Determinants of civil litigation in Portugal

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May 2015

Abstract
This article studies the evolution of the resort to civil justice in Portugal in the last two decades, particularly seeking to identify the main determinants of the litigation rate observed in the different regions, benefiting from a dataset with information by *comarca*. We conclude that the length of proceedings tends to reduce litigation and, therefore, there is evidence of rationing by waiting list in the access to justice. At the same time there is some evidence of demand inducement by lawyers. Socioeconomic characteristics as the illiteracy rate, purchasing power and the location of enterprises influence the level of litigation in the different regions of the country. Moreover there are significant spatial spillovers in the generation of litigation - not only the characteristics of the *comarca* itself, but also those of the neighbouring ones, play a relevant role. (JEL: K41, R10)

Introduction

The discussion about euro area growth potential, and in particular that of the countries most affected by the sovereign debt crisis, has assumed a central role in the last years. In this context, several international institutions have advocated the implementation of structural reforms of the judicial system as a way to promote competitiveness of the countries in the euro area periphery. The relation between economic growth and an adequate functioning of the judicial system has been recurrently addressed in the literature. More recent analyses include Lorenzano and Lucidi (2014), by the European Commission, and Palumbo *et al.* (2013), by the OECD. The proliferation of papers addressing this theme was stimulated by the substantial progress in the production and dissemination of international statistics in this field, specifically through the reports of the *Commission*

Acknowledgements: The authors thank Direção-Geral de Política da Justiça for providing the data on the judicial system and for valuable clarifications. The authors are also grateful for the comments made by Jorge Correia da Cunha, José Tavares, Manuela Espadaneira, Nuno Alves and Nuno Garoupa and by the participants in a seminar from the Economic Research Department of Banco de Portugal, especially Álvaro Novo and Pedro Portugal. The opinions expressed in the article are those of the authors and do not necessarily coincide with those of Banco de Portugal or the Eurosystem. Any errors and omissions are the sole responsibility of the authors.

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Européenne Pour l'Efficacité de la Justice (CEPEJ), an organization of the Council of Europe. In this vein, it is also important to mention the creation by the European Commission, in 2013, of the EU Justice Scoreboard. However, it is worth stressing that, despite the effort (namely by the CEPEJ) to improve data comparability, the large differences between legal systems hamper a direct comparison of synthetic indicators for different countries, requiring a critical analysis of the results.

The justice system plays a central role in modern societies, characterized by a multiplicity of social relations with a high degree of formality and by a widespread use of deferred payment methods. Regarding the impact of the functioning of justice systems on economic growth, several hypotheses have been explored by economic literature, primarily those related to the internalization in investment decisions of the benefits associated with the degree of predictability of court decisions and the ability to enforce contracts. The transmission mechanisms between the efficiency of the judicial system and economic growth have been discussed by studies which evaluate the impact of this efficiency on a wide range of economic indicators, including the size of companies (Posada and Mora-Sanguinetti 2013) and the functioning of credit markets (Jappelli *et al.* 2005). Note that the analyses of the justice system as a relevant factor for economic growth are typically centered on civil justice, also known as economic justice (Gouveia *et al.* 2012), as this area deals mainly with the resolution of economic disputes between private agents.

In the Portuguese case, the reform of the justice system has been a regular topic in the public debate. In fact, this was one of the areas covered by the Memorandum of Understanding, signed in 2011 in the framework of the Portuguese Economic and Financial Assistance Programme. In particular, the justice system was subject to deep organizational changes, notably through the implementation of the reform of the organization of judicial courts, in 2014. The pressure to implement reforms in this area in Portugal comes mainly from the unfavourable position of the country in most international comparisons related to the efficiency of the system. In addition, some studies indicate that the justice reform has a high potential to foster economic growth in the Portuguese case (Tavares 2004; European Commission 2014).

As regards the effectiveness of the Portuguese justice system, the CEPEJ report elaborated with 2012 data (CEPEJ 2014) highlights as main drawbacks the congestion and excessive length of civil proceedings in first instance courts. Conversely, the most recent analyses concluded for a comparatively better performance of higher instance courts (Garoupa and Pinheiro 2014a). These authors state that, in international comparisons about the performance of the judicial system, Portugal is often associated with countries with similar legal systems (also based on continental law), in line with the literature on the theory of legal origins (Porta *et al.* 2008). In this vein, the contribution by

Djankov *et al.* (2003) is noteworthy, stating that legal origins have an impact on the efficiency of the systems, notably through different degrees of formalism.[1]

The level of provision of civil justice can be seen as the result of an equilibrium which translates into the number of resolved cases, in a market where demand materialises as an inflow of cases, and supply corresponds to the services provided by the judicial system that is responsible for its resolution. According to this approach, reforms that try to tackle the congestion of civil justice can be divided essentially into two groups. Firstly, reforms which focus on supply through the expansion of resources allocated to the system or the reorganization of the functioning of courts. Secondly, policies that influence demand, particularly by changing the incentives faced by economic agents when filling cases.

This paper addresses the demand for civil justice, seeking to understand which factors influenced the number and territorial distribution of cases filed in first instance courts in Portugal between 1993 and 2013. The decision to file a case usually translates into an inflow at the level of this instance[2], while cases brought before higher courts mostly originate in this flow. Regarding the measurement of demand for justice, the information used identifies the cases that were filed in a particular territorial jurisdiction, which may not correspond to cases brought to court as a result of disputes occurring specifically in that territory (Gomes 2006). Given that the characteristics of a given geographical area may have an impact on the number of incoming cases in other areas, the demand for justice is modelled in this paper considering spatial interaction effects.

Several determinants of civil litigation have been addressed in the literature. For example, the costs of justice, including the rules to allocate them to different parties, and a number of institutional characteristics of the judicial system, such as its effectiveness as perceived by economic agents, the clarity of the law, the development of alternative dispute resolution mechanisms, among others (Palumbo *et al.* 2013). Other studies focus on determinants related to incentives of particular agents, as Carmignani and Giacomelli (2010), who discuss the possibility of demand inducement by lawyers. In addition, socioeconomic factors with an impact on the volume or complexity of economic transactions, as the sectoral composition of the economy, the level of schooling or the purchasing power, are equally mentioned as determinants of litigation, as they influence the type and volume of the litigation that is brought to court (Palumbo *et al.* 2013). Finally, it is important to highlight the effect of the economic cycle on the number of incoming civil cases. This paper discusses the importance, in the Portuguese context, of some

1. The index calculated by Djankov *et al.* (2003) places Portugal as a country with high formalism, even within civil law countries (as opposed to those based in common law).

2. For a description of the organization of the Portuguese judicial system, see Gouveia *et al.* (2012), volume I.

of these determinants, particularly those for which quantitative information was available, including several socioeconomic characteristics of *comarcas* and indicators linked to the judicial system, such as the length of proceedings and the concentration of lawyers.

