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2013

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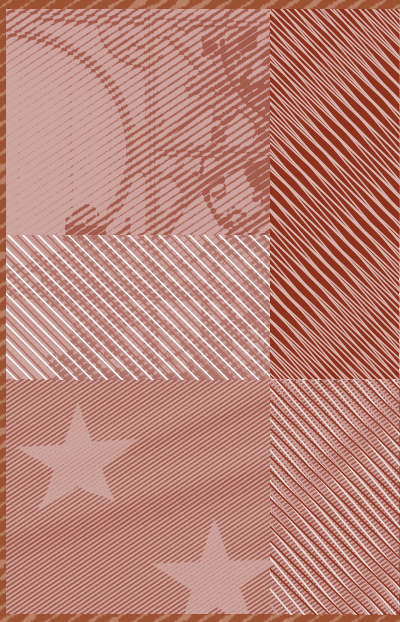

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Abstract

The literature has found that the size of firms matters for innovation and productivity and, thus, for economic performance. It is therefore worth explaining why enterprises in Spain are small in international terms. Our findings indicate that the quality of the institutional environment plays a role. Specifically, this paper analyses the different channels through which the efficacy of Spanish courts may affect the size of the companies at the provincial level. Regarding the existing literature, this paper is innovative in several important respects. First, we disentangle the impact of judicial efficacy on average firm size by differentiating between the effect on the growth of incumbent firms (intensive margin) and the effect on entry and exit rates (extensive margin), finding clear evidence of the former but not of the latter. We do so by using a firm-level database of more than half a million companies and real data (not estimates) on judicial efficacy at the local level. Second, this paper is the first to analyse the relationship between firm size and the effectiveness of justice after the reform of the civil procedures in 2000. Finally, and most significantly, it is the first paper in the literature to analyse the specific impact of the various civil procedures, both at the declaratory and the executory stage. In general, we find that judicial efficacy has a positive effect on firm size, but it critically depends on the type of the procedure, something that the previous literature has overlooked. More specifically, judicial efficacy matters at the declaratory stage (e.g. when a debt is declared and recognised by a judge), while it does not have a significant impact on size at the executory stage.

Keywords: firm size, judicial efficacy.

JEL Classification: L25, K40, R12.

Resumen

Diversos estudios han encontrado que el tamaño empresarial está relacionado con la innovación, la productividad y, en última instancia, con el rendimiento económico. Es por tanto relevante explicar por qué las empresas españolas son pequeñas en comparación internacional. Nuestros resultados indican que la calidad de las instituciones desempeña un papel relevante. En concreto, el trabajo analiza los diferentes canales a través de los cuales la eficacia de los tribunales españoles puede afectar al tamaño empresarial medio de las provincias españolas. Esta investigación contribuye a la literatura existente en diversos aspectos. Primero, separamos en dos el impacto de la eficacia judicial en el tamaño medio empresarial: el impacto en el crecimiento de las empresas ya existentes (margen intensivo) y el impacto en la entrada y salida de empresas (margen extensivo), encontrando evidencia clara de lo primero pero no de lo segundo. Para ello usamos datos a escala de empresa de más de medio millón de compañías y datos reales (no estimaciones) de la eficacia judicial en el ámbito local. Segundo, este trabajo/estudio es el primero en analizar la relación entre el tamaño empresarial y la eficacia de la justicia tras la reforma de los procedimientos civiles en el año 2000. Finalmente, es también el primero que analiza el impacto específico de los diferentes procedimientos civiles, tanto en los juicios declarativos como en las ejecuciones. En general, encontramos que la eficacia judicial tiene un impacto positivo en el tamaño empresarial, pero esto depende claramente del tipo de procedimiento, algo que la literatura previa había ignorado. Concretamente, la eficacia judicial influye en el tamaño en el caso de los juicios declarativos (por ejemplo, cuando una deuda es declarada y reconocida por un juez), pero no en el caso de las ejecuciones.

Palabras clave: tamaño empresarial, eficacia judicial.

Códigos JEL: L25, K40, R12.

1 Introduction

Spanish firms are small in international terms. Núñez (2004) found that the average size of firms in Spain was below that of firms in several other European countries[1] or in the US. López-García and Sánchez (2010) showed that Spanish companies were on average half as large as the companies in other European economies.[2] Moreover, they observed that the weight of the micro-enterprises was larger in all sectors compared to other European economies (with the exception of the construction sector). Studying this fact is relevant as several studies have shown that there is a positive relationship between firm size and innovation or TFP growth. Brandt (2004) suggests that firm size in the manufacturing sector is related to increased innovation activity. Pilat (2004) collects various results from the literature to conclude that the adoption of advanced technologies, such as ICT, increases with the size of firms and plants. The use of new technologies is also related to improvements in the productivity of firms. Lopez-Garcia and Montero (2012) found that, in the case of Spanish companies (in the manufacturing and services sectors), size has a positive and significant impact on the decision to innovate. This does not preclude the opposite also being true (i.e. firms that innovate also gain in size). TFP growth is in fact very low in Spain [Mora-Sanguinetti and Fuentes (2012)].

In order to explain the average firm size in any economy, several factors must be taken into account. The literature suggests that both income and economic growth in a competitive economy have a positive impact on firm size [e.g. Lucas (1978), Tybout (2000), Urata and Kawai (2002)]. Access to credit is also a determinant of firm growth (Beck *et al*. 2008), as is the amount of available physical and human capital [Lucas (1978), Rosen (1982), Kremer (1993), Tybout (2000)][3], the level of specialisation [Becker and Murphy (1992)] and the industry in question [Kumar *et al*. (2001)].

In addition to the above factors, and indeed in relation to them, an ineffective judicial system (or, more generally, the quality of the economy's "enforcement institutions") may have an effect on firms' size. In this paper we focus on the analysis of the judicial system.

This choice is warranted by the fact that the Spanish judicial system shows low efficiency compared with other countries. First, the "World Business Environment Survey", conducted by the World Bank between 1999 and 2000 and administered to enterprises, included some questions to assess the judicial system of the countries and the system's effectiveness in enforcing property rights. Spain obtained worse results than the other developed countries with the same level of per capita income and worse than the average for the OECD countries in all the questions analysing the functioning of the judiciary. Second, the Doing Business Project of the World Bank has published since 2004 a study called "enforcing contracts", which includes three indicators of the efficiency of contract enforcement based on how a company has to use the judicial system to recover a late payment. Spain ranked 64th among 185 countries covered in the reports of 2012 and 2013. Specifically, Spain would be in a worse position than other economies with similar levels of development such as the other big European economies (with the exception of Italy). These findings are in line with those of the

1. Denmark, Finland, France, Germany, Italy, Netherlands and Portugal.
2. Austria, Belgium, Denmark, Spain, Greece, Finland, France, Italy, Ireland, Netherlands, Sweden, Portugal and the UK.
3. However, the effect of human capital may become insignificant when results are corrected by some other controls, such as the defence of (intellectual) property rights or judicial inefficacy [Kumar *et al*. (2001)].

Círculo de Empresarios (2003), which conducted a survey among Spanish companies on the situation of Spanish justice. The judicial system obtained a low or medium level of satisfaction, reflecting the view that the Spanish courts are too slow and that the predictability of judgments is low, thus affecting management decisions.

All these results point to higher costs for companies when using the judicial system and reduced efficiency as a result of longer resolution periods [Djankov *et al*. (2003)]. They also indicate that the Spanish judicial system is more "formal". This means that a company needs to undergo a greater number of transactions and to file a greater number of documents in order to defend its interests before a court.[4]

This paper is not the first to explore the relationship between firm size and enforcement institutions. To the best of our knowledge, however, few papers have explored this issue. Kumar *et al*. (2001) found that firms in Finland are large despite the country's small size because, among other factors, Finland has a very efficient judicial system as compared to Spain or Italy. Laeven and Woodruff (2007) and Dougherty (2012) found that firms located in Mexican states with weak legal environments are smaller than those located in states with better legal environments. Giacomelli and Menon (2012) also found evidence for Italy and suggested that the average size of manufacturing firms is lower in municipalities where judgments are slower. Fabbri (2010) found that law enforcement in Spain has a significant impact on business financing and on firms' size for her sample of manufacturing companies.

Compared to the existing literature, this paper is innovative in several important respects. The first contribution comes from the data used in the analysis. As regards measuring firm size, we use firm-level data of more than half a million companies from all the relevant sectors of the Spanish economy, whereas previous studies used either aggregate data or firm-level data from only the manufacturing sector. As to measuring judicial efficacy[5], this is the first paper to use real data obtained directly from the courts to calculate our own measures of efficacy; the previous literature relied on estimates of the length of the procedures, which required assuming a particular probability distribution and did not reflect real lengths. The second contribution applies to the Spanish case, since this paper is the first to use data reflecting the application of the new civil procedural rules of 2000, which completely changed the civil justice system in Spain. We also use data at the provincial level, whereas previous studies on Spain used data at the aggregate regional level (*comunidades autónomas*). The third contribution consists of differentiating between the specific impact of the various civil procedures available both at the declaratory stage and at the execution stage, something previously overlooked and which affects policy recommendations. Noting the differences between declaratory judgments and executions is not only relevant in terms of procedures, but also tells us what stage is more important for business decisions: whether the time at which a debt is declared and recognised by a judge (declaratory stage), or the time at which the judge requires the payment of it (execution stage). Specifically, we find that judicial efficacy at the declaratory stage has a positive impact on firm size, while judicial efficacy at the execution stage has no impact whatsoever. Thus, the use of "aggregate"

4. International comparisons of this type must be analysed with caution, as they compare, using relatively simple measures, complex legal systems which are essentially different. This is especially the case when comparing legal systems based on "Civil Law" (such as Spain, France or the majority of Latin American countries such as Mexico) and those based on "Common Law" (essentially the UK) [see, among others, Ménard and Du Marais (2006), Arruñada (2007), Mora-Sanguinetti (2010) or Xu (2011)].

5. We prefer to use the concept "efficacy" instead of the concept "efficiency", which has been used in the previous literature, because our study –like previous studies- does not have data on the production function of judicial services and the cost of its inputs, so we cannot ascertain whether courts are working on the production possibility frontier or below it.

measures of civil efficacy, as was previously the case in the literature, may be misleading. The final contribution consists of disentangling the impact of judicial efficacy on average firm size by differentiating between the effect on the growth of incumbent firms (intensive margin) and the effect on entry and exit rates (extensive margin). Since entering and exiting firms are much smaller than incumbent ones in Spain (López-García and Puente, 2007), the positive relationship between judicial efficacy and average firm size could be due, for instance, to effective courts facilitating exit and hindering entry. Another reason that motivates this analysis is the fact that firms' locations are endogenous and may depend on factors such as judicial efficacy. In such a case, if firms prefer regions with more effective Courts and larger firms benefit more from them because of their higher demand for judicial services (or have lower costs of changing their location), then part of the effect we found could be due to an "attraction effect" rather than a "growth-enhancing effect". However, we find no impact of judicial efficacy on entry and exit rates, implying that its impact on average firm size takes place through a "growth-enhancing" effect[6].

The rest of the paper is organised as follows. Section 2 presents a discussion of the theoretical channels linking judicial efficacy with firm size. Section 3 proposes the construction of various measures of judicial efficacy and size of firms, and discusses the advantages and disadvantages of each of the approaches. It also explains how to implement empirically the arguments discussed in section 2. Section 4 presents our estimation strategy and discusses the empirical results. Finally, section 5 provides some conclusions. The paper is complemented by several appendices. Appendix A shows the distribution of judicial efficacy by province and year. Appendix B explains the database of enterprises and sample selection criteria. Appendix C shows the size distribution of firms in Spain according to our sample. Appendix D provides evidence for some other procedures not included in the main sections, and Appendix E shows the same empirical analyses with alternative measures of firm size and judicial efficacy.

6. In an alternative experiment we have eliminated from our sample the firms that entered or exited the market during the period of study (2001-2009) to explicitly rule out a potential "attraction effect". The results -available upon request- lead to similar conclusions.

2 Theoretical background: Why the functioning of the judicial system affects firms' size?

The literature suggests several theoretical arguments according to which we should observe an impact of the judicial system on the size of firms. Depending on one argument or another, the sign of the effect could be positive or negative (Giacomelli and Menon, 2012).

First, following Laeven and Woodruff (2007), who base their arguments on a refinement of the model of Lucas (1978), an improvement in the functioning of the judicial system should be related to an increase in the size of firms. According to their argument, an improved judicial system implies higher production efficiency, which will increase the demand for production factors (capital and labor) and will in turn raise wages and rental rates. This will induce low-ability entrepreneurs to leave self-employment for wage work, while only the most talented entrepreneurs will keep running their own businesses. Therefore, there will be less companies and those companies will employ more workers. As a result, average firm size will increase.

Laeven and Woodruff (2007) also highlight that the impact of the judicial system on the size of firms depends on their ownership structure. According to their argument, a businessman who invests all his wealth in the ownership of his company is fully exposed to the idiosyncratic risks of the firm. Those risks (e.g. expropriation risks) are higher when the justice system does not work well, hence deterring investment and firm's growth. One way to mitigate them is through the incorporation of the company, which limits the liability of the investor. According to this reasoning, we should observe a greater (positive) effect of an improvement in the functioning of the judicial system on firms' size in the sectors in which there is a higher proportion of unincorporated businesses.

Firm size can also be indirectly influenced by the quality of the judicial system through the credit channel. Inefficient systems are associated with worse contract enforcement and hence with weaker creditor protection. As a result, weaker investor protection would decrease the availability of credit, hampering firm growth. This conjecture is corroborated by Jappelli *et al*. (2005), who find that credit is more widely available in the Italian provinces where there is higher judicial efficiency. Fabbri (2010) also finds that the cost of financing is higher in the regions where there are longer trials and this could have an effect on firms' size as well. However, greater judicial ineffectiveness, by reducing the access to external finance, also reduces the creation of new enterprises, which are usually smaller than incumbent firms (Johnson *et al*, 2002). As a result, the overall impact of reduced funding on firm size may be ambiguous when measured empirically (Kumar *et al*, 2001).

The effect of an improvement in the functioning of the judicial system would be especially pronounced in companies or sectors characterized by a low level of capital intensity (Rajan and Zingales, 1998a, Kumar et al. 2001). This argument is based on the idea that, at least in developed economies such as Spain, the legal system is good enough to protect the physical capital (as its measurement is quite straightforward). However, the protection of the intangible assets of the company (such as copyrights, patents, etc.) is more difficult. It is therefore possible to find a greater variability in the effectiveness of the defense of such capital (depending on the effectiveness of the judiciary). However, the empirical evidence is mixed. Kumar et al (2001) find that more capital intensive industries benefit more from good judicial systems, while Dougherty (2012) finds the opposite and Laeven and Woodruff (2007) find no significant effect.

Finally, an ineffective legal system increases coordination costs among firms and, as a consequence, has a negative impact on growth due to lower investment in human capital and lower specialization of labor (Becker and Murphy, 1992). Becker and Murphy (1992) argue that, in order to take advantage of specialization, it is usual to observe that the different companies work together to combine the skills of various specialized workers. In order to do so, those enterprises sign contracts and coordinate each other activities. For this trade to occur, it is essential that the contract enforcement mechanisms of the economy work well (Coase, 1960 and North, 1990). Otherwise, companies could give up some of the gains from specialization, so that each company would perform more, less specialized tasks. However, they could also integrate vertically to save the costs of coordination, thus increasing their size. Hence the overall effect is ambiguous. In fact, Laeven and Woodruff (2007) find no significant differences in the impact of justice between vertically integrated companies and others that are not.

In summary, based on the above arguments, it seems appropriate to explore the effects of several variables when exploring the relationship between firm size and judicial efficacy. First, the incorporation ratio in the province may reduce the negative impact of judicial inefficacy on firms' size. Then, we should control for credit availability as the literature observes several ways through which justice affects funding, and for the level of capital intensity. We should also control for the extent of vertical integration in the economy and, according to Becker and Murphy (1992), for market size, since this would provide a first approximation to the potential gains from specialization of companies. Finally, it also seems appropriate to control for population density, since it can reduce coordination costs. The effects of an inefficient judicial system seem to dominate the effects of other variables such as the level of protection of patent rights, tax rates or accounting standards if we follow Kumar *et al*. (2001). In any case, these other factors have little relevance to this study as all observations come from a single country (Spain).

3 Data

3.1 Measuring judicial efficacy in Spain

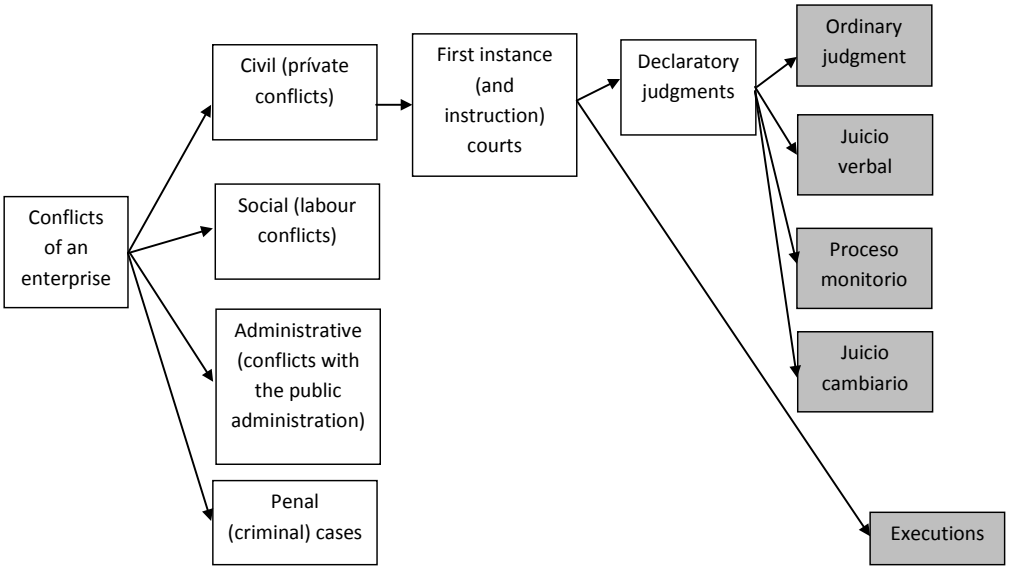
In order to provide a measure of judicial efficacy, the previous literature has used either surveys on the quality of the judicial system or estimates of the actual length of the procedures. Kumar *et al*. (2001), Laeven and Woodruff (2007) and Dougherty (2012) use the results of surveys administered to the users of the judicial system (the enterprises) or to experts (such as litigation attorneys) where they were asked about their opinions on the efficiency, quality and integrity of the legal system and the perceived impartiality of judges. Giacomelli and Menon (2012) use estimates of the length of civil procedures provided by the Ministry of Justice of Italy and the Italian National Institute of Statistics. Their data, however, reflect all civil proceedings at a time and they also have to control for the efficiency of tribunals courts when resolving criminal cases because those are also solved by the same courts. Fabbri (2010) uses a survey by the Spanish National Institute of Statistics (INE) on the length of civil proceedings. However, the data are provided in intervals for each duration class (e.g. number of cases between 2 and 6 months), so that a uniform distribution within each class must be assumed to estimate the average length of trials[7]. Moreover, the data used by Fabbri (2010) represent judicial performance from the old civil judicial system of Spain (abrogated in 2000) and do not differentiate among types of procedures. Thus, to the best of our knowledge, no previous paper has used actual judicial performance data and distinguished among different types of civil procedures.

