

A cross-country analysis of the impact of regulatory quality on commercial case disposition time

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Published online: 9 November 2014
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Abstract Commercial courts around the world encounter prolonged legal procedures, which harms businesses that require dispute resolution through the legal system. This paper, for the first time, tests whether a country's quality of business regulation impacts the average commercial case disposition time. Panel regression analyses of 133 countries from 2006 to 2011 substantiate the negative association between the *perceived* regulatory quality and the average duration of commercial legal disputes. Surprisingly, the *actual* regulatory quality does not affect the average duration of a trial.

Keywords Regulatory quality · Business regulation · Disposition time · Litigation · Court delay · Commercial courts

JEL Classification K2 · K4 · C33

A version of the paper was presented at the Economic Analysis of Litigation workshop (2014) at the University of Catania.

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1 Introduction

Many judiciaries are faced with prolonged legal procedures, causing delays in courts. However, recent literature indicates that expeditious dispute resolution positively affects economic activity (see, e.g. World Bank 2013). Therefore, empirical research is taking a closer look at the determinants of case disposition time, which usually focuses on three main factors influencing the duration of litigation: case-specific characteristics (e.g. number of plaintiffs, case type and the use of non-economic damages; Kessler 1996; Heise 2000; Zhou 2008), court-specific characteristics (e.g. pending cases, judge productivity and court backlog; Kessler 1996; Zhou 2008; Di Vita 2010b) and country-specific characteristics (e.g. rules for dispute resolution such as prejudgment interest rate, defendant protection and mandatory time limits; Kessler 1996; Zhou 2008; Djankov et al. 2002). However, empirical analyses on the influence of the quality of regulation on the duration of trials remains non-existing, although Di Vita (2010a, b) uses the number of laws as a proxy for legal complexity. This paper, in contrast, examines the relationship between the quality (and not the quantity) of business regulation and the disposition time in commercial courts.

Despite the emphasis of existing literature on the quality of regulation, its effect on the length of trials has not been empirically tested. Scholars usually focus on the impact of regulatory quality, sometimes as a proxy for institutional quality, on economic growth (Jalilian et al. 2007; Poel et al. 2014), per capita incomes (Barro 1997; Hall and Jones 1999; Kaufmann and Kraay 2002) and rates of investment (Kirkpatrick et al. 2004).

The contribution of this paper is twofold. First, the empirical results contribute to the law and economics literature on the determinants of case disposition time. In contrast to previous papers, we focus on determinants related to the quality of institutions.

Second, we build into the growing literature on regulatory quality, which usually focuses on the impact on economic growth and development. However, this paper tests, for the first time, the impact of the quality of business regulation on *commercial case disposition time*. The latter relationship is of considerable importance since (business) regulation is enforced by courts. We hypothesize that the relationship between regulatory quality and disposition time is a consequence of reduced court predictability, which induces relative optimism and hence encourages the recourse to the legal system. Subsequently, the litigation rate surges and more prolonged trials can be expected. The augmented recourse to justice can also be a consequence of an inadequate preventive effect of the law. This presumably causes at least some individuals to take part in (excessive) harmful activities which leads to an increase in the number of conflicts and subsequently the number of lawsuits.

Considerable discrepancies can exist between the actual and perceived quality of legislation [for example because legal subjects are often not informed about changes (and more specifically simplifications) of legislation]. Therefore, we distinguish

between the latter two in the analysis of the relationship between regulatory quality and trial length.

The paper proceeds as follows. Section 2 presents the conceptual framework that explains the relationship between regulatory quality and disposition time. Section 3 describes the data and the estimation methods. Section 4 presents the main results. Finally, Sect. 5 contains some concluding remarks.

2 Regulatory quality and case disposition time

The aim of this paper is to further the research on the determinants of case disposition time. A profound insight into these determinants enables policy makers to draft effective policy measures to move the disposition time in the direction of its optimum. It is clear that the length of court procedures is just one aspect, but the quality of these procedures are as important. While delay may have negative consequences for the legal certainty of individuals seeking justice, the principle of informed decision making requires that decisions are taken carefully in order to avoid arbitrariness by a solid judgment that provides legal certainty. Thus, in some cases (depending on the circumstances) longer court procedures can be justified.¹ Therefore, we should strive for the optimal case duration which maximizes social welfare, the difference between costs and benefits of waiting. The waiting costs exist because parties have to await the court judgment. For example, the missed revenues or opportunities of a business owner awaiting a court decision after contesting the denial of a permit application. The benefits of waiting consist of the avoided damages from the activity underlying the claim and occur when the quality of a court decision is higher after a thorough inquiry of the judge (which requires time). The assumption is that when a judge thoroughly prepares an informed judgment, expected damages decrease. Social welfare is maximized, and the disposition time is optimal, when the sum of waiting costs and waiting benefits (expressed as avoided damages) is minimized. When the disposition time exceeds this optimal point, we encounter undue delay and consequently a welfare loss. Therefore, research is needed on both the quality and the speediness of court judgments. This paper will focus solely on the latter aspect.