A deeper understanding of the major factors behind the decision to file a civil case allows anticipating the effects of public policies in the area of justice and improving resource allocation to the different regions of the country. However, the literature in this vein focusing on the Portuguese reality is relatively scarce. Some of the few exceptions are the eminently descriptive work by Gomes (2006), along with Garoupa *et al.* (2006) who analyze the evolution of demand for justice using a time series, and Garcia *et al.* (2008) who investigate the territorial distribution of demand based on a panel for 2003 and 2004.

The paper is organized as follows. Firstly, the variables and the method used in the construction of the database by *comarca* are discussed. Secondly, a descriptive analysis of civil litigation in Portugal is presented, including a brief regional perspective. Thirdly, the econometric modelling of the determinants of litigation is addressed, with an emphasis both on factors that impact on the evolution of litigation over time and structural factors at the *comarca* level, considering contagion effects. Finally, some concluding remarks are made.

Data

As previously mentioned, this study is confined to civil justice which is the most relevant law area with respect to interactions with economic activity. As a result, cases related to criminal, labour and family law were excluded. Cases filed in administrative and tax courts were also disregarded.

A panel database for the civil law area was put together, including information on incoming, resolved[3] and pending cases in each *comarca*, between 1993 and 2013. The territorial organization of the Portuguese justice system includes, in descending hierarchical order, *distritos judiciais*, *círculos* and *comarcas*, the latter being its basic territorial unit (Gomes 2006). However, the geographical boundaries of *comarcas* were subject to several changes between 1993 and 2013. The most relevant ones include, firstly, the division of *comarcas* located in densely populated areas in the nineties and, more recently, several mergings as a result of the creation of pilot-*comarcas*, in the

3. In the statistics of justice a resolved case is defined as «a case in which a final decision has been reached, in the form of a judgement or order, in the respective instance and regardless of *res judicata*. Cases resolved at a given organizational unit also include the cases transferred or sent to another unit, where these are registered as incoming.» (Direção-Geral da Política de Justiça 2014, pp. 45, authors' translation)

context of the staged implementation of the 2008 law on the organization and functioning of judicial courts (Law No. 52/2008). In order to ensure time consistency, one considered 210 *comarcas* corresponding to the broadest territorial definition of each of them during the period under analysis.

The focus on the *comarca* level led to the exclusion of the civil cases filed in courts with a broader territorial scope. These courts can be divided into three types. Firstly, courts with jurisdiction over the whole territory, such as those related to competition, regulation and supervision (*Tribunal da Concorrência, Regulação e Supervisão*), to intellectual property (*Tribunal da Propriedade Intelectual*) and the maritime court (*Tribunal Marítimo*). Secondly, courts ruling in a particular law area and with a regional scope, as for instance, labour and family courts. Thirdly, the *tribunais de círculo*. It should be noted that, between 1993 and 2013, the configuration of the courts excluded from the sample changed often. For instance, the *tribunais de círculo* that covered a significant number of *comarcas* early in the sample were closed down in the late nineties. Furthermore, a number of labour and family courts were created and extinguished. In general, all these courts competed with those in the sample in terms of inflow of cases.[4] Nevertheless, the weight of the cases filed in these courts corresponded, on average, to only 5 per cent of total civil cases.

In the study of the determinants of litigation, only the cases that first enter a court matter, not those that move between courts (known as transferred cases). The information available in the statistics of justice allows the correction of incoming cases from the transferred ones at the national level. However, in the analysis by *comarca* this correction is unfeasible as there is information regarding the cases resolved through transfer at each court, but the court they were sent to is unknown. In order to overcome this constraint, one identified the situations in which, by the creation of new *comarcas* or new judgeships within a *comarca*, there was an unusually high number of cases resolved through transfer and it was possible to infer which *comarca* they had entered.[5] In such situations, the number of incoming cases was corrected from the transferred ones.

The database includes, in addition to the judicial system variables, several socioeconomic indicators published by INE at the municipal level. These include averages for the available time period of the purchasing power, population density, illiteracy rates, and the number of small and medium

4. The pilot-*comarcas* established in 2008 include specialised judgeships. The cases filed in these judgeships were also disregarded assuming that, before the creation of such *comarcas*, those cases would have been judged in courts outside the sample.

5. In these cases, monthly data supplied by the Direção-Geral de Política da Justiça was used to crosscheck if the movements of cases entered and resolved through transfer were consistent with the assumptions made.

enterprises and large enterprises *per* inhabitant.[6] Appendix A presents the details about this time period and the definition of the variables, including some descriptive statistics. In allocating the data by municipality to different *comarcas*, the major source of information was Gomes (2006, Appendix E), supplemented with Gouveia *et al.* (2012) with respect to the composition of pilot-*comarcas*. It was not possible to match the municipalities that spread throughout several *comarcas*, but this happened only in 10 out of 308 municipalities. The variables by *comarca* result from the average weighted by the population of the values for the corresponding municipalities.

Building on research applied to the Italian (Carmignani and Giacomelli 2010; Bounanno and Galizzi 2010) and Japanese (Ginsburg and Hoetker 2006) cases, suggesting that the concentration of lawyers increases litigation, one collected data regarding lawyers registered in the *círculo* corresponding to each *comarca*. The choice of a higher territorial level comes from a limitation of the data, since there is no information for *comarcas*. However, this territorial unit may even prove to be more appropriate, especially for regions with less litigation, where it is likely that a lawyer is not working exclusively in one *comarca*.

Information which could be useful to understand the evolution of total litigation in the last decades was also gathered. In this context, litigation growth is commonly related to the phenomenon of mass debt collection claims (Gomes 2006), associated with the filing of a significant number of similar claims by a reduced number of litigants. Indeed, technological development multiplied the number of services offered to the majority of the population through deferred payment methods. A clear example of this is the massification of contracts related to mobile telecommunications. There is no information on the number of cases filed by mass litigants. Nevertheless, some indirect information can be obtained from the list of commercial societies which generated a large number of cases in the recent period (published in accordance with *Portaria* No. 200/2011). An analysis of these enterprises shows that the financial sector along with water, electricity, gas and telecommunications suppliers are the most represented sectors. Therefore, data related to these sectors were collected, in particular the amount of non-performing loans to enterprises and households and the number of contracts for mobile telecommunications (published, respectively by Banco de Portugal and ANACOM). For these variables, only the country total and not their distribution by *comarca* is available.