By contrast, this paper constructs a set of efficacy measures using direct information provided by the courts, specifically by the Spanish General Council of the Judiciary (*Consejo General del Poder Judicial*, henceforth CGPJ). The CGPJ has published a database reporting the number of cases filed, solved and still pending in the Spanish judicial system by region, court, year, subject and procedure. This information allows us to differentiate by the specific type of civil procedure used at the declaratory stage (*ordinary judgment, verbal, monitory and exchange*) or at the execution stage. The data also provide information on the nature of the conflict (civil, penal, administrative or labor) and on the specific court in which the procedure takes place. Constructing the indicators from raw data is a complex issue, so the following paragraphs attempt to explain how to build these efficacy measures.

As an outline (see Figure 1), first we should identify the jurisdiction that is going to deal with the conflicts that we consider the most relevant for the functioning of the company. Different types of conflicts are dealt by different jurisdictions inside the judicial system, which are served by different groups of judges. Once identified that jurisdiction (*orden jurisdiccional*), we must identify the specific court where a company has to initiate a conflict in order to defend its interests and the specific procedure that must be used.

7. It is important to clarify that neither the INE nor the Spanish General Council of the Judiciary (CGPJ) collect data on the length of legal proceedings in the Spanish courts, but estimated lengths by the CGPJ are available. We could have used them as in Giacomelli and Menon (2012) or in Fabbri (2010), but those measures are considerably less accurate than those used here. Indeed, the CGPJ discourages the use of them as they assume a distribution that does not fit the actual data. Moreover, they cannot differentiate among the various procedures available.

Figure 1: Outline of the Spanish judicial system



Regarding the jurisdiction, Spanish companies may have to deal with very different types of conflicts in their daily functioning. A company may have to deal with conflicts with its employees (for instance, a fired worker may sue the company). In this case, conflicts are regulated by labor legislation and they will be resolved in accordance with it in the social courts (*juzgados de lo social*) inside the social jurisdiction. A company may also have to deal with conflicts with the public administrations. For example, the company may be discriminated in a public procedure or the administration may not answer properly a request from a company. Those conflicts will be subject to administrative Law and solved, first, inside the administration through administrative remedies and, afterwards, through appeals to administrative courts (*juzgados de lo contencioso-administrativo*) inside the administrative jurisdiction. Finally, conflicts may arise with other private firms or other private parties such as suppliers and customers. This is the case when there is a non-payment of a service, when there are misunderstandings interpreting the terms of a contract on the sale of goods, disagreements on the quality of products or even when defending the intellectual property of a work or service. Those conflicts will be dealt by civil courts (*juzgados de lo civil*) inside the civil jurisdiction. We decide to concentrate the analysis in the civil conflicts because we consider them the most relevant for the activity of the companies[8].

Once we have identified the relevant jurisdiction (the civil jurisdiction), we need to find the specific courts where the conflict is going to be solved. Those are the first instance courts (*juzgados de primera instancia)* and the first instance and instruction courts (*juzgados de primera instancia e instrucción),* which are entry-level courts. Conflict must enter the judicial system through those courts.[9]

8. A company may have also violated the public interest and therefore be criminally responsible. However, these cases are quite marginal under the Spanish Law.

9. In this study we do not work with the second instance (i.e., appeals against the courts of first instance). The reason is that the cases that come to the second instance are only 7.45% of the first (if measured as the number of incoming civil and commercial litigious cases in the first and the second instance). In quantitative terms, therefore, it is much more important to analyze what happens to the first instance since it affects to a much larger number of companies. This does not rule out a possible future extension providing some analysis of the second instance.

Finally, the specific procedure that must be used is determined by the Civil Procedural Law[10] (CPL), which regulates all civil conflicts in Spain[11]. First, the claimant company will have to go through a declaratory judgment in which it will try to demonstrate that a debt or other right exists. If that is the case, the judge will declare the obligation of the debtor to pay or to compensate the right infringed. There are different types of declaratory judgments (see Figure 1). On one side there are ordinary judgments (*juicios ordinarios*), which will be used if the conflict involves at least 6,000 euros or relies on certain matters (such as appeals against decisions of the governing bodies of the company). On the other hand, there are verbal judgments (*juicios verbales*) if the disputed amount is less than 6,000 euros. Finally, there are simpler procedures, exchange (*juicios cambiarios)* and monitory (*juicios monitorios*) that turn into verbal or ordinary if there is opposition of the debtor. Appeals against corporate decisions are normally made in Spain through the *juicios ordinarios*. Thus, we consider them to be the most interesting to analyze. However, we have also analyzed the rest of procedures and several tables with results are included in the Appendix D. After the declaratory stage an execution may have to take place. That stage only takes place when the debtor does not pay the debt or fails to comply with the obligations imposed by the judge at the declaratory stage. That is, the claimant will ask the judge to (forcedly) "execute" the decision. The judge may, for instance, seize the amounts of a debt from the accounts of the debtor.

From the raw data coming from the CGPJ database we can construct several measures of efficacy for each court (or for the provincial aggregate) and for each procedure (see Padilla *et al*. 2007, Mora-Sanguinetti, 2010 and 2012): the congestion rate (see equation 1 below), the pending cases rate (equation 2) and the resolution rate (equation 3).

$$Congestion\ rate_{i,t} = \frac{Pending\ cases_{i,t-1} + New cases_{i,t}}{Cases\ resolved_{i,t}} \quad (1)$$

$$Pending\ cases\ rate_{i,t} = \frac{Pending\ cases_{i,t}}{Cases\ resolved_{i,t}} \quad (2)$$

$$\text{Re}solution\ rate_{i,t} = \frac{Cases\ resolved_{i,t}}{New cases_{i,t}} \quad (3)$$

The congestion rate is defined as the ratio between the sum of pending cases (measured at the beginning of the period) plus new cases in a specific year and the cases resolved in the same year. A lower congestion rate is related to greater efficiency of the judicial system. The pending cases rate is defined as the ratio between pending cases (measured at the end of the period) in a specific year and the cases resolved in the same period. Higher resolution rate or lower pending cases rate are related to greater efficiency of the judicial system. The resolution rate is defined as the ratio between the cases resolved and the cases that entered the system in a specific year. An average congestion rate of 2.41 in Madrid over the period 2001–2009 indicates that around two and a half cases (summing up

10. Law 1/2000, of January 7th (Civil Procedural Law).

11. Two clarifications must be added. First, there are changes in this reasoning if the private subject with which the company has a conflict is foreign, but even in this case the CPL may be used (depending on the case). Second, it must be noted that some extrajudicial solutions may be found by the parties, as sending the case to arbitration (*Ley de Arbitraje*). However, even in that case only a judge can execute a decision coming from arbitration, using always the CPL and the judicial system again.

the pending cases and the new cases arriving to the courts of Madrid in a specific year) were awaiting resolution while the courts were able to resolve just one.

Since we have found a very high correlation between the congestion rate (1) the pending cases rate (2) and the resolution rate (3)[12], using all of them at the same time could imply multicollinearity in multivariate regressions. We therefore aggregate them via principal component analysis into one variable, named Judicial Inefficacy, for each type of procedure. For instance, for ordinary judgments Judicial Inefficacy is a linear combination of the congestion rate, the pending cases rate and (the inverse of) the resolution rate[13], where the weights are the corresponding factor loadings[14], as shown in (4):

$$Judicial.Inefficacy = 0.59 \cdot Congestion\ rate + 0.59 \cdot Pending\ cases\ rate + \\ + 0.56 \cdot \frac{1}{\mathrm{Re}solution\ rate} \qquad (4)$$

However, all the findings of the paper are robust to using alternative measures of judicial efficacy that do not rely on principal components analysis, as illustrated in Appendix E.

The system of procedures explained above was adopted in 2000, replacing the previous system (CPL of 1881), and no business conflict has taken the form of 1881 from 1 January 2001 (Mora-Sanguinetti, 2010). Therefore, although the CGPJ performance data of the civil courts are available for the period 1995-2010, we must use only data from 2001 onwards.

For the purposes of the analysis herein, we have chosen to aggregate the data at the provincial level,[15] although more disaggregated data on the judicial system are available. This is due to the lack of more disaggregated data in other important variables such as income per capita (*e.g.* there is no disaggregated data for the GDP of the city of Madrid or the city of Getafe, both at the province of Madrid, but we have the GDP for the Madrid province). In terms of the analysis this has the drawback of losing the "sub-provincial" action in the decision of the agents. That is, enterprise management decisions may be different if it is established in a congested zone (city of Madrid) or in a less congested one (surroundings).

The CPL establishes the rules of territorial competence, that is, the court that will solve the conflict. As a general rule, demands are made on the place of the registered office of the defendant.[16] However, if the conflict is about the annual accounts of the company, the court must be that of the province where the registered office is, and the same rule generally applies to bankruptcy proceedings. If the claim has to do with real assets (i.e., buildings), the conflict will be resolved at the place where the building is. Moreover, in the case of small firms (the vast majority of the Spanish businesses), most of their trade (and negotiations with other companies) occurs within one province. All these rules lead us to believe that studying the judicial system at a local/provincial (rather than national) level is relevant to the production cycle of companies.

12. For instance, for ordinary judgments, the absolute value of their correlation coefficients ranges between 0.81 and 0.99.

13. We have taken the inverse of the resolution rate because greater inefficacy is indicated by a higher congestion rate and a higher pending cases rate, but by a lower resolution rate.

14. The factor loadings are the correlation coefficients between each variable and the principal component.

15. Excluding Ceuta and Melilla (no information is available for those provinces).

16. Articles 50 and 51 of the CPL

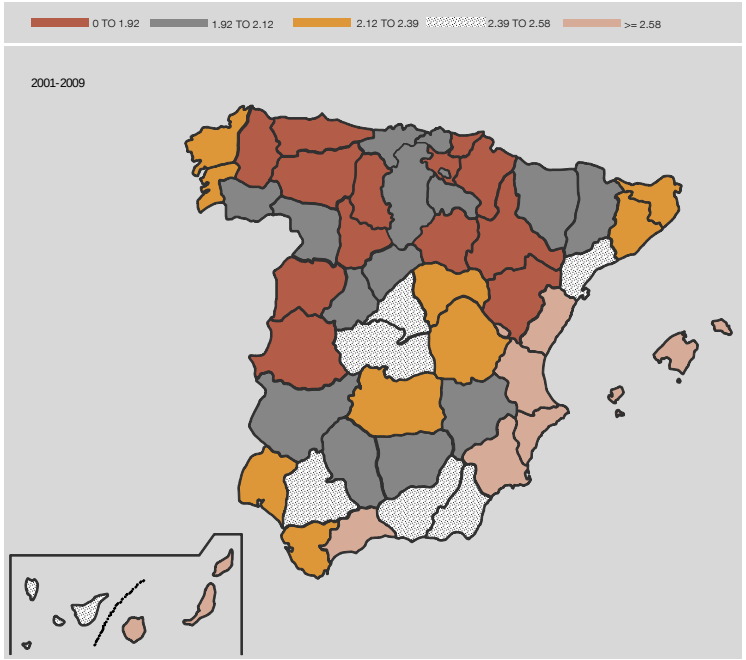
The competence even at the most micro level (i.e., the allocation of civil affairs within the same judicial district) should not be a concern for the analysis. The allocation of cases between the courts of first instance of a particular judicial district is made by the dean's office on the basis of predetermined rules, which include, among others, random mechanisms (with several corrections). That is, firms cannot choose to litigate before a particular judge they may like.

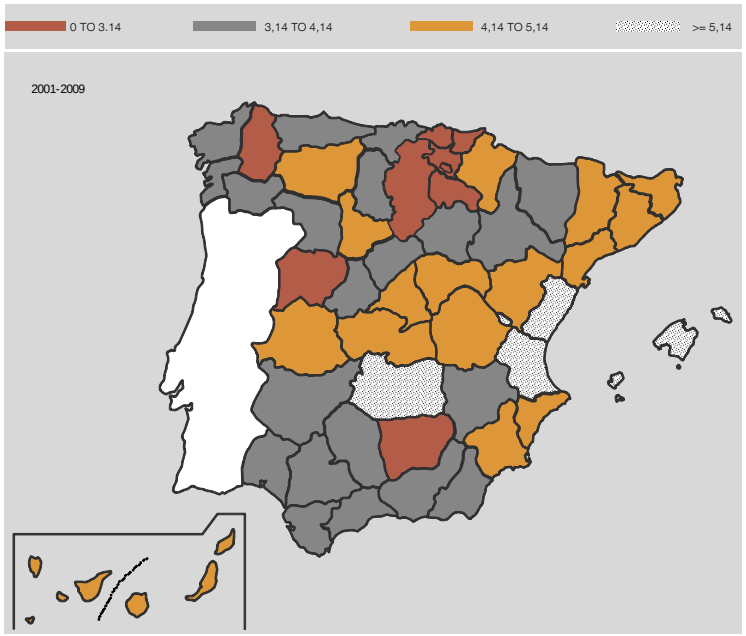
As previously said, the CPL regulates all civil conflicts in Spain. The CPL establishes the formalisms that the parties must observe, the role of the judge, the rules governing evidence, the control by superior instances and all related issues.[17] Therefore that Law is a main determinant of the aggregate efficacy of the judicial system in Spain. However, although the CPL is a national-wide Law, the efficacy of courts may differ among Spanish provinces due to supply and demand factors. On the supply side, the resources invested in the justice Administration differ at least at the regional level[18]. In the allocation of resources between different geographical units, the administration favors the population which needs not reflect specifically a particular type of conflict, its relative growth or its complexity (Fabbri et al. 2010, Mora-Sanguinetti, 2012). On the demand side, litigation propensity may differ among provinces. This geographical variation in efficacy is illustrated in Figure 2a, which shows the average of the congestion rate for ordinary judgments (map on top) and executions (map on the bottom) at the provincial level for the period 2001-2009. Figure 2b shows the variation in time of the congestion (again, for ordinary judgments and for executions) for a group of provinces with low congestion (Álava, Guipuzcoa, Navarra and Zaragoza), with high congestion (Baleares, Málaga, Almería) and for the case of Madrid. For greater clarity, Table A1 (see Appendix A) shows the values of the congestion rate of ordinary judgments for each province over the same period. There was, on average, a difference of 1.16 congestion points (in ordinary judgments) between the most efficient (Álava) and the least efficient (Alicante) province throughout the period. The difference is 3.87 points in the case of executions, between Álava (the most efficient on average) and Castellón.

17. The CPL would be supplementary in many cases of labor disputes or against the public administration.

18. The Spanish regions (*Comunidades Autónomas*) have some powers related to the administration of justice in Spain. Even though the judicial power is not properly transferred to the regions, the management of the means of the judicial power is influenced by the policies developed by the regions. For instance, they decide how much money is invested in new courts each year in their territories, even though the new courts are integrated in a system that is centrally governed.

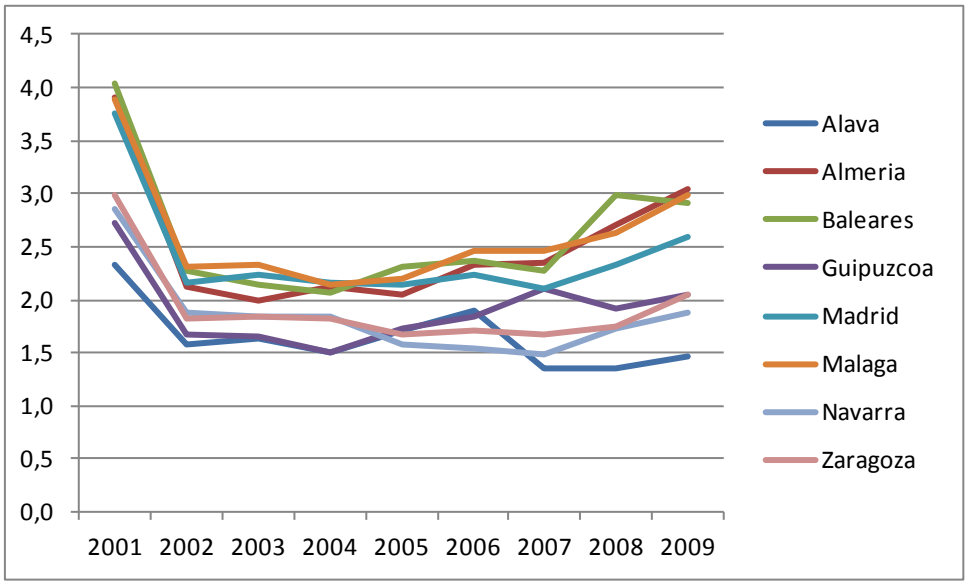
Figure 2a: Judicial Inefficacy: geographical variation.

