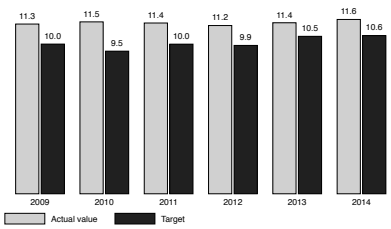
In practical terms, given contractual rigidity in the Brazilian public sector (especially with human resources), adjustments should primarily occur in the output level of courts and/or by frontier shifting up (improvements in technological change). Thus, for a better evaluation of judicial productivity over time, also taking into account the technical changes, Table 5.6 presents the Malmquist index and its components for each state court. Note that the Malmquist index can be obtained by two approaches: $m = TC \times EC$ or $m = TC \times PEC \times SC$. In the last approach, the changes in scale efficiency are detailed.

Figure 5.3: Comparison of actual values for inputs and output with their targets by DEA-VRS model (2009-2014)

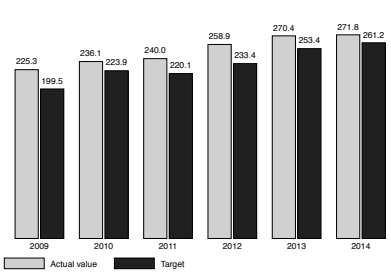
(a) Expenditures - Input (R$ millions)



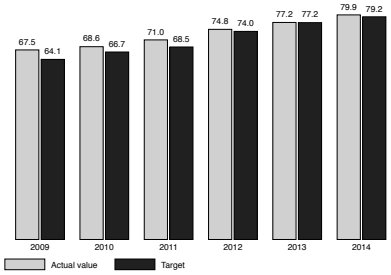
(b) Judges - Input (in thousands)



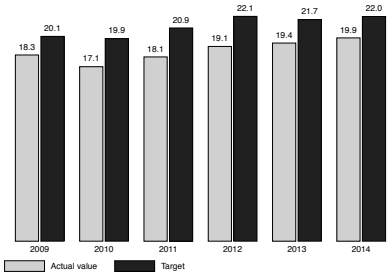
(c) Staff - Input (in thousands)



(d) Workload - Input (millions)



(e) Judgements - Output (millions)



The expenditures were adjusted for inflation (base period: 2014).

Table 5.6: Malmquist index, Technical change, Efficiency change, Pure efficiency change and Scale efficiency change (Average annual changes, 2009-2014)

				EC = PEC × SC	
Court	Malmquist index	Technical change	Efficiency change	Pure efficiency change	Scale efficiency change
AC	1,007	0,993	1,010	0,989	1,021
AL	1,211	0,984	1,228	1,211	1,015
AM	1,032	0,986	1,039	1,026	1,013
AP	1,041	0,993	1,042	1,044	0,999
BA	0,956	0,971	0,984	0,929	1,059
CE	0,994	0,971	1,028	1,036	0,993
DF	1,046	0,999	1,049	1,046	1,002
ES	0,990	0,974	1,026	1,022	1,004
GO	1,023	0,986	1,040	1,031	1,009
MA	1,029	0,975	1,047	1,045	1,002
MG	1,001	0,986	1,013	1,004	1,009
MS	0,952	0,979	0,971	0,972	1,000
MT	1,111	0,985	1,139	1,127	1,011
PA	0,940	0,971	0,969	0,997	0,972
PB	1,087	0,981	1,112	1,134	0,980
PE	1,012	0,991	1,029	1,024	1,005
PI	1,143	0,967	1,179	1,230	0,958
PR	1,009	0,980	1,032	1,035	0,997
RJ	1,023	1,023	1,000	1,000	1,000
RN	0,915	0,961	0,954	0,948	1,006
RO	1,033	0,983	1,051	1,046	1,004
RR	1,091	0,992	1,114	1,000	1,114
RS	0,983	0,983	1,000	1,000	1,000
SC	0,945	0,984	0,962	0,958	1,003
SE	0,992	0,988	1,003	1,000	1,004
SP	0,978	0,996	0,986	1,000	0,986
TO	1,029	0,971	1,068	1,038	1,029
Mean	1,015	0,983	1,040	1,033	1,007

Note: Pure efficiency change is calculated using DEA-VRS and efficiency change by DEA-CRS. Scale efficiency change (SC), based on Färe et al. (1994b), is defined by: $SC = \frac{EC}{PEC}$.

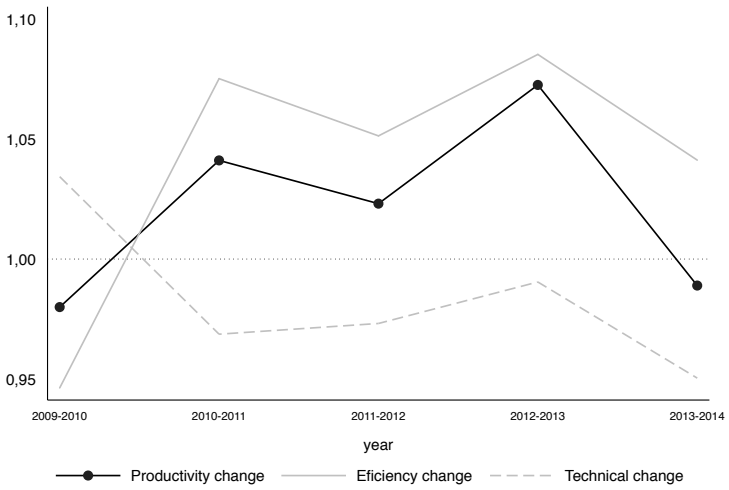
The results presented in Table 5.6 are summarised by the global average which demonstrates that Brazilian courts showed a slight tendency to improve their productivity in the period. The average productivity growth by Malmquist index was 1.5% per year. This productivity growth, on average, can be attributed more to the efficiency component than to innovation (technological change). Figure A.2, in Appendix, shows that, globally, 57.8% of the State Courts during the study period present a progress in net productivity. This information confirms the trend of a slight improvement in judicial productivity over time.

As it can be seen more clearly in Figure 5.4, the evolution of judicial productivity in Brazil occurs unsteadily, being basically defined by efficiency changes over time. With the exception of 2009-2010, throughout the designated period the technical change

evolved under EC and the Malmquist index, with a downward trend in the designated period.

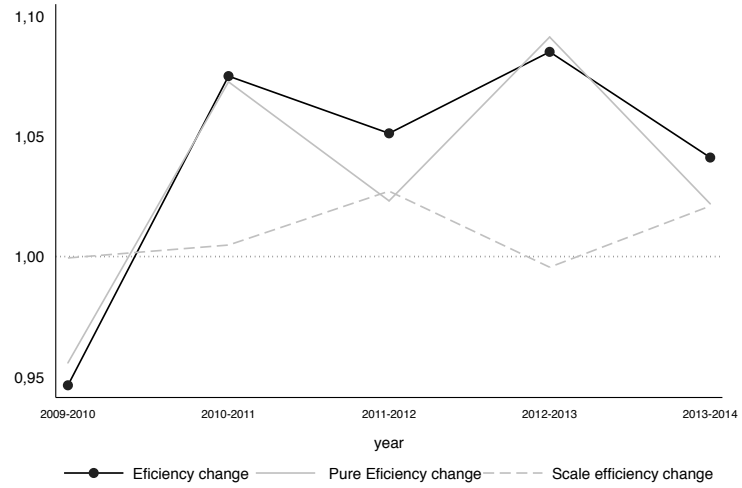
Decomposing the efficiency change over time, Figure 5.5 shows that pure efficiency change has superimposed the effects of changes in efficiency scale. Globally, the EC has a growth of 4%, note that 82.5% of which is due to the catch-up effect (pure efficiency change). Despite the average annual growth, changes in scale effect contribute only 17.5% with EC growth over time. More details about percentage of courts with advances in TC, PEC and SC are reported in the Figure A.4 in Appendix.

Figure 5.4: Evolution of Malmquist index and Productivity change (2009-2014)



Indeed, among all courts only RJ, with an average annual technical change of 2.3%, progressed from a technological perspective (positive frontier effect). All the other tribunals faced a decrease in the technical change indicator (negative frontier effect). The courts with higher rates of productivity growth per year were, respectively, Alagoas (AL, 21.1%), Piaui (PI, 14.3%) and Mato Grosso (MT, 11.1%). The decomposition of

Figure 5.5: Evolution of Malmquist index and Efficiency change (2009-2014)



the productivity indicator shows that the key to achieving growth for these courts was due to better input-output ratio (pure efficiency change) achieved by these courts.

As seen in Table 5.3, these courts (AL, PI and MT) have the lowest technical efficiency indicators. Considering the hypothesis of diminishing marginal returns, the most inefficient units tend to have a higher relative evolution in time. This statement can be verified by Figure A.3 in Appendix, which shows the relationship between PC and technical efficiency lagged.

5.5.2 Econometric Results

Table 5.7 presents the econometric results of the relationship between judicial productivity change (Malmquist index) and the variables discussed in the methodology (decision quality, courts' and external factors). The estimations are compiled using fixed effect model with cluster-robust standard errors. This table presents four different models, beginning with the most parsimonious model, and moving to the model with more

controls. The first model has only the reversal rate as an independent variable, while model (2) also includes remuneration. The last two models include other variables, such as Courts' factors, GDP per capita, criminal cases and trend variables.