The main hypothesis of this paper is that the quality of regulation in a country has an impact on the disposition time of cases. In recent literature the quality of business regulations is being used as a proxy of institutional quality and tested as a determinant of long term economic growth (e.g. Jalilian et al. 2007; Kirkpatrick et al. 2004; Marneffe et al. 2013). Although various definitions of regulatory quality exist, high quality regulation is commonly described as regulation “which is effective in producing the desired results and efficient in achieving intended results at minimum costs. [...] High quality regulation also involves consultation with stakeholders and a high level of transparency during

¹ The ECtHR takes into account the complexity of the case, the stakes of the case and the conduct of parties and authorities when assessing the legal principle of procedures within a reasonable time.

the policy development and implementation phases” (Investment climate advisory services World Bank group 2010). Some scholars include the process of drafting regulation as a part of the regulatory quality, but in general the focus remains on the output of this process, namely the regulation itself (Voermans 2009). The element of regulatory quality researched most frequently is the administrative complexity stemming from regulations for businesses and citizens (e.g. Djankov et al. 2002; Marneffe et al. 2013).

Although regulatory quality has previously been studied in institutional literature to explain economic development, it has not yet been tested as a determinant of disposition time. The rationale for the presumption of the relationship between regulatory quality and the disposition time is twofold. First, poor regulatory quality directly affects the disposition time by impeding the judge’s work. Law is not an exact science and inevitably requires interpretation, but low-quality legislation unnecessarily induces the time required for interpretation by the court. This inevitably prolongs the length of a trial.

Second, an indirect relation between the two variables exists. Poor regulatory quality stimulates the recourse to justice, which in turn increases backlogs. Consequently, we expect more prolonged trials. We identify two reasons for the augmented number of lawsuits due to low regulatory quality. On the one hand, the preventive effect of the law could function inadequately when quality of regulation is rather low, since it arouses confusion about the interpretation of the regulation and consequently causes at least some individuals to take part in (excessive) harmful activities. The latter leads to an increase in the number of conflicts and therefore the number of lawsuits. On the other hand, lower regulatory quality reduces court predictability. When regulation is complex, litigants overestimate their winning probabilities because regulation can be interpreted either way (Van Velthoven and Van Wijck 2007). Therefore, they are more motivated to file suit and as a consequence the litigation rate increases.

At first sight, one could also imagine that lower regulatory quality decreases litigation because parties are more incentivized to choose for alternative dispute resolution (ADR) to settle their dispute. Especially in commercial cases, the use of ADR (and certainly arbitration) is not uncommon. However, it is unlikely that parties will increasingly use arbitration, as opposed to litigation, to resolve their disputes *as a consequence of lower regulatory quality*. This is because on the one hand, the arbiter has to apply the same (low quality) regulation to resolve the conflict and second, because arbitration (especially in commercial cases) is mainly preferred over litigation because of secrecy and the higher degree of expertise. Bielen et al. (2014) tested this relationship and found that lower quality regulation does in fact increase litigation rates. Therefore, the effect of both relative optimism and the preventive effect of the law on litigation is larger than the possible increased incentive to settle dispute out of court.

Figure 1 summarizes our hypotheses on the relationship between regulatory quality and disposition time.

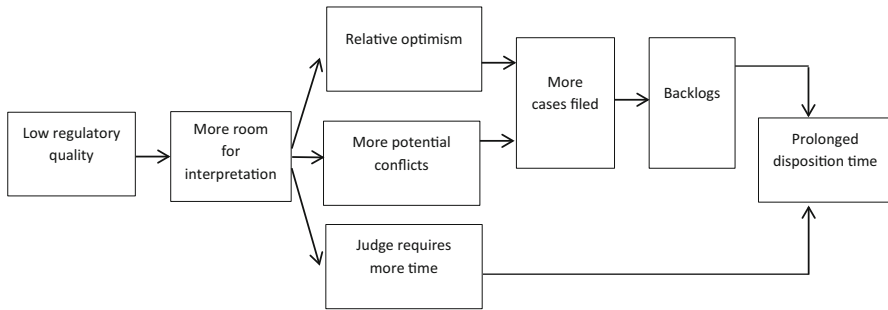


Fig. 1 How does regulatory quality affect disposition time?

3 Data and estimation methods

3.1 Data and variables

To test the impact of regulatory quality on case disposition time, this paper exploits data gathered by the World Bank (2012, 2013), The Global Competitiveness Index (World Economic Forum 2013) and the Lex Mundi Project (Djankov et al. 2002). Our unbalanced panel dataset contains annual observations for 133 countries between 2006 and 2011.² The dependent variable is the disposition time (DIS), which is the average time (in days) required to resolve a commercial trial³ (World Bank 2013). We focus on the disposition time in commercial courts since we are examining the impact of *business regulation* on the duration of trials.

To account for the quality of business regulation in our models, we control for two indicators: one that captures the *actual* regulatory quality and one that measures the *perceived* quality. The rationale for this lies in the fact that the *de facto* (i.e. the “actual” quality of regulation) and the *de jure* (i.e. the “perceived” quality of regulation) regulatory quality are likely to differ. Kaufmann et al. (2005) demonstrate this for the “ease of starting a business”. They find that regressing the subjective measure (based on a survey of 8,000 firms in 104 countries) of this concept on the objective measure (the number of days required to start a business) results in a moderate R^2 of 0.23. However, adding a measure of corruption to the former described regression augments the R^2 to 0.44. Consequently, the authors hypothesize that a differential discrepancy exists between the objective and subjective measure due to the inability of the objective measure to capture the influence of informal mechanisms that are present (such as corruption).