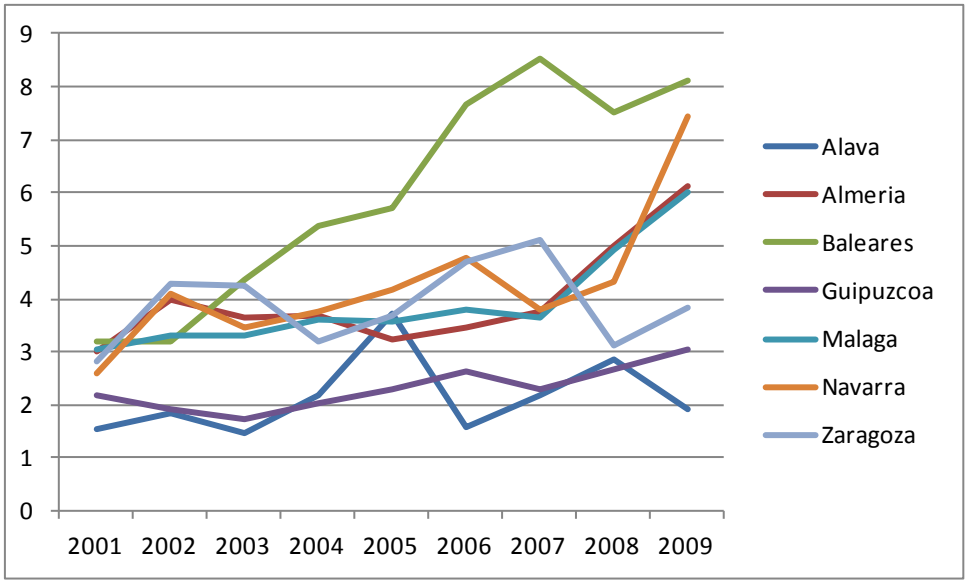




SOURCE: Self elaboration and *Consejo General del Poder Judicial* (2012).

Figure 2b: Judicial Inefficacy: time variation.





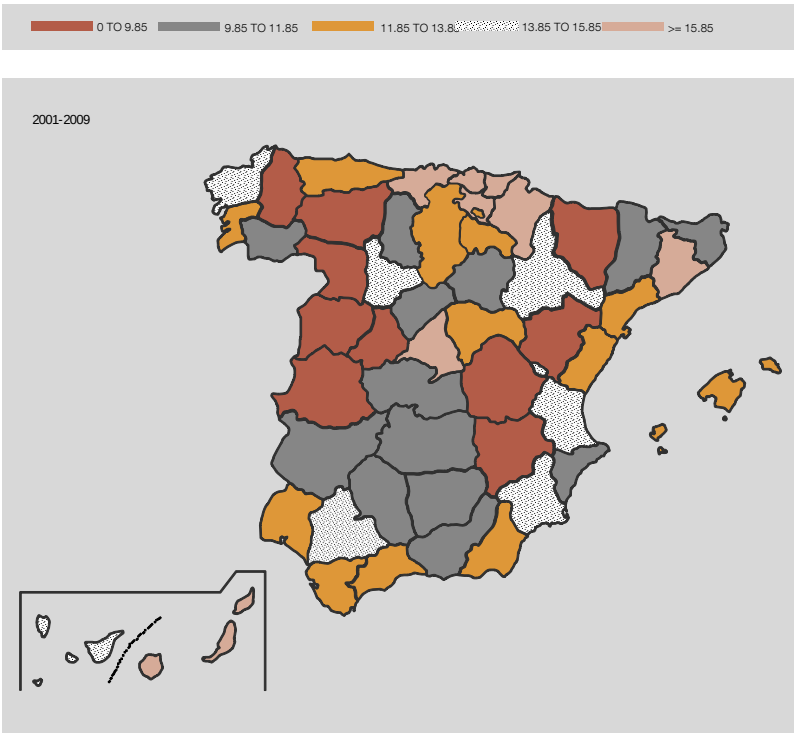
SOURCE: Self elaboration and *Consejo General del Poder Judicial* (2012).

3.2 Measuring firm size

As for assessing firm size the literature points to different possible measures: value added, output or the number of employees (Kumar *et al*. 2001). Laeven and Woodruff (2007) also propose, along with the number of employees, to measure firm size by the capital stock, while Giacomelli and Menon (2012) use both employment and turnover.

Since any proposed measure has its pros and cons, we take an agnostic approach and we use the three variables used by the European Commission[19] to classify Small and Medium Enterprises: total assets, total revenue or turnover and total employment. Those variables are obtained using firm-level data from the database SABI for the period 2001-2009. The sample has an average of 575,000 firms per year. The geographical variation in firm size, according to these three raw measures, is illustrated in Figures 3a, 3b and 3c, which show their averages for the period 2001-2009. The temporal variation in firm size is shown in Figure 4, which displays the national averages for each year. A brief description of SABI and the data selection criteria can be found in Appendix B, while Appendix C shows the size distribution of firms in Spain by province and by year as the arithmetic averages of employment, revenue and total assets, respectively, suggesting that our sample is representative of the population of Spanish firms.

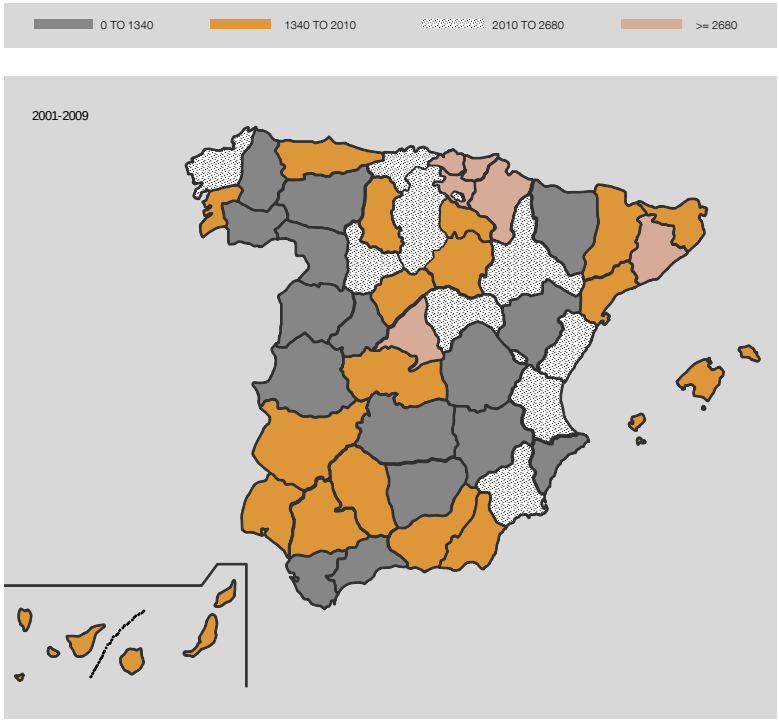
Figure 3a: Geographical variation in firm size: number of employees



SOURCE: Self elaboration and *Consejo General del Poder Judicial* (2012).

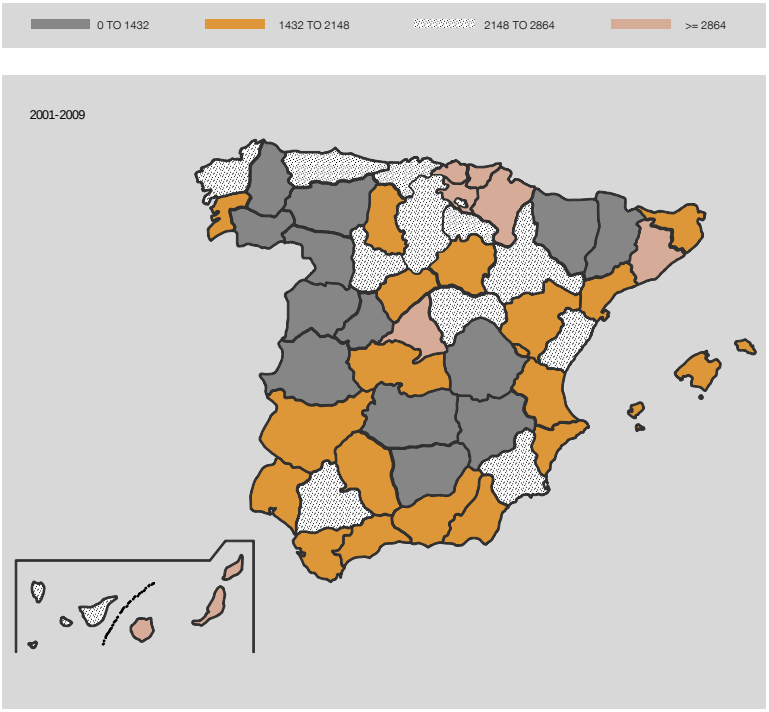
19. European Commission (2003).

Figure 3b: Geographical variation in firm size: revenue (thousands of €)



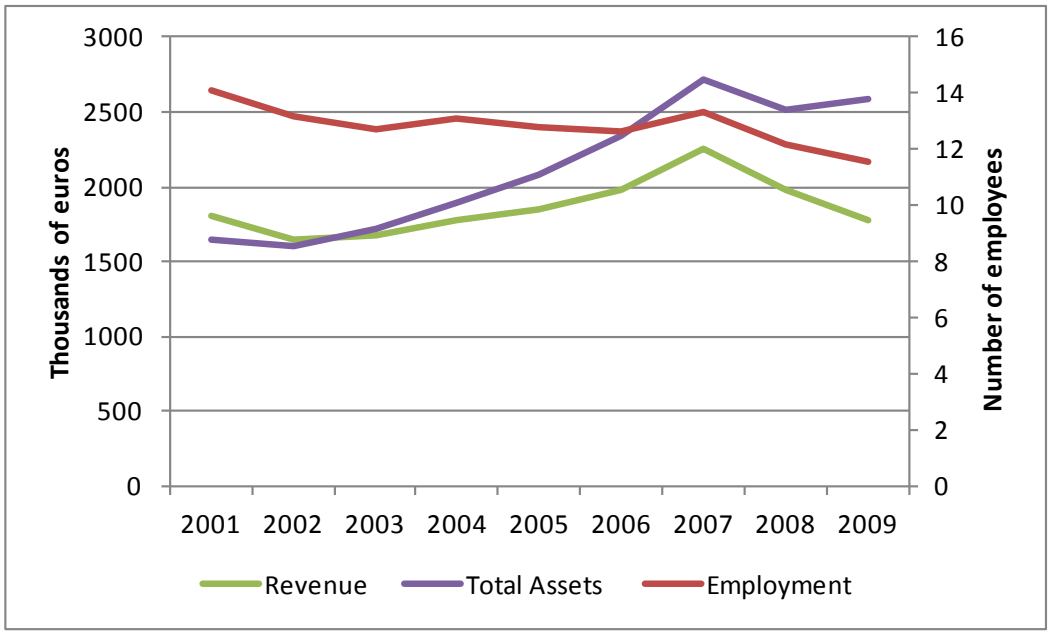
SOURCE: Self elaboration and *Consejo General del Poder Judicial* (2012).

Figure 3c: Geographical variation in firm size: total assets (thousands of €)



SOURCE: Self elaboration and *Consejo General del Poder Judicial* (2012).

Figure 4: Temporal variation in firm size.



In order to aggregate all this information, we construct a size index with employment, revenue and total assets, computed as a linear combination of the three variables through Principal Component Analysis (PCA). The moderate correlations among the three variables, displayed in Table 1, reveal the shortcomings of the analyses based on only one measure: since companies differ in aspects such as their capital-labor ratios, those analyses are expected to overestimate the size of some firms and underestimate that of others. However, all the findings of the paper are robust to using alternative measures of firm size that do not rely on principal components analysis, as illustrated in Appendix E.

Table 1: correlations among different measures of firm size.

	Total Employment	Operating Revenue	Total Assets
Total Employment	1.00		
Operating Revenue	0.51	1.00	
Total Assets	0.39	0.59	1.00

The PCA yields the size index as a weighted sum of the three original variables, where the weights are the corresponding factor loadings[20], as shown in (5). Then the index is rescaled so that its minimum (i.e. the size of the smallest firm) is 0 and its maximum (i.e. the size of the largest firm) equals 100.

$$SizeIndex = 0.54 \cdot Employment + 0.61 \cdot \mathrm{Re}venue + 0.58 \cdot TotalAssets \quad (5)$$

20. The factor loadings are the correlation coefficients between each variable and the principal component.

Following Davis and Henrekson (1997) and Kumar *et al*. (2001), for each of the size measures we compute two statistics that reflect the average firm size of a province in a certain year: an arithmetic average and a size-weighted average. Both indicators have their pros and cons, so we use both to check the robustness of our results.

The arithmetic average may be misleading since it can be brought down by a large number of very small firms that account for a very small proportion of the economy of the region[21], and we are ultimately interested in assessing whether judicial inefficacy hinders the existence of large firms. By contrast, the size-weighted average puts a greater emphasis on the largest firms in each province, since they are the ones that carry out the bulk of the economic activity. This statistic is the sum of the size of each firm weighted by the proportion of the size of its province it accounts for (e.g. % of employment). Let us define the size-weighted average (SWA) of the province p in the year t for some measure of size X (e.g. number of employees) as:

$$SWA_{pt} = \sum_{i=1}^{N_{pt}} X_{ipt} \cdot \left(\frac{X_{ipt}}{\sum_{i=1}^{N_{pt}} X_{ipt}} \right)$$

where i denotes an individual firm and N (p,t) the number of firms in that province and year.

Furthermore, by weighting large firms more heavily we minimize the effects of entry and exit because entering and exiting firms are generally much smaller than incumbent ones. The drawback of this indicator is that, by putting more weight on larger companies, it may also do it on multiplant firms. Since companies with multiple plants located in different provinces are likely to use the courts of those provinces, the presence of these companies in the data may distort our results. This problem is less important when using the arithmetic average, since the majority of Spanish firms are mono-plant[22].

3.3 Measuring firm dynamics

The average firm size is determined by two factors: the growth rate of incumbent firms and the size of entering and exiting firms. In order to disentangle which factor is driving our main results, in a number of experiments we will assess whether judicial efficacy has an effect on entry and exit rates. The entry (exit) rate is the number of firms that enter (exit) a market in a given year as a percentage of all the active firms in that market at the end of the year (which include the new and continuing firms). Due to data constraints, we only have information on corporate entries and exits, which we divide by the number of corporations in each province and in each year.

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21. Kumar *et al*. (2001) illustrate this idea with the following example (page 13). "*Consider, for instance, automobile manufacture in Spain. 78% of the employees in this sector work for 29 firms which, on average, employ 38,302 employees. There are, however, 1,302 self-employed people, who account for an equal number of firms. Taken together with the intermediate categories, the simplest measure [the arithmetic mean] would suggest that the average firm has only 570 employees*".

22. According to the Spanish National Statistics Institute (INE), the average number of firms in the period 2001-2009 was 3,051,634 while the average number of plants in that period was 3,389,330.

3.4 Other variables (controls)

With respect to the control variables and following the theoretical arguments discussed in section 2, we should include a measure of market size (such as the log of GDP, following Kumar *et al*. 2001, or the log of the population, as in Laeven and Woodruff, 2007). The unemployment rate will also capture shifts in aggregate demand as well as income distribution. It also seems appropriate to control for population density, since it can reduce coordination costs.

As previously discussed, credit constraints seem to affect firms size (although it should be noted that a part of the literature argues that it has to do with the functioning of institutions, see Levine, 1998, La Porta *et al*., 1997, 1998). Therefore, we include a measure of banking credit to GDP (Credit/GDP), the ratio of defaulted accounts receivable to GDP (Dar/GDP) and the non-performing loans ratio of credit institutions (Npl ratio). Banking credit to GDP is a standard measure of the development of the banking sector relative to the size of the economy (see Rajan and Zingales, 1995). We expect higher ratios being associated with less financial constraints. The ratio of defaulted accounts receivable to GDP is an alternative proxy of credit constraints that focuses on trade credit instead of banking credit (Padilla *et al*. 2007). A higher ratio means, *ceteris paribus*, lower incentives of the borrowers to repay – probably because of poor creditor protection or contract enforcement- which causes more credit rationing. The same reasoning applies to the non-performing loans ratio.

We construct a variable that captures the proportion of limited liability companies in each province and year. Laeven and Woodruff (2007) analyze how the impact of judicial efficacy on firm size depends on the predominant type of company in each industry. The effect of the legal system seems to be larger for those industries in which unincorporated firms account for a larger percentage of the total stock of companies.

Both Johnson *et al*. (2002) and Laeven and Woodruff (2007) suggest that the effect of judicial efficiency on firm size could be more pronounced for nonvertically integrated firms because a nonvertically integrated firm relies more on the judicial system to enforce contracts with suppliers and customers. Hence we also construct a measure of vertical integration, which is the ratio of value added to sales, where value added (i.e., revenue minus costs of intermediate inputs) has been corrected for extraordinary positions.[23] This ratio is expected to be higher for vertically integrated firms because of their lower expenses in outside purchases of intermediate inputs. We first compute this ratio at the firm level and then construct aggregate measures of this ratio at the province level: the "mean ratio" and the "aggregate ratio". The "mean ratio" is just the arithmetic average of each firm ratio for each province and year. The "aggregate ratio" is a ratio of the sum of the value added of each firm to the sum of the sales of each firm. Formally, an aggregate ratio (AR) for the variables X and Y of the province p in the year t is:

$$AR_{pt} = \frac{\sum_{i=1}^{N_{pt}} X_{ipt}}{\sum_{i=1}^{N_{pt}} Y_{ipt}}$$

23. Extraordinary positions are revenues or expenses that do not arise from the regular activities of a firm, such as insurance claims. Using accounting identities, it can be shown that value added can be computed as the sum of the profit per period, total labor expenses (including both salaries and benefits), taxes, depreciation expenses and interest expenses. To correct value added by extraordinary positions we subtract them from the previous sum.

where i denotes an individual firm and N (p,t) the number of firms in that province and year.

It can easily be shown that the aggregate ratio equals a weighted sum of the individual ratios, with higher weights to larger firms, in analogous fashion to the size-weighted average explained above. We use both measures to check the robustness of our results.