Finally, a significant limitation is the scarcity of information regarding the cost of filing a case. This cost is one of the factors taken into account by economic agents in the decision making, even if it may have a smaller

6. In this paper the number of employees (above or below 250) is used as a criterion to define the two types of enterprises.

relevance in Portugal than in other countries. Indeed, according to the 2015 Doing Business report (World Bank 2014), the cost of enforcing a contract as a percentage of the value of the claim is particularly low in Portugal (13.8 per cent, which is the 12^{th} lowest in a list of more than 180 countries). There are virtually no indicators for the costs of access to justice in Portugal, except for the value of unit of account that is the benchmark for setting out court fees.[7] However, changes in the value of the unit of account explain only a fraction of the evolution of such fees, which are also influenced by revisions in the number of units of account that is due for the different proceedings. The most important change in this area during the sample period was enacted by the Decree-Law No. 34/2008, which revoked the *Código das Custas Judiciais* and introduced the *Regulamento das Custas Processuais*.[8] Other relevant indicator in this context would be the evolution of lawyer fees. This information would be particularly relevant as the aforementioned World Bank report states that these fees represent the majority of the costs to file a case in Portugal (10.7 per cent of the value of the claim). Data on lawyer fees are, however, virtually unavailable.[9]

Descriptive analysis of civil litigation

Evolution between 1993 and 2013

The number of incoming civil cases in first instance courts increased significantly between 1993 and 1997, rising from less than 300 thousand a year to above 450 thousand. In the following years, the demand for civil justice stabilized, presenting in 2013 a level similar to the one in 1997. In this period, the number of resolved cases stood generally below the number of incoming ones, explaining the continuous rise in pending cases (Figure 1).[10] This occurred every year except in 2006, 2007 and 2013, when administrative measures to reduce court congestion were implemented, as stated in Garoupa and Pinheiro (2014b). In this context, the litigation rate in Portugal (calculated as the ratio between incoming first instance civil cases and the population)

7. The unit of account (*unidade de conta*) is the index used in the calculation of the court fees to be paid by the different parties to a given dispute.

8. For an analysis of the impact of this change in revenues, see Correia and Joaquim (2013).

9. In the database *Quadros de Pessoal* it is possible to obtain the wages of lawyers working as employees. However, taking into account a survey conducted by the Bar Association in 2003 (Caetano 2003) and the number of observations available in that database, employees represent a small fraction (around 5 percent) of the total of lawyers, which strongly limits the use of this information.

10. For a detailed analysis of flows and main performance indicators of the Portuguese justice system, see the publications available on the website of Direção-Geral da Política de Justiça and also Gouveia *et al.* (2012).

presented a trend similar to that of civil litigation, increasing from 3.0 to 4.5 *per* 100 inhabitants from 1993 to 1997, and hovering around this value in subsequent years.

Figure 2 shows the breakdown of civil cases by main types, namely declarative, aiming at the definition of a particular right, and enforcement, intended to demand the fulfilment of a previously set obligation.

The relative stabilisation of the number of incoming cases after the end of the nineties was related to the generalisation of the injunction procedure, which allows the creditor to obtain an enforceable order, so as to require the recovery of a debt. Indeed, the legislative changes enacted over the period widened the scope of this procedure[11], increasing its use, inasmuch as it avoids the resource to declarative cases. This shift in the nature of injunctions is reflected on the strong growth of these procedures considered jointly with declarative actions, in particular from the late nineties on, in contrast with the sharp decline in the latter. In addition, the creation of the National Desk for Injunctions (*Balcão Nacional de Injunções*) in 2008 (*Portaria* No. 220-A/2008), implementing the dematerialization of this procedure, temporarily led to a considerable increase in the number of incoming injunctions. In turn, enforcement claims sustained a clear upward trend until 2003 and stabilized at around 200 thousand a year thereafter. Finally, the inflow of other types of cases including, for example, corporate reorganization and bankruptcy and credit claiming proceedings, went up, especially from 2006 onwards.

It is also important to consider how the resource to alternative dispute resolution and the Courts of Peace (*Julgados de Paz*) has evolved since these could be viewed as substitutes to civil litigation. However, the available data regarding arbitration and Courts of Peace signals that the evolution of these mechanisms is still at an early stage, with around 10 thousand incoming cases in 2013 in each of these mechanisms. Furthermore, the results from a survey to a group of Portuguese corporations presented in Gouveia *et al.* (2012) reinforce the idea of little use of these mechanisms, showing that in the previous three years only 5 per cent of the respondents were part to a dispute resorting to them. Strictly speaking, it is not clear that an increased use of such mechanisms leads to a reduction in incoming cases, arguing Garoupa and Pinheiro (2014a) that, in practice, they generate more litigation.

11. The injunction was introduced by the Decree-law (DL) No. 404/93 having as a limit a value equal to half of the lower bound for claims entering appeal courts, but its use was rather limited (see preamble to DL No. 269/98). The DL No. 269/98 doubled the aforementioned limit and removed procedural obstacles. Subsequently, the DL No. 32/2003 extended the scope to all late payments in commercial transactions, regardless of the amount owed, and the DL No. 107/2005 increased the limit to the lower bound for claims entering the Supreme Court of Justice (for more detail, see Gomes 2006).

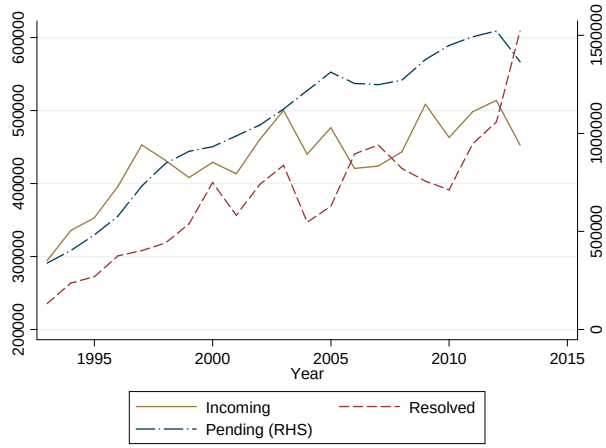

FIGURE 1: Incoming, resolved and pending civil justice cases

Note: Incoming and resolved cases do not include those transferred (moved between courts).

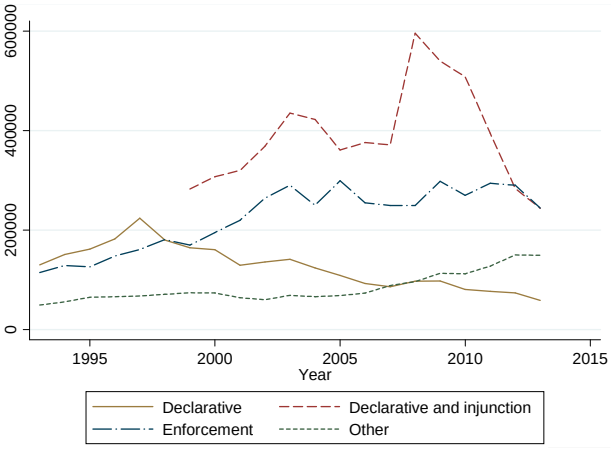

FIGURE 2: Incoming, pending and resolved civil justice cases including injunctions

International comparison

Litigation rates calculated with CEPEJ data for 2010 (CEPEJ 2012) are presented in Palumbo *et al.* (2013) for several advanced economies. These data are shown in table 1, including an update of this indicator for 2012, based on authors' calculations. It should be noted that, in order to ensure comparability of data internationally, the CEPEJ uses a classification of cases by judicial areas that differs from the classification adopted in Portugal. Thus, the litigation rate in table 1 considers not only incoming civil cases but also those related to labour and family, excluding, however, enforcement claims.