Table 5.7: Determinants of judicial productivity change (Malmquist index) from regression with fixed effect model (Dependent variable in log)

Variable	**(1)**		**(2)**		**(3)**		**(4)**	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Decision quality								
Reversal rate	-0.4260	0.359	-0.4107	0.362	-0.3710	0.364	-0.3535	0.316
Courts' factors								
Remuneration (log)			0.3499*	0.197	0.5012**	0.205	0.5318**	0.230
Investment rate (log)					-0.0166	0.031	-0.0081	0.031
Technology investment rate					0.0072	0.015	0.0075	0.013
Electronic filing					-0.1643*	0.082	-0.2198**	0.096
External factors								
GDP per capita (log)							0.5066	0.661
Rate of criminal cases (log)							-0.0353	0.072
Year								
2011							0.0447	0.090
2012							-0.0252	0.098
2013							-0.0229	0.166
2014							-0.1276	0.205
Intercept	0.1635	0.133	-3.8797*	2.257	-5.6016**	2.318	-10.8361*	6.046
σ_u	0.0918		0.1214		0.1495		0.3144	
σ_e	0.2056		0.2040		0.2045		0.2047	
ρ	0.1662		0.2616		0.3484		0.7024	
R^2	0.0447		0.0690		0.0918		0.1454	
Adjusted R^2	0.0373		0.0544		0.0554		0.0663	
Observations	131		131		131		131	
Groups	27		27		27		27	

Note: ***p-value<0.01, **p-value<0.05, *p-value<0.10. Cluster-robust standard errors.

The statistical insignificance of the reversal rate on judicial efficiency improvement, in all the models, suggests that productivity improvement is not positively correlated with a decrease in judicial decisions quality, which is in line with the results found by Rosales-López (2008); Dimitrova-Grajzl et al. (2016). Consequently, this finding supports the assumption that judicial efficiency and quality maximisation are not mutually exclusive.

The positive relationship between remuneration and judicial productivity change is in line with the public choice model of judicial decision-making and also with the findings of Deyneli (2012). Considering the coefficient in model (4), which presents the best fit and specification, a change of 1% in remuneration is correlated with 0.53% of productivity. This evidence can support the assumption that well paid judges are more motivated, thus more productive. It also suggests that those courts paying the highest salaries attract the most productive workers. Considering Choi et al. (2009) and noticing that judges are protected by life tenure in Brazil, the second interpretation seems more plausible.

Both general and technological investment rates are not statistically significant. This result might suggest that either the courts are not investing well, or that their investment returns do not affect the same year output.[14] GDP per capita also does not appear to have a relationship with judicial productivity in any of the models, suggesting that judicial productivity growth does not depend on socioeconomic factors.

The negative and statistically significant estimate of the new cases electronically filed might seem counter-intuitive, since more paperless lawsuits were expected to result in more efficient courts. The model shows that a marginal change in the percentage of electronic filing is related to, on average, a reduction of approximately 0.22% in judicial productivity growth. However, a possible explanation for this result is the fact that electronic filing systems are a relatively new technology and court employees might need time to adapt to this new technique.

Moreover, the fact that the technology itself has evolved over the years might support the adaption hypothesis. Indeed, since implementing electronic case filing technology in the late 2000's, no effort was made to establish a uniform system, implying that sev-

[14]This hypothesis could be tested introducing a lag on those variables. However, the length database time series analysed in this paper is too short to perform this task.

eral different types of paperless systems were adopted by the courts. It was only in 2011 that the National Council of Justice decided to release a uniform system ("Processo Judicial Eletrônico-PJe") that has been gradually implemented by the courts. This explanation is reinforced by the result of this coefficient in the TC(1) model in 5.8, which shows that this variable is correlated to an effect in the negative frontier-shift.

Table 5.8 reports the role of explanatory variables considered on the decomposition of productivity measures change (EC and TC). These relationships aim to complement the previous analysis, since they can show possible differences between the determinants of the EC (efficiency) and TC (technological) growth.

Basically, the main results of EC(2) model, such as monetary incentives and null statistical effect of the reversal rate, replicate the signals observed on the determinants of productivity growth. This replication finding was expected, since the behaviour of the Malmquist index, as done in the previous subsection, is defined over time by efficiency change. Thus, estimates of the determinants of technological change (frontier effect) are differentiated (information exhibited in Table 5.8).

Table 5.8: Determinants of judicial efficiency and technical changes (decomposition of Malmquist index) from regression with fixed effect model (Dependent variables in log)

Variable	EC(1)		EC(2)		TC(1)		TC(2)	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Decision quality								
Reversal rate	-0.3411	0.339	-0.2892	0.278	-0.0299	0.050	-0.0644	0.056
Courts' factors								
Remuneration (log)	0.5144**	0.198	0.5037**	0.216	-0.0136	0.062	0.0278	0.046
Investment rate (log)	-0.0167	0.030	-0.0031	0.029	0.0001	0.007	-0.0051	0.002
Technology investment rate	0.0087	0.014	0.0085	0.010	-0.0015	0.003	-0.0010	0.004
Electronic filing	-0.0009	0.001	-0.0021**	0.001	-0.0753***	0.026	-0.0131	0.021
External factors								
GDP per capita (log)			0.4850	0.711			0.0213	0.078
Rate of criminal cases (log)			-0.0147	0.069			-0.0206**	0.008
Year								
2011			0.1157	0.087			-0.0710***	0.016
2012			0.0407	0.101			-0.0659***	0.013
2013			0.0269	0.174			-0.0497**	0.024
2014			-0.0363	0.217			-0.0913***	0.026
Intercept	-5.7751**	2.241	-104.017	6.505	0.1782	0.717	-0.4289	1.022
σ_u	0.1439		0.3034		0.0171		0.0189	
σ_e	0.2069		0.2028		0.0514		0.0433	
ρ	0.3261		0.6912		0.0996		0.1599	
R^2	0.0850		0.1743		0.1043		0.4026	
Adjusted R^2	0.0484		0.0979		0.0683		0.3474	
Observations	131		131		131		131	
Groups	27		27		27		27	

Note: ***p-value<0.01, **p-value<0.05, *p-value<0.10. Cluster-robust standard errors.

The negative coefficient of the criminal cases rate on the TC(2) model is interesting from a Law and Economics perspective. It suggests that particularities of the substantive/procedural law are correlated with judicial productivity, which is in line with the findings of Djankov et al. (2003). Indeed, combining the results of that variable with the years' coefficients (which capture the conjuncture variables that affect all the courts) in this model might suggest that legislation in Brazil evolved in a manner that decreased the innovation growth of the courts.

5.6 Concluding Remarks

The New Institutional Economics states that institutions matter for economic growth since they form the incentives framework of a society (North, 1991). Among them, the legal system is an important element in the economy's performance, as established Law and Economics literature. The laws' effectiveness relies on judicial efficiency. Hence, efficient courts are a key factor for society's welfare maximisation.

In this work, we provide evidence that the Brazilian courts globally achieved an average slight improvement in judicial productivity between 2009 and 2014. Thus, the initiatives developed by the courts are generating progress in terms of efficiency change. However, this development has not occurred equally among all state courts and the speed of change is still slow (about 1.5% per year).

An important finding of our study is that the evolution of total productivity is defined by gains in efficiency scale, especially pure efficiency change. Despite the relative improvement of the input-output relationship, Brazil's state courts' technical frontier declined on average by 1.7% per year over time, with the exception of Rio de Janeiro's court. Consequently, the productivity trend of the courts in the analysed period can be seen as a consequence of the convergence process in which the tribunals with low initial efficiency levels recover their productivity gap in relation to the most efficiency courts, instead of being an innovation result.

Finally, the regression analysis revealed the determinants of judicial productivity growth. It suggested that there is no trade-off between the quality of judicial decisions and efficiency improvement. Among the courts' factors, the model confirmed the assumption that wages and productivity are positively correlated. Nevertheless, it also showed that technology introduction might not always produce the expected results, at least in the short run. Furthermore, the model results confirm the assumption that legal

particularities matter for judicial performance, which is in line with other findings in Law and Economics literature.

5.A Appendix

Figure A.1: Percentage of Courts with improvements in technical change, pure efficiency change and scale efficiency change between 2009 and 2014

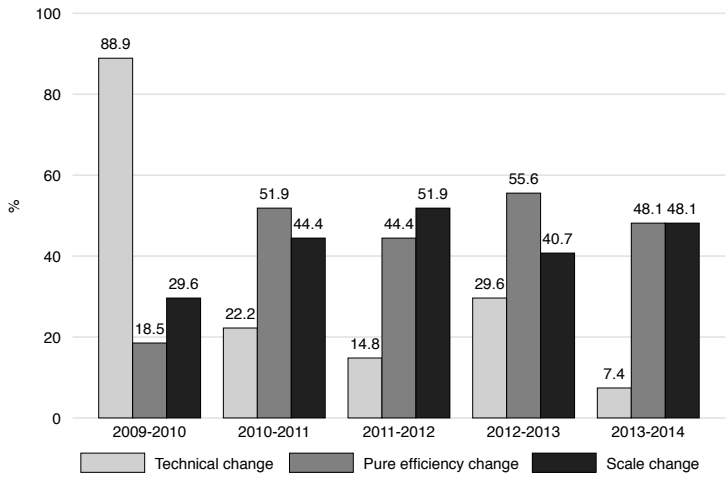


Figure A.2: Percentage of courts with advances (m>1) and deterioration (m<1) in judicial productivity between 2009 and 2014