It also seems appropriate to control for industrial composition since, as noted by Kumar *et al*. (2001) judicial inefficiency could affect in a stronger way those industries characterized by lower capital intensity and the type of industry is a determinant of firm size due to factors such as economies of scale and economies of scope. To capture industrial composition we compute the ratio of the gross value added of the main five industries (primary sector, energy, manufacturing, construction, services) over the total gross value added of each province. We measure capital intensity by the ratio of capital stock (tangible fixed assets plus inventories) to the number of employees and we compute both the "mean ratio" and the "aggregate ratio".

Table 2 contains some descriptive statistics on the variables used in our analyses. Table 3 provides a description of those variables.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Judicial Inefficacy (ordinary)	450	0.04	1.75	-2.02	9.07
Judicial Inefficacy (verbal)	450	-0.08	1.60	-3.29	7.47
Judicial Inefficacy (monitory)	450	0.08	1.69	-2.33	11.37
Judicial Inefficacy (exchange)	450	0.06	1.72	-2.51	14.61
Judicial Inefficacy (executions)	450	-0.18	1.57	-3.11	12.29
Size-weighted average of the size index	450	1.25	2.32	0.03	16.97
Arithmetic average of the size index	450	0.02	0.01	0.01	0.07
Entry rate	450	10.28	2.75	4.70	20.83
Exit rate	450	5.73	2.16	1.62	18.96
log(GDP)	450	16.20	0.91	14.19	19.08
log(population)	450	13.27	0.85	11.42	15.66
GDP per capita	450	19.44	4.69	10.64	35.23
Unemployment rate	450	6.51	2.57	2.40	17.70
Demographic density	450	120.24	154.67	8.80	784.82
Credit/GDP	450	0.52	0.22	0.19	1.52
Dar/GDP	450	10.35	6.11	0.66	79.73
Npl ratio	450	1.92	2.14	0.27	16.44
Capital intensity (aggregate ratio)	450	96.76	25.03	39.95	192.18
Capital intensity (mean ratio)	450	161.36	66.33	54.52	560.53
Incorporation rate	450	32.50	5.72	19.36	50.99
Vertical Integration (aggregate ratio)	450	0.24	0.03	0.18	0.33
Vertical Integration (mean ratio)	450	0.37	0.02	0.31	0.44
Weight primary	450	6.35	4.55	0.10	22.70
Weight energy	450	3.18	2.84	0.60	18.20
Weight manufacturing	450	14.96	7.40	3.00	38.00
Weight construction	450	11.78	2.43	5.90	20.10
Weight services	450	63.75	7.26	50.30	84.20

Table 3: Description of variables

Subject	Variable in the estimations	Sources	Period	Explanations
Judicial Efficacy	***Judicial Inefficacy***	General Council of the Judiciary (CGPJ)	2001-2009	Linear combination of the congestion rate, the pending cases rate and (the inverse of) the resolution rate.
Firm size	***Arithmetic average of the size index***	SABI	2001-2009	Simple average of the size index, a linear combination of employment, revenue and total assets
Firm size	***SWA (Size-weighted average) of the size index***	SABI	2001-2009	Sum of the size (measured by the size index) of each firm weighted by the proportion of the size of its province it accounts for
Firm dynamics	***Entry rate***	National Statistics Institute (INE)	2001-2009	Number of firms that enter a market in a given year as a percentage of all the active firms in that market at the end of the year.
Firms dynamics	***Exit rate***	National Statistics Institute (INE)	2001-2009	Number of firms that exit a market in a given year as a percentage of all the active firms in that market at the end of the year.
Market size	***log(GDP)***	National Statistics Institute (INE)	2001-2009	Logarithm of the current GDP per capita of the province
Market size	***log(population)***	National Statistics Institute (INE)	2001-2009	Logarithm of the population of the province
Economic Development	***GDP per capita***	National Statistics Institute (INE)	2001-2009	Current GDP per capita of the province
Economic Development	***Unemployment rate***	National Statistics Institute (INE)	2001-2009	
Coordination costs	***Demographic density***	National Statistics Institute (INE)	2001-2009	Population/surface of the province
Credit constraint	***Banking credit to GDP (Credit/GDP)***	Banco de España and INE	2001-2009	Loans to Spanish companies provided by Spanish financial institutions, divided by the GDP of the province.
Credit constraint	***Defaulted accounts receivable to GDP (Dar/GDP)***	National Statistics Institute (INE)	2001-2009	Trade credit in arrears divided by the GDP of the province.
Credit constraint	***Non performing loans ratio of credit institutions (Npl ratio)***	Banco de España	2001-2009	Ratio of non-performing loans to total banking loans (only to Spanish companies by Spanish credit institutions)
Asset protection	***Capital intensity***	SABI	2001-2009	Ratio of capital stock (tangible fixed assets plus inventories) to the number of employees
Investment risks/idiosincratic risks	***Incorporation rate***	INE	2001-2009	Proportion of limited liability companies in the province
Coordination costs/market size	***Vertical integration***	SABI	2001-2009	Ratio of value added to sales, where value added (i.e., revenue minus costs of intermediate inputs) has been corrected for extraordinary positions
Industrial composition	***Weight of the energy/manufactoring/construction/services***	National Statistics Institute (INE)	2001-2009	Ratio of the gross value added of the main five industries (primary sector, energy, manufacturing, construction, services) over the total gross value added of each province

4 Estimation strategy and results

4.1 Estimation strategy

This paper aims to estimate the causal effect of judicial efficacy on firm size. Since both variables vary across time and provinces, panel data regression techniques can be used in order to exploit both the temporal and the geographical variation of the data. Those regressions must be augmented with several other potential determinants of firm size to avoid an omitted variable bias.

Formally the model can be expressed as follows. One option is to fit a model from panel data, exploiting the variability in the size of firms and the judicial system in a given geographical unit (i) through time (t), as follows:

$$Size_{it} = \alpha_i + \beta \cdot Judicial.Inefficacy_{i,t-2} + \sum_{k=1}^{K} \gamma_k \cdot Control_{it}^{k} + \varepsilon_{it}$$

where i=1,...,50 provinces, t=2001,...,2009, $Size_{it}$ is either the arithmetic or the size-weighted average of firm size (in logs), $Judicial.Inefficacy_{it}$ is the measure of judicial inefficacy and $Control_{it}^{k}$ is a set of K control variables.

However, attempting to control for so many factors in samples of moderate size like ours often generates multicollinearity problems, leading to large standard errors of the coefficients. Table 4, which displays the correlation matrix of the variables, reveals high correlations among several ones. Another sign of multicollinearity is the high increase in the standard errors when moving from parsimonious to more complex specifications[24]. Therefore, we decide to control for the factors explained above separately, in several regressions with few independent variables, in order to ascertain whether judicial efficacy is a robust determinant of firm size or not.

Finally, it is worth discussing the possible endogeneity of the variables that capture judicial efficacy. Several arguments suggest that judicial services in Spain may be exogenous to the average firm size in each province. First, the geographical distribution of the judiciary in Spain is based on a very old territorial structure that dates from 1833[25], when provinces were established. Such a structure divided the territory into more or less similar regions in terms of surface, but not similar in terms of their economic activity or their population. Although the number of individual courts in each province has changed over time in response to changing populations (which certainly has to do with economic activity), the structure of the judiciary in Spain is still inspired by the historical territorial structure. Second, the courts considered in this study ("*juzgados de primera instancia*" and "*juzgados de primera instancia e instruccion*") are not specialized courts and resolve a wide range of conflicts, many of them totally unrelated to corporate decisions (e.g. evictions, inheritance conflicts, etc). Thus the distribution of those courts is not necessarily influenced by the distribution of conflicts relevant

24. Results available upon request.

25. Royal Decree of 30 November 1833 on the civil division of Spanish territory in 49 provinces. The basic law governing the judiciary in Spain nowadays is from 1985 (Law 6/1985 of 1 July on the Judiciary), which repealed the previous basic rules of 1870, 1882 and 1944. The year 1985 could be considered recent in time, but the economic activity of the country is radically different today.

to firms' size (for instance, those concentrated in corporate decisions). Judges in Spain are also obliged to process and resolve cases in chronological order of entry, and therefore cannot give preference to a specific type of conflict.

Judicial efficacy should enter the model lagged at least one period. This takes into account that the decisions of companies (among others, to grow or to invest) need some time to be designed and taken after a judgment arrives to the decision bodies of the enterprise (see also Fabbri, 2010 and Mora-Sanguinetti, 2012). This fact would also mitigate any problems of endogeneity of the judicial variables (without prejudice of the reasoning exposed above). Following the reasoning exposed here, it seems appropriate to use a lag higher than one, as the general meetings of shareholders, following Spanish Law, take place, by default, annually (usually in the first six months of each financial year) (other lags are available upon request).

Table 4: Correlation matrix

	Judicial Inefficacy (ordinary)	Judicial Inefficacy (verbal)	Judicial Inefficacy (monitory)	Judicial Inefficacy (exchange)	Judicial Inefficacy (executions)	Size-weighted average of the size index	Arithmetic average of the size index	Entry rate	Exit rate	log(GDP)	log(population)	GDP per capita	Unemployment rate
Judicial Inefficacy (ordinary)	1												
Judicial Inefficacy (verbal)	0.90	1											
Judicial Inefficacy (monitory)	0.83	0.77	1										
Judicial Inefficacy (exchange)	0.74	0.67	0.82	1									
Judicial Inefficacy (executions)	-0.01	0.12	0.19	0.16	1								
Size-weighted average of the size index	0.03	0.08	0.01	0.07	0.07	1							
Arithmetic average of the size index	0.01	0.03	0.00	0.05	-0.02	0.76	1						
Entry rate	0.13	0.07	0.17	0.16	-0.29	-0.06	0.00	1					
Exit rate	0.30	0.38	0.35	0.28	0.35	0.06	0.02	-0.22	1				
log(GDP)	0.14	0.21	0.23	0.17	0.24	0.58	0.61	0.13	0.34	1			
log(population)	0.22	0.30	0.30	0.23	0.18	0.52	0.49	0.22	0.34	0.97	1		
GDP per capita	-0.26	-0.24	-0.18	-0.15	0.22	0.37	0.60	-0.26	0.06	0.37	0.12	1	
Unemployment rate	-0.01	0.12	-0.07	-0.13	0.27	-0.02	-0.15	-0.40	0.36	0.12	0.20	-0.25	1
Demographic density	0.13	0.16	0.18	0.15	0.07	0.64	0.68	0.06	0.16	0.81	0.76	0.37	0.00
Credit/GDP	-0.10	0.02	-0.05	-0.03	0.31	0.46	0.52	-0.19	0.19	0.45	0.36	0.42	0.19
Dar/GDP	0.08	0.19	0.11	0.08	0.29	0.09	0.04	-0.21	0.36	0.26	0.25	0.06	0.14
Npl ratio	0.09	0.22	0.09	0.03	0.40	0.01	-0.07	-0.51	0.46	0.05	0.04	0.04	0.51
Capital intensity (aggregate ratio)	-0.17	-0.08	-0.16	-0.15	0.22	0.20	0.38	-0.24	0.13	0.20	0.08	0.46	0.20
Capital intensity (mean ratio)	-0.13	-0.03	-0.06	-0.12	0.26	0.27	0.48	-0.19	0.18	0.42	0.30	0.51	0.22
Incorporation rate	0.04	0.13	0.18	0.14	0.47	0.40	0.41	-0.05	0.33	0.64	0.52	0.54	0.10
Vertical integration (aggregate ratio)	0.03	0.05	0.12	0.05	0.19	0.00	0.09	-0.14	0.20	0.26	0.24	0.12	0.27
Vertical integration (mean ratio)	-0.17	-0.08	-0.09	-0.09	0.36	0.30	0.38	-0.47	0.32	0.37	0.24	0.56	0.35
Weight primary	-0.06	-0.12	-0.15	-0.15	-0.21	-0.40	-0.56	0.01	-0.27	-0.70	-0.61	-0.46	-0.09
Weight energy	-0.05	-0.11	-0.05	0.03	0.08	-0.04	-0.11	-0.15	-0.11	-0.16	-0.15	-0.09	0.05
Weight manufacturing	-0.08	-0.10	-0.21	-0.06	-0.20	0.21	0.39	-0.07	-0.15	0.04	-0.07	0.43	-0.42
Weight construction	-0.21	-0.14	-0.17	-0.19	0.17	-0.30	-0.40	0.08	0.07	-0.19	-0.15	-0.20	0.27
Weight services	0.20	0.27	0.38	0.21	0.24	0.16	0.13	0.10	0.35	0.52	0.57	-0.05	0.38

	Demographic density	Credit/GDP	Dar/GDP	Npl ratio	Capital intensity (aggregate ratio)	Capital intensity (mean ratio)	Incorporation rate	Vertical integration (aggregate ratio)	Vertical integration (mean ratio)	Weight primary	Weight energy	Weight manufacturing	Weight construction
Demographic density	1												
Credit/GDP	0.37	1											
Dar/GDP	0.13	0.33	1										
Npl ratio	-0.01	0.14	0.26	1									
Capital intensity (aggregate ratio)	0.14	0.59	0.24	0.15	1								
Capital intensity (mean ratio)	0.34	0.66	0.22	0.11	0.69	1							
Incorporation rate	0.45	0.59	0.33	0.20	0.38	0.54	1						
Vertical integration (aggregate ratio)	0.27	0.15	0.00	0.16	0.31	0.27	0.15	1					
Vertical integration (mean ratio)	0.28	0.47	0.15	0.35	0.46	0.43	0.50	0.47	1				
Weight primary	-0.58	-0.39	-0.15	-0.02	-0.36	-0.46	-0.48	-0.43	-0.58	1			
Weight energy	-0.13	-0.19	-0.03	0.01	0.00	-0.19	-0.14	0.20	0.05	-0.09	1		
Weight manufacturing	0.08	0.12	0.04	-0.19	0.03	-0.01	0.01	-0.12	0.16	-0.20	-0.14	1	
Weight construction	-0.30	-0.03	0.00	0.08	0.09	0.04	0.00	-0.01	-0.09	0.15	0.14	-0.58	1
Weight services	0.43	0.21	0.07	0.19	0.17	0.35	0.34	0.32	0.21	-0.44	-0.24	-0.65	0.11

4.2 Results

We have carried out the empirical analysis for each type of procedure (ordinary, verbal, monitory, exchange and executions). For brevity of exposition, we shall only display in the following sections the results for ordinary judgments and executions, leaving the analysis of the verbal ones for Appendix D. The results corresponding to monitory and exchange are available upon request.

We expect the declaratory judgments (ordinary, verbal, monitory and exchange) to have a very similar impact on firm size as, under Spanish law, they deal with the same subjects, usually just differing in the amount of the conflict. Executions, however, as it was explained above, have a different nature and take place later than the declaratory judgments. The correlations of our key variable Judicial Inefficacy among those procedures corroborate this argument. As we can observe in Table 5, executions are orthogonal to ordinary judgments and lowly correlated with the rest of procedures, while all types of declaratory judgments are highly correlated among each other, with correlations ranging between 0.7 and 0.8 in most cases.

Table 5: Correlations of Judicial Inefficacy among the different procedures.

	ordinary	verbal	monitory	exchange	executions
ordinary	1.0000				
verbal	0.8696	1.0000			
monitory	0.8282	0.7232	1.0000		
exchange	0.7432	0.6340	0.8220	1.0000	
executions	-0.0014	0.1833	0.1334	0.1154	1.0000

4.2.1 ORDINARY JUDGMENTS.

We start the analysis with ordinary judgments because, as previously discussed, they are considered the most relevant civil procedures for companies. We run several regressions where the dependent variable is the log of the size-weighted mean of firm size. Our key regressor is Judicial Inefficacy. We expect it to be negatively correlated with the dependent variable, since higher values indicate more inefficacy. Each regression differs in the set of controls chosen, in order to account for the different factors that might influence on firms' size and avoid multicollinearity problems.

All regressions take into account fixed effects by using the within-group estimator. We have tested the convenience of including fixed effects instead of random effects via Hausman tests and the significance of the fixed effects via cross-section poolability tests[26]. We do not include time dummies because they are highly collinear with some of the controls, which are very pro-cyclical (credit, GDP, etc).

In order to control for spatial effects in the size distribution of firms, we use Driscoll and Kraay (1998) standard errors, which are robust to cross-section correlation, intra-group serial correlation and heteroskedasticity. Substantial cross-section correlation has been found

26. Results of both tests are available upon request.

through the CD test of Pesaran (2004) and the average of the absolute value of the cross-section correlation coefficients of the regression residuals, which is around 0.5 in all specifications. The presence of this type of dependence in the disturbance makes statistical inference based on the commonly used clustered standard errors invalid.

Table 6 displays the first set of regressions where the dependent variable is either the log of the size-weighted average of the size index (Panel A) or the log of its arithmetic mean (Panel B). Regression (0) is the baseline specification, where the only controls are the fixed effects. Regression (1) controls for market size, proxied by the log of population. Market size could alternatively be measured as the log of GDP, but its correlation with the log of population is 0.95, so that the selection of either proxy does not substantially change our results. Regression (2) takes into account economic development by including GDP per capita and the unemployment rate. Coordination costs are taken into account in regression (3) by including demographic density. Credit constraints are captured in regressions (4a), (4b) and (4c) using different proxies: credit to GDP, the non-performance loan (npl) ratio and defaulted accounts receivable (dar) to GDP. Differences in sectoral composition across provinces and time are explored in regression (5) with the weight of each industry in the total economy in terms of value added[27]. Regression (6) includes all controls at the same time.

In Panel A we can observe that the variable Judicial Inefficacy has a negative and statistically significant coefficient which is robust to all specifications. We can evaluate the economic significance of the effect by means of a hypothetical simple experiment. Attributing to the province with the worst judicial efficacy the best law enforcement in our sample, its average firm size would increase between a 5.7 and a 12.1 percent, depending on the specification[28]. Therefore, the impact of judicial efficacy on firm size is also economically relevant.

The results of Panel B are similar to those of Panel A: Judicial Inefficacy has a negative and statistically significant coefficient, robust to all specifications. However, the effect is smaller: attributing to the province with the worst judicial efficacy the best law enforcement in our sample, its average firm size would increase between a 0.8 and a 5.7 percent, depending on the specification.

27. In order to avoid multicollinearity one of the five weights, the one corresponding to the primary sector, is not included.