² All countries for which data were available are included in the sample. Since it occurs that an observation for a particular variable is missing for a certain year, the dataset is unbalanced. We have more values for the PER than ACT. Consequently, the regression models where PER is used as a measure for the quality of regulation have more observation. Still, both the regressions with PER and ACT exist of a sample including the same countries.

³ The data on the average time required to resolve a commercial trial used by the World Bank are based on a study of civil procedure codes and questionnaires completed by litigation lawyers and judges. This study is based on a fictive dispute regarding a transaction between two individuals in which the buyer refuses to pay for the delivered goods and the eventual judgment is 100 % in favor of the seller.

We apply a similar approach for our measurements of regulatory quality to verify whether the objective measure of the *de facto* situation differs substantially from the subjective measure of the *de jure* situation. To interpret the results of this analysis, it is necessary that we first examine what the indicators measure exactly, how the data are collected and by what means they are aggregated.

In recent literature, mainly two data sources are used to measure regulatory quality. On the one hand, Jalilian et al. (2007), Kaufmann and Kraay (2002) and Kirkpatrick et al. (2004) use the World Governance Indicators of the World Bank. Jalilian et al. (2007) use both the “regulatory quality” and the “government effectiveness” indicator of this dataset to take into account the quality of regulation. The former “measures the regulatory burden on businesses and can be taken as a proxy for the quality of the outcomes of applying regulatory instruments”, while the latter “can act as a proxy for the process dimensions (consistency, accountability, transparency) of regulatory governance”. In addition, the authors (1) combine these two indicators to create a composite regulation variable and (2) generate the first principal component of the two indicators. Kaufmann and Kraay (2002) only take into account the “regulatory quality” indicator, while Kirkpatrick et al. (2004) only use “government effectiveness”.

On the other hand, Poel et al. (2014) and Marneffe et al. (2013) exploit the Doing Business dataset of the World Bank to measure regulatory quality since they focus mainly on the administrative burdens and the regulatory delay of regulation. For their analysis, the authors use multiple topics (e.g. starting a business, dealing with construction permits and paying taxes). Both the time and the number of procedures necessary to comply with these regulations enter their regression models.

This paper employs both the World Governance Indicators (and more specifically the “regulatory quality” indicator) and the Doing Business dataset to construct measures of both the actual and perceived regulatory quality in a country. The following section offers a detailed discussion of these indicators.

3.1.1 Actual regulatory quality

The actual or *de facto* measure of regulatory quality (ACT) was constructed by the authors of this paper by means of data derived from the Doing Business dataset of the World Bank (2013). The latter provides information on formal rules and regulations applicable to businesses. Consequently, we derive an indicator of the quality of *business regulation*, which is eligible since the commercial courts are under consideration in this paper. To compile an indicator of the actual regulatory quality, we use data on the complexity (measured by both the number of days and the number of procedures) of four procedures: starting a business, dealing with permits, registering property and trading across borders. It is clear that we focus mainly on the *efficiency* of business regulation, since the ACT variable is a measure of complexity.

The data for this indicator are not based on firm surveys, but on expert assessments. “The Doing Business experts routinely administer the regulations and cases in question and therefore capture in their responses their cumulative experience. A notary or corporate lawyer might register over 100 firms every year

depending on the economy, and can answer questions about that process giving their most recent experiences. By contrast a single firm will only go through the registration process once, likely many years previously” (The World Bank Group 2013).

To compile an indicator of actual regulatory quality, *the number of days* to start a business, deal with permits, register property and trade across borders was accumulated. Then, this number was rescaled for each country to run from 0 to 10. Analogously, we aggregated *the number of procedures* for each category of legislation and granted each country a score from 0 to 10. Finally, the scores based on these two indicators of complexity (number of days and number of procedures) were averaged to one final score (0 = extremely complex legislation, 10 = not complex at all).⁴

3.1.2 Perceived regulatory quality indicator

As a perceived or *de jure* measure of regulatory quality (PER) we employ the “regulatory quality” indicator from the Worldwide Governance indicators of the World Bank (2012). It captures the perception (i.e. the views and experiences) of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The indicator contains perceptions of citizens, entrepreneurs, and sector organizations (Kaufmann et al. 2010). Consequently, the perceived regulatory quality is based on the perceptions of citizens and businesses that are obliged to comply with the regulation. The actual regulatory quality, however, is based on expert judgment.

The following paragraph provides some examples of questions that were presented to the respondents to clarify what PER exactly measures. For example, businesses indicated to what extent they feel that government regulations are burdensome, it is easy to start a business and competition legislation prevents unfair competition. Experts (in casu office staff of ministries) were, among others, questioned about the extent to which they think it is easy to start a business, competition regulation in the market sector is efficient and barriers to entry in markets are important. The staff of non-governmental organizations (e.g. the Heritage Foundation) specified for example the degree to which they feel there is investment and financial freedom in their country. Finally, citizens described how they think their country scores on, for example, unfair competitive practices and excessive protections (World Bank 2013).

Subsequently, the World Bank rescales the results from the individual data sources to run from 0 to 1 and each is given a weighted average. Strongly correlated data sources are assigned greater weight to improve the statistical precision of the aggregate measure. Finally, the indicator is rescaled on a score from -2.5 (low regulatory quality) to $+2.5$ (high regulatory quality; World Bank 2013).

