

ENTREPRENEURSHIP, ENFORCEMENT INSTITUTIONS AND ACCESS TO FINANCE: DISAGGREGATED EVIDENCE FOR SPAIN¹

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Abstract

Entry of new firms, both in the form of entrepreneurs or corporations, fosters competition and productivity. Both the entry of firms and productivity have been low in the Spanish economy over the recent years. This paper analyzes the determinants of entry focusing on the role of the design and efficacy of enforcement institutions (the judicial system), an aspect traditionally overlooked. In order to do so, we exploit disaggregated data at the local level in Spain. We find that higher judicial efficacy increases the entry rate of firms, while has no effect on the exit rate. Crucially, that impact only occurs in the case of the entry rates of entrepreneurs, defined as self-employed, but not in the case of limited liability corporations. This finding may be explained by the fact that judicial (in)efficacy can be regarded as a fixed cost to be paid by the agents that litigate. Hence, the economic activity of entrepreneurs -and specifically, their entry into the market- is expected to be more affected than that of larger firms.

JEL Classification: L26, M13, K40, R12.

Keywords: entrepreneurship, judicial efficacy, barriers to entry

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1 Introduction

Entry of new firms, either in the form of self-employed entrepreneurs or larger companies, such as limited liability corporations, generates a competitive pressure on existing enterprises and it endows the market with the newest capital (Brandt, 2004 and López-García and Puente, 2007). Not surprisingly, Scarpetta *et al.* (2002) found evidence suggesting that the substitution of the most obsolete firms by new firms can stimulate productivity growth. Following Foster *et al.* (1998), around 25% of productivity growth in the U.S. manufacturing sector could be explained by the “net entry effect”, that is, the exit of less productive plants that are displaced by more productive entering firms. The impact on productivity could be explained by the fact that new businesses often emerge in areas related to ICT or R&D, as noted by Brandt (2004). In fact, she finds that the major differences in entry rates between the countries in her study are explained by the entry rates in ICT industries. Related to this, entrepreneurs, i.e., businessmen who own and run their firms, have been regarded as catalysts of economic change due to their capacity for innovation and risk-taking (Armour and Cumming, 2008).

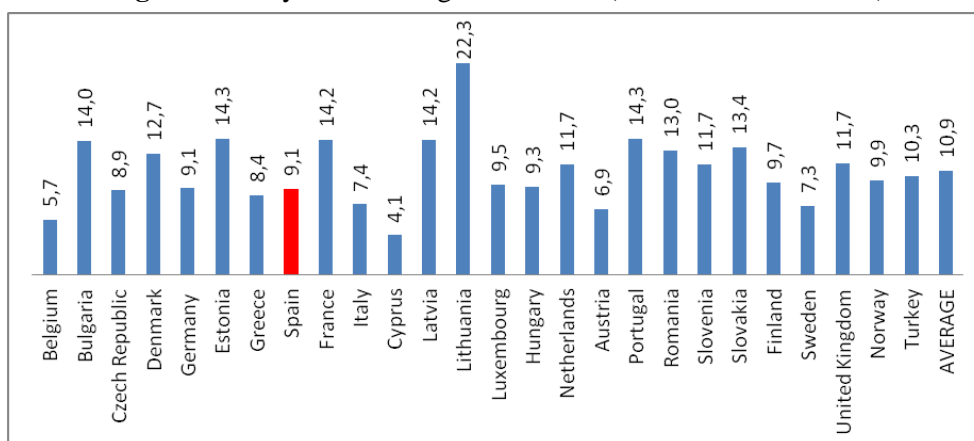
The positive impacts on productivity of higher entrepreneurship and entry of new firms have also been found for the case of Spain (see Martín Marcos and Jaumandreu, 2004 for the case of the Spanish manufacturing firms). Specifically Huergo and Jaumandreu (2004) observed that new manufacturing firms in Spain are more likely to innovate compared to incumbents. In terms of TFP, Fariñas and Ruano (2004) confirmed that the replacement of exiting firms by entering new firms in Spain had a significant positive effect on TFP in manufacturing firms as well.