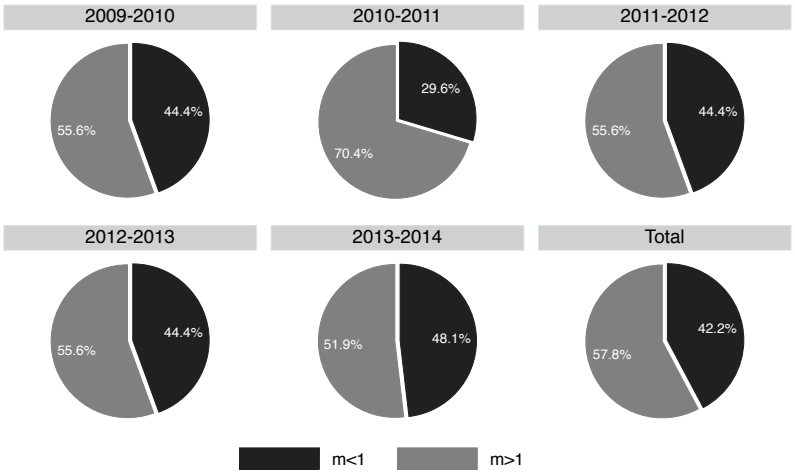


Figure A.3: Technical efficiency (lagged) versus Productivity change

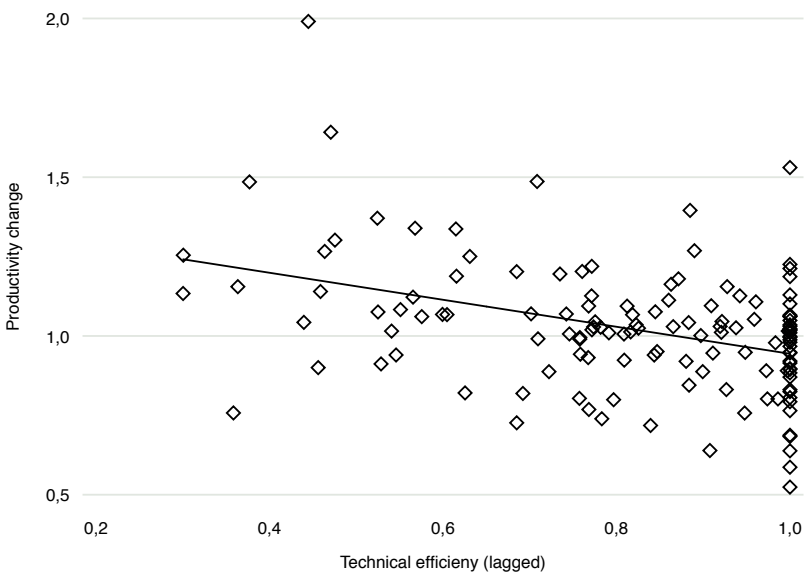


Figure A.4: Malmquist index (Average annual changes, 2009-2014)

Chapter 6

Judicial Accessibility in Perspective

"The only stable state is the one in which all men are equal before the law."

Aristotle

The benefits of an independent and efficient judiciary can only be fully enjoyed by society if the courts are accessible. Judicial accessibility is determined by the degree to which the courts are equally available to every citizen (Prillaman, 2000), and can be measured by defining institutional particularities and establishing whether or not socioeconomic distinctions affect an individual's involvement in judicial activity.

This chapter aims to provide empirical evidence related to personal and institutional characteristics that might influence the individual decision to take legal action. Using a database composed of more than 19,000 Brazilians, we estimate the effects of personal and court characteristics on the decision to file a lawsuit for a variety of conflicts: labour, family, housing, basic services, social security and banking.

The results confirm that personal (especially education, gender, age and the presence of a legal professional at home) and institutional attributes are correlated with the litigation decision, however not always in the expected direction.

6.1 Introduction

The judiciary pacifies society by resolving disputes according to publicly available rules. By enforcing contracts, property rights are protected, fostering investment and economic growth. Considering development as the expansion of real freedoms that people enjoy (Sen, 1999), the enforcement of an individual's rights is essential for this process, since the absence of effective mechanisms for their vindication makes the mere possession of rights meaningless (Cappelletti and Garth, 1978).

Moreover, court decisions are an important source of the law. As discussed by Landes and Posner (1979), adjudication provides a service with both a private and a public component. On the one hand, a sentence concludes a dispute between private parties, thus it is a private good. On the other hand, it establishes a precedent that informs the general public about how similar conflicts might be decided in the future. Even if more important in common law jurisdictions, this public by-product of judicial activity is also important in civil law jurisdictions, since case law is used as a guide for legal system evolution (Fon and Parisi, 2006).

The cases that are litigated represent just a small sample of all the conflicts that emerge in a society, since the majority of disputes do not mature into formal litigation (Felstiner et al., 1981; Priest and Klein, 1984). However, negotiations in the shadow of the law can only be efficient if the threat of legal action is reliable. Indeed, the most important justification for the existence of court system might be exactly to promote settlements (Shavell, 1997).

Certainly, not every case should be solved by the courts, since the judiciary is an expensive social institution, thus litigation must have a socially desirable level (Shavell, 1999). Nonetheless, most democratic legal systems are based on the idea of equal justice under the law. This legal principle establishes that justice should be not only materially the same for every citizen (in the sense that the judge should apply the law regardless of the attributes of the parties), but also be equally available for everyone (UNODC, 2013).

Consequently, this socially desirable level of court demand should be reached randomly, regardless of personal and institutional factors. Nevertheless, in reality, court demand might not be indiscriminately determined. Indeed, since the judiciary is naturally inert, the decision to sue is determined by the parties, thus it might be affected by their own particularities or institutional characteristics.

The decision to take legal action is taken under uncertainty, and has been studied by Law and Economics scholars in the last decades (Cooter and Rubinfeld, 1989). The traditional approach to the economic analysis of law states that individuals choose to take legal action if their expected return on this choice is positive.

Recent academic studies show that individual and court attributes might influence this decision (Posner, 1997; Shughart and Karahan, 2004; Pereira and Wemans, 2015). However, those studies use aggregate data that can only reveal trends in the population. Furthermore, considering only litigated conflicts, they miss an important piece of information in the analysis of the decision to litigate: the conflicts that were not litigated.

This chapter aims to provide empirical evidence, on the individual level, of the personal and institutional characteristics that might affect the decision to take legal action. Using an official database composed of more than 19,000 Brazilians, the decision to take legal action is analysed considering both types of conflicts those that were and

were not litigated. Since litigiousness might vary depending on the kind of conflict, qualitative response models are estimated for each legal area.

The remainder of this chapter is structured as follows: Section 6.2 presents an overview of the literature on the determinants of litigation. Following this, Section 6.3 discusses the hypotheses developed in this study. The data and methodology used are found in Section 6.4. The results are reported in Section 6.5, while Section 6.6 concludes the chapter.

6.2 Determinants of Litigation: an Overview

The decision to file a lawsuit is a choice taken under uncertainty (Cooter and Rubinfeld, 1989). As in any other decision under uncertainty, rational individuals make their choice recursively, computing the expected values of litigation and settlement (Cooter and Rubinfeld, 1989). The analysis of this process is important since court decisions are a guide for legal system development.

Litigated cases are just a sample of all conflicts that appear within a society (Priest and Klein, 1984; Velthoven, 2016). Consequently, if the few disputes that are solved by the judiciary do not represent the whole universe of conflicts, the evolution of the legal system might be biased.

The traditional Law and Economics approach to the analysis of the decision to litigate is based on the work of Landes (1971); Posner (1973) and Gould (1973). Briefly, these models demonstrate that the choice between litigation and settlement is based on a cost-benefit analysis. A rational individual balances the expected benefits from a trial

against the lawsuit's expected costs. Adopting the English rule[1] (loser-pays-all)[2], this conception can be modelled as follows:

$$E[L] = (J \times p_w) - C(1 - p_w)$$

where $E[L]$ is the expected value of filing the case, J is the claim value, p_w is the probability of winning the case and C represents the litigation costs. Consequently, a plaintiff would be willing to file a lawsuit if what he expects to win in the judgement is at least as large as his expected legal costs. On the other hand, the defendant would not settle if his expected legal costs do not exceed the plaintiff's judgement estimation. Therefore, litigation would be the result of a divergence in expectations between the parties (Priest and Klein, 1984).

Information symmetry and absence of strategic behaviour are common assumptions in this interpretation. Noting that in reality some cases are filed by plaintiffs with negative expected return, P'ng (1983); Bebchuk (1984) and Daugherty and Reinganum (1993) developed models with incomplete information in which strategic interdependence might arise. Those models allow, for instance, a situation in which a plaintiff, who expects to lose the case, can decide to file a claim just to extort a settlement from the defendant.

The approach to the litigation decision discussed above is supported by the selection hypothesis debate. This theory states that the cases that reach the courts are not randomly selected, because conflicts that are clear under the applicable rule for at least one of the parties are easily settled. Consequently, only the most difficult cases are litigated, biasing the sample of conflicts solved by the courts.

[1] As discussed in chapter three, the English rule is the standard adopted in Brazil.

[2] For a discussion about the influence of different legal cost allocation rules on the litigate decision, see Shavell, see Shavell (1981).

The selection hypothesis theory was first developed by Priest and Klein (1984). Considering information symmetry and nonexistence of explicit strategic behaviour, those authors argued that only the most uncertain (resulting in a tendency toward a fifty percent chance of victory for each party) conflicts are litigated.[3] Hylton (1993) and Shavell (1996) introduced information asymmetry into the selection hypothesis literature, concluding that in this case the win rate would deviate from the 50% estimation of Priest and Klein (1984).