28. The province with the best law enforcement (i.e., lowest value of Judicial Inefficacy) is Alava, with an average value of Judicial Inefficacy of -1.16 for the period 2001-2009, while the province with the worst law enforcement (i.e. highest value of Judicial Inefficacy) is Alicante, with an average value of Judicial Inefficacy of 1.42 for the same period. Therefore, the simulated change amounts to -1.16-1.42=-2.58.

Table 6: Impact of judicial inefficacy on firm size: ordinary judgments

Panel A

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**-0.044*** **	**-0.030*** **	**-0.025*** **	**-0.037*** **	**-0.026*** **	**-0.044*** **	**-0.043*** **	**-0.047*** **	**-0.022*** **
	(0.007)	**(0.008)**	**(0.005)**	**(0.007)**	**(0.003)**	**(0.008)**	**(0.007)**	**(0.009)**	**(0.005)**
Log (population)		1.358***							1.570***
		(0.362)							(0.573)
GDP per capita			0.030***						0.042***
			(0.006)						(0.014)
Unemployment rate			0.001						0.037***
			(0.004)						(0.009)
Demographic density				0.004***					-0.006***
				(0.001)					(0.001)
Credit/GDP					0.510***				0.473***
					(0.053)				(0.115)
Npl ratio						-0.005			-0.035***
						(0.004)			(0.005)
Dar/GDP							0.001*		-0.002
							(0.001)		(0.001)
Weight energy								-0.030	-0.041*
								(0.028)	(0.023)
Weight manufacturing								-0.030	-0.027
								(0.033)	(0.035)
Weight construction								-0.025***	-0.083***
								(0.005)	(0.013)
Weight services								-0.014	-0.048*
								(0.022)	(0.026)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	4.65	5.94	6.18	5.20	7.00	4.73	4.67	5.15	11.50
CD test	8.01***	3.71***	1.99**	5.41***	2.16**	8.73***	7.65***	7.89***	0.26
Average cross-section correlation	0.45	0.43	0.42	0.44	0.43	0.46	0.45	0.44	0.44

Panel B

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**-0.020*** **	**-0.018*** **	**-0.013*** **	**-0.020*** **	**-0.015*** **	**-0.022*** **	**-0.020*** **	**-0.011** **	**-0.003*** **
	(0.005)	**(0.006)**	**(0.005)**	**(0.005)**	**(0.003)**	**(0.005)**	**(0.005)**	**(0.004)**	**(0.001)**
Log (population)		0.157							0.693**
		(0.324)							(0.323)
GDP per capita			0.023***						0.014**
			(0.006)						(0.006)
Unemployment rate			-0.020***						-0.020***
			(0.004)						(0.006)
Demographic density				0.000					0.001
				(0.001)					(0.001)
Credit/GDP					0.164**				0.069
					(0.080)				(0.051)
Npl ratio						-0.013***			-0.010***
						(0.004)			(0.003)
Dar/GDP							-0.001		-0.001
							(0.001)		(0.002)
Weight energy								-0.011	0.010*
								(0.011)	(0.005)
Weight manufacturing								0.006	0.005
								(0.005)	(0.006)
Weight construction								0.031***	0.016*
								(0.003)	(0.009)
Weight services								-0.002	0.008***
								(0.007)	(0.003)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	12.65	12.87	29.67	12.67	15.76	20.48	12.91	22.40	38.24
CD test	37.19***	36.78***	20.24***	36.93***	34.78***	32.94***	37.35***	28.95***	12.63***
Average cross-section correlation	0.57	0.58	0.46	0.57	0.59	0.51	0.57	0.49	0.42

The dependent variable is the log of the *size-weighted* average of the size index in Panel A and the log of the *arithmetic* average of the size index in Panel B. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The last column reports the average absolute value of the cross-section correlation coefficients of the regression residuals. *** p<0.01, ** p<0.05, * p<0.1

Table 7 shows regressions where another determinant of firm size is controlled for, namely Incorporation Rate (proportion of limited liability companies). This variable differs from the previous ones in the fact that it may have both a direct and an indirect effect on firm size through its interaction with Judicial Inefficacy, as shown in Laeven and Woodruff (2007). Other two regressors which could interact with Judicial Inefficacy, Capital Intensity and Vertical Integration, are not examined because they are endogenous by construction[29].

In Panel A we first test whether Incorporation Rate has a direct effect in regression (1a), turning out that it has a positive impact on firm size. We then test whether it has an indirect effect in regression (1b) by inspecting the significance and sign of its interaction with Judicial Inefficacy. The interaction is negative and statistically significant, suggesting that the negative impact of judicial inefficacy on firm size is higher for incorporated firms, which contradicts the finding of Laeven and Woodruff (2007).

In the case of the direct effect of Judicial Inefficacy, the variable keeps having a negative and significant impact on average firm size[30]. In (1a), since there are no interaction terms, one must examine the individual significance of its coefficient. In (1b), where there is an interaction term, one must examine the joint significance of its coefficient and the interaction via an F-test, as reported in the last row of the panel. In terms of economic significance, attributing to the province with the worst judicial efficacy the best law enforcement in our sample, its average firm size would increase between a 7.5 and a 10.3 percent, depending on the specification. Therefore, the impact of judicial efficacy on firm size is also economically relevant.

Panel B shows analogous regressions to those in Panel A but using the log of the arithmetic mean of firm size as the dependent variable. We can again observe that Judicial Inefficacy has a negative and significant impact on average firm size. In terms of economic significance, attributing to the province with the worst judicial efficacy the best law enforcement in our sample, its average firm size would increase between a 4.2 and a 4.9 percent, depending on the specification. But here there exists an important difference with respect to the estimations of Panel A: the interaction term is not significant. Therefore, it seems that the effect of incorporation rate on the relationship between judicial efficacy and firm size is not robust to the selected measure of the latter.

29. Notice that our dependent variable, the size index, is a linear combination of total assets, revenue and employment, which are used to construct Capital Intensity and Vertical Integration.

30. In (1b) the total impact of Judicial Inefficacy on firm size is 0.117-0.005*incorporation rate. Evaluating this function at the mean of incorporation rate, 31.42, we obtain a value of -0.04.

Table 7: Impact of judicial inefficacy on firm size: ordinary judgments (interactions)

Panel A

	(1a) Incorporation Rate	(1b) Incorporation Rate
Judicial Inefficacy (t-2)	**-0.029*** **	**0.117*** **
	(0.007)	**(0.022)**
Incorporation rate	0.022***	0.021***
	(0.007)	(0.007)
Judicial Inefficacy (t-2)* Incorporation rate		**-0.005*** **
		(0.001)
Fixed Effects	Yes	Yes
Observations	350	350
Cross sections	50	50
R-squared	5.79	6.82
CD test	2.90***	2.11**
Average cross-section correlation	0.43	0.42
F-statistic for Judicial Inefficacy (t-2)		14.49***

Panel B

	(1a) Incorporation Rate	(1b) Incorporation Rate
Judicial Inefficacy (t-2)	**-0.019** **	**-0.016**
	(0.008)	**(0.010)**
Incorporation rate	0.001	
	(0.010)	
Judicial Inefficacy (t-2)* Incorporation rate		**-0.000**
		(0.000)
Fixed Effects	Yes	Yes
Observations	350	350
Cross sections	50	50
R-squared	12.71	12.66
CD test	37.09***	37.11***
Average cross-section correlation	0.58	0.57
F-statistic for Judicial Inefficacy (t-2)		9.19***

The dependent variable is the log of the size-weighted average of the size index in Panel A and log of the *arithmetic* average of the size index in Panel B. All regressions include a constant. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The average cross-section correlation is measured by the average absolute value of the cross-section correlation coefficients of the regression residuals. The last column shows the F-test on the joint significance of the coefficient on Judicial Inefficacy and its interaction. *** p<0.01, ** p<0.05, * p<0.1

The main result of the analysis of verbal judgments (displayed in Appendix D) is the same as in the case of ordinary: judicial inefficacy has a negative impact on firm size, which is robust to all specifications. The analyses of *monitorios* and *cambiarios* –available upon request- also yield the same conclusion.

4.2.2 EXECUTIONS.

The methodology for the analysis of executions is identical to that for ordinary judgments. The first set of results is displayed in Table 8. In Panel A, where the measure of firm size is the size-weighted average, Judicial Inefficacy always has a positive and significant coefficient, at variance with the findings of the previous section. By contrast, in Panel B, where the measure of firm size is the arithmetic average, that coefficient is not significant in most specifications (though positive when significant), indicating that judicial efficacy *in executions* is not a robust determinant of firm size. A possible interpretation of these findings is that firms make their business decisions solely based on their expectations about the quality of legal enforcement in the first –and usually the only- stage of the process (the declaratory judgement), which mainly corresponds to ordinary (or verbal, cambiario, monitorio) judgments. That is, the enterprise does not take into account the efficacy in the resolution of executions, because the ruling of the judge in that first step is generally sufficient to make the contract parties abide by the Law. There may be several explanations for this: late penalties (the company that has lost the declaratory judgment may have to compensate for the costs incurred if it does not comply with the declaratory judgment upfront), risk aversion (although companies may decide not to comply with declarative judgments, we can see that, in most cases, companies immediately comply with them, this may be due to an internalization of social values, which does not have to be strictly a rational behavior) or even reputation (there is an immediate damage to the reputation of the company when it loses a trial, whether or not it decides to comply with the obligations imposed by the judge in the judgment).

Table 8: Impact of judicial inefficacy on firm size: executions

Panel A

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**0.077*** **	**0.046*** **	**0.037** **	**0.057*** **	**0.041** **	**0.080*** **	**0.076*** **	**0.068*** **	**0.028** **
	(0.019)	**(0.013)**	**(0.015)**	**(0.015)**	**(0.016)**	**(0.018)**	**(0.019)**	**(0.015)**	**(0.013)**
Log (population)		1.763***							1.718***
		(0.467)							(0.580)
GDP per capita			0.037***						0.045***
			(0.005)						(0.011)
Unemployment rate			0.000						0.038***
			(0.005)						(0.007)
Demographic density				0.006***					-0.006***
				(0.001)					(0.001)
Credit/GDP					0.606***				0.468***
					(0.101)				(0.116)
Npl ratio						-0.006			-0.037***
						(0.005)			(0.005)
Dar/GDP							0.001		-0.002
							(0.001)		(0.001)
Weight energy								-0.039	-0.043*
								(0.026)	(0.022)
Weight manufacturing								-0.030	-0.025
								(0.032)	(0.035)
Weight construction								0.002	-0.074***
								(0.010)	(0.015)
Weight services								-0.009	-0.047*
								(0.025)	(0.026)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	2.56	5.08	5.65	3.77	6.33	2.69	2.57	3.36	11.16
CD test	9.03***	2.76***	0.36	4.73***	1.42	9.64***	8.92***	6.34***	-0.77
Average cross-section correlation	0.45	0.44	0.42	0.44	0.43	0.45	0.45	0.44	0.41

Panel B

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**0.020**	**0.010**	**0.004**	**0.014**	**0.005**	**0.027** **	**0.020***	**0.008***	**-0.004**
	(0.013)	**(0.007)**	**(0.004)**	**(0.010)**	**(0.009)**	**(0.010)**	**(0.012)**	**(0.004)**	**(0.004)**
Log (population)		0.552*							0.737**
		(0.317)							(0.320)
GDP per capita			0.029***						0.016***
			(0.005)						(0.006)
Unemployment rate			-0.019***						-0.020***
			(0.004)						(0.006)
Demographic density				0.002*					0.001
				(0.001)					(0.001)
Credit/GDP					0.255***				0.069
					(0.084)				(0.051)
Npl ratio						-0.013***			-0.010***
						(0.004)			(0.003)
Dar/GDP							-0.001		-0.001
							(0.001)		(0.002)
Weight energy								-0.011	0.011**
								(0.012)	(0.005)
Weight manufacturing								0.005	0.006
								(0.005)	(0.006)
Weight construction								0.039***	0.018*
								(0.004)	(0.009)
Weight services								0.001	0.008***
								(0.007)	(0.003)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	2.20	5.38	26.50	3.65	10.78	9.41	2.42	19.92	38.12
CD test	42.76***	40.25***	21.07***	40.78***	37.67***	37.12***	42.31***	27.63***	11.74***
Average cross-section correlation	0.58	0.59	0.48	0.58	0.60	0.53	0.58	0.48	0.42

The dependent variable is the log of the size-weighted average of the size index in Panel A and log of the *arithmetic* average of the size index in Panel B. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The last column reports the average absolute value of the cross-section correlation coefficients of the regression residuals. *** p<0.01, ** p<0.05, * p<0.1

The analysis of Table 9, which controls for a possible interaction between Judicial Inefficacy and Incorporation Rate, shows similar results: the impact of the former is either positive or zero. This suggests, again, that judicial efficacy *in executions* is not a robust determinant of firm size. All these results highlight the importance of taking into account the type of procedure when studying the link between firm size and judicial efficacy.

Table 9: Impact of judicial inefficacy on firm size: executions (interactions)

Panel A

	(1a) Incorporation Rate	(1b) Incorporation Rate
Judicial Inefficacy (t-2)	**0.038****	**-0.016**
	(0.018)	**(0.113)**
Incorporation rate	0.029***	0.030***
	(0.010)	(0.011)
Judicial Inefficacy (t-2)* Incorporation rate		**0.002**
		(0.003)
Fixed Effects	Yes	Yes
Observations	350	350
Cross sections	50	50
R-squared	4.91	4.95
CD test	1.76*	1.72*
Average cross-section correlation	0.42	0.42
F-statistic for Judicial Inefficacy (t-2)		7.63***

Panel B

	(1a) Incorporation Rate	(1b) Incorporation Rate
Judicial Inefficacy (t-2)	**0.008***	**0.075**
	(0.004)	**(0.066)**
Incorporation rate	0.009	
	(0.010)	
Judicial Inefficacy (t-2)* Incorporation rate		**-0.002**
		(0.002)
Fixed Effects	Yes	Yes
Observations	350	350
Cross sections	50	50
R-squared	5.22	2.78
CD test	41.05***	41.97***
Average cross-section correlation	0.61	0.58
F-statistic for Judicial Inefficacy (t-2)		1.51

The dependent variable is the log of the size-weighted average of the size index in Panel A and log of the *arithmetic* average of the size index in Panel B. All regressions include a constant. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The average cross-section correlation is measured by the average absolute value of the cross-section correlation coefficients of the regression residuals. The last column shows the F-test on the joint significance of the coefficient on Judicial Inefficacy and its interaction. *** p<0.01, ** p<0.05, * p<0.1

4.2.3 IMPACT ON FIRM DYNAMICS

The positive impact of judicial efficacy on average firm size, as found in the case of declaratory judgments, could take place because of two different channels, which we can call the intensive and the extensive margin. In the intensive margin higher judicial efficacy makes existing firms grow more, while in the extensive margin it affects firms' decisions to enter or exit a market. Since the average size of the firms that enter and exit the market is much lower than the average size of incumbents in Spain (López-García and Puente, 2007), the positive relationship between judicial efficacy and average firm size could be due to, for instance, more effective courts facilitating exit and hindering entry.

Another reason that motivates the analysis of firm dynamics is the fact that firms' locations are endogenous and may depend on factors such as judicial efficacy. In such a case, if firms prefer regions with more effective Courts and larger firms benefit more from them because of their higher demand for judicial services (or have lower costs of changing their location), then part of the effect we found could be due to an "attraction effect" rather than a "growth-enhancing effect".

In order to study the potential impact of judicial efficacy on firm dynamics we regress entry and exit rates on Judicial Inefficacy –measured for ordinary judgments- and the previous set of controls. Due to data constraints, we only have information on corporate entries and exits, which we divide by the number of corporations in each province and in each year. The regressions for entry rates are displayed in Tables 10 and 11. Table 10 is analogous to the tables in the previous sections. Table 11 shows the results for the variables Capital intensity and Vertical Integration measured as aggregate ratios and mean ratios, respectively, while it excludes the Incorporation Ratio because it would be an endogenous regressor by construction.

The results indicate that judicial efficacy has no impact on entry rates, so that we can rule out any "attraction effect". In Table 10 Judicial Inefficacy is not significant in six out of the nine specifications. In Table 11 it is only statistically different from zero in two cases.