As mentioned above, this paper analyses the impact of regulatory quality on commercial case disposition time. However, one could imagine that the causation between those variables could be reversed when PER is used to measure quality.

⁴ For the scores assigned to the countries of the sample, see “Appendix 1”.

Could it be that the perception of the quality of regulation is biased because of the length of court procedures? The answer depends on how PER was measured. If respondents were asked for example “to what extent do you feel that the quality of business regulation is high?”, a reversed direction of causality would be conceivable. Nonetheless, as discussed before, respondents were presented specific questions related to regulation, such as ‘is it easy to start a business?’ or ‘are barriers to entry in markets important?’. Consequently, it is highly unlikely that respondents’ answers are biased because of their perception of the duration of formal dispute resolution.

Following Kaufmann et al. (2005), we regress our perceived regulatory quality indicator (PER) on the corresponding objective measure (ACT). As a result, the regression shows a R^2 of 0.38. To account for the influence of informal mechanisms that prevail, we employ an indicator of the rule of law, gathered from the Worldwide Governance indicators of the World Bank (2012). The latter “captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.”

Adding the rule of law (which enters the regression highly significant at the 1 % significance level) increases the R^2 to 0.86. This result confirms that analyses solely based on objective measures of regulatory quality will not suffice. The perceptions on the quality of business regulation clearly do not solely depend on regulations itself. Therefore, we rely on both a measure of the actual and perceived quality and separately test⁵ their impact on commercial disposition time. Our hypothesis is that the perceived quality is as important as the actual quality of regulation. We will explain this by using a real Belgian example. The procedures for starting a new business were simplified in 2004 by cutting the number of days required to start from 56 to 4 days. This measure was, however, not well known among potential new starters and thus did not lead to an increase in number of start-ups although the actual administrative burden were greatly reduced, and thus regulatory quality was improved. Later on, analysis of the perception of future business owners revealed that administrative burdens were perceived to be roughly unchanged after the 2004 reform. Afterwards, when this reform became more integrated and communicated, the perceived administrative burdens started to decrease. Consequently, policy makers should not only improve the quality of regulation, but also make sure that the legal subjects are well aware of the improvements.

The same logic can be applied on our analysis. Although it is possible that the legal basis of a dispute is unambiguous to a professional (i.e. the actual regulatory quality is high), if parties perceive quality as low, they wrongfully overestimate their winning probabilities causing (unnecessary) suits being filed. Therefore, relative optimism causes parties to file suits that would not be filed if they were fully aware of the actual quality of regulation. Thus, when regulation is perfectly clear the perceived and actual quality will be similar (although misinterpretations and a certain cognitive bias can never be fully avoided). Therefore, in the decision to go to

⁵ We cannot include both the perceived and actual indicators in one regressions, since the perceived indicator is a function of the actual regulatory quality.

court the perceived regulatory quality is as important as the actual regulatory quality.

3.1.3 Control variables

To ensure the robustness of our results and reduce heterogeneity, we include some control variables related to the legal system and its functioning.

The variables ACT and PER only measure the quality of regulation. However, the extent to which the society abides by and has confidence in these rules possibly affects case disposition time as well. Although the latter is partly imbedded in the PER indicator,⁶ ACT only takes into account the *de facto* regulations. Therefore, we include the rule of law (ROL) in the regressions with ACT as a measure of regulatory quality to capture the influence of informal mechanisms on disposition time. Data on the ROL are gathered from the Worldwide Governance indicators (World Bank 2012) and each country is assigned a score ranging from -2.5 (low) to $+2.5$ (high). The indicator measures the perceived extent to which enterprises, citizens and legal experts have confidence in and abide by the rules of society.

Additionally, we wish to control for the organization of the legal system. When it comes to quality of the judiciary, recent comparative economics studies find that countries using the common law legal system are superior compared to those with a civil law system. Djankov et al. (2002) find that procedural formalism is a strong predictor of case duration. Legal systems that rely on heavily regulated dispute resolution are related to slower adjudication because they regiment the procedures that the litigant must follow, require pre-trial conciliation or mediation, rely mainly on written procedures (e.g. filing of the complaint and submission of evidence), etc. Since civil law countries have more formal dispute resolution, they often have more prolonged court procedures.

Besides the systematic differences in the regulation of dispute resolution, the expected higher disposition times in civil law countries could also be a consequence of other characteristics associated with legal origin. Presumably, cases are disposed of more expeditiously in common law countries because common law is not based on a codified system but rather on case law so that judges must respect precedents (Pejovic 2001). Furthermore, differences in disposition time can also be a consequence of the selection of judges. In civil law countries, judges are often career civil-servants, who are less innovative and interventionist (Hadfield 2008; Cross and Donelson 2010). Moreover, especially in commercial cases, civil law countries (and more specifically countries with a French legal system) often rely on lay judges (CEPEJ 2012). Finally, the adjudication of a breach of contract, which is the dispute under consideration in the empirical analysis of this paper, probably takes more time in civil law legal systems because fault is a requirement for the recovery of damages. In contrast, damages can be awarded without fault in common law countries (Pejovic 2001).