In recent decades, several studies have provided empirical evidence that contributes to the court demand debate. Posner (1997) investigated the variance in the number of tort suits filed across 34 U.S. states and England. His results suggested that differences in per capita tort filing rate among those jurisdictions are influenced by socioeconomic factors such as income, education, population and lawyer density.

Shughart and Karahan (2004) analysed the determinants of civil caseload evolution in U.S. federal district courts. Using a long time series dataset (from 1904 until 1998), their estimations show that socioeconomic characteristics of the jurisdictions (especially per capita income, unemployment rate, percentage of nonwhites in the population and government's size) affect civil caseloads over time.

Studying tort litigation rates in 10 U.S. states over a twenty year time span, Yates et al. (2010) found that characteristics of the population (such as density and education) and of the judiciary (court professionalism, selection method of the judges and state policy liberalism) affect citizen litigiousness.

Analysing the determinants of civil litigation rate in Portugal, Pereira and Wemans (2015) found that the length of proceedings, socioeconomic characteristics (such as

[3]For an empirical test of this hypothesis, see Eisenberg (1990).

illiteracy rate and purchasing power) and spatial spillovers (effect of neighbouring jurisdictions) influence litigation rates.

A common characteristic of those empirical studies is the use of aggregate data of conflicts that went to courts (usually total number of cases filed). By using aggregated data, they can only identify trends in the entire population. Furthermore, by considering only cases that reached the courts, they neglect the conflicts that were not litigated, which might jeopardise their ability to find the determinants of litigation.

For instance, in studies considering aggregate data, an observed increase in the number of new cases might arise from an increase in access to justice, but it might also emerge from an increase in the probability of accident. Considering tort law, both can be indeed connected, because the probability of an accident depends on the defendant's level of care, which relies on the expected cost of an accident, which is affected by access to the courts.

An option to circumvent these problems is the use of surveys. Indeed, since the mid-1990s, the use of large-scale national surveys proliferated all over the world. According to Pleasence et al. (2013) at least 26 national surveys of public experience with justiciable problems were conducted around the world. This kind of data provides exclusive information about how individuals deal with their conflicts and the factors that might influence their decision to solve their disputes through the judiciary.

6.3 Hypotheses

The decision to take legal action is subjective. As discussed in the last section, the traditional Law and Economics approach to the decision to sue establishes that individuals decide based on the expected returns of the choices (which in this case are to take or not to take legal action). Nevertheless, these expectations are not objective,

they are influenced by several factors that might be intrinsic to the individual (personal characteristics) or to the environment in which he lives (institutional characteristics).

Sociologists and behavioural economists have found that personal characteristics might influence the individual decision-making process. One of the most frequently studied factor is gender. For instance, Eckel and Grossman (2008) and Wang et al. (2009) found differences in the attitude toward risk between men and women. Their findings show that women are less risk taking than men. Considering that the decision to take legal action involves risk taking, it is expected that women have a lower tendency to litigate than men.

Age is another factor found in behavioural experiments that might affect risk preference. People become more risk averse as they get older (Albert and Duffy, 2012; Wang et al., 2009). On the other hand, older people are expected to have more experience in solving conflicts, hence the predisposition to file a suit might be inversely correlated with age. Nevertheless, older people might also engage in more complex social interactions (divorce, retiring and so on), and thus be more prone to access the judiciary.

Ethnic group might affect the decision to sue because of stigma. Minority groups could be less likely to take legal action when facing a conflict since they might perceive the judicial system as unfair. This perception may be due to past experiences with criminal justice (Greene, 2015) as well as because of the feeling of cultural discrimination (Lempert and Monsma, 1994) and implicit racial biases (Dominioni et al., 2018).

Marital status might affect the decision to take legal action through the risk aversion and experience channel. Married individuals tend to be less risk taking (West and Moskal, 1996; Roussanov and Savor, 2013), thus are expected to be less inclined to take legal action. Moreover, people who were married might be more prone to access

the courts because they are more likely to have had some court experience in dissolving their marriage (divorcing or inheritance).

A crucial condition in deciding to file a lawsuit is to be aware of one's own rights. Most of the legal system is written and commonly uses a laboured vocabulary. Consequently, people with low levels of education might find it difficult to access legal information and thus may not be aware of their rights or how the legal process works (Schetzer et al., 2002). On the other hand, a higher educational level might increase the propensity to use alternative dispute resolution methods, thus reducing the propensity to litigate. Moreover, the presence of a person at home (such as a family member) who works with legal services might increase the susceptibility to litigate because of informational spill overs.

Filing a complaint is often expensive and time consuming. Hiring a lawyer and paying court fees require financial resources. Furthermore, whenever the amount at stake and legal fees are large in proportion to an individual's assets, risk preferences might be affected (Shavell, 1981). Even though the state might provide free attorneys and court fee waivers for low income people, trials require time, which is usually scarce, especially for poor people who might not be able to miss work without fearing the loss of their job. On the other hand, the standard economic approach states that high income individuals might have a higher opportunity cost. As a result, income might influence the decision to litigate.

Geographic factors might also affect court accessibility. Urban inhabitants might be more likely to use the judiciary because courts are customarily located in urban areas. People living in rural areas may be less prone to use courts, not only because of geographic accessibility reason, but also because of social network size. The use of formal legal institutions is positively correlated with the network size (Stephenson and de Mesquita, 2006). Rural areas have smaller communities, thus people living in

those areas are expected to rely more on informal institutions to resolve their conflicts.[4] Moreover, lawyers are usually concentrated in urban areas, thus the search cost for legal services tends to be higher in rural areas (Posner, 1997).

Institutional particularities might also influence the decision to take or not to take legal action. Judicial inefficiency means longer and more uncertain judgements. Considering that parties have positive discount rates, court delay decreases the present value of a lawsuit. Furthermore, by increasing uncertainty, court inefficiency might reduce the lawsuit's expected value for the parties. Indeed, by increasing the opportunity cost of the potential litigants, court congestion could be seen as a goods' rationing method (Posner, 1973). Consequently, more productive courts should increase the individual propensity to sue, as hypothesised by Priest (1989).

The availability of legal support can also affect the propensity to litigate. Lawyers are a key element in accessing the courts, mainly because professional representation is legally required for most lawsuits. However, their service is also a cost that the potential litigant must consider when deciding to file a complaint.

If the attorney market were competitive, a higher density of lawyers would result in a lower price for this service. Nevertheless, it is a highly regulated market in which the bar association defines a price floor for lawyer fees. Consequently, an increase in the number of lawyers might not result in cheaper services. Interestingly, Buonanno and Galizzi (2014) have demonstrated that a higher concentration of lawyers can induce them to opportunistically use their legal knowledge to persuade clients to file more suits.

[4]The probability of having a conflict with a stranger (which is less likely to be resolved through informal means) is positively correlated with the community size. In this sense, people living in densely populated areas are more susceptible to use formal institutions such as courts than people in less populated areas.

The decision to take or not to take legal action might also depend on the kind of conflict faced by the person. Different areas of law have different burdens of proof, legal procedures and other factors that might alter the individual disposition to file a case. For instance, some types of cases might be associated with a special type of defendant. Labour and banking cases are usually filed against a private enterprise, family cases against another(s) individual(s), while the state is commonly the defendant in social security lawsuits.

Furthermore, particularities of the rights in dispute may change the individual propensity to litigate. For instance, real estate usually represents a relevant percentage of a family's assets, consequently it might affect the risk preference of the individual. Moreover, particularities of a specific area of law might also influence this decision. For example, in Brazil, labour law is based on the assumption of power asymmetry between employee and employer, thus the employer can be considered a high liability type of defendant. Moreover, the availability of accessible alternative dispute resolution methods can affect the propensity to initiate a lawsuit.

6.4 Data and Methodology

The data used in this chapter was extracted mainly from the database of the National Household Sample Survey ("Pesquisa Nacional por Amostra de Domicílio"- PNAD), which is a survey the Brazilian Institute of Geography and Statistics ("Instituto Brasileiro de Geografia e Estatística"- IBGE) conducts annually since 1967. Its goal is to explore, on an annual basis, general characteristics of the population (education, income, employment, housing and so on) that can be useful for the development and evaluation of socioeconomic policies in Brazil.

In partnership with the National Council of Justice ("Conselho Nacional de Justiça"-CNJ), the IBGE added a supplement about Justice and Victimization on the PNAD of the year 2009. Among other information, this additive generated data about the kind of justiciable conflicts faced by the population and the methods used to solve them. The survey interviewed 399,387 people spread across the country. The selection of interviewees is based on projections of the population,[5] considering the particularities (weight in the Brazilian population) of each area.[6] Consequently, each individual has a weight in the sample, which indicates how representative he is of the population.[7]

In order to investigate the determinants of litigation, this chapter focuses on the individuals[8] who declared that they faced a conflict in the previous 5 years, which represents 9.7% of the sample. Those individuals also provided information about the type of conflict they faced and how they tried to resolve the dispute. The possible kinds of conflicts[9] considered in this study are described in Table 1:

[5] 191,8 million for the 2009's edition.

[6] For instance, federal states with more inhabitants have more interviews than less populated states.

[7] All financial values are in 2009's Brazilian Real(R$). As of December 31, 2009: US$1=R$1,74.

[8] The survey only considered justiciable conflicts faced in the national territory by individuals above legal age of maturity (18 years old).

[9] In addition to the categories considered in this study, there were also: Criminal, taxation, "other" and "no conflict". Considering that this chapter analyses civil litigation, criminal cases were not considered. Taxation cases represented less than 10% of the average number of conflicts of the other categories, thus this category was also not considered.