Table 10: Impact of judicial inefficacy on entry rates: ordinary judgments

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**0.171**	**-0.384*** **	**-0.403*** **	**-0.134**	**-0.137**	**0.039**	**0.142**	**-0.077**	**-0.340*** **
	(0.213)	**(0.138)**	**(0.080)**	**(0.160)**	**(0.133)**	**(0.102)**	**(0.157)**	**(0.095)**	**(0.034)**
Log (population)		-55.591***							-16.100***
		(10.879)							(2.997)
GDP per capita			-0.380***						-0.287***
			(0.138)						(0.049)
Unemployment rate			-1.064***						-0.594***
			(0.063)						(0.047)
Demographic density				-0.187***					-0.009
				(0.039)					(0.006)
Credit/GDP					-9.190***				0.788
					(2.650)				(0.483)
Npl ratio						-0.848***			-0.236**
						(0.068)			(0.106)
Dar/GDP							-0.210**		-0.076**
							(0.081)		(0.033)
Weight energy								-0.701***	0.091
								(0.152)	(0.141)
Weight manufacturing								0.486***	0.168*
								(0.113)	(0.096)
Weight construction								0.138	0.221***
								(0.095)	(0.048)
Weight services								-0.719***	0.096
								(0.130)	(0.079)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	1.51	47.40	69.48	23.92	17.59	57.29	22.19	51.73	78.50
CD test	77.04***	48.49***	29.08***	62.72***	64.76***	30.24***	68.02***	21.58***	8.67***
Average cross-section correlation	0.83	0.56	0.46	0.72	0.70	0.49	0.74	0.44	0.37

The dependent variable is the corporate entry rate. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The last column reports the average absolute value of the cross-section correlation coefficients of the regression residuals. *** p<0.01, ** p<0.05, * p<0.1

Table 11: Impact of judicial inefficacy on entry rates: ordinary judgments (interactions)

Panel A

	(1a) Capital Intensity (aggregate ratio)	(1b) Capital Intensity (aggregate ratio)	(3a) Vertical Integration (aggregate ratio)	(3b) Vertical Integration (aggregate ratio)
Judicial Inefficacy (t-2)	**-0.204**	**0.033**	**0.108**	**-0.245**
	(0.141)	**(0.433)**	**(0.158)**	**(0.640)**
Capital intensity	-0.083***	-0.085***		
	(0.016)	(0.017)		
Judicial Inefficacy (t-2)* Capital intensity		**-0.003**		
		(0.005)		
Vertical Integration			-97.776***	-96.973***
			(16.095)	(16.646)
Judicial Inefficacy (t-2)* Vertical integration				**1.445**
				(2.140)
Fixed Effects	Yes	Yes	Yes	Yes
Observations	350	350	350	350
Cross sections	50	50	50	50
R-squared	19.50	19.63	22.78	22.84
CD test	57.86***	57.94***	47.09***	47.11***
Average cross-section correlation	0.65	0.65	0.58	0.58
F-statistic for Judicial Inefficacy (t-2)		1.61		1.40

Panel B

	(1a) Capital Intensity (mean ratio)	(1b) Capital Intensity (mean ratio)	(3a) Vertical Integration (mean ratio)	(3b) Vertical Integration (mean ratio)
Judicial Inefficacy (t-2)	**-0.101**	**-0.035**	**-0.141*** **	**-0.025**
	(0.221)	**(0.406)**	**(0.042)**	**(1.871)**
Capital intensity	-0.023***	-0.023***		
	(0.008)	(0.008)		
Judicial Inefficacy (t-2)* Capital intensity		**-0.000**		
		(0.002)		
Vertical Integration			-141.758***	-141.965***
			(4.883)	(7.923)
Judicial Inefficacy (t-2)* Vertical integration				**-0.322**
				(5.139)
Fixed Effects				
Observations	350	350	350	350
Cross sections	50	50	50	50
R-squared	11.95	11.98	64.26	64.26
CD test	70.20***	70.17***	6.75***	6.73***
Average cross-section correlation	0.76	0.76	0.43	0.43
F-statistic for Judicial Inefficacy (t-2)		0.29		6.27***

The dependent variable is the corporate entry rate. All regressions include a constant. Capital intensity and vertical integration are computed as aggregate ratios in Panel A and as mean rations in Panel B. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean- deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The average cross-section correlation is measured by the average absolute value of the cross-section correlation coefficients of the regression residuals. The last column shows the F-test on the joint significance of the coefficient on Judicial Inefficacy and its interaction. *** p<0.01, ** p<0.05, * p<0.1

The regressions for exit rates are displayed in Tables 12 and 13, showing that Judicial Inefficacy is not a robust determinant of them. In Table 12 it is not significant in five out of the nine specifications. In Table 13 it is only statistically different from zero in two of them. We can conclude that judicial efficacy has no clear impact on exit rates.

The results of this section indicate that judicial efficacy has no significant effect in firm dynamics –at least, in the case of corporations- which implies that the positive impact on average firm size takes place by making existing firms grow more.

Table 12: Impact of judicial inefficacy on exit rates: ordinary judgments

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**-0.264***	**0.045**	**0.076**	**-0.119**	**-0.066**	**-0.186*****	**-0.242****	**-0.100*****	**-0.011**
	(0.134)	**(0.108)**	**(0.088)**	**(0.114)**	**(0.084)**	**(0.062)**	**(0.094)**	**(0.034)**	**(0.046)**
Log (population)		30.946***							7.423***
		(7.102)							(2.243)
GDP per capita			0.252						0.099
			(0.157)						(0.078)
Unemployment rate			0.578***						0.170***
			(0.084)						(0.053)
Demographic density				0.089***					-0.012
				(0.028)					(0.009)
Credit/GDP					5.912***				0.735
					(1.789)				(0.628)
Npl ratio						0.500***			0.178**
						(0.045)			(0.071)
Dar/GDP							0.160**		0.081
							(0.076)		(0.052)
Weight energy								0.631***	0.165
								(0.118)	(0.102)
Weight manufacturing								0.016	0.124
								(0.137)	(0.106)
Weight construction								0.061	-0.003
								(0.169)	(0.164)
Weight services								0.629***	0.211***
								(0.102)	(0.064)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	5.63	27.89	39.10	13.58	16.05	36.00	24.46	35.91	49.40
CD test	64.98***	43.14***	42.88***	54.20***	55.92***	33.68***	50.62***	33.02***	21.37***
Average cross-section correlation	0.71	0.51	0.50	0.62	0.62	0.48	0.57	0.44	0.37

The dependent variable is the corporate exit rate. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The last column reports the average absolute value of the cross-section correlation coefficients of the regression residuals. *** p<0.01, ** p<0.05, * p<0.1

Table 13: Impact of judicial inefficacy on exit rates: ordinary judgments (interactions)

Panel A

	(1a) Capital Intensity (aggregate ratio)	(1b) Capital Intensity (aggregate ratio)	(3a) Vertical Integration (aggregate ratio)	(3b) Vertical Integration (aggregate ratio)
Judicial Inefficacy (t-2)	**-0.032**	**-0.323**	**-0.230****	**-0.092**
	(0.079)	**(0.332)**	**(0.107)**	**(0.435)**
Capital intensity	0.051***	0.054***		
	(0.012)	(0.014)		
Judicial Inefficacy (t-2)* Capital intensity		**0.004**		
		(0.004)		
Vertical Integration			51.776***	51.461***
			(7.783)	(8.033)
Judicial Inefficacy (t-2)* Vertical integration				**-0.568**
				(1.408)
Fixed Effects	Yes	Yes	Yes	Yes
Observations	350	350	350	350
Cross sections	50	50	50	50
R-squared	16.33	16.65	14.97	14.99
CD test	55.14***	55.19***	54.46***	54.48***
Average cross-section correlation	0.61	0.61	0.61	0.61
F-statistic for Judicial Inefficacy (t-2)		0.49		8.68***

Panel B

	(1a) Capital Intensity (mean ratio)	(1b) Capital Intensity (mean ratio)	(3a) Vertical Integratio (mean ratio)	(3b) Vertical Integration (mean ratio)
Judicial Inefficacy (t-2)	**-0.109**	**-0.281**	**-0.078**	**-1.955**
	(0.104)	**(0.235)**	**(0.053)**	**(1.362)**
Capital intensity	0.013**	0.014**		
	(0.006)	(0.006)		
Judicial Inefficacy (t-2)* Capital intensity		**0.001**		
		(0.001)		
Vertical Integration			84.294***	87.633***
			(9.394)	(10.485)
Judicial Inefficacy (t-2)* Vertical integration				**5.187**
				(3.773)
Fixed Effects				
Observations	350	350	350	350
Cross sections	50	50	50	50
R-squared	10.94	11.30	40.37	40.96
CD test	60.96***	61.04***	25.98***	25.65***
Average cross-section correlation	0.66	0.66	0.41	0.40
F-statistic for Judicial Inefficacy (t-2)		0.73		2.31

The dependent variable is the corporate exit rate. All regressions include a constant. Capital intensity and vertical integration are computed as aggregate ratios in Panel A and as mean rations in Panel B. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean- deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The average cross-section correlation is measured by the average absolute value of the cross-section correlation coefficients of the regression residuals. The last column shows the F-test on the joint significance of the coefficient on Judicial Inefficacy and its interaction. *** p<0.01, ** p<0.05, * p<0.1

5 Conclusions

Consistent with the results found by the literature for other economies, this research shows that Spanish firms are larger in provinces with more effective courts, i.e. judicial efficacy has a positive effect on firms' size. This is the first time this effect has been confirmed for the case of Spain after the new Civil Procedural Law was passed (2000). However, the effect critically depends on the type of procedure, an important issue overlooked in the previous literature. Specifically, we find that judicial efficacy at the declaratory stage (i.e. when a debt is declared and recognised by a judge) has a positive impact on firm size, while judicial efficacy at the execution stage (i.e. when the judge requires the payment of it) has no significant impact whatsoever. Various reasons may be influencing this fact: penalties for delayed payment, risk aversion, internalisation of social values and reputation. We also find no impact of judicial efficacy on entry and exit rates, implying that its impact on average firm size takes place through a "growth-enhancing" effect rather than through business demography.

Another contribution of the paper is to use more consistent measures of judicial efficacy and firm size than the previous literature on this subject. We construct measures of judicial efficacy with real performance data extracted from the courts and not survey data or statistical estimations. We gauge firm size by combining several indicators, so that our measure is robust to differences in capital-labour ratios and industry idiosyncrasies.

The results of this study have clear policy implications. Since Spanish firms are small in international terms and there is a positive relationship between firm size and TFP growth, the results suggest that the role of the judicial system should not be overlooked. Moreover, this study identifies the specific procedures and the stages within those procedures with a greater impact on enterprise performance in Spain.

Appendix A: geographical and time variation of judicial efficacy

Table A1: Judicial congestion rate (ordinary procedures)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	2,33	1,58	1,63	1,50	1,70	1,89	1,36	1,36	1,46	1,65
Albacete	3,21	1,72	1,81	1,72	1,66	1,72	1,90	2,49	2,29	2,06
Alicante	4,98	2,42	2,40	2,27	2,23	2,55	2,48	2,81	3,09	2,80
Almeria	3,90	2,13	1,99	2,13	2,05	2,32	2,35	2,70	3,05	2,51
Avila	3,83	1,82	1,71	1,69	1,52	1,65	1,63	2,20	1,67	1,97
Badajoz	2,49	1,68	1,64	1,65	1,69	1,88	1,89	2,20	2,27	1,93
Baleares	4,03	2,27	2,14	2,07	2,31	2,37	2,27	2,99	2,90	2,59
Barcelona	4,20	2,27	2,17	2,06	1,98	2,05	1,93	2,05	2,29	2,33
Burgos	2,97	1,75	1,86	1,76	1,68	1,86	1,74	1,94	1,81	1,93
Caceres	2,60	1,60	1,51	1,53	1,63	1,67	1,60	2,13	2,11	1,82
Cadiz	4,02	2,29	2,06	1,97	1,99	2,08	2,06	2,42	2,61	2,39
Castellon	4,28	2,42	2,18	2,17	2,17	2,28	2,35	2,56	2,87	2,59
Ciudad Real	3,09	2,07	1,99	2,02	2,06	2,02	2,11	2,71	2,44	2,28
Cordoba	3,80	1,84	1,93	1,79	1,73	1,71	1,78	2,02	2,46	2,12
La Coruña	4,24	2,24	2,09	1,90	1,85	2,12	2,11	2,11	2,09	2,30
Cuenca	3,06	1,92	1,77	2,12	1,81	2,14	2,19	2,50	2,49	2,22
Gerona	4,07	2,16	2,16	2,16	2,02	2,01	2,08	2,26	2,35	2,36
Granada	4,71	2,26	2,20	2,04	2,12	2,16	2,21	2,19	2,19	2,45
Guadalaja	3,15	2,01	2,22	2,09	1,87	1,89	2,03	2,05	2,48	2,20
Guipuzcoa	2,71	1,66	1,66	1,51	1,72	1,84	2,10	1,92	2,05	1,91
Huelva	3,73	2,02	1,98	1,94	2,04	2,23	2,38	2,31	2,54	2,35
Huesca	3,32	1,71	1,67	1,69	1,75	1,99	1,90	2,15	2,11	2,03
Jaen	2,94	1,74	1,83	1,83	1,91	2,23	1,87	1,95	2,00	2,03
Leon	2,94	1,76	1,67	1,61	1,68	1,62	1,71	2,08	1,80	1,87
Lerida	2,57	1,73	1,85	1,85	1,84	1,93	1,96	2,09	2,01	1,98
La Rioja	2,70	1,99	1,92	1,98	1,84	1,81	1,65	2,21	1,84	1,99
Lugo	3,08	2,01	1,77	1,64	1,72	1,67	1,68	1,64	1,89	1,90
Madrid	3,76	2,15	2,24	2,15	2,14	2,23	2,11	2,33	2,60	2,41
Malaga	3,88	2,32	2,34	2,15	2,21	2,46	2,46	2,62	2,98	2,60
Murcia	4,70	2,35	2,32	2,08	2,19	2,26	2,08	3,25	3,05	2,70
Navarra	2,86	1,88	1,83	1,84	1,58	1,54	1,48	1,72	1,87	1,84
Orense	3,12	1,99	1,86	1,93	1,84	1,74	1,78	2,10	2,24	2,07
Asturias	3,12	1,75	1,74	1,67	1,69	1,62	1,73	1,99	1,82	1,90
Palencia	2,16	1,67	1,53	1,42	1,50	1,82	1,74	2,01	1,97	1,76
Las Palma	5,02	2,45	2,21	2,21	2,30	2,59	2,73	2,80	2,83	2,79
Pontevedra	4,05	2,36	2,10	1,87	1,94	2,01	1,98	2,31	2,35	2,33
Salamanca	2,46	1,69	1,68	1,56	1,46	1,74	1,72	2,30	2,03	1,85
S.C.Tenerife	4,44	2,20	2,22	2,11	2,19	2,31	2,23	2,65	2,93	2,59
Cantabria	2,93	1,74	1,74	1,83	1,87	1,86	1,88	2,09	2,08	2,00
Segovia	3,14	1,58	1,82	1,74	1,66	1,73	1,90	2,60	2,10	2,03
Sevilla	4,53	2,09	2,10	1,84	1,94	2,09	2,25	2,78	3,07	2,52
Soria	2,86	1,70	1,64	1,56	1,67	1,73	1,46	2,10	1,78	1,83
Tarragona	5,37	2,35	2,24	2,01	1,98	2,11	1,99	2,22	2,32	2,51
Teruel	2,47	1,64	1,67	1,55	1,44	1,97	1,78	1,77	1,74	1,78
Toledo	3,72	2,06	1,88	2,03	2,03	2,17	2,34	3,15	3,14	2,50
Valencia	5,39	2,42	2,35	2,21	2,23	2,39	2,36	2,47	2,69	2,72
Valladolid	2,33	1,67	1,73	1,69	1,61	1,86	1,78	2,13	1,93	1,86
Vizcaya	3,69	1,76	1,84	1,88	1,84	1,93	1,67	1,49	1,69	1,98
Zamora	2,94	1,90	1,60	1,71	1,57	1,75	1,90	2,17	1,82	1,93
Zaragoza	2,99	1,82	1,85	1,82	1,67	1,71	1,66	1,75	2,04	1,92
MEAN	3,50	1,97	1,93	1,87	1,86	1,99	1,97	2,26	2,29	2,18

Table A2: Judicial congestion rate (executive procedures)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	1.54	1.84	1.47	2.17	3.74	1.57	2.18	2.87	1.91	2.14
Albacete	3.68	2.83	4.14	2.95	2.96	2.47	3.35	4.39	4.84	3.51
Alicante	3.61	4.27	5.55	4.19	5.13	5.55	4.90	6.26	6.48	5.10
Almeria	3.00	4.00	3.63	3.69	3.24	3.44	3.77	5.00	6.13	3.99
Avila	2.45	1.83	2.74	2.65	3.53	4.95	3.44	4.85	3.40	3.32
Badajoz	2.85	2.96	2.94	2.95	3.43	3.63	4.22	4.53	5.70	3.69
Baleares	3.20	3.19	4.36	5.37	5.70	7.66	8.52	7.50	8.12	5.96
Barcelona	3.83	4.54	4.93	4.59	4.45	4.68	4.65	5.35	5.41	4.72
Burgos	2.41	3.09	2.95	2.74	3.07	2.93	2.81	3.33	3.61	2.99
Caceres	3.48	4.98	3.44	4.14	3.09	3.24	3.97	5.53	5.82	4.19
Cadiz	3.61	3.32	3.32	3.74	3.09	4.46	3.83	4.22	5.56	3.91
Castellon	4.50	5.30	9.49	5.76	5.20	6.32	5.45	5.87	6.25	6.02
Ciudad Real	3.95	5.21	6.92	4.04	4.84	4.54	4.91	6.76	6.42	5.29
Cordoba	2.51	2.80	3.07	4.26	3.45	3.37	2.79	3.04	3.55	3.20
La Coru–a	3.47	3.58	3.12	3.58	3.85	4.17	4.13	4.17	4.53	3.84
Cuenca	3.19	4.88	4.07	3.94	5.13	5.47	4.29	7.12	5.09	4.80
Gerona	2.86	3.90	3.98	4.23	3.96	4.48	4.84	4.86	4.90	4.22
Granada	2.64	3.04	3.45	4.07	3.71	5.39	3.92	3.83	4.44	3.83
Guadalajara	4.89	4.04	4.55	4.57	3.21	3.79	4.73	7.39	5.16	4.70
Guipuzcoa	2.18	1.90	1.74	2.02	2.31	2.62	2.29	2.66	3.04	2.31
Huelva	3.15	3.12	2.88	3.18	3.78	4.68	3.74	5.84	6.68	4.12
Huesca	2.64	3.44	3.61	2.80	2.95	3.03	3.65	4.92	3.66	3.41
Jaen	2.84	2.53	3.31	3.18	3.20	3.22	3.02	3.00	3.36	3.08
Leon	3.46	3.71	4.45	3.14	3.93	3.12	4.97	7.00	3.86	4.18
Lerida	3.96	3.80	4.86	4.01	4.19	4.14	4.65	7.87	8.40	5.10
La Rioja	2.61	2.32	2.77	3.67	3.65	3.27	3.21	3.42	3.15	3.12
Lugo	2.69	2.80	2.53	2.36	2.75	3.43	3.84	3.45	3.34	3.02
Madrid	3.86	4.35	5.03	5.01	4.74	5.26	5.12	5.40	5.51	4.92
Malaga	3.04	3.30	3.30	3.62	3.56	3.79	3.63	4.93	5.99	3.91
Murcia	5.30	4.37	4.04	4.42	5.17	5.24	4.56	5.98	6.74	5.09
Navarra	2.59	4.11	3.44	3.77	4.18	4.76	3.80	4.32	7.44	4.27
Orense	3.62	2.68	3.11	3.35	4.05	4.12	4.17	4.25	6.37	3.97
Asturias	3.87	3.97	4.09	3.69	4.02	3.83	4.11	4.50	4.12	4.02
Palencia	3.05	2.97	2.65	4.17	4.11	3.46	4.23	4.06	6.79	3.94
Las Palmas	3.13	4.26	5.29	4.36	4.66	4.67	4.57	5.01	4.62	4.51
Pontevedra	3.01	3.01	3.06	3.07	3.48	4.68	3.83	5.13	4.46	3.75
Salamanca	2.11	2.81	2.35	2.59	2.30	3.12	2.81	3.97	4.27	2.92
S.C.Tenerife	3.22	3.00	4.18	4.40	5.30	4.78	4.64	6.41	6.20	4.68
Cantabria	2.97	3.03	3.32	3.27	3.81	3.56	3.03	4.57	5.17	3.64
Segovia	2.51	2.77	3.12	3.29	2.62	3.65	3.55	5.42	5.22	3.57
Sevilla	2.75	3.10	3.62	3.44	3.13	4.21	4.80	4.89	4.97	3.88
Soria	3.85	2.61	3.52	2.04	2.44	3.20	2.72	3.18	5.53	3.23
Tarragona	3.96	4.32	4.29	4.25	3.74	4.45	4.54	6.12	6.15	4.65
Teruel	3.49	5.88	5.40	4.88	5.18	5.70	5.22	3.14	5.73	4.96
Toledo	4.47	3.82	4.29	4.55	4.16	4.85	3.58	5.88	6.83	4.71
Valencia	4.94	5.49	6.07	5.09	5.39	6.18	5.53	6.24	7.70	5.85
Valladolid	1.78	3.41	2.04	3.41	3.27	3.54	3.35	8.75	14.26	4.87
Vizcaya	2.05	1.91	2.51	1.99	2.46	2.62	2.21	2.56	3.27	2.40
Zamora	3.60	3.60	3.03	2.83	2.82	3.54	3.58	3.52	4.43	3.44
Zaragoza	2.81	4.29	4.26	3.19	3.67	4.71	5.12	3.11	3.84	3.89
MEAN	3.22	3.53	3.81	3.65	3.80	4.15	4.06	4.93	5.37	4.06

Appendix B: the SABI database and data selection criteria.