The study of entrepreneurship is important for the case of the Spanish economy for several reasons. First of all, the entry rate of new firms is low by international standards. Figure 1 shows the average entry rates (including all sectors for the period 2004-2010) in all European economies. Spain is below the European average and below all major economies with the exception of Italy.³ The results of López-García and Puente (2007) also show that entry rates in Spain are below those of the U.S. and Canada. Ardagna and Lussardi (2008), using GEM (Global Entrepreneurship Monitor) data show that the rate of Total Entrepreneurial

³ This result complements the findings of both Núñez (2004) and López-García and Puente (2007). These studies showed that the “turnover” of companies in Spain was lower than in other countries, especially due to the low rates of exit of firms.

Activity⁴ is 5.23% in Spain, lower than the OECD average (6.65%) and the group of Civil Law countries average (8.36%). Moreover, Spain has been a country characterized by low productivity growth and low innovation (Mora-Sanguinetti and Fuentes, 2012) over the most recent years.

Figure 1: Entry rates, average 2004-2010 (international evidence)



SOURCE: Eurostat (2013).

The literature has highlighted several factors that affect entrepreneurship, such access to credit and related liquidity constraints [Evans and Jovanovic (1989), Aghion *et al.* (2007), Samila and Sorenson (2011)], education (European Commission, 2012), the regulatory environment, in the form of taxation [Glenn Hubbard and Gentry (2000), Cullen and Gordon (2007), Djankov *et al.* (2010)]⁵, labour market regulations [Scarpetta *et al.* (2002), Botero *et al.* (2004), van Stel *et al.* (2007)], entry regulations [Djankov *et al.* (2002), Klapper *et al.* (2006), Ciccone and Papaioannou (2007), Branstetter *et al.* (2013)], forgiving personal bankruptcy laws [Audretsch (2002), Fan and White (2003), Armour and Cumming (2008)] and culture.

Nevertheless, an aspect that has been overlooked until very recently is contract enforcement, i.e., the efficacy of courts in making parties honour their contractual obligations. To the best of our knowledge, there are only three works referring to the issue at the international level [Desai *et al.* (2005), Ardagna and Lusardi (2008) and Stephen *et al.* (2009) who used aggregate data when measuring contract enforcement at the national level] and two at the specific country level [Chemin

⁴ Calculated as an indicator that equals one if individuals are starting a new business or are owners and managers of a young firm. The result is expressed as a % of respondents answering yes to the question.

⁵ See also Balamoune-Lutz and Garello (2013) for a complete literature review on the specific issue.

(2009) and Lichand and Soares (2011) for Pakistan and Brasil respectively]. Those studies find that lower quality of contract enforcement (in the sense of slower tribunals, less trained judges or more “formal” systems depending on the study) has a negative impact on entrepreneurship. In the case of Ardagna and Lusardi (2008), the authors find that lower efficiency of the judicial system diminishes the positive effects of social networks, skills or labour force status for a multiplicity of countries. Desai *et al.* (2005) find that greater judicial interference and greater formalism of the judicial procedures are associated with lower entry of new firms in the market. They find that the effect is especially important for emerging markets (thus, the impact is lower in the case of developed western economies). Both Ardagna and Lusardi and Desai *et al.* utilized as a measure of judicial efficacy or quality of enforcement institutions the indicator proposed by Djankov *et al.* (2003) that inspired the Doing Business (DB) project (contract enforcement indicator) or the DB data directly. Those data are aggregate data at the country level, based on estimations (not real judicial efficacy data).

For its part, Stephen *et al.* (2009) analyze the nature of the interplay between labour markets and enforcement institutions (although they also use the Djankov *et al.* 2003 indicator). They find that the greater the formality of the country’s legal system, the less effective the (restrictive) labour regulations are, with the subsequent positive impact on entrepreneurship.

This study shows that more effective courts in Spain, measured using real performance data at the local level, seem to promote the entry of entrepreneurs into the market. We concentrate on civil cases and, therefore, the problem studied is how the low enforcement of contractual obligations between private parties may discourage entry into the market. This study, therefore, uses real judicial efficacy measures in line with Chemin (2009) and Lichland and Soares (2011). Our data are obtained directly from the courts and allow us to differentiate the efficacy of the judicial system by province, subject and by procedure.