For 2010, the civil litigation rate in Portugal is close to that observed in France and Germany, placing Portugal among the countries with highest rates, but below the levels presented by Italy and Spain, for example. However, the replication of calculations for 2012 generates different results for some countries, showing that the comparison of data among countries with very dissimilar justice systems should be performed with caution.

	2010 a)	2012 b)
Finland	0.3	0.2
Norway	0.4	0.4
Luxembourg	0.4	0.9
Sweden	0.7	0.7
Denmark	1.3	0.8
Austria	1.3	1.2
Estonia	1.6	1.2
Poland	2.1	2.8
Hungary	2.2	4.4
Switzerland	2.2	2.9
Slovenia	2.2	1.8
Slovak Republic	2.4	3.0
France	2.8	2.6
Portugal	**3.0**	**3.5**
Germany	3.5	2.0
Italy	4.0	2.6
Greece	4.0	5.8
Spain	4.2	3.8
Czech Republic	4.5	3.5
Russia	9.6	4.5

TABLE 1. Litigation rates in different European countries (incoming cases for 100 inhabitants)

Sources: Palumbo *et al*. (2013) for 2010 and authors' calculations with data from CEPEJ and Eurostat for 2012.

Regional distribution

Litigation in the different regions of the country has presented a very heterogeneous evolution. During the period under analysis, there was a significant reduction in the average of incoming cases *per capita* in the two *comarcas* with the highest levels of litigation, Lisbon and Oporto.[12] By contrast, average litigation rates in other *comarcas*, both those located in coastal *círculos* and in inland *círculos*, showed an increasing trend between 1993 and 2013

12. Note that, taking into account the broadest territorial definition in force between 1993 and 2013, the *comarca* of Oporto comprises the *comarcas* of Oporto, Valongo, Gondomar and Maia, by reference to the judicial map of 2013.

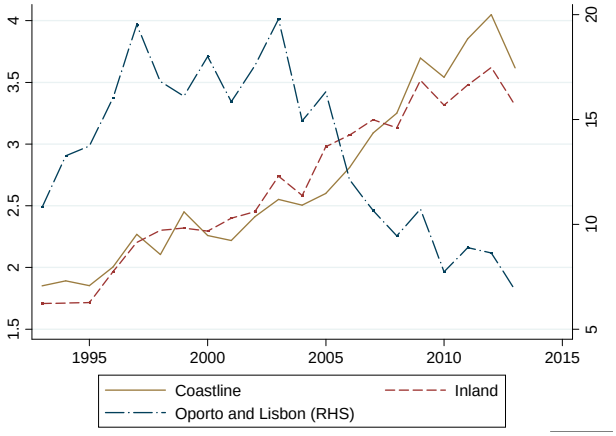

FIGURE 3: Litigation rates evolution in the coastline, inland and Lisbon and Oporto

Note: Inland (coastline) includes *comarcas* in inland (coastline) *círculos*, except Lisbon and Oporto.

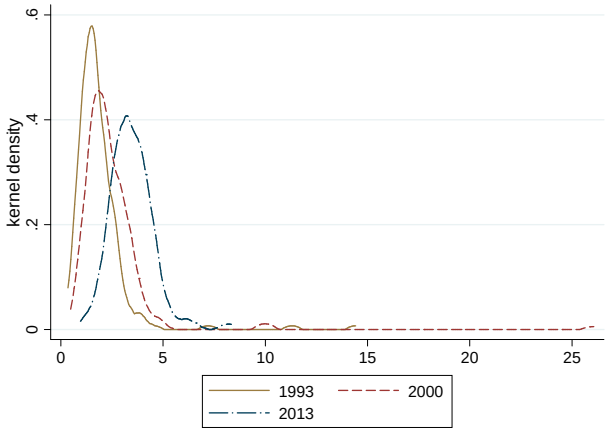

FIGURE 4: Distribution of civil litigation rates by *comarca* in 1993, 2000 and 2013

(Figure 3). Observing the distribution of litigation over time, there is clearly a trend of increased dispersion (Figure 4) which occurred simultaneously with the reduction of the concentration of cases in Lisbon and Oporto. While the number of cases filed in these two *comarcas* accounted for over 40 per cent of nationwide incoming cases until 2006, such percentage had already halved in 2010.

This trend is related to the entry into force of Law No. 14/2006, which amended the definition of the territorial jurisdiction of courts, imposing the residence of the defendant as a rule for actions relating to the fulfilment of obligations (except where both parties reside in the metropolitan areas of

Lisbon or Oporto or the defendant is a corporation, in which case it is possible to opt for the place where the obligation should have been fulfilled). As the head offices of large litigants are highly concentrated in Lisbon and Oporto (respectively, 67 and 14 per cent)[13], these *comarcas* are the main attractors of litigation related to the fulfilment of obligations. Therefore, the legislative amendment in question would have contributed to a lower concentration of cases in the two *comarcas* and, in general, to a greater geographical spread of litigation.

Determinants of litigation: panel regressions

Explanatory variables

The analysis of the determinants of litigation, measured by the log of the number of civil cases brought before courts *per capita* (*LitigRate*), is primarily carried out through econometric regressions including explanatory factors that vary simultaneously over time and among *comarcas* (equation (1)). The explanatory variables comprise, apart from the lagged litigation rate, the average length in months of cases resolved (*Length*) also lagged, for the length of cases resolved in the current year is not part of the information set of economic agents at the time the decision to file a case is taken. In addition, they include a variable meant to capture the change in the territorial jurisdiction of courts in 2006 (*Ref2006*). This variable takes on the value 1 for the period after the reform in the *comarcas* of Lisbon and Oporto, on the assumption that these would have been the most affected (see previous section). The log of incoming non-civil cases *per capita* (*NCLitigRate*) was also included, as one wants to model civil litigation stemming from other law areas. The validity of this regressor rests on the assumption that the converse effect, i.e. the existence of litigation in other areas originating in civil litigation, has a minor expression. This assumption is supported in particular by the significant proportion of civil cases in criminal judgeships, but not the opposite.

Lastly, to control for the impact of *tribunais de círculo* that existed for a limited period of time and covered about two-thirds of *comarcas*, the number of cases filed in those courts *per* 100 inhabitants (*CircCourts*) was included in the regression. One cannot control, correspondingly, for the cases filed in the other courts with jurisdiction beyond a single *comarca* but still of sub-national scope, because the available information does not allow to allocate them to a set of *comarcas*. In any case, these courts received, on average, only 4 percent of the total annual civil cases. Finally, with regard to national courts, their impact

13. Considering large litigants companies which generated more than 500 cases both in 2013 and in 2014.

on the inflow of cases in the courts in the database will tend to be captured by year fixed effects, as described below.

$$\begin{aligned} LitigRate_{i,t} = c + \beta_1 LitigRate_{i,t-1} + \beta_2 Length_{i,t-1} + \beta_3 Ref2006_{i,t} \\ + \beta_4 NCLitigRate_{i,t} + \beta_5 CircCourts_{i,t} + \alpha_i + \delta_t + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

where i indexes the *comarca*, t the year and, in addition to the abovementioned variables, the regression includes fixed effects for *comarcas* (α_i), in order to capture their specific characteristics, and year fixed effects (δ_t), in order to control for the specificities of a given year with a cross-*comarca* impact. Year fixed effects may capture a multiplicity of factors, in particular, changes in the configuration of courts ruling in a particular law area and in the code of civil procedure (such as the spreading of injunctions, mentioned in the previous section), including changes in court fees and the effect of several factors such as the economic cycle and mass debt collection. In addition, the compilation of information for statistics of justice changed in 2007, when it started to be carried out directly from the courts' IT system. Year fixed effects will also capture any impact this change may have on the data, provided that it is felt across *comarcas*. Regressions were run not only for civil litigation as a whole, but also for declarative and enforcement cases separately, in order to understand if there could be different determinants.