All the variables related to firm size, as well as those that capture vertical integration and capital intensity, are constructed using microdata coming from SABI. SABI is a database that contains general information and the annual accounts of over 1.2 million Spanish companies, both private and publicly held. The source for these data is generally the office of the Registrar of Companies of each country. From this database we can identify the companies located in different Spanish provinces in order to obtain a panel with company information by province and at different points in time. Specifically, we work with the period 2001-2009.

Regarding the data selection criteria, we exclude financial companies[31] from the sample because, as previously discussed, credit constraints may be an important determinant of the size of (non-financial) firms. We also remove listed firms because their size is not easily compared to those of unlisted firms, since in the case of the former their market capitalization value may be much more informative than the book value of their assets. They may also be less influenced by local credit conditions because of their capacity to issue large amounts of equity and debt in national and international capital markets. State-owned companies are also eliminated because in Spain they may resolve their conflicts in different courts[32] and under different legal procedures than private firms[33], and because the factors that determine their size may not be market-driven. We exclude foreign companies, as they could resolve their conflicts in other legal systems by engaging in "forum shopping". We also eliminate consolidated accounts, i.e., the financial statements that integrate the accounts of the parent company and those of its subsidiaries into a single aggregated accounting figure. The reason is that several subsidiaries can have different registered offices and in turn use the courts of different provinces. Non-profit organizations and membership organizations are also excluded. Finally, we also eliminate non-yearly financial accounts -since flow variables such as turnover can only be compared for firms with the same time length in their accounts- and observations with data inconsistencies[34]. The final sample has an average of 575,000 firms per year for the period 2001-2009.

Appendix C: size distribution of firms in Spain according to our sample.

Tables C1, C2 and C3 show the size distribution of firms in Spain by province and by year as the arithmetic averages of employment, revenue and total assets, respectively. In terms of the three measures we can observe two stylized facts of the Spanish economy:

(i) Spanish companies are small. The average firm in the sample has less than 13 employees, its revenue is less than 1.9 million € and its total assets are worth around 2.1 million €. According to the classification of small and medium-sized enterprises by the European Commission (2003), the average firm in the sample would be small, slightly larger than a micro-enterprise. This is consistent with Núñez (2004) and López-García and Sánchez (2010), who find that the majority of companies in Spain are either small or micro.

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31. By financial firms we mean those companies in the category "J. Financial Intermediation" in the industry classification scheme NACE Rev. 1.1.

32. Administrative courts (*tribunales de lo contencioso-administrativo)* instead of civil courts.

33. Specifically, they are often subject to Administrative Law, rather than Civil Law,

34. For instance, negative values in stock variables or observations that violate basic accounting norms.

(ii) The most industrialized provinces have, on average, the largest companies. Madrid, the Basque country provinces (Álava, Guipúzcoa and Vizcaya), Navarra and Barcelona have the highest mean of employment, revenue and total assets.

Table C1: Firm's size: arithmetic average of number of employees

	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	26.6	22.3	21.1	23.2	20.3	19.7	20.8	19.0	17.5	21.2
Albacete	10.3	9.4	9.5	9.5	9.5	9.9	10.7	9.3	7.8	9.6
Alicante	11.3	10.9	10.6	10.5	10.5	10.0	10.5	9.4	8.4	10.2
Almeria	11.5	11.6	12.0	12.5	12.5	12.2	12.8	11.3	10.3	11.9
Avila	8.7	8.2	8.0	7.5	7.7	8.1	8.4	7.5	6.6	7.8
Badajoz	10.0	9.6	9.6	9.7	10.2	10.7	11.3	11.3	10.7	10.3
Baleares	16.4	13.9	13.2	13.3	13.5	14.0	15.2	12.1	10.0	13.5
Barcelona	18.5	17.3	16.8	17.4	16.9	16.7	17.6	16.5	14.6	16.9
Burgos	13.4	12.6	12.5	13.2	12.7	12.7	13.3	12.3	11.0	12.6
Caceres	9.0	10.7	9.5	9.7	9.8	10.2	10.6	10.0	9.0	9.8
Cadiz	15.7	14.2	13.5	13.6	13.2	13.1	13.5	11.7	10.1	13.2
Castellon	16.5	15.3	14.0	13.8	14.1	13.9	14.4	11.8	9.8	13.7
Ciudad Real	10.7	10.1	10.2	16.6	10.8	10.3	10.2	9.7	8.8	10.8
Cordoba	10.5	10.0	9.6	10.4	10.5	10.5	10.8	10.1	8.5	10.1
La Coruña	16.6	15.1	15.6	15.0	16.1	15.0	15.2	15.6	14.0	15.3
Cuenca	8.6	7.8	7.8	12.5	8.6	8.9	8.9	8.3	6.9	8.7
Gerona	12.4	11.3	11.1	11.7	11.0	10.8	11.6	11.0	14.2	11.7
Granada	12.5	10.9	11.1	12.0	11.8	12.1	12.6	11.2	10.3	11.6
Guadalaja	14.8	13.4	12.7	13.3	12.1	12.7	12.7	12.4	10.0	12.7
Guipuzcoa	18.0	17.6	17.1	15.3	16.1	15.5	17.3	16.7	13.3	16.3
Huelva	13.9	13.6	13.0	13.1	12.5	12.6	13.4	12.8	10.7	12.9
Huesca	9.6	8.9	8.7	8.6	8.6	8.9	9.4	8.8	7.6	8.8
Jaen	11.6	11.5	11.4	11.6	11.3	11.4	11.7	10.5	9.3	11.2
Leon	10.9	10.2	9.4	9.5	9.3	9.3	10.2	9.1	7.8	9.5
Lerida	10.7	10.3	10.5	10.2	9.9	9.9	10.5	9.5	8.7	10.0
La Rioja	14.8	12.7	12.9	12.0	11.7	11.9	12.5	12.6	10.9	12.5
Lugo	9.9	9.3	9.6	9.4	9.5	9.1	9.1	9.1	8.0	9.2
Madrid	31.3	28.7	28.4	28.2	28.2	28.9	30.1	29.9	36.6	30.0
Malaga	13.6	12.4	11.8	12.4	12.2	12.8	13.0	10.5	9.4	12.0
Murcia	14.8	14.5	13.9	14.1	14.4	13.7	14.1	13.2	11.9	13.9
Navarra	20.3	18.5	17.6	17.7	17.6	16.7	17.7	16.6	14.2	17.4
Orense	10.3	10.6	11.4	10.4	10.3	9.1	9.2	9.6	7.8	9.9
Asturias	14.6	12.7	13.5	14.0	13.6	13.8	15.0	13.2	12.0	13.6
Palencia	9.8	9.4	9.6	10.0	10.4	10.2	10.6	9.5	9.3	9.9
Las Palma	20.8	17.7	16.8	15.8	16.1	15.8	16.7	14.6	12.2	16.3
Pontevedra	16.2	14.5	14.3	14.0	13.7	12.4	12.2	11.8	11.7	13.4
Salamanca	9.9	8.6	8.6	9.5	8.9	9.2	10.3	8.5	8.0	9.1
S.C.Tenerife	19.9	16.9	15.4	15.3	15.1	15.1	15.7	12.7	10.8	15.2
Cantabria	18.3	16.8	17.1	17.2	16.5	16.0	16.8	13.9	13.7	16.2
Segovia	9.9	13.0	9.6	11.0	12.6	9.8	10.6	9.6	8.7	10.5
Sevilla	15.1	13.9	13.8	14.5	14.0	14.0	14.9	13.3	13.1	14.1
Soria	10.2	13.3	10.5	10.6	10.7	10.9	12.2	11.1	14.5	11.6
Tarragona	13.8	13.4	12.3	12.3	12.4	11.6	12.6	12.0	17.8	13.1
Teruel	9.3	9.9	9.2	8.9	9.0	9.2	9.8	9.0	8.9	9.2
Toledo	11.0	10.0	10.1	10.7	10.6	10.8	11.1	9.7	11.7	10.6
Valencia	15.2	14.9	14.4	14.8	15.0	14.8	15.7	14.0	12.7	14.6
Valladolid	16.9	14.7	14.1	15.6	15.0	15.0	16.4	15.2	14.8	15.3
Vizcaya	25.1	23.3	20.7	22.1	19.0	20.4	21.6	18.9	18.0	21.0
Zamora	8.6	8.9	8.5	8.6	8.9	8.7	9.2	8.4	6.7	8.5
Zaragoza	14.7	14.1	14.5	13.1	13.0	13.1	14.5	14.5	18.5	14.4
MEAN	14.1	13.2	12.7	13.1	12.8	12.6	13.3	12.2	11.6	12.8

Table C2: Firm's size: arithmetic average of revenue (thousands of €)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	5018.9	4626.3	4706.7	4879.1	4887.4	4990.6	5925.6	4828.3	3965.6	4869.8
Albacete	1135.1	1031.6	1041.0	1181.4	1274.3	1373.2	1565.1	1436.2	940.1	1219.8
Alicante	1285.4	1253.7	1250.3	1362.1	1391.3	1381.1	1473.6	1205.9	997.1	1288.9
Almeria	1396.5	1363.9	1398.4	1588.5	1648.9	1648.8	1783.6	1437.7	1174.1	1493.4
Avila	1469.3	1003.9	972.8	798.7	860.6	954.7	1108.3	894.6	677.9	971.2
Badajoz	1070.0	1032.7	1124.6	1193.8	1315.7	1572.7	1818.3	1863.3	1497.7	1387.7
Baleares	1816.5	1522.3	1405.8	1504.2	1618.0	1696.7	2082.7	1514.4	1168.6	1592.1
Barcelona	2619.7	2469.1	2512.5	2728.6	2833.3	2994.7	3400.9	2977.4	2577.7	2790.4
Burgos	2179.5	2073.2	2014.4	2167.8	2137.6	2312.6	2585.5	2312.0	2050.1	2203.7
Caceres	996.7	914.7	997.9	1049.2	1132.3	1186.2	1319.8	1182.7	947.8	1080.8
Cadiz	1455.3	1301.6	1257.9	1320.7	1354.3	1400.6	1527.1	1214.4	975.4	1311.9
Castellon	2501.2	2328.9	2130.6	2188.2	2524.6	2658.8	2906.7	1775.3	1746.7	2306.8
Ciudad Real	1141.0	1000.2	1079.0	1172.5	1191.9	1228.1	1358.5	1275.5	1038.1	1165.0
Cordoba	1325.4	1198.1	1281.3	1444.5	1560.3	1707.9	1875.8	1537.5	1146.1	1453.0
La Coruña	1987.5	1808.7	1929.6	1911.9	2088.0	2027.8	2223.3	2303.6	2052.1	2036.9
Cuenca	1176.6	962.9	979.6	1178.4	1293.4	1401.2	1633.2	1492.0	909.6	1225.2
Gerona	1485.0	1353.8	1389.9	1526.3	1573.0	1612.8	1852.8	1789.5	2458.6	1671.3
Granada	1332.7	1241.3	1273.7	1443.7	1526.8	1721.2	1919.7	1702.9	1488.3	1516.7
Guadalajara	2221.1	1975.8	1967.4	2064.9	1971.3	2367.9	2830.3	2319.2	1788.1	2167.3
Guipuzcoa	2972.5	2632.1	2595.4	2918.9	2910.7	3164.0	3587.4	3267.2	2047.4	2899.5
Huelva	1603.5	1431.8	1440.2	1433.4	1472.1	1723.3	2130.5	1870.4	1247.5	1594.7
Huesca	1398.1	1270.5	1288.3	1272.4	1204.1	1301.0	1534.6	1436.8	1171.8	1319.7
Jaen	1192.3	1172.0	1190.6	1293.4	1305.0	1390.5	1566.7	1330.6	1201.8	1293.7
Leon	1334.5	1164.0	1099.1	1180.5	1248.9	1372.5	1698.8	1364.3	1086.6	1283.2
Lerida	1618.8	1492.8	1542.0	1610.2	1585.0	1683.7	1928.9	1686.6	1465.3	1623.7
La Rioja	2121.3	1665.7	1822.7	1746.9	1778.9	1988.9	2242.6	2147.2	1708.2	1913.6
Lugo	1118.9	997.0	1134.6	1149.5	1226.4	1175.5	1339.4	1262.5	970.0	1152.6
Madrid	4625.7	4147.7	4281.5	4654.2	5068.6	5582.9	6249.8	6048.3	7582.8	5360.2
Malaga	1216.6	1217.1	1144.0	1254.3	1276.2	1502.1	1578.0	1103.1	944.8	1248.4
Murcia	1897.5	1852.8	1838.9	1986.1	2108.1	2062.0	2220.4	2121.7	2067.9	2017.3
Navarra	3141.1	3011.9	3107.5	3298.3	3387.9	3399.8	4092.0	3922.3	3060.3	3380.1
Orense	1157.3	1067.8	1189.0	1134.7	1221.7	1164.9	1281.1	1462.0	1034.3	1190.3
Asturias	1650.3	1580.2	1785.4	1878.2	1981.3	2186.2	2728.6	2204.1	1888.1	1986.9
Palencia	1253.3	1190.6	1198.1	1334.8	1345.6	1461.4	1716.8	1532.7	1266.5	1366.6
Las Palmas	2093.1	1736.1	1708.0	1698.2	1803.8	2074.9	2180.2	1841.7	1367.0	1833.7
Pontevedra	2090.1	1894.4	1925.7	1936.0	1976.6	1831.6	2037.3	1910.1	1983.7	1953.9
Salamanca	1050.6	953.1	988.7	1157.9	1183.1	1325.0	1591.2	1169.6	953.4	1152.5
S.C.Tenerife	2166.9	1647.5	1530.8	1513.6	1581.5	1789.9	1959.8	1418.9	1177.5	1642.9
Cantabria	2123.7	2021.0	2020.1	2207.0	2284.4	2394.4	2821.9	2347.8	2308.0	2280.9
Segovia	1468.2	1424.5	1447.2	1851.3	1855.5	1643.6	1943.7	1670.4	1230.6	1615.0
Sevilla	1746.8	1677.7	1727.2	1900.7	1978.4	2088.1	2410.0	2179.9	2103.4	1979.1
Soria	1290.4	1316.7	1299.9	1337.9	1390.3	1642.5	1998.3	1947.0	2386.2	1623.3
Tarragona	1569.8	1423.6	1481.3	1523.4	1674.2	1713.2	1977.9	1795.9	2687.6	1760.8
Teruel	1165.3	1206.6	1201.1	1186.3	1233.6	1336.5	1585.4	1406.8	1256.4	1286.4
Toledo	1259.9	1107.2	1199.3	1344.6	1443.8	1586.8	1733.8	1369.1	1746.2	1421.2
Valencia	1779.2	1779.4	1818.1	1947.8	2079.4	2276.9	2609.9	2227.6	1949.2	2051.9
Valladolid	2241.2	1925.6	1998.7	2248.7	2341.2	2381.7	2592.3	2128.3	2109.4	2218.5
Vizcaya	3714.4	3323.6	3288.7	3413.7	3485.3	4082.2	4535.1	3886.0	3350.5	3675.5
Zamora	976.6	918.9	930.4	1023.7	1127.2	1149.9	1318.8	1130.0	746.3	1035.8
Zaragoza	1931.6	1866.1	1869.7	1924.1	1997.7	2198.0	2490.2	2467.5	3358.6	2233.7
MEAN	1811.7	1651.6	1676.1	1781.3	1854.8	1978.2	2257.4	1974.4	1781.1	1863.0