Our methodology thus studies the potential impact of judicial efficacy on entry rates at the local level in Spain, after controlling for the economic cycle, factors that change very slowly over time such as culture, the provision of credit, the industry composition of the market and economic development. We also control for changing PMR (product market regulation) regimes at the region level and regional taxes. Another advantage of our approach is that an important determinant

of entrepreneurship, the personal bankruptcy law, is set at the national level and does not change across Spanish regions, so our study can isolate the effects of other factors. Same should be said about the level of “formalism” (as the civil procedural rules are common to all provinces) and labour regulations (again, common to all provinces).

Specifically, we find that higher judicial efficacy increases the entry rates of firms, while has no effect on exit rates. Crucially, that impact only occurs in the case of the entry rates of entrepreneurs, defined as self-employed, but not in the case of limited liability corporations. This finding may be explained by the fact that judicial (in)efficacy can be regarded as a fixed cost to be paid by the agents that litigate. Hence, the economic activity of entrepreneurs -and specifically, its entry into the market- is expected to be much more affected than that of larger limited liability companies.⁶ A large company may have on staff a legal department or a lawyer to deal with legal conflicts or compliance issues. However, this does not normally occur in a small business. That is, seeking legal assistance can be much more expensive in relative terms for small businesses.⁷

The study of the design of enforcement institutions and, in particular, the effectiveness of the judicial system is relevant for the Spanish case. Spain would hold the position 26 out of a total of 35 legal systems in its agility to resolve disputes before the first instance courts according to the recent results of the OECD (Palumbo *et al.* 2013). That is, although the position of Spain is in line with other civil Law countries such as France, it is worse than the average and lower than other European economies such as Germany or Sweden. Even less favourable results can be found on the Doing Business (DB) Project of the World Bank in its "enforcing contracts" indicator, published since 2004. 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

⁶ Our analysis crucially hinges on the fact that limited liability companies are larger than the businesses run by self-employed individuals. See Appendix A for empirical evidence. Moreover, in Spain the creation of a limited liability company requires an initial capital (3000 euros for a "sociedad limitada" and 60000 in the case of a "sociedad anonima"). It should be noted that the sum of the limited liability companies and companies with unlimited liability, such as those founded by entrepreneurs individually, account for nearly 100% of companies in Spain. That is, there are some companies with a hybrid nature (“cooperativas” and “sociedades comanditarias”) but they are less than 1% of the total number of firms and are not considered in this study.

⁷ The same argument can be found in the literature on the costs of "red tape" (OECD, 2001 or Nijsen and Vellinga, 2002).

findings are in line with those of the Circulo de Empresarios (2003), which conducted a survey among Spanish companies on the state of Spanish justice.

The rest of the paper is organised as follows. Section 2 presents a detailed analysis of both the entry and exit rates of firms in Spain at the local level, and the differences between entrepreneurship and other forms of entry in the market. It also presents the construction of the database measuring the efficacy of the judicial system used in this analysis. Section 3 presents our empirical strategy and the main results. Finally, Section 4 concludes and explains our findings. Some additional information can be found in several appendices.

2 Measuring the institutional environment and business demography in the Spanish economy

2.1 Measuring business demography

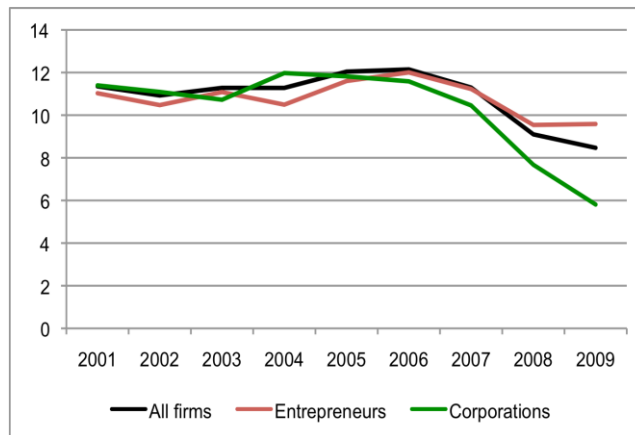
With the aim of measuring business demography in Spain we use information on the number of firms, entries and exits by province and year over the period 2001-2009. This data come from the Spanish National Statistics Institute (INE) and are