Table 6.1: Kind of conflicts considered in this study, based on PNAD definition

Kind of conflict	Description
Labour	Difficulties related to employment, salary or working conditions
Family	Problems of marital separation, paternity and division of assets and rights, such as inheritance, alimony and child custody
Housing	Dispute over the possession or ownership of real estate and problems relating to leases and other conflicts with neighbours, resulting from the use of property
Basic Services	Problems with the service provision of water, electricity or telephone; such as excessive charges for these services, incidents (damages to electric devices because of over-voltage)
Social Security	Benefits related to social security; such as retirement, leave, assistance in case of pregnancy, labour accident, inability to work and so on
Banking	Improper billing of abusive or erroneous charges, delay in providing the requested services or data security issue

The court efficiency variable was extracted from the previous chapter. It represents the score[10] of the state court with jurisdiction over the state in which the individual lives. Considering that labour and social security conflicts are not under the jurisdiction of the state courts, court efficiency was not included in the regressions estimated for those conflict areas.

The possible resolution methods were: the Judiciary, Friend/Family, Police, Church, the Consumer Protection and Defence Bureau ("Procuradoria de Proteção e Defesa do Consumidor"- PROCON), Union/Association, Others or "did not search for solution". "Decision to take legal action" (TKLA), the dependent variable in the models, is a binary variable which takes the value 1 if the individual took legal action and 0 otherwise.

[10]Data envelopment analysis (DEA) result under the assumption of variable returns to scale for the year 2009.

The results of this work are developed by a qualitative response model for each k kind of conflict, with k=(labour, family, housing, basic services, social security, banking). The reason for choosing this method is due to the fact that the response variable is discrete. Thus, as shown in Cameron and Trivedi (2005), a binary outcome model can be expressed by:

$$\mathrm{p}_{ik} = \Pr[y_{ik} = 1|\mathbf{X}_i] = \frac{\exp(\beta_{0k} + \beta_{1k}X_{1i} + \beta_{2k}X_{2i} + \cdots + \beta_{nk}X_{ni} + u_{ik})}{1 + \exp(\beta_{0k} + \beta_{1k}X_{1i} + \beta_{2k}X_{2i} + \cdots + \beta_{nk}X_{ni} + u_{ik})}, \tag{6.1}$$

where this model ensures that $0 \leq \mathrm{p}_{ik} \leq 1$. The latent variable (y_i^*) captures the decision of the individuals to resolve their conflicts through the judiciary. It is defined that $y_i = 1$ if $y_i^* > 0$, and $y_i = 0$ if $y_i^* \leq 0$. The vector $\mathbf{X} = (X_{1i}, \cdots + X_{ki})$ includes the explanatory variables for personal and institutional factors that are detailed in Table 6.2; u is the error term which follows a logistic distribution. The parameters of equation 6.1 are estimated by maximum likelihood.

The final number of observations in the database is 19,234 people. Considering the sample weight, it represents 9,244,227 individuals. Table 6.2 presents the descriptive statistics of the database, detailing the variables used in the regression analysis.

Table 6.2: Descriptive statistics of variables used in the regression models

Variable	Mean	Standard Deviation	Min	Max
Decision to take legal action	0.74	0.44	0.00	1.00
PERSONAL ATTRIBUTES				
Gender				
Man (omitted)				
Woman	0.51	0.50	0.00	1.00
Age	43.72	14.49	18.00	98.00
Ethnic group				
Non White (omitted)				
White	0.51	0.50	0.00	1.00
Marital Status				
Married (omitted)				
Single	0.31	0.46	0.00	1.00
Separated	0.06	0.24	0.00	1.00
Divorced	0.07	0.26	0.00	1.00
Widower	0.07	0.25	0.00	1.00
Education level				
Illiterate (omitted)				
Primary education	0.28	0.45	0.00	1.00
Secondary education	0.32	0.47	0.00	1.00
Tertiary education	0.13	0.34	0.00	1.00
Per capita income (log)	6.25	1.02	1.61	11.35
Person in the family with legal occupation	0.02	0.13	0.00	1.00
COURTS AND REGIONAL FEATURES				
Court Efficiency	0.91	0.14	0.30	1.00
Lawyer density by Brazilian States	37.78	16.37	10.94	99.94
Urban Area	0.92	0.28	0.00	1.00
Final sample (N)		19,234		
N expanded by sample weight		9,244,227		

According to Table 6.2, 74% of all individuals filed lawsuits to resolve the various types of conflict considered in this study, indicating that about 1/4 of people decided not to take legal action. Most of the final sample is composed of women (51%), white (51%), married (49%), average age of 44 year old, complete secondary education (32%) and a per capita monthly income of R$ 518[11] ($= e^{6.25}$).Only 2% of individuals have someone in the family who is active in legal occupations (such as lawyers and judges). Regarding the institutional variables, the court efficiency level weighted by the frequency of individuals is 91%, but there are courts with low efficiency levels (30%). The

[11] Around 298 American dollars (as of December 31, 2009: US$1=R$1,74).

average density of lawyers is 37.78 attorneys per 10,000 inhabitants. 92% of the people live in urban areas.

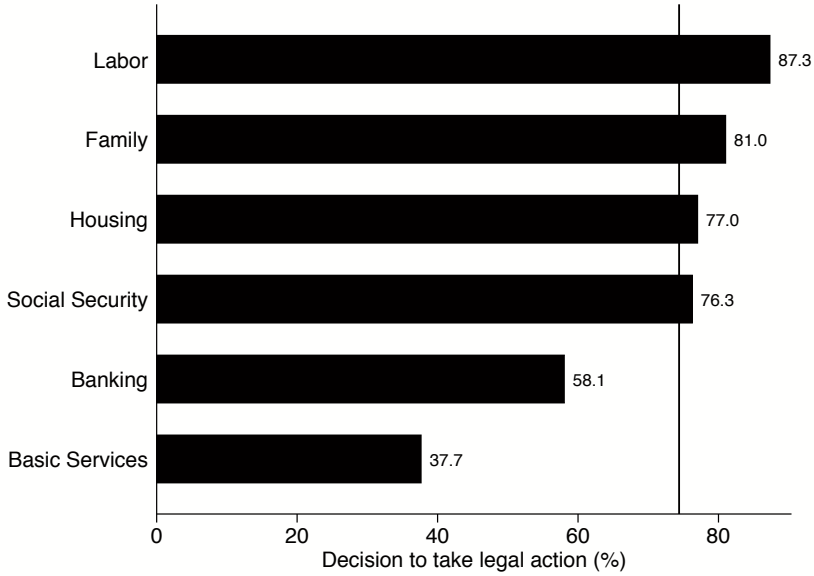
6.5 Results

The conflicts that are litigated the most are related to labour law. Brazil has strict labour market regulations, which, combined with imperfect monitoring, encourages firms to evade the law (Almeida and Carneiro, 2012). Furthermore, labour legislation considers the employee to be "hypo-sufficient" (economically and legally weak), providing him with several legal protections, such as not being liable for the counterpart legal fees if his claim is denied. Moreover, contingency fees is a common fee arrangement among labour law lawyers. As a result, employees have a high incentive to litigate (Yeung, 2017).

Family law has the second highest litigiousness rate. This might also be explained by particularities in the legislation. Practically all cases involving minors (child custody, child maintenance, heritages procedures involving under age heirs, and so on) should be obligatorily handled by the judiciary. Moreover, even if consensual divorce and heritage proceedings can be handled outside the courts (directly by an official notary), the legislation allowing those out of the court proceedings is relatively recent,[12] thus the judiciary is the common choice for resolving those issues.

[12]Federal Law n. 11.441 published in 4th January 2007.

Figure 6.1: Decision to take legal action by type of conflict



As shown in Figure 6.1, basic services and banking are the sectors with the conflicts with lowest litigation rates. These categories share the common characteristic that the conflicts are related to a relationship of consumption. These kinds of conflicts can be handled by the Consumer Protection and Defence Bureau ("Procuradoria de Proteção e Defesa do Consumidor"- PROCON), which is a public institution that mediates conflicts between consumers and providers of goods and services. This kind of alternative dispute resolution is relatively simple (for instance, it does not require hiring a lawyer) and is popular among Brazilian consumers.[13]

In order to draw a profile of individuals (education, age and income) in relation to different types of conflicts faced in the last five years, Table 6.3 reports this information

[13]For instance it is mandatory for every commercial location to have the PROCON telephone number clearly visible for its consumers.

for access and non-access to justice. The values in parentheses are the margin of error of estimates with 95% confidence.