Table C3: Firm's size: arithmetic average of total assets (thousands of €)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	4246.4	4587.1	5332.4	5576.6	5779.3	6109.8	6445.6	5815.6	7115.1	5667.5
Albacete	1017.5	956.6	1025.4	1034.2	1236.8	1371.5	1603.5	1622.6	1366.0	1248.2
Alicante	1074.6	1120.8	1221.2	1435.5	1605.4	1777.4	1984.9	1781.7	1571.9	1508.1
Almeria	1152.0	1165.7	1277.0	1558.1	1819.2	2023.9	2261.1	2055.5	2042.6	1706.1
Avila	898.1	735.6	736.2	718.3	814.1	995.1	1123.5	976.9	861.2	873.2
Badajoz	928.1	937.5	1028.7	1145.6	1272.9	1555.9	1816.2	2109.0	2169.7	1440.4
Baleares	1837.2	1627.4	1617.8	1882.0	2056.4	2370.9	2668.1	2392.8	2034.6	2054.1
Barcelona	2498.5	2474.9	2666.0	2975.1	3181.8	3570.2	4189.7	3830.5	3619.0	3222.9
Burgos	1859.6	1869.2	1946.5	2131.1	2331.8	2711.5	2992.7	2685.4	2821.6	2372.2
Caceres	817.7	838.5	921.7	1036.9	1181.1	1348.7	1583.9	1540.5	1301.9	1174.5
Cadiz	1482.9	1352.8	1388.0	1512.2	1604.6	1753.4	1910.6	1709.6	1546.4	1584.5
Castellon	2066.7	2128.4	2056.0	2271.2	2625.9	3026.9	3392.1	3181.2	3187.8	2659.6
Ciudad Real	965.9	867.2	918.3	1053.1	1139.0	1329.3	1460.1	1422.4	1313.0	1163.1
Cordoba	1158.0	1227.4	1334.0	1747.4	2141.0	2420.2	2682.0	2056.2	1531.4	1810.8
La Coruña	2009.9	2164.8	2584.8	2366.5	2818.1	2878.4	3167.3	3310.7	2918.5	2691.0
Cuenca	932.2	742.1	1010.4	1085.5	1265.2	1523.9	1584.9	1371.8	962.7	1164.3
Gerona	1071.1	1015.6	1074.8	1202.6	1381.8	1499.1	1774.0	1728.9	2356.5	1456.0
Granada	1180.8	1134.4	1182.2	1446.5	1666.1	2019.0	2348.9	2047.7	2063.6	1676.6
Guadalajara	1772.7	1767.3	1734.2	2121.0	2362.4	2965.9	2966.5	2797.4	3666.7	2461.6
Guipuzcoa	2783.5	2515.2	2591.2	2828.8	3008.7	3306.9	4123.5	4010.4	2828.9	3110.8
Huelva	1404.1	1246.3	1291.1	1339.8	1489.5	1726.2	2131.8	1985.6	1838.4	1605.8
Huesca	991.7	971.8	966.4	1036.7	1095.2	1297.7	1580.9	1358.9	1139.5	1159.8
Jaen	902.8	915.1	958.6	1058.7	1125.9	1246.6	1441.9	1277.8	1367.3	1143.9
Leon	1108.6	1095.3	1053.8	1187.3	1311.7	1507.9	1783.1	1523.8	1342.8	1323.8
Lerida	1025.7	1046.0	1129.2	1206.5	1292.2	1475.9	1683.5	1542.3	1471.8	1319.2
La Rioja	2084.0	1742.8	2001.9	2090.3	2206.6	2734.9	3233.5	3089.7	2509.4	2410.3
Lugo	931.0	871.1	991.9	1092.7	1243.0	1221.6	1277.5	1263.8	1123.0	1112.8
Madrid	4829.0	4606.6	4815.2	5584.1	6277.9	7184.6	9020.1	9143.0	11454.8	6990.6
Malaga	1190.6	1179.1	1267.9	1473.1	1676.8	1960.4	2245.2	1647.6	1606.1	1583.0
Murcia	1759.6	1756.8	1541.4	2084.2	2436.6	2615.6	2797.3	2492.1	2566.0	2227.7
Navarra	2821.8	2783.2	3046.6	3319.8	3619.0	3630.9	4583.7	4403.7	3996.3	3578.3
Orense	958.1	1038.3	1223.5	1223.5	1330.6	1294.2	1400.5	2024.0	1370.3	1318.1
Asturias	1634.3	1655.2	2251.4	2462.3	2543.9	3038.9	3920.0	3623.1	3738.8	2763.1
Palencia	1177.4	1099.6	1166.6	1280.9	1385.5	1622.1	1910.6	1862.4	1883.7	1487.7
Las Palmas	2605.0	2422.9	2577.0	2763.4	3015.3	3437.4	3802.7	3485.3	2691.7	2977.9
Pontevedra	1518.5	1379.0	1548.4	1710.6	1923.6	1796.6	1906.9	1967.3	2212.1	1773.7
Salamanca	885.4	867.1	957.4	1169.8	1286.9	1532.5	1873.2	1470.2	1349.6	1265.8
S.C.Tenerife	2623.6	2161.9	2246.6	2332.3	2493.8	2927.2	3427.0	2748.1	2420.6	2597.9
Cantabria	2062.8	2283.5	2313.2	2493.9	2630.5	2768.2	3161.2	2422.7	3366.3	2611.4
Segovia	1150.7	1145.8	1198.5	1469.5	1624.4	1707.2	1993.7	2015.3	1650.4	1550.6
Sevilla	2144.9	2052.7	2127.1	2448.5	2705.1	3071.6	3743.2	3447.5	3596.1	2815.2
Soria	1081.4	1179.1	1250.7	1444.5	1522.4	1761.7	2145.3	2249.6	3631.5	1807.4
Tarragona	1311.1	1252.3	1306.9	1447.3	1607.9	1795.8	2123.5	1988.7	2912.5	1749.6
Teruel	1233.4	1337.7	1348.1	1264.0	1424.9	1568.7	1839.5	1673.9	1989.2	1519.9
Toledo	1006.9	988.1	1066.8	1372.7	1602.0	1808.0	2192.0	1733.4	2322.5	1565.8
Valencia	1553.9	1542.0	1612.4	1824.6	2108.9	2535.3	2900.8	2503.4	2320.0	2100.2
Valladolid	1748.9	1672.4	1804.7	1970.7	2232.7	2336.0	2848.1	2377.1	2596.3	2176.3
Vizcaya	4470.3	4020.2	3934.4	4214.3	4190.1	4990.6	6205.3	5904.5	6070.7	4888.9
Zamora	690.3	681.9	779.2	878.5	952.2	1075.8	1171.7	1114.2	843.1	909.7
Zaragoza	1673.9	1718.5	2253.9	2306.3	2406.4	2669.6	3044.1	3097.0	4488.8	2628.7
MEAN	1646.7	1598.8	1713.5	1893.6	2081.1	2337.9	2709.3	2517.7	2583.0	2120.2

Appendix D: regression analysis of verbal judgments

Table D1: Impact of judicial inefficacy on firm size: verbal judgments

Panel A

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**-0.043*** **	**-0.027*** **	**-0.016*** **	**-0.034*** **	**-0.022*** **	**-0.043*** **	**-0.043*** **	**-0.041*** **	**-0.015*** **
	(0.006)	**(0.007)**	**(0.003)**	**(0.005)**	**(0.003)**	**(0.006)**	**(0.005)**	**(0.006)**	**(0.002)**
Log (population)		1.715***							1.764***
		(0.367)							(0.578)
GDP per capita			0.036***						0.044***
			(0.004)						(0.013)
Unemployment rate			0.003						0.039***
			(0.005)						(0.008)
Demographic density				0.006***					-0.006***
				(0.001)					(0.001)
Credit/GDP					0.589***				0.473***
					(0.064)				(0.119)
Npl ratio						-0.003			-0.036***
						(0.005)			(0.005)
Dar/GDP							0.001*		-0.002
							(0.001)		(0.001)
Weight energy								-0.036	-0.043*
								(0.030)	(0.024)
Weight manufacturing								-0.029	-0.024
								(0.033)	(0.035)
Weight construction								-0.013**	-0.078***
								(0.006)	(0.014)
Weight services								-0.009	-0.048*
								(0.023)	(0.026)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	2.93	5.32	5.46	4.10	6.32	2.96	2.97	3.51	11.11
CD test	9.09***	3.20***	0.90	5.36***	1.92*	9.48***	8.58***	7.42***	-0.39
Average cross-section correlation	0.46	0.44	0.42	0.44	0.44	0.46	0.46	0.45	0.41

Panel B

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Judicial Inefficacy (t-2)	**-0.024*** **	**-0.021*** **	**-0.012** **	**-0.020*** **	**-0.017*** **	**-0.025*** **	**-0.024*** **	**-0.013*** **	**-0.005** **
	(0.005)	**(0.006)**	**(0.005)**	**(0.005)**	**(0.004)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.002)**
Log (population)		0.311							0.718**
		(0.313)							(0.311)
GDP per capita			0.024***						0.014**
			(0.006)						(0.006)
Unemployment rate			-0.019***						-0.020***
			(0.004)						(0.006)
Demographic density				0.000					0.001
				(0.001)					(0.001)
Credit/GDP					0.182**				0.070
					(0.082)				(0.051)
Npl ratio						-0.012***			-0.010***
						(0.004)			(0.003)
Dar/GDP							-0.001		-0.001
							(0.001)		(0.002)
Weight energy								-0.013	0.009*
								(0.011)	(0.005)
Weight manufacturing								0.006	0.005
								(0.005)	(0.006)
Weight construction								0.032***	0.016*
								(0.003)	(0.009)
Weight services								-0.001	0.008***
								(0.007)	(0.003)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	11.69	12.70	28.63	11.99	15.84	18.54	11.86	22.06	38.32
CD test	37.55***	36.41***	20.13***	36.55***	34.58***	34.57***	37.80***	29.13***	12.73***
Average cross-section correlation	0.56	0.57	0.47	0.56	0.59	0.51	0.56	0.49	0.42

The dependent variable is the log of the size-weighted average of the size index in Panel A and log of the *arithmetic* average of the size index in Panel B. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The last column reports the average absolute value of the cross-section correlation coefficients of the regression residuals. *** p<0.01, ** p<0.05, * p<0.1

Table D2: Impact of judicial inefficacy on firm size: verbal judgments (interactions)

Panel A

	(1a) Incorporation Rate	(1b) Incorporation Rate
Judicial Inefficacy (t-2)	**-0.022*** **	**0.156*** **
	(0.007)	**(0.023)**
Incorporation rate	0.028***	0.025***
	(0.008)	(0.007)
Judicial Inefficacy (t-2)* Incorporation rate		**-0.006*** **
		(0.001)
Fixed Effects	Yes	Yes
Observations	350	350
Cross sections	50	50
R-squared	5.02	6.26
CD test	2.10**	1.74*
Average cross-section correlation	0.43	0.43
F-statistic for Judicial Inefficacy (t-2)		87.28***

Panel B

	(2a) Incorporation Rate	(2b) Incorporation Rate
Judicial Inefficacy (t-2)	**-0.021****	**-0.002**
	(0.009)	**(0.008)**
Incorporation rate	0.003	
	(0.010)	
Judicial Inefficacy (t-2)* Incorporation rate		**-0.001*****
		(0.000)
Fixed Effects	Yes	Yes
Observations	350	350
Cross sections	50	50
R-squared	12.08	11.92
CD test	37.15***	37.40***
Average cross-section correlation	0.58	0.57
F-statistic for Judicial Inefficacy (t-2)		27.53***

The dependent variable is the log of the *size-weighted* average of the size index in Panel A and the log of the *arithmetic* average of the size index in Panel B. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The average cross-section correlation is measured by the average absolute value of the cross-section correlation coefficients of the regression residuals. The last column shows the F-test on the joint significance of the coefficient on Judicial Inefficacy and its interaction. *** p<0.01, ** p<0.05, * p<0.1

Appendix E: regression analysis of ordinal judgments with alternative measures of firm size and judicial inefficacy

All the findings of the paper are robust to using alternative measures of firm size and judicial efficacy that do not rely on principal components analysis. In this Appendix we show the results when firm size is measured by number of employees and judicial (in)efficacy by the congestion rate. Table E1 displays the analysis for ordinary judgments and Table E2 does it for executions. We observe that the congestion rate has a negative effect on average firm size in the case of ordinary judgments, but it has no effect in the case of executions.

Table E1: Impact of judicial inefficacy on firm size: ordinary judgments

Panel A

	(0) Baseline	(1) Market size	(2) Economic development	(3) Coordination costs	(4a) Credit constraints 1	(4b) Credit constraints 2	(4c) Credit constraints 3	(5) Sectoral composition	(6) All
Congestion rate (t-2)	**-0.037*** **	**-0.039** **	**-0.053*** **	**-0.025** **	**-0.008**	**-0.037*** **	**-0.037*** **	**-0.088*** **	**-0.069*** **
	(0.010)	**(0.015)**	**(0.016)**	**(0.011)**	**(0.014)**	**(0.013)**	**(0.011)**	**(0.015)**	**(0.015)**
Log (population)		-0.082							0.229
		(0.300)							(0.490)
GDP per capita			-0.008						0.005
			(0.005)						(0.012)
Unemployment rate			-0.003						0.012
			(0.005)						(0.009)
Demographic density				0.003**					-0.006**
				(0.001)					(0.003)
Credit/GDP					0.301***				0.623***
					(0.081)				(0.068)
Npl ratio						0.001			0.005
						(0.007)			(0.010)
Dar/GDP							-0.001		-0.002
							(0.002)		(0.002)
Weight energy								0.028	0.006
								(0.020)	(0.016)
Weight manufacturing								-0.080**	-0.077**
								(0.037)	(0.037)
Weight construction								-0.061**	-0.087**
								(0.026)	(0.033)
Weight services								-0.062**	-0.085**
								(0.026)	(0.038)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	0.32	0.32	0.45	0.51	1.03	0.32	0.33	4.89	7.10
CD test	1.87*	2.06**	3.23***	0.96	1.23	1.78*	2.10**	1.99**	0.04
Average cross-section correlation	0.40	0.40	0.41	0.40	0.40	0.40	0.40	0.41	0.40

Panel B

	(1a) Incorporation Rate	(1b) Incorporation Rate	(2a) Vertical Integration	(2b) Vertical Integration
Congestion rate (t-2)	**-0.068*** **	**0.159**	**-0.041*** **	**0.091**
	(0.020)	**(0.152)**	**(0.014)**	**(0.134)**
Incorporation rate	-0.016*	-0.002		
	(0.009)	(0.017)		
Congestion rate (t-2)* Incorporation rate		**-0.007**		
		(0.004)		
Vertical Integration			-2.946	
			(1.870)	
Congestion rate (t-2)* Vertical integration				**-0.528**
				(0.548)
Fixed Effects	Yes	Yes	Yes	Yes
Observations	350	350	350	350
Cross sections	50	50	50	50
R-squared	0.89	1.13	1.10	0.45
CD test	4.96***	4.50***	3.18***	2.52**
Average cross-section correlation	0.42	0.42	0.41	0.41
F-statistic for Congestion rate (t-2)		9.40***		5.75***

The dependent variable is the log of the size-weighted average of employment. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Vertical integration is computed as an aggregate ratio. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The average cross-section correlation is measured by the average absolute value of the cross-section correlation coefficients of the regression residuals. The last column shows the F-test on the joint significance of the coefficient on Judicial Inefficacy and its interaction. *** p<0.01, ** p<0.05, * p<0.1

Table E2: Impact of judicial inefficacy on firm size: executions

Panel A

	Baseline	Market size	Economic development	Coordination costs	Credit constraints 1	Credit constraints 2	Credit constraints 3	Sectoral composition	All
Congestion rate (t-2)	**0.023**	**0.021**	**0.028**	**0.011**	**0.003**	**0.023**	**0.024**	**0.032**	**0.011**
	(0.028)	**(0.035)**	**(0.041)**	**(0.033)**	**(0.035)**	**(0.029)**	**(0.029)**	**(0.037)**	**(0.039)**
Log (population)		0.109							0.438
		(0.420)							(0.489)
GDP per capita			-0.002						0.011
			(0.008)						(0.009)
Unemployment rate			-0.004						0.015**
			(0.007)						(0.007)
Demographic density				0.003**					-0.005*
				(0.002)					(0.003)
Credit/GDP					0.315**				0.620***
					(0.120)				(0.067)
Npl ratio						0.000			0.003
						(0.006)			(0.009)
Dar/GDP							-0.001		-0.002
							(0.002)		(0.002)
Weight energy								0.025	0.006
								(0.018)	(0.018)
Weight manufacturing								-0.080**	-0.074*
								(0.037)	(0.038)
Weight construction								-0.041	-0.076**
								(0.028)	(0.033)
Weight services								-0.057*	-0.085**
								(0.029)	(0.038)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	350	350	350	350	350	350
Cross sections	50	50	50	50	50	50	50	50	50
R-squared (Within)	0.14	0.14	0.17	0.41	1.02	0.14	0.15	3.89	6.52
CD test	1.21	1.05	1.72*	0.56	1.08	1.19	1.30	1.00	-0.95
Average cross-section correlation	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Panel B

	(2a) Incorporation Rate	(2b) Incorporation Rate	(3a) Vertical Integration	(3b) Vertical Integration
Congestion rate (t-2)	**0.039**	**0.214**	**0.033**	**0.333***
	(0.043)	**(0.157)**	**(0.031)**	**(0.196)**
Incorporation rate	-0.011			
	(0.012)			
Congestion rate (t-2)* Incorporation rate		**-0.005**		
		(0.003)		
Vertical Integration			-3.106	
			(2.153)	
Congestion rate (t-2)* Vertical integration				**-1.186***
				(0.666)
Fixed Effects	Yes	Yes	Yes	Yes
Observations	350	350	350	350
Cross sections	50	50	50	50
R-squared	0.44	1.09	0.98	2.39
CD test	2.59***	3.71***	2.47**	3.22***
Average cross-section correlation	0.41	0.41	0.41	0.41
F-statistic for Judicial Inefficacy (t-2)		0.99		2.62*

The dependent variable is the log of the size-weighted average of employment. All regressions include a constant. "Npl" stands for non-performing loans and "Dar" for defaulted accounts receivable. Vertical integration is computed as an aggregate ratio. Driscoll and Kraay (1998) standard errors below coefficients. The "within R-squared" is the R-squared from the mean-deviated regression. The CD (cross-section dependence) test statistic of Pesaran (2004) follows a standard normal distribution under the null of cross-section independence. The average cross-section correlation is measured by the average absolute value of the cross-section correlation coefficients of the regression residuals. The last column shows the F-test on the joint significance of the coefficient on Judicial Inefficacy and its interaction. *** p<0.01, ** p<0.05, * p<0.1

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