Results

Table 2 presents the estimates of equation (1) by the Arellano and Bond (1991) estimator (see Appendix B for more details). The results show a negative relationship between the length of proceedings and the respective litigation rate, which may indicate the existence of a congestion effect. A negative impact of case length on litigation is plausible on the assumption that such variable is, at the time of decision making about starting a case, used as an indicator of its expected length, a factor that can be of great importance. Garoupa *et al.* (2006) find evidence of a positive relationship between the litigation rate and the expansion of the judicial system, measured by the number of judges. This is consistent with the evidence of rationing-by-queuing due to a negative relationship between the length of proceedings and the litigation rate. It is not excluded that the true impact of length is underestimated, for the coefficient estimate may be picking up another effect of this variable on litigation, of a positive sign, to the extent that the slowness of the judicial system can be detrimental to contract compliance. However, taking into account that this issue will depend on the overall perception about the efficiency of the system, it may also be captured by the year fixed effects.

By type of civil cases, the estimated length effect is stronger and more precise for enforcement ones. Such an evidence may result from the latter

being, relative to declarative cases, more often filed by companies[14] that may have a better perception regarding the length of proceedings. The impact of litigation in other law areas on civil litigation is positive, reflecting the fact that criminal, labour and family cases give rise to civil cases. This variable may be also capturing the effect of common determinants (omitted in the equation) of civil and non-civil cases.

Explanatory variable	**Arellano-Bond estimator**			*Fixed effects estimator*
	Civil cases	**Declarative**	**Enforcement**	*Civil cases*
Litigation rate(t-1)	0.584***	0.569***	0.578***	0.503***
	(0.041)	(0.044)	(0.039)	(0.025)
Length of proceedings(t-1)	-0.012***	-0.004*	-0.008***	0.002
	(0.003)	(0.003)	(0.003)	(0.002)
2006 Reform	-0.753**	-0.846	-1.118***	-0.521***
	(0.312)	(0.533)	(0.399)	(0.057)
Tribunais de círculo	-0.06	-0.342***	-0.53	-0.06
	(0.054)	(0.124)	(0.397)	(0.05)
Non-civil litigation	*0.188***	*0.204***	0.231***	0.141***
	(0.027)	*(0.034)*	(0.039)	(0.015)
Hansen test (p-value)	0.312	*0.548*	0.299	-
N (Comarcas)	210	210	210	210
T (Years)	19	19	19	19

TABLE 2. Determinants of litigation: panel regressions

Notes: Estimates of equation (1), with the log of the respective litigation rate as the dependent variable, by the Arellano-Bond estimator, instrumenting the variables not strictly exogenous (*LitigRate(t-1)*, *Length(t-1)* and *CircCourts*) by their lags (2 to 6), in levels. The last column presents the results for the fixed effects estimator which assumes that all variables are strictly exogenous. Standard deviations are in parentheses. P-values: * <0.1; ** <0.05; *** <0.01.

The existence of *tribunais de círculo* has an impact for declarative cases only, indicating a smaller inflow in the *comarcas* under the jurisdiction of such courts. A greater relevance for declarative actions may stem from a larger weight of *tribunais de círculo* for them, which stood on average at 3.4 percent in the period 1993-1999, against 1.3 percent for enforcement actions. The results point to a lower concentration of cases in Lisbon and Oporto in the period the territorial jurisdiction of courts associated with the residence of the defendant was already in force. This redirected to other *comarcas* litigation relating to fulfilment of obligations where the defendant did not reside in the metropolitan areas of Lisbon or Oporto. Such an effect is only significant for enforcement actions that have been the most affected by this legislative

14. Gomes (2006) concludes that, on average, between 2000 and 2004 companies filed 63 percent of declarative cases and almost 90 percent of enforcement ones.

change. Note that the aim here is not to assess the impact of this reform, but essentially to control for its effects on the regional distribution of litigation.

The estimates of year fixed effects in equation (1) would ideally be regressed on a set of possible determinants of the evolution of litigation over time (an approach similar to that followed for the *comarca* fixed effects, in the next section). Nevertheless, having only 19 years of data makes this approach unfeasible. In an attempt to obtain some evidence on this issue, one analysed the correlation between the changes in litigation, measured by the estimates of year fixed effects, and some factors of potential relevance in this context. One considered the mass debt collection indicators mentioned in the section devoted to the data, namely the stock of non-performing loans to companies and to individuals and the number of contracts for the mobile telephone service, and the value of the unit of account used in the calculation of court fees. The correlations have the expected signal, i.e. positive for the first three variables and negative for the fourth, but lack statistical significance. One also considered the correlation with the real GDP growth rate, this being negative but statistically not significant as well. A counter-cyclical variation of incoming cases may reflect a greater tendency for contract-breaching with the deterioration in macroeconomic conditions. It should be noted, however, that economic growth and litigation may be positively associated in the long run, to the extent that an increase in the volume and complexity of economic relationships may contribute to greater litigation.

Determinants of litigation: structural characteristics of *comarcas*

Explanatory variables

Following the estimation of equation (1), the dependent variable is now the estimate of *comarca* fixed effects.[15] The explanatory variables are taken as the average for the available time frame and include: the number of lawyers *per capita* enrolled in the *círculo* the *comarca* belongs to (*Lawyers*), the number of small and medium (*SME*) and large enterprises (*LargEnterp*) in the *comarca* relative to the population, the population density (*PopDens*), the purchasing power index (*PPI*) and the illiteracy rate (*IllitRate*).

The literature modelling the determinants of demand for justice has not considered the existence of spatial interaction effects, not allowing the litigation in a given region to depend also on the characteristics of the surrounding regions. Indeed, to the extent that a party to a case does not

15. This estimate is obtained by averaging the composite residuals by *comarca*. More specifically, one takes the fixed effects not conditioning to litigation in the previous year, whose expression is given by $\alpha_i/(1-\beta_1)$, where β_1 is the coefficient of the lagged litigation rate. The composite residuals are an estimate of $(c+\alpha_i+\varepsilon_{i,t})$ in equation (1).

reside in the *comarca* where it is brought, there will be interdependence among *comarcas*, particularly neighbouring ones, in the determination of litigation. This phenomenon is modeled by means of a spatial econometric model (see, for example, Paelinck and Klaassen 1981; Anselin *et al.* 1995, and 2004) that uses information about the location of the geographical units in the sample (*comarcas*), summarized in a matrix of spatial weights. The construction of this matrix may follow several criteria, including a contiguity criterion, which would confine the interdependence to contiguous geographic units, or a distance criterion. In this paper the second option is chosen, inasmuch as it will primarily be the distance (irrespective of the existence of a common spatial boundary) to determine the intensity of spatial effects.