Table 6.3: Personal characteristics of individuals who access and non-access to justice

Variables	Labour	Family	Housing	Basic Services	Social Security	Banking
			PROFILE OF NON ACCESS TO JUSTICE			
Age group (%)						
less than 25	15.14 (0.12)	16.91 (0.1)	9.21 (0.15)	6.35 (0.05)	4.32 (0.08)	9.56 (0.09)
25 to 39	38.93 (0.16)	39.13 (0.13)	25.7 (0.23)	34.94 (0.11)	14.25 (0.13)	40.88 (0.15)
40 to 59	37.03 (0.16)	36.23 (0.13)	44.53 (0.26)	45.25 (0.11)	39.72 (0.19)	35.99 (0.15)
60 or more	8.9 (0.09)	7.72 (0.07)	20.56 (0.21)	13.46 (0.08)	41.72 (0.19)	13.57 (0.11)
Education (%)						
Illiterate	21.49 (0.13)	35.99 (0.13)	46.3 (0.26)	19.45 (0.09)	62.19 (0.19)	19.64 (0.12)
Primary	31.68 (0.15)	33.88 (0.13)	24.26 (0.23)	25.49 (0.1)	23.1 (0.16)	25.31 (0.14)
Secondary	36.27 (0.15)	24.62 (0.12)	23.03 (0.22)	37.45 (0.11)	9.78 (0.11)	39.44 (0.15)
Tertiary	10.56 (0.1)	5.51 (0.06)	6.41 (0.13)	17.6 (0.09)	4.93 (0.08)	15.6 (0.11)
Income (R$)	747.15 (2.82)	504.71 (1.87)	659.71 (4.24)	1060.44 (4.2)	495.46 (1.98)	965.42 (4.11)
			PROFILE OF ACCESS TO JUSTICE			
Age group (%)						
less than 25	7.01 (0.03)	10.26 (0.04)	2.42 (0.04)	4.98 (0.06)	1.85 (0.03)	5.07 (0.06)
25 to 39	38 (0.06)	47.02 (0.07)	22.48 (0.12)	31.77 (0.13)	10.49 (0.07)	33.13 (0.13)
40 to 59	43.29 (0.06)	35.88 (0.06)	47.96 (0.14)	47.94 (0.14)	45.83 (0.11)	44.54 (0.13)
60 or more	11.7 (0.04)	6.84 (0.03)	27.14 (0.13)	15.32 (0.1)	41.82 (0.11)	17.25 (0.1)
Education (%)						
Illiterate	20.39 (0.05)	24.13 (0.06)	37.29 (0.14)	14.31 (0.1)	55.94 (0.11)	16.87 (0.1)
Primary	26.89 (0.05)	35.3 (0.06)	20.53 (0.12)	21.48 (0.12)	24.56 (0.09)	21.52 (0.11)
Secondary	36.65 (0.06)	32.45 (0.06)	28.56 (0.13)	38.49 (0.14)	14.78 (0.08)	37.51 (0.13)
Tertiary	16.07 (0.04)	8.13 (0.04)	13.62 (0.1)	25.72 (0.13)	4.72 (0.05)	24.1 (0.11)
Income (R$)	1027.67 (1.98)	675.79 (1.41)	1002.19 (4.01)	1345.07 (10.07)	702.2 (2.28)	1385.94 (5.02)

Note: margin of error in brackets with 95% confidence.

Table 6.3 provides a indication about the importance of the income factor, since regardless of the type of conflict, individuals with more per capita income are more likely to seek the judiciary. Highlights of this unconditional analysis are related to housing and banking conflicts. Moreover, conflicts involving social security are more common among people over 40 years old who are less educated, while for young people, family and labour conflicts are more common.

In order to make a conditional analysis about the elements that might influence the decision to take legal action, Table 6.4 presents the results of the qualitative response models. As hypothesised, women are less prone to litigate than men, since the odds ratio coefficients were less than 1 in most models with a statistical significance of at least 5%. The strongest result was found for conflicts related to social security issues,

where women are 26.3% less likely to take legal action than men. Considering that, as described in Table 6.1, those conflicts are correlated with labour issues (retirement, leave, labour accident and so on) and the labour regression also showed men as more willing to litigate, this result seems to be consistent.

Age also appears to be a factor that positively influences the decision to litigate in most of the cases. Except for basic services, the Age^2 results also appear significant, showing a non-linear relationship between age and litigiousness. This finding might support both the risk aversion/experience and the complex social interactions hypotheses, since the results suggest that older people are more likely to litigate, but at a certain point in life they become less prone to take legal action. This inflexion point is estimated to be the age of: 57 for labour cases, 46 for family conflicts, 61 for housing cases and 53 for social security conflicts.

Table 6.4: Decision to take legal action from logit regression by kind of conflict (Odds ratio)

	Kind of Conficts					
Variable	Labour	Family	Housing	Basic Services	Soc. Sec.	Banking
PERSONAL ATTRIBUTES						
Woman	0.8428***	1.0117	1.0939	0.7888**	0.7372**	0.8381**
Age	1.0921***	1.0470***	1.0938***	1.0159	1.0854**	1.0409
Age^2	0.9992**	0.9995***	0.9993**	1	0.9992**	0.9997
White	1.1675*	0.9517	0.9734	1.0506	1.2269	1.1532
Marital Status						
Single	1.0656	1.2901***	0.6460**	1.1028	0.912	0.9122
Separated	1.1435	2.0384***	0.9976	1.0521	0.7825	0.7657
Divorced	0.8157	3.7397***	0.5044***	0.7039**	1.4074	1.1773
Widower	0.9596	1.4011	0.9919	1.0288	1.4702*	1.3157
Education level						
Primary education	1.0703	1.5520***	1.3781*	1.2532	1.0211	1.0702
Secondary education	1.2822**	1.8248***	1.9627***	1.5853*	1.4689**	1.2076
Tertiary education	1.5682**	1.6410***	2.7657**	1.8494**	0.5742	1.3377
Income (log)	1.0294	0.9995	1.1765**	1.0377	1.2856***	1.2336**
Legal professional at home	1.4633	8.9055**	a	1.9485***	a	1.2215
COURTS AND REGIONAL FEATURES						
Urban Area	1.2556	1.11	0.6212	0.8323	1.0917	0.974
Court Efficiency	b	2.1664*	1.9575	1.2519	b	1.028
Lawyer density	0.9998	1.0159***	1.0014	1.0027	1.0079	1.0059
Intercept	0.4403	0.2276***	0.0647**	0.1532	0.0677***	0.0743***
N	6014	5731	1187	2441	2032	1829
McKelvey & Zavoina's R^2	0.953	0.985	0.979	0.948	0.973	0.969

Note: ***p-value<0.01, **p-value<0.05, *p-value<0.10. Clustered Standard Errors by Brazilian States. Legend: **a**= Coefficients unavailable due to no variability; **b** = Variables available only for state courts, which do not have jurisdiction over labour neither social security cases.

Although the ethnic group variable is significant in the models that analyse disputes involving labour, the statistical significance is low. This finding might support the idea that minority groups are less likely to litigate for their rights than their counterpart, a finding that is in line with Greene (2015).

The hypothesis that people who were married would be more prone to litigate was not completely supported by the results. Indeed, it was partially valid only for family conflicts where being divorced or separated strongly increased the probability to litigate. This finding could indicate that the conflict reported by the individual was the divorce (or separation) itself. However, the same regression shows that to be single also increases (but with a smaller effect) the propensity to litigate. The results of civil status in the housing regression also contribute to undermining the hypothesis that married people would be more prone to litigate. Indeed, to be divorced is highly correlated with not taking legal action over housing disputes. This was the highest negative effect on the decision to litigate among all models.

Education level influenced the decision to take legal action in almost all areas of conflict. This finding supports the rights awareness hypothesis reasoned by Posner (1997). Income appears to positively affect the decision to use the judiciary to solve housing, security services and banking. A possible explanation for the positive result found in housing is that poor Brazilians tend to live in slums that are usually located on illegally occupied areas. Hence, it is practically impossible for them to solve their housing disputes in the courts, since their places of residence do not have an official title. The effect of income on social security might also be related to the structure of the legal system. The existence of a formal labour contract is essential to access most of the social security benefits. Nevertheless, low income people are more prone to have informal labour contracts (Neri, 2002), thus do not contribute to the social security system. Moreover, according to Schiavinatto and Schmidt. (2011), poor people are less

likely to have a bank account or use banking services. Consequently, the influence of income on banking litigation also seems to be intuitive.

The institutional factors only appear to be relevant for the decision to take legal action in the case of family conflicts. The density of lawyers is slightly correlated with the decision to use the judiciary to try to solve family cases. Combined with the fact that the presence of a legal professional at home is strongly connected with the propensity to litigate these cases, this finding might suggest that the availability of a legal professional is indeed important for family law litigation. The efficiency level of the court also only appears to be relevant for family cases, however, with low statistical significance. This result might be explained by the fact that this chapter uses an objective measure of court efficiency, while, in reality, individuals might be affected by their own perception of judicial efficiency.

6.6 Concluding Remarks

The judiciary's main task is to solve disputes according to publicly available rules in a peaceful manner. Nevertheless, the courts are naturally inert, hence they can only perform their function if the parties decide to take legal action. Law and Economics literature has analysed the decision to litigate mainly from a theoretical approach. Empirical papers on this subject are rare, mainly because of data limitations.

This chapter contributes to this debate by providing empirical evidence supporting the hypothesis that the decision to litigate is not completely objective, but affected by particularities of individuals. The strength of this evidence relies on a singular individual level database composed of litigated and non-litigated conflicts, instead of considering just litigated conflicts at aggregated level.

The results suggest that the decision to take legal action varies depending on the type of conflict. Individual characteristics influence the probability to litigate. In general, men are more inclined to take legal action than women. Moreover, older people seem to be more likely to litigate, but after reaching a certain age this effect is inverted. Marital status appears to affect only specific conflicts, especially family and housing cases, however not always in the expected direction.

Education level was the main factor influencing the decision to litigate, supporting the rights awareness hypothesis. Income also positively affects the propensity to litigate, but not in every type of case. The presence of a legal professional at home seems to have a strong influence in the decision to take legal action especially in the case of resolving family conflicts. Surprisingly, the urban area factor does not appear to affect the decision to litigate.

Institutional characteristics were rarely significant. These results might be affected by the fact that individuals might be influenced by their own perception of the institutions. Consequently, since this chapter uses objective measures for court efficiency and density of lawyers, these effects might not be completely captured by the models. Nevertheless, the result for lawyer density, combined with the strong effect of the presence of a legal professional at home, indicates the relevance of the availability of legal help in the decision to take legal action.