Cross and Donelson (2010) mitigate the possible superiority of common law countries. The authors hypothesize that the perception of common law as a superior

⁶ Not surprisingly, the correlation between ROL and PER is very high (0.93).

legal system is possibly a consequence of an epiphenomenal factor. Consequently, the authors suggest that the apparent benefits of countries under common law may diminish when judicial independence enters the regression since countries using the common law system tend to have more independent judiciaries. Therefore, we control for judicial independence in the regression models. We apply the indicator of judicial independence (JI) gathered by the World Economic Forum (2013), which measures the extent to which the judiciary is independent from influences of members of government, citizens or firms. The score varies from: 1 (heavily influenced) to 7 (entirely independent).

To verify whether legal systems have an impact on commercial trial length, we take into account whether a country applies a common law or civil law system (LSYST = 1 if common law, 0 if civil law). Alternatively, a dummy that indicates whether a country's legal origin is French is also included in some regression models (FRENCH = 1 if legal origin is French) because these countries usually have the highest degree of formalization (Djankov et al. 2002). The data for both LSYST and FRENCH are gathered from Djankov et al. (2002).

Finally, we include the GDP per capita in the regression models. The hypothesis is that countries with a higher GDP per capita have more expeditious court procedures (Djankov et al. 2002). Dummies that indicate in which continent countries are located in enter the regressions as well (with Oceania as a reference).

Table 1 provides some summary statistics.

Table 1 shows that it takes on average 602 days to resolve a commercial dispute. Disposition time is the lowest in Singapore (120 days) and the highest in Timor-Leste (1,800 days). The average score on both the actual and perceived regulatory quality are quite low: respectively 2.49 (on a ten-point scale) and 0.27 (on a five-point scale running from -2.5 to $+2.5$). In our sample, 30 % of the countries has a common law origin⁷ and 36 % has a French legal system (this is 53 % of all civil law countries).⁸

3.2 Estimation methods

To test the relationship between regulatory quality and commercial case disposition time, we do not regress a pooled econometric model since it does not account for unobserved heterogeneity that is likely to exist among countries. Although both the fixed and random effects are consistent estimators, a random effect GLS regression will be executed to control for stable and country-specific characteristics since the

⁷ These countries are Australia, Bahrain, Barbados, Bangladesh, Botswana, Brunei Darussalam, Burundi, Canada, Cyprus, Gambia, Ghana, Guyana, Hong Kong, India, Ireland, Israel, Jamaica, Kenya, Lesotho, Malawi, Malaysia, Mauritius, Namibia, Nepal, New Zealand, Nigeria, Pakistan, Puerto Rico, Rwanda, Singapore, South Africa, Sri Lanka, Swaziland, Tanzania, Thailand, Trinidad and Tobago, Uganda, United Kingdom, United States, Zambia and Zimbabwe.

⁸ These countries are Albania, Algeria, Angola, Belgium, Benin, Bolivia, Brazil, Burkina Faso, Cambodia, Cameroon, Chad, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Egypt, El Salvador, France, Greece, Guatemala, Honduras, Indonesia, Italy, Jordan, Kuwait, Lebanon, Luxembourg, Madagascar, Mali, Mauritania, Mexico, Morocco, Mozambique, Netherlands, Nicaragua, Oman, Panama, Paraguay, Peru, Philippines, Portugal, Senegal, Spain, Suriname, Turkey, Uruguay and Venezuela.

Table 1 Summary statistics

Variable	Description	Mean	SD	Min	Max
DIS	Disposition time in commercial courts	602	295	120	1,800
ACT	Actual regulatory quality	2.49	1.11	0.12	7.04
PER	Perceived regulatory quality	0.27	0.88	-2.16	2
JI	Judicial independence	3.98	1.35	0.28	6.76
ROL	Rule of law	0.11	0.98	-1.82	2
LSYST	Legal system (common or civil law)	0.30	0.46	0	1
FRENCH	French legal origin	0.36	0.48	0	1
GDP	GDP per capita	14,787	14,840	280	77,987

regression-models include time-invariant variables (such as LSYST and FRENCH). However, to check the robustness of our results, fixed effects regressions were performed as well (for the results, see Appendix 2). Since the differences in legal origin are taken into account by the fixed effects, LSYST and FRENCH are not included in these models.

4 Empirical results

By means of the dataset described in Sect. 3, we examine whether and to what extent the length of commercial trials is explained by the quality of business regulation. Tables 2 and 3 provide the results for the GLS models. The regressions in Table 2 include the actual quality of regulation, while the perceived regulatory quality enters the models in Table 3. Although not displayed in the tables because of space limitations, all regression include year effects.

The results show that the actual regulatory quality (ACT) does not significantly explain the disposition time. However, the perceived quality of regulation (PER) significantly and negatively impacts the length of a commercial trial. On average, improving the score of this indicator with one point (on a five-point scale) reduces the disposition time with 64 days. For Zimbabwe (lowest sample score of -2.16), an improvement of the perceived regulatory quality up to the sample average (-0.07) would reduce the average length of a trial from 410 to 346 days.

The finding that PER significantly affects DIS while ACT does not, indicates that policy measures to improve regulatory quality might not impact the length of a commercial trial and that improving the perceived regulatory quality is at least as important as the actual quality for policy makers. Our theoretical framework of the latter relationship explains why this is the case. As discussed in Sect. 2, two effects explain the relationship between regulatory quality and disposition time. First, when the quality of regulation is low, trial lengths increase because litigation rates will rise as a consequence of (1) the inadequately working preventive effect of the law and (2) the increased potential for relative optimism.