Spatial models may include spillover effects of various types, notably the so-called exogenous effects that in this context consist of making the litigation in a given *comarca* depend on the characteristics of the neighbouring ones (taking the distance as a weight). The estimation may also incorporate interaction effects in the error term, under the assumption that the omitted explanatory factors have the same kind of spatial dependence.[16] Equation (2) shows the specification to be estimated, including the abovementioned explanatory variables and also the spatially weighted averages of the values taken by each of these variables in other *comarcas*, except for the concentration of lawyers.[17] The same spatial correlation mechanism is assumed for the error term.

$$\begin{aligned}\hat{\alpha}_i &= c + \beta_1 Lawyers_k + \beta_2 SME_i + \beta_3 LargEnterp_i + \beta_4 PopDens_i \\ &\quad + \beta_5 PPI_i + \beta_6 IllitRate_i + \mathbf{w}_i \boldsymbol{X}\boldsymbol{\gamma} + e_i, \\ e_i &= \lambda \mathbf{w}_i \mathbf{e} + \varepsilon_i,\end{aligned} \tag{2}$$

where i indexes the *comarca* and k the *círculo*, $\hat{\alpha}_i$ is the estimate of the *comarca* fixed effect, $\mathbf{w}_i$ is the row of the matrix $\mathbf{W}$ of spatial weights that corresponds to *comarca* i, $\boldsymbol{X}$ is a matrix whose columns contain the covariates which were spatially interacted, and $\boldsymbol{\gamma}$ contains the coefficients of such covariates. The w_{ij} element of matrix $\mathbf{W}$ results from the inverse of the distance between the *comarcas* i and j of mainland[18] if $i \neq j$, and equals 0 if

16. It does not appear adequate to take on board endogenous interaction effects (that concern the dependent variable), since the decision by an agent to bring a case in a given *comarca* does not usually depend on similar decisions by other agents in other *comarcas* (once controlling for spatial interactions in observed and omitted explanatory variables). Note that the law prescribes the *comarca* in which a case must be brought and, even where there is a choice, this is much restricted.

17. As explained in the section devoted to the data, the variable *Lawyers* is defined for *círculos*, which are geographically much broader than *comarcas*.

18. The weights are determined so that the closest *comarcas* have a greater weight and their sum for a given *comarca* is equal to 1. The distance between *comarcas* that underlies this matrix is

$i = j$. The weight w_{ij} was truncated to 0 in the case of *comarcas* more than 100 km apart. One experimented with shorter distances for this truncation and also not imposing it, but the results did not change much. In the equation for the error term, λ is the spatial autocorrelation coefficient.

Results

Table 3 presents the results for the model with spatial spillovers, taking civil cases as a whole, and also declarative and enforcement ones separately. The last column presents for comparison the estimates for the model without spatial effects, i.e. imposing the restriction $\gamma = 0$ and $\lambda = 0$ in equation (2) (see Appendix B for the estimation methods). Given that the explanatory variables are measured in quite different units (see table A.2 in Appendix A), the figure 5 shows the percentage impact on the civil litigation rate of changes in socioeconomic regressors on a more comparable basis (with the magnitude of 1 standard deviation). The results of this section concern the *comarcas* located in mainland Portugal only. Note that the inclusion of the *comarcas* on Azores and Madeira (in the model without spatial interactions) does not change the findings as to the variables that are statistically significant and respective coefficients.

The evidence presented in table 3 is clear about the joint significance of the covariates interacted with the spatial weights matrix. As to the presence of spatial autocorrelation in the errors, this is significant for enforcement claims only. The specification with spatial interactions is more informative, as it allows disentangling the geographical origin of the impacts. Indeed, the impact of a given factor on litigation may differ depending on whether it stems from the *comarca* concerned or the neighbouring ones (as shown below). As the neighbouring *comarcas* tend to have similar characteristics, there is a relatively strong and positive correlation in this regard.[19] Therefore, in the regression without spatial effects, the coefficients capture a mixture of impacts originating in the *comarca* itself and surrounding ones.

calculated as the Euclidean distance between the respective centroids, and the latter have been obtained from data by municipality available in the *Carta Administrativa Oficial de Portugal* of 2014 at the site of the *Direção-Geral do Território* (www.dgterritorio.pt).

19. The correlation between a given covariate (say, $\boldsymbol{x}$) and its version interacted with the spatial weights matrix ($\mathbf{W}\boldsymbol{x}$) ranges from 0.43 for the concentration of large companies to 0.70 for the illiteracy rate.

Explanatory variable	Civil cases	Declarative	Enforcement	*memo item: civil cases no spatial effects*
Constant	2.004***	1.144***	0.420	0.642***
	(0.234)	(0.24)	(0.403)	(0.105)
Small and medium enterprises	3.647***	2.850**	4.500***	-0.196
	(1.273)	(1.388)	(1.651)	(1.34)
Large enterprises	0.590*	0.706**	0.587	0.993**
	(0.326)	(0.354)	(0.427)	(0.437)
Purchasing power	0.273**	0.279**	0.326**	0.003
	(0.128)	(0.14)	(0.166)	(0.128)
Illiteracy rate	-1.355***	-0.190	-2.454***	-2.194***
	(0.47)	(0.51)	(0.616)	(0.397)
Population density	0.520	0.164	0.492	0.238
	(0.44)	(0.469)	(0.565)	(0.48)
Lawyers	0.801***	1.073***	0.987***	1.191***
	(0.166)	(0.174)	(0.206)	(0.219)
W*Small and medium enterprises	-22.522***	-12.503***	-27.634***	
	(4.788)	(4.666)	(7.982)	
W*Large enterprises	-2.392	-1.375	-2.498	
	(2.468)	(2.565)	(3.557)	
W*Purchasing power	1.615***	-0.051	2.175**	
	(0.551)	(0.546)	(0.892)	
W*Illiteracy rate	-5.052***	-10.026***	-1.204	
	(1.532)	(1.65)	(2.308)	
W*Population density	-6.870***	-5.080***	-6.421**	
	(1.789)	(1.742)	(2.993)	
Lambda	0.103	-0.065	0.500**	
	(0.286)	(0.329)	(0.214)	
Signif. of interactions - W's (p-value)	[0.00]	[0.00]	[0.00]	
N (comarcas)	192	192	192	192

TABLE 3. Impact of characteristics of *comarcas* on litigation

Notes: Results of the estimation of equation (2) for the mainland *comarcas*, with the *comarca* fixed effects as the dependent variable, by a maximum likelihood estimator (LeSage, 2004). The last column presents the results of the estimation by least squares of a model without spatial effects. Standard deviations are in parentheses. P-values: * <0.1; ** <0.05; *** <0.01.