Overall, the results of this chapter partially confirm the findings of the existing empirical studies analysing the same topic but at aggregated level. For instance, factors such as education, gender and income that other studies shown as relevant for the decision to take legal action were confirmed at individual level in this study. However the richness of the used database allowed this chapter to provide unique results (such as for the presence of a legal professional at home) that open the venue for future research analysing these factors.

Chapter 7

Concluding Remarks

"The mind can never foresee its own advance."

Friedrich August von Hayek

The judiciary plays an important role in modern societies. Its primary task is to impartially solve conflicts between society's members. This activity generates positive externalities that can increase social welfare. However, the degree to which this beneficial impact materialises depends on the performance of the court system.

Judicial performance is a multidimensional concept. This thesis dealt with three facets of this multidimensionality: independence, efficiency and accessibility. The discussion about this theoretical framework was mainly conducted in Chapter 2.

Considering the primarily empirical nature of this study, the research involved a case study of the Brazilian court system. By offering a brief overview of the Brazilian judiciary, Chapter 3 provided the reader with the necessary background to fully comprehend

the contents of the following chapters, as well as point out the inherent limitations that framed the design of this research.

Chapter 4 addressed the issue of judicial independence, specifically its historical and institutional development in Brazil. Using this historical approach, we demonstrated that *de jure* and *de facto* independence might arise following different paths. Furthermore, based on the Brazilian experience, we advocated that accountability measures can be beneficial to judicial independence.

Chapter 5 analysed judicial efficiency. Following previous literature dealing with the economic analysis of courts, we conducted a Data Envelopment Analysis (DEA) to reveal the efficiency level of Brazilian state courts. Our main contribution was to observe the evolution of these levels over time through the application of the Malmquist Index that was then used in regression models to reveal variables that might be correlated with judicial productivity growth.

The sixth chapter focuses on the question of judicial accessibility, particularly analysing possible individual and institutional characteristics that might be correlated with the decision to take legal action. Based on the data of an official survey, this chapter showed that the decision to file a case might not be unbiased, as discussed in the traditional Law & Economics literature, but possibly influenced by individual and institutional idiosyncrasies.

7.1 Limitations

The complexity of determining judicial performance hinders its unconditional analysis. We limited our analysis to three dimensions of judicial performance: independence, efficiency and accessibility. While these three dimensions are mentioned by a number of other scholars dealing with the judiciary, we make no claim here that the quality of

any court system is restricted to these three aspects alone. Our discussion in Chapter 2, however, makes a strong case for the importance of these three dimensions.

The complexity of designing an empirical analysis of each dimension, as well as the issue of discovering the appropriate data might also frustrate a deeper analysis. For these reasons, we chose a case study to conduct this research. In this sense, the results of this thesis are specific to the Brazilian judiciary and might not be generalised to other court systems. However, our analyses may provide future researchers with methodologies that will allow for analyses that adopt a global perspective. Moreover, our empirical analysis, especially in the case of judicial independence, was limited by the institutional design of the Brazilian court system, as discussed in Chapter 3.

The human occupation of Brazil did not start with the arrival of the Portuguese fleet in 1500. Indeed, one of the first discoveries of the Portuguese upon their arrival was the indigenous people that for centuries populated the country. As in any other society, the indigenous communities could also have conflicts and ways in which to solve them. However, the fact that there is not documentation of how conflicts were resolved by indigenous communities frustrates, not only a more extended analysis of judicial independence in Brazil, but also how alternative forms of conflict resolution may have influenced the development of modern judicial institutions.

Although the research discussed in Chapter 5 is a first step in the literature to look into the underlying factors of judicial productivity growth, there are several limitations based on the availability of data and the structure of the courts in Brazil, as discussed in Chapter 3.

A relevant limitation of this study is that it assumed that all cases have the same level of complexity. The existence of cases with different complexity levels might affect the estimation of the productivity scores. A possible way to overcome this limitation would

be to better disentangle the types of cases. However, the existent data does not allow for a deeper differentiation. Furthermore, the adopted empirical methodology is not sophisticated enough to justify causality claims. Consequently, the results provided in Chapter 5 should be regarded with caution.

The results of Chapter 6 should also be regarded with caution. First, they are based on survey data, thus there is no guarantee that an individual's responses perfectly matches his behaviour. Nevertheless, surveys are the only way to gather data about cases that were or were not taken to the courts, which seems fundamental for the analysis performed in this chapter. Second, although the data allowed for an analysis of the decision to take legal action at the individual level, it did not allow us to assess the influence of personal characteristics on the kind of case that each person faces. Moreover, the empirical analysis does not provide grounds for causation claims. Consequently, the results found in this chapter only indicate correlation between the variables.

7.2 Policy Recommendation

Considering the limitations of this research, some policy recommendations that can be extracted from this thesis are:

- Judicial independence:
  - The development of judicial independence does not depend only on the law, but also on its implementation in reality;
  - The relationship between judicial independence and popular support for the rule of law seems to be interdependent. If, on the one hand, judicial independence might foster popular support for the rule of law, on the other hand, popular support for the rule of law might foster judicial independence. In this sense, policies that aim to improve accountability, especially regard-

ing the transparency of judicial activity, might have positive side effects on judicial independence.

- Judicial efficiency:
  - Judicial productivity growth might not be achieved mainly by the development of new technologies, but by adjustments in the current structures (catch-up). For instance, measures to correct the scale of the courts might improve their efficiency;
  - Improvements in judicial efficiency can be achieved without being detrimental to judicial quality;
  - Remuneration seems to play a relevant role regarding improvements in judicial productivity, specifically concerning courts that need to catch up with the most productive ones;
  - The introduction of new technologies might not always achieve their intentions. Especially in the short run, they might even produce negative results. As a result, policy makers should be careful in the implementation of new technologies and should consider complementary measures (such as improved training of people involved in judicial activity).
- Judicial accessibility:
  - Particularities of the legislation and availability of simple alternative dispute resolution institutions might affect the kind of conflicts that reach the courts. In this sense, judicial accessibility can be improved through initiatives that are not directly aimed at reforming the judiciary (such as changes in substantive law);
  - Considering that the profile of the potential litigants is relevant for the decision to take legal action, policies aiming to improve judicial accessibility

should be carefully designed. In order to achieve the desired goals, these initiatives should be based on empirical evidence, since mere theoretical beliefs (such as the idea of court inaccessibility in rural areas) might not be relevant in reality.

– Education seems to play a central role in the decision to take legal action. Consequently, our evidence includes improvements in judicial accessibility in the list of positive externalities associated with educational policies. Considering that the rights awareness hypothesis found support in the empirical analysis, initiatives aiming to facilitate the comprehension of judicial activity (such as dissemination of legal information using easily understandable terms) can foster judicial accessibility, especially among less educated groups.

7.3 Relevance of Findings

Regarding the Law & Economics literature, the findings of this thesis provide a contribution to the economic analysis of the courts literature. Moreover, since to the best of our knowledge, this is the first study to jointly empirically analyse judicial independence, efficiency and accessibility.

Although eschewing the use of econometric tools, Chapter 4 delivered a comprehensive historical analysis of the development of judicial independence. Our analysis of the Brazilian case, along with a more general discussion about judicial independence and accountability, shows that rather than just a trade-off, there might be some complementarity between the two. Indeed, this finding suggests that measures to enhance judicial accountability might actually improve rather than of impair independence.

Chapter 5 offered an inventive analysis of judicial efficiency change over time. Besides an analysis of judicial productivity growth, we went deeper to find the factors that might increase or decrease the efficiency of the courts. To the best of my knowledge, this is the first study to empirically highlight the factors correlated to judicial productivity growth.

The sixth chapter of this thesis provided empirical evidence about the factors related to the decision to take legal action. Up to this point, theoretical discussions and empirical studies offered in the literature do not consider the conflicts that did not reach the court system. Thus, the main contribution of this chapter is to analyse factors at the individual level that might influence access to the courts by taking into account those disputes that were not taken to court.

As stated in the introduction of this thesis, as the countries of Latin America gained their independence they became a laboratory for the development of a variety of judicial reform programs. One of the main contributions of this thesis is providing empirical evidence that policy makers can use in the ongoing effort to improve judicial performance. Consequently, the Brazilian experience can provide relevant insights for the development of future projects. Indeed, since a main critic of these projects is the lack of practical knowledge, this thesis provides relevant empirical evidence about judicial performance.

As a first attempt to jointly empirically analyse several dimensions of judicial performance, this thesis provided a methodological contribution to the economic analysis of court study field. Furthermore, the innovative approaches used in chapter five (to analyse the factors related to judicial productivity over time using the Malmquist index and panel data) and six (the use of data at individual level to empirically analyse the decision to take legal action) were also methodological contributions of this thesis.

7.4 Opportunities for Future Research

This thesis delivers a case study focused on the Brazilian court system. Hence, a natural opportunity for future research is to replicate the analyses developed in this thesis considering other experiences or other countries. Considering other jurisdictions would allow for a comparison of the results found in this thesis, and open avenues for further discussions based on broader datasets.

Considering that Latin American countries were the first to experience judicial reform programs, studies focusing on this area might adopt a longer historical perspective that might provide more reliable results. Consequently, other nations in the region are natural candidates for future research that might also serve to assess the findings in this thesis. Nevertheless, considering the spread of these programs to countries all over the world, it would be interesting to see if similar results can be found in jurisdictions that are more dissimilar, especially in non-civil law countries.