Table 2 Results GLS (random effects) regressions with ACT as an indicator of regulatory quality

	(1)	(2)	(3)	(4)
ACT	7.79 (6.47)	6.98 (6.53)	7.05 (6.48)	7.07 (6.49)
LSYST	68.95 (57.11)		67.91 (57.57)	
JI		0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
FRENCH		120.40** (51.54)		120.50** (51.81)
ROL	-51.83*** (18.07)	-47.41** (18.76)	-54.68*** (18.61)	-47.31** (18.92)
GDP	0.0000781 (0.000108)	0.0000825 (0.000107)	0.0000790 (0.000139)	0.0000844 (0.000138)
EUROPE			-0.47 (3.3)	-0.05 (3.261)
ASIA			1.68 (4.32)	2.17 (4.26)
AFRICA			0.16 (-5.05)	0.62 (-4.99)
North AM			-1.18 (7.27)	-0.60 (7.23)
SOUTH AM			0.77 (5.13)	1.11 (5.10)
Constant	564.5*** (30.66)	536.9*** (33.17)	560.8*** (31.16)	535.8*** (33.18)
N	480	480	480	480

Both taking part in harmful activities because of a hampered preventive effect of the law and exaggerated estimations of winning probabilities arise when individuals interpret (the meaning of) regulation erroneously. Therefore, the *perceived* regulatory quality causes litigation rates (and hence disposition times) to increase. Even when there is high quality regulation from an ‘objective’ point of view, its value is undermined if legal subjects do not fully grasp the meaning of the regulation or are unaware of its existence. The cognitive bias, i.e. the difference between actual and perceived quality, not only hampers investments but also causes (1) an environment where avoidable conflicts arise and (2) parties of a dispute to bring conflicts to court that otherwise would have been settled. To solve this bias, regulation must be easily accessible, transparent and clear in order for citizens and businesses without a legal education to understand and interpret it (Donelan 2009).

Second, the hypothesized direct effect of regulatory quality on disposition time exists because judges require more time for adjudication when the quality of regulation is low. Here, it is less obvious that mainly the *perception* is important because it is plausible to assume that *judges'* perceived regulatory quality will be closer to the observed one, since judges have a better knowledge of the law. However, our indicator PER only measures perceptions of citizens and businesses that are obliged to comply with the regulation. The empirical result that PER negatively affects disposition times in commercial courts is therefore caused by the increased propensity to litigate, rather than judges that require more time to interpret and apply the law.

Although Djankov et al. (2002) find that the duration of trials (handling the eviction of a non-paying tenant and the collection of a bounced check) is higher in civil law countries, our results show that *commercial* trials lengths do not significantly differ between civil and common law countries. Apparently, the speediness of the resolution of legal disputes in common and civil law countries

Table 3 Results GLS (random effects) regressions with PER as an indicator of regulatory quality

	(1)	(2)	(3)	(4)
PER	-63.93** (29.55)	-62.07** (29.93)	-63.07* (30.97)	-61.11** (31.12)
LSYST	62.83 (55.45)		69.33 (58.98)	
FRENCH		96.74* (54.27)		65.84 (49.71)
JI	-6.380 (-5.87)	-5.962 (-5.88)	-6.42 (-5.90)	-5.92 (-5.90)
GDP	-0.000593 (0.000893)	-0.000512 (0.000896)	-0.000578 (0.000818)	-0.000525 (0.000815)
EUROPE			35.53 (83.56)	-47.32 (86.40)
ASIA			100.3 (91.01)	28.78 (78.63)
AFRICA			36.38 (84.01)	-35.04 (86.43)
North AM			220.9* (113.5)	123.9 (112.6)
SOUTH AM			208.8 (145.3)	75.15 (139.7)
Constant	652.0*** (40.24)	631.2*** (44.84)	570.4*** (94.59)	639.4*** (81.19)
N	741	741	741	741

Standard errors in parentheses

Standard errors are clustered by country

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

strongly depends on the dispute under consideration. However, as discussed before, the differing results of Djankov et al. (2002) and our study could also be a consequence of some epiphenomenal effects that are being ignored by the former. Therefore, we controlled for judicial independence as a separate control variable. Consequently, the apparent benefits of countries under common law diminish.

Consistent with Djankov et al. (2002), we do find some evidence that the average time to pursue a claim is higher in countries with French legal origins. Although regression (4) of Table 3 does not reveal a significant effect of FRENCH, it is significant on the 5 % level in models (2) and (4) of Table 2 and on the 10 % level in model (2) of Table 3.

Finally, the GLS regressions indicate that JI and GDP do not significantly determine the duration of a trial. ROL, on the other hand, does significantly affect commercial trial length in the regression models where ACT is included as a measure of regulatory quality.

5 Concluding remarks

This paper builds on the current empirical literature on the length of trials by testing whether a country's quality of business regulation affects the average disposition time of commercial trials. We hypothesize that the latter relationship is a consequence of reduced court predictability, which induces relative optimism and hence encourages the recourse to the legal system. Subsequently, the litigation rate surges and more prolonged trials can be expected. The augmented recourse to justice can also be a consequence of an inadequate preventive effect of the law. This presumably causes at least some individuals to take part in (excessive) harmful activities, which leads to an increase in the number of conflicts and therefore the number of lawsuits.