The small and medium-sized enterprises located in the *comarca* appear as a litigation generator and, as far as declarative actions are concerned, this holds as well for large companies. Such an evidence is consistent with Gomes (2006) who concludes that between 2000 and 2004 about 3/4 of civil cases were filed by companies. By contrast litigation *per capita* varies negatively with the concentration of small and medium enterprises in neighbouring *comarcas* (which, in the regression without spatial effects, disturbs the estimate for the *comarca* itself). As for large companies, spatial interactions lack statistical significance. The negative sign of the relationship between litigation and the concentration of small and medium enterprises in neighbouring areas may be associated with the fact that the proportion of economic relationships within-*comarca* goes down with the increase of such concentration. Therefore part of the litigation that stems from these

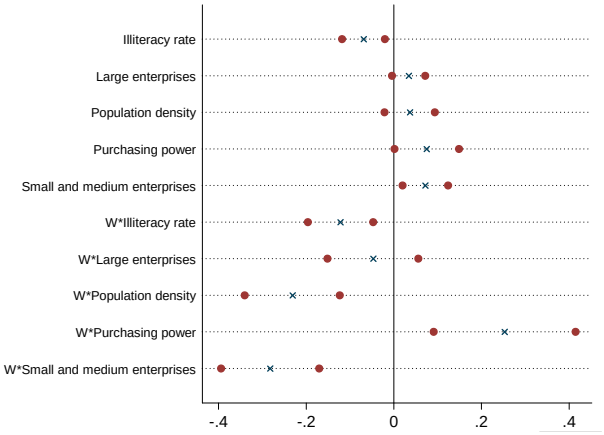

FIGURE 5: Percentage change in the civil litigation rate as a result of changes in the socioeconomic covariates of comparable magnitude

Note: One-standard-deviation increases in each regressor; the figure shows the point estimate (x in blue) and the confidence interval at 95 percent (circles in red).

relationships will be diverted to the surrounding *comarcas* (in particular, where they constitute the defendant's domicile). Moreover, concerning litigation between individuals and companies (assuming that the companies generally have the initiative, in this case), such result may also reflect a preference by companies for bringing cases in their own *comarcas*.[20]

In interpreting the impact of the concentration of large companies on litigation, it should be noted that this explanatory variable is not appropriate to capture mass debt collection disputes. Indeed, a significant part of mass litigants are large companies - mainly located in the *comarcas* of Lisbon and Oporto and in the service sector - but they make up a small part of this universe. In fact, it is not easy to study this phenomenon with the information available. In particular, a binary variable identifying the *comarcas* where the headquarters of at least one large litigant is located (see definition in footnote 13) is not suitable for this purpose, because it would work as a fixed effect for the most developed *comarcas* in the country.

In the specification with spatial spillovers, the *comarcas* with greater purchasing power have higher levels of civil litigation, which is not surprising given the likely association between disposable income and credit granting or deferred-payment contracts. Litigation in this type of legal relationships is mainly related to debt default and gives rise to enforcement actions, but also

20. This possibility was wider before the change in the territorial jurisdiction of courts in 2006. Even after this reform and for cases that concern the fulfilment of obligations, there is still a choice if the parties reside in the metropolitan areas of Lisbon and Oporto.

to declarative ones for debt recognition. An effect of neighbouring *comarcas* is, for the purchasing power, confined to enforcement claims (also showing up for the overall civil). In this case, the coefficient is positive, supporting a complementarity between *comarcas* in the generation of litigation, unlike the concentration of companies that brings about a substitution effect between them. In this regression, the purchasing power is capturing the general level of economic development of *comarcas*, as other indicators, such as the concentration of corporations, are held fixed.

A higher illiteracy rate has a negative impact on the civil litigation rate, as expected, given that *comarcas* with lower educational levels will feature less formal social relationships, and this may reduce the propensity to litigate. Such a result holds for enforcement actions but not for declarative ones. In this case there is also a complementarity in the estimated effects between *comarcas*.

It is interesting that some socioeconomic factors, such as the density of small and medium enterprises and purchasing power, appear to play a more important role for litigation when stemming from the surrounding *comarcas* than from the *comarca* itself, despite the uncertainty of the estimates. This importance of spatial spillovers probably reflects the small size of the basic territorial units underlying the organization of justice vis-à-vis the geographical extent of the transactions between economic agents. Such an evidence highlights the need to consider the environment surrounding each *comarca* in the definition of justice policies.

Impact of the concentration of lawyers on litigation

The results in table 3 support the hypothesis of a positive impact of the concentration of lawyers on litigation, both for declarative and enforcement actions. Demand inducement by lawyers is plausible in this market, because it concerns a service based on trust[21] which, owing to its high degree of technical complexity, is characterized by strongly asymmetric information between the provider and the client. This asymmetry extends to essential aspects in the decision to bring a case, as the expected length and probability of success. Such an evidence may also result from lower fees being charged in more competitive markets which, in turn, would make litigation financially more attractive. Indeed in Portugal, unlike in some other European countries (Palumbo *et al.* 2013), fees are not fixed by law, being only regulated by the Bar Association. Unfortunately, as mentioned in the section devoted to data, it was not possible to collect sound data on lawyer fees, and so this issue could not be pursued.

21. Such goods and services are called credence goods (Darby and Karni 1973). Dulleck and Kerschbamer (2006) feature a literature review about this topic, addressing the expected effects given the characteristics of each market.

Nevertheless, the evidence presented in table 3 has, as a major limitation, the likely endogeneity of the concentration of lawyers that should respond positively to the volume of litigation in the *comarca*. Accordingly, Appendix C presents the results when that variable is instrumented by the distance of a given *comarca* to the *comarca* where the nearest law college is located, a procedure also followed in Carmignani and Giacomelli (2010) (see Appendix B for details on the estimation). The use of this instrumental variable assumes that it is (negatively) correlated with the number of lawyers *per capita*, but it does not directly affect litigation. As regards the first assumption, there is a negative and statistically significant effect of the instrumental variable on the number of lawyers, controlling for the other explanatory variables in regression (2).

Firstly, it is interesting to compare the new estimates for the remaining variables with those in table 3, as the endogeneity of the concentration of lawyers could also bias them. The estimates do not significantly change, as regards the signs and magnitudes of the coefficients. However, some of the variables lose statistical significance, as the density of large companies and the purchasing power at the *comarca* level, which may reflect the increase in variance that is characteristic of instrumental variables estimators. The evidence of demand inducement by lawyers remains unchanged. This is consistent with the abovementioned studies (Carmignani and Giacomelli 2010; Bounanno and Galizzi 2010; Ginsburg and Hoetker 2006). Nevertheless, contrary to what one would expect, the estimated coefficient does not come down from table 3, even if the respective confidence intervals at 95 percent intersect. The results for the concentration of lawyers must thus be interpreted with caution, as there is uncertainty about an effective correction of its endogeneity in the second estimation.