Furthermore, taking into account the limitations that restricted this study, especially regarding data availability, it would be interesting to see future research that is able to produce more complete results based in an even richer database.

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Summary

The importance of a functional judiciary for the economy is a time-honoured belief held by economists. Especially in recent years, this theory has been confirmed by several studies exposing the connection between courts' quality and economic development. However, a complete understanding of the factors underlying the evolution of judicial performance is still in the early stages of development.

This dissertation offers an analysis of judicial performance from an economic perspective. Court performance is understood as a multidimensional concept having at least three dimensions, namely: independence, efficiency and accessibility. In an effort to comprehensively cover these three dimensions, the research is focused on the Brazilian judiciary.

Chapters 1, 2 and 3 are introductory chapters. Chapter 1 introduces the topic by presenting the motivation, scope and outlook of this research. Chapter 2 provides the dissertation's theoretical framework, stressing the relevance of the court system for the proper functioning of society, and discussing the principal determinants of judicial performance. Chapter 3 describes the structure of the Brazilian judicial system, laying a foundation for the analyses of the following chapters.

Chapter 4 explores the evolution of judicial independence. It is believed that de jure and de facto judicial independence might develop in different ways. While de jure judicial independence can be quickly achieved by changes in legislation, de facto judicial independence might require time to develop. This chapter confirms this belief and explores the evolution of practical judicial independence. Based on our findings and discussion, we conclude that measures taken to improve judicial accountability might boost the development of de facto judicial independence.

Chapter 5 explores the determinants of judicial efficiency change. Adopting a two stage empirical approach, it explores factors that are correlated with courts' productivity growth over time. The results suggest the nonexistence of a trade-off between judicial quality and efficiency improvement, while judges' remuneration, legal complexity and the use of technology affect judicial productivity, however, not always in the expected direction.

Chapter 6 brings judicial accessibility into perspective. Also adopting an empirical approach, it explores the individual and institutional factors that might influence an

individual to try to solve a conflict by filing a case in the court system. The results confirm that especially personal characteristics (such as education, gender, age and the presence of a legal professional at home) are correlated with the decision to take legal action.

A final chapter summarises the general findings, highlights the limitations of the dissertation and present some policy recommendations and opportunities for future research.

Samenvatting

Het belang van een goed functionerende rechterlijke macht voor de economie is een aloude overtuiging van economen. Vooral in recente jaren is deze theorie bevestigd door diverse studies die het verband laten zien tussen de kwaliteit van de rechterlijke macht enerzijds en economische ontwikkeling anderzijds. Toch bevindt een compleet inzicht in de factoren die ten grondslag liggen aan gerechtelijk functioneren zich nog in de beginfase van de ontwikkeling.

Deze dissertatie biedt een analyse van gerechtelijk functioneren vanuit een economisch perspectief. Het functioneren van gerechten wordt gezien als een multidimensionaal concept met minstens drie dimensies, namelijk: onafhankelijkheid, efficiëntie en toegankelijkheid. In een poging deze drie dimensies in hun samenhang te omvatten, tocht dit onderzoek zich gericht op de Braziliaanse rechterlijke macht.

Hoofdstuk 1, 2 en 3 zijn inleidende hoofdstukken. Hoofdstuk 1 introduceert het onderwerp door de motivatie, de reikwijdte en de opzet van het onderzoek te presenteren. Hoofdstuk 2 schetst het theoretische kader van de dissertatie, waarbij de relevantie van het gerechtelijke systeem voor het goed functioneren van een samenleving wordt benadrukt en de belangrijkste determinanten van gerechtelijk functioneren worden besproken. Hoofdstuk 3 beschrijft de structuur van het Braziliaanse gerechtelijke systeem en legt daarmee de basis voor de analyses in de volgende hoofdstukken.

Hoofdstuk 4 onderzoekt de ontwikkeling van gerechtelijke onafhankelijkheid. Aangenomen wordt dat de jure en de facto gerechtelijke onafhankelijkheid zich op een van elkaar verschillende wijze kunnen ontwikkelen. Terwijl de jure gerechtelijke onafhankelijkheid snel kan worden bereikt door veranderingen in wetgeving, kan de facto gerechtelijke onafhankelijkheid tijd nodig hebben om zich te ontwikkelen. Dit hoofdstuk bevestigt deze opvatting en onderzoekt de ontwikkeling van gerechtelijke onafhankelijkheid in de praktijk. Op basis van onze bevindingen en analyse concluderen we dat maatregelen die genomen worden om gerechtelijke verantwoording te verbeteren de ontwikkeling van de facto gerechtelijke onafhankelijkheid kunnen stimuleren.

Hoofdstuk 5 onderzoekt de determinanten van verandering in gerechtelijke efficiëntie. Het past een ‘two-stage’ empirische benadering toe en onderzoekt factoren die gecorreleerd zijn aan de groei van de productiviteit van het rechtssysteem in de loop van

de tijd. De resultaten suggereren dat er geen uitruil bestaat tussen juridische kwaliteit en efficiëntieverbetering, terwijl de beloning van de rechter, de juridische complexiteit en het gebruik van technologie de gerechtelijke productiviteit wel beïnvloeden, echter niet altijd in de verwachte richting.

Hoofdstuk 6 plaatst de toegang tot de rechter in perspectief. Opnieuw vanuit een empirische benadering worden de individuele en institutionele factoren onderzocht die een individu ertoe kunnen aanzetten een conflict te proberen op te lossen via een gerechtelijke procedure. De resultaten bevestigen dat vooral persoonlijke karakteristieken (zoals opleiding, geslacht, leeftijd en de aanwezigheid van een juridische deskundige in huis) gecorreleerd zijn met de beslissing om juridische stappen te ondernemen.

Het laatste hoofdstuk vat de algemene bevindingen samen, besteedt aandacht aan de beperkingen van de dissertatie en presenteert een aantal beleidsaanbevelingen en mogelijkheden voor toekomstig onderzoek.

European Doctorate in Law & Economics

Curriculum vitae

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Short bio	
I was born in France (La Tronche, 1990) but I grew up mainly in Brazil, where I obtained my Economics and Law degrees, both with first class honours. Then I moved back to Europe where I did my Master and now my PhD.	
Education	
PhD student in Law & Economics (University of Bologna, University of Hamburg and Erasmus University Rotterdam)	2015-2018
Master in Business, Law and Economics (Aix-Marseille University)	2014-2015
European Master in Law & Economics (University of Hamburg and Erasmus University Rotterdam)	2014-2015
Bachelor of Economics (Federal University of Paraíba)	2009-2013
Bachelor of Laws (University Center of João Pessoa)	2009-2014
Work experience	
Research associate at the Institute of Law & Economics (University of Hamburg)	2017-
External consultant (European Commission)	2015-2015
Associate lawyer (Advocacia Carlos Aquino & Associados)	2014-2014
Undergraduate teaching assistant in Tax Law (University Center of João Pessoa)	2012-2013
Junior researcher on Economic Development, Monetary and Fiscal policy (Brazilian National Council for Scientific and Technological Development)	2010-2013
Prizes and awards	
Certificate of Academic Merit in Law (highest GPA in the graduating class), University Center of João Pessoa	2014
Outstanding Graduate Student in Economics (highest GPA in the graduating class), Federal University of Paraíba	2013
"IX Celso Furtado award" (best economic monograph work of the year), Regional Council of Economists	2013
Publications	
Determinants of Judicial Efficiency Change: Evidence from Brazil (14th volume of the Review of Law & Economics)	2018

EDLE PhD Portfolio

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PhD training

Bologna courses	***year***
Game theory and the law	2015
Modelling private law	2015
Causal inference	2015
Public finance	2015
Experimental economics	2014
Law enforcement and behavioural economics	2014
European competition law	2014
Specific courses	***year***
Law & Economics of Law & Corporate Finance (Study Center Gerzensee)	2017
Seminar Series 'Empirical Legal Studies' (Rotterdam)	2017
Seminar 'How to write a PhD' (Rotterdam)	2016
Academic Writing Skills for PhD students (Rotterdam)	2016
Modelling the law (Hamburg)	2016
Economics of Institutions and Organisations (Hamburg)	2016
Public Choice and Economic Development (Hamburg)	2016
Seminars and workshops	***year***
Rotterdam Winter seminar series (peer feedback)	2017
BACT seminar series (attendance)	2016/17
EGSL lunch seminars (attendance)	2016/17
Rotterdam Fall seminar series (peer feedback)	2016
Institute of Law and Economics Hamburg Jour Fixes Seminars (peer feedback)	2015-2018
Bologna November seminar (attendance)	2015
Presentations	***year***
35th Annual Conference of the European Association of Law and Economics (Milan)	2018
Joint Seminar 'The Future of Law and Economics' (Paris)	2018
4th International Conference on Economic Analysis of Litigation (Paris)	2017
Bologna November seminar	2017

Rotterdam Winter seminar series	2017
15th German Law and Economics Association annual meeting (Marburg)	2017
Rotterdam Fall seminar series	2016
Joint Seminar 'The Future of Law and Economics' (Maastricht)	2016
Bologna March seminar	2016
11th Annual Conference on Empirical Legal Studies (Durham)	2016
33rd Annual Conference of the European Association of Law and Economics (Bologna)	2016
3rd International Conference on Economic Analysis of Litigation (Montpellier)	2016
12th Italian Society of Law and Economics annual conference (Turin)	2016
Attendance (international) conferences	***year***
New Frontiers: Technology, Finance and Regulation (Oxford)	2018