GLS regression analyses show that the perceived quality of regulation is negatively associated with case disposition time. This result indicates that countries are able to improve the expeditiousness of litigation procedures in commercial courts by ameliorating the *perception* of the quality of regulation. However, regression analyses did not find a significant relationship between disposition time and the *actual* quality of business regulation. Therefore, we conclude that a cognitive bias exists between the perceived and the actual regulatory quality. Consequently, rather than solely the actual quality, the focus should also be on the perception of regulatory quality. Converging the perception towards the actual quality can be accomplished by providing transparent and simple regulation that is easily accessible for all.

Appendix 1

See Table 4.

Table 4 Scores actual regulatory quality

Country	Actual regulatory quality					
	2006	2007	2008	2009	2010	2011
Albania	2.83	3.24	3.40	3.15	3.08	3.48
Algeria	3.43	3.74			3.67	
Angola	3.56	4.00	4.45	3.96	3.26	3.57
Armenia	2.28	2.36		2.46	2.31	2.43
Australia	0.78	1.05	1.12	1.14	1.07	1.27
Austria		1.23	1.35	1.37	1.46	1.64
Azerbaijan			4.11	3.32	3.31	3.75
Bahrain			1.36	1.38	1.37	1.61
Bangladesh	2.71	3.25	3.65	2.96		3.15
Belgium		1.66	1.71	1.74	1.60	1.90
Benin		2.34			2.85	2.90
Bolivia	2.35		3.20	3.17	3.20	3.60
Bosnia and Herzegovina				3.58	3.34	3.60
Botswana	2.20	2.67	2.87	2.73	2.77	3.15
Brazil	3.62	3.75	4.39	4.39	4.11	
Brunei Darussalam			4.78	4.81		5.14
Bulgaria	1.76	2.10	1.97	1.73	1.65	1.91
Burkina Faso	4.19	4.18	4.29	2.88	2.15	2.28
Burundi	2.92	3.29	3.49	3.49	3.46	3.93
Cambodia	4.06	4.40	4.86	4.85	4.88	5.31
Cameroon	1.94	2.44	2.56	2.65	2.70	2.77
Canada	1.18	0.95	1.06	1.03	1.05	1.21
Cape Verde					2.41	2.64
Chad	2.42	2.88	3.11	3.14	3.15	3.55
Chile	2.93	1.77	1.87	1.97	1.99	2.19
China	3.72			4.17		4.65
Colombia	1.40	1.98	1.96	1.62	1.29	1.42
Costa Rica	2.23	2.70	2.80	2.66	2.66	3.03
Croatia	5.08	4.01	3.65	3.41	2.92	2.74
Cyprus				2.97	2.99	3.30
Czech Republic	4.96	3.44	3.29	3.27	3.07	3.40
Côte D'ivoire			4.00	4.03	4.11	4.32
Denmark	0.16	0.56	0.60	0.62	0.64	0.56
Dominican Republic	2.09	2.59	2.24	2.17	2.17	2.49
Ecuador	2.30	2.71	2.84	2.69		2.99
Egypt, Arab Rep.			3.66	3.24	3.04	3.45
El salvador	2.64	2.90	2.92	2.69	2.62	
Estonia	0.63	1.00	0.95	1.04	0.96	1.19
Ethiopia	1.91	2.36	2.49	2.52	2.41	2.74
Finland		0.92	0.95	0.97	0.99	1.19
France	3.39	1.75	1.78	1.44	1.25	1.31

Table 4 continued

Country	Actual regulatory quality					
	2006	2007	2008	2009	2010	2011
Gambia, The	1.28	1.83	2.03	1.97	1.99	2.39
Georgia	3.12	1.79	1.40	1.07		0.40
Germany	1.08	1.07	1.13	1.15	1.17	1.36
Ghana			2.45	2.34	2.29	2.60
Greece	4.47	2.73	2.87	2.84	2.86	3.26
Guatemala	2.62	2.69	3.02	2.85	2.63	2.99
Guyana	1.08	1.66	1.81	1.84	1.83	2.06
Honduras		2.31	2.18	2.13	2.09	2.42
Hong Kong Sar, China		1.62	1.73	1.18	0.31	0.41
Hungary	1.73	2.23	2.24	1.94		2.23
Iceland	1.38	1.14	1.18	1.15	1.18	1.40
India	3.96	4.19	4.44	4.40	4.35	4.87
Indonesia	1.93	2.32	2.44	2.38	2.24	2.52
Iran, Islamic Rep.					3.13	3.53
Ireland		0.65	0.72	0.74		1.09
Israel	2.54	1.93	2.13	2.15	2.18	2.45
Italy		1.39	1.54	1.36	1.38	1.56
Jamaica	1.03	1.56		1.51	1.52	1.70
Japan	2.20	1.50		1.65	1.67	2.00
Jordan	2.17	2.23	2.17	2.19	1.86	2.16
Kazakhstan		4.70	4.98	4.77	4.59	4.22
Kenya	2.40	2.51	2.49	2.36	2.49	2.76
Korea, Rep.		1.49	1.32		0.93	1.13
Kuwait	3.06	3.35	3.43	3.45	3.46	3.95
Kyrgyz Republic	4.28	4.54	4.85		2.06	2.28
Latvia	1.97	2.31	2.52	2.40	2.41	2.62
Lebanon					2.45	2.78
Lesotho		2.95	3.30	3.17	2.93	3.19
Lithuania		1.31	1.39	1.41	1.43	1.57
Luxembourg		1.60	1.75	1.77	1.79	2.02
Macedonia, FYR	3.14	3.24	3.21	2.84	2.39	2.66
Madagascar	2.97	3.29	2.80	2.17	1.98	2.26
Malawi			3.40	3.49	3.31	3.62
Malaysia	2.23	2.73	2.97	2.89	2.91	2.90
Mali	2.35		2.67	2.61	2.05	2.24
Mauritania	2.33	2.75	2.88	2.63	2.67	3.05
Mauritius	2.00	2.56	2.47	2.30	1.76	2.00
Mexico	1.06	1.51	1.64	1.73	1.64	1.71
Moldova					3.29	3.73
Mongolia	2.76		3.33	3.36	3.36	3.82
Montenegro		2.56	2.72		2.56	2.46