Conclusions

This paper presents an econometric approach to the determinants of civil litigation in Portugal, using a panel database that covers 210 *comarcas* over a period of about 20 years. There is evidence that the decision to bring a case is negatively influenced by the length of proceedings, indicating that this variable plays a role in rationing access to justice. In addition, the inflow of non-civil cases (associated with labor, criminal and family law) has a positive impact on the inflow of civil cases, suggesting that the implementation of policy measures in a given law area will benefit from an integrated perspective of the system.

The results support the existence of important spillover effects between *comarcas*. Therefore, an assessment of resources allocated to a *comarca* should take into account the characteristics of the surrounding areas. The socioeconomic indicators considered indicate a positive relationship

between the level of development and litigation, particularly visible for the illiteracy rate and purchasing power. There is also evidence that the location of companies is a strong attractor of litigation, and differences between neighbouring *comarcas* with regard to the concentration of small and medium enterprises divert litigation from each other. Finally, trying to correct for potential endogeneity issues, there is evidence of demand inducement by lawyers.

The findings of this study should be seen as complementary to those achieved by other scientific approaches. In this regard, a multidisciplinary analysis of justice policy issues appears beneficial. In terms of future research, it would be useful to compare the factors underlying the geographical distribution of litigation, studied in this article, with the changes in the territorial distribution of resources allocated to justice. Furthermore, it would be important to deepen the understanding of the impact of costs borne by litigants on the demand for justice, an aspect that could not be addressed due to data limitations.

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Appendix A: Descriptive Statistics

Variable	Unit	Observations	Mean	Standard deviation	Min.	Max.
Litigation rate	No. / 100 pop	4410	2.79	1.77	0.26	29.95
Litigation rate - declarative	No. / 100 pop	4410	0.69	0.69	0.04	19.54
Litigation rate - enforcement	No. / 100 pop	4410	1.39	1.06	0.01	18.34
Litigation rate - non civil	No. / 100 pop	4410	1.50	1.13	0.23	19.93
Average length of resolved cases	months	4410	18.30	6.21	1.65	60.39
Average length of resolved cases- declarative	months	4410	16.48	6.18	1.17	72.71
Average length of resolved cases - enforcement	months	4410	21.70	9.34	2.13	66.78
Tribunais de círculo	No. / 100 pop	4410	0.06	0.13	0.00	1.07
Tribunais de círculo - declarative	No. / 100 pop	4410	0.02	0.06	0.00	0.58
Tribunais de círculo- enforcement	No. / 100 pop	4410	0.01	0.02	0.00	0.23

TABLE A.1. Descriptive statistics – variables in the first set of regressions

Variable	Unit	Period	Observations	Mean	Standard deviation	Min.	Max.
Purchasing power	index base 1	1993-2011 (biennial)	210	0.70	0.27	0.38	2.63
Illiteracy rate	No. / 100 pop.	1991, 2001, 2011	210	0.12	0.05	0.03	0.30
Lawyers	No. / 100 pop.	2006-2013	210	0.15	0.12	0.07	1.59
Population density	Pop. / dam^2	1993-2013	210	0.03	0.06	0.00	0.57
Small and medium enterprises	No. / pop.	2004-2012	210	0.10	0.02	0.06	0.18
Large enterprises	No. / 1.000 pop.	2004-2012	210	0.04	0.06	0.00	0.42

TABLE A.2. Descriptive statistics – variables in the second set of regressions

Appendix B: Estimation

Equation (1)

Equation (1) cannot be estimated by the usual fixed effects estimator for panel data. Indeed, the dynamic nature of the panel brought about by the inclusion of the lagged dependent variable - that is not strictly exogenous - leads to the inconsistency of this estimator. At the same time, it is plausible that there is an impact of litigation on court congestion and, indirectly, on the length of proceedings. In this case, such length would depend on the litigation in previous periods, leading as well to the violation of the strict exogeneity assumption. Given that it is still reasonable to assume the length of proceedings, similarly to lagged litigation, to be predetermined relative to future litigation, these variables can be instrumented by their own lags (Wooldridge 2002, Chapter 11). Equation (1) was thus estimated by the generalized method of moments of Arellano and Bond (1991) which, in addition to being consistent in the presence of predetermined variables, is more efficient than alternative estimators, such as Anderson and Hsiao (1982). As it was felt that the creation of *tribunais de círculo* could somehow also respond to past congestion, this variable was instrumented in the same way. Taking into account the number of years in the panel, one followed the usual procedure of restricting the number of instruments, which were limited to the sixth lag. However, augmenting the number of lags does not significantly alter the estimates.

Equation (2)

Equation (2) is estimated by the maximum likelihood method that in the presence of spatial autocorrelation is more efficient than the least squares estimator (LeSage 2004). The fact that the dependent variable in this equation is estimated may bring about heteroskedasticity in the variable ε_i (Lewis and Linzer 2005). A generalized least squares estimator, robust to heteroskedasticity, was also tried but with a negligible change in the estimates. Drukker *et al.* (2013b) presents an implementation of this estimator and the maximum likelihood estimator in STATA.

In the regression instrumenting the concentration of lawyers, one uses the generalized method of moments estimator with instrumental variables developed by Drukker *et al.* (2013a). See also Drukker *et al.* (2013c) for an implementation of this estimator in STATA.

Appendix C: Estimates taking into account the endogeneity of the concentration of lawyers

Explanatory variable	Civil cases	Declarative	Enforcement
Constant	1.744***	0.929***	-0.074
	(0.345)	(0.322)	(0.964)
Small and medium enterprises	3.307**	2.573*	3.908**
	(1.377)	(1.474)	(1.879)
Large enterprises	0.436	0.581	0.329
	(0.362)	(0.386)	(0.51)
Purchasing power	0.131	0.141	0.070
	(0.176)	(0.185)	(0.249)
Illiteracy rate	-1.934***	-0.773	-3.491***
	(0.689)	(0.72)	(0.99)
Population density	-0.290	-0.533	-0.851
	(0.714)	(0.748)	(1.079)
Lawyers	1.606***	1.797***	2.356**
	(0.609)	(0.63)	(0.933)
W*Small and medium enterprises	-20.967***	-12.203**	-25.710**
	(5.843)	(5.535)	(10.757)
W*Large enterprises	-2.031	-0.615	-1.888
	(2.836)	(2.9)	(4.224)
W*Purchasing power	1.531**	-0.033	2.195*
	(0.67)	(64)	(126.4)
W*Illiteracy rate	-3.325	-8.229***	1.978
	(2.291)	(2.273)	(4.075)
W*Population density	-5.242**	-4.015*	-3.845
	(2.224)	(2.146)	(3.796)
N (comarcas)	192	192	192

TABLE C.1. Impact of characteristics of *comarcas* on litigation

Notes: Results of the estimation of equation (2) for the mainland *comarcas*, with *comarca* fixed effects as the dependent variable, by a generalized moments estimator with instrumental variables (Drukker *et al.*, 2013a). Standard deviations are in parentheses. P-values: * <0.1; ** <0.05; *** <0.01.