Table 4 continued

Country	Actual regulatory quality					
	2006	2007	2008	2009	2010	2011
Morocco	1.35	1.90	2.14	2.03		2.35
Mozambique	2.65	2.95	2.74	2.74	2.75	
Namibia	1.73	2.24	2.41	2.33	2.35	2.69
Nepal		2.73	3.00	3.02	2.22	2.59
Netherlands	1.17	1.39	1.48	1.50	1.52	1.77
New Zealand		0.57	0.61	0.53	0.55	0.68
Nicaragua	2.15	2.46	2.66	2.64	2.66	2.98
Nigeria	3.15	2.79	3.05	3.06		3.31
Norway	2.56	0.88	1.08	1.10	1.12	1.29
Oman		1.87	2.00	1.77	1.65	1.87
Pakistan	1.97	2.41	2.60	2.62	2.57	2.77
Panama		1.62	1.70	1.71	1.58	1.83
Paraguay	2.74		2.58	2.61	2.63	2.61
Peru	1.85	2.30	2.49	2.48	2.22	2.14
Philippines	3.34	3.61	3.73	3.73	3.82	4.20
Poland	5.17	3.17	3.27	3.30	3.07	3.29
Portugal	4.55	2.01	2.03	2.05	1.79	1.37
Puerto Rico		2.81	3.04	3.06	3.09	3.48
Qatar			1.78	1.80	1.82	2.28
Romania	2.36	2.03	2.13	2.16	2.01	2.51
Russian Federation	6.65	6.66	7.01	7.04	7.04	6.58
Rwanda					2.07	2.13
Saudi Arabia	1.69	2.19	1.72	1.73	1.66	1.60
Senegal	2.87	3.30	3.56	2.22	2.22	2.47
Serbia		2.64	2.83	3.07	2.80	3.10
Singapore	0.12		0.77			0.60
Slovak Republic	3.75	1.87		1.86	1.87	2.09
Slovenia	4.17	2.86		2.88	2.66	1.94
South Africa	1.60	2.10	2.12	1.98	2.00	2.31
Spain	1.61	1.25	1.36	1.39		1.81
Sri lanka	2.26	2.72	2.53			
Suriname						5.56
Swaziland					2.59	2.92
Sweden	1.07	0.20	0.25	0.27	0.29	0.28
Switzerland	0.50		1.16	1.18	1.20	1.40
Taiwan, China	1.65	2.14	2.25	2.25	2.08	2.38
Tajikistan	4.62		4.78	5.10	4.53	4.49
Tanzania	3.48	3.28	3.33	3.36	3.38	3.83
Thailand	1.18	1.74	1.48	1.10	1.05	1.22
Timor-Leste						
Trinidad and Tobago	2.32	2.80	3.04	3.07	3.09	3.38

Table 4 continued

Country	Actual regulatory quality					
	2006	2007	2008	2009	2010	2011
Turkey	2.40	2.94	2.50	2.52	2.53	2.91
Uganda			3.68	3.70	3.64	
Ukraine	4.45	4.41	4.78	4.97	4.95	
United Arab Emirates	1.13	1.67	1.65	1.68	0.99	1.18
United Kingdom	1.55	1.73	1.83	1.85	1.20	1.40
United States	1.12	1.00	1.02	1.04	1.06	1.44
Uruguay	2.72	3.07	3.35	3.36	3.51	3.89
Venezuela, RB	3.28	3.69	3.92	3.98	4.00	4.53
Vietnam		1.84	1.94	1.93	1.94	2.15
Zambia	1.56	2.12	2.22	2.11	2.13	2.23
Zimbabwe	2.15	2.69	3.54	3.88	3.97	4.35

Appendix 2

See Table 5.

Table 5 Results fixed effects regressions

	(1)	(2)
PER	-57.56* (31.42)	
ACT		5.47 (6.47)
JI	-7.82 (6.20)	0.02 (0.01)
GDP	0.0002 (0.0009)	0.00008 (0.0001)
ROL		-48.37 (30.87)
2007	-11.17** (5.21)	-10.14** (4.50)
2008	-10.87** (4.95)	-4.22 (5.38)
2009	-10.07* (5.95)	-3.57 (5.40)
2010	-18.95** (7.37)	-6.28 (6.70)
2011	-21.19*** (7.95)	-10.30 (7.99)
Constant	658.65*** (29.48)	578.98*** (16.54)
N	741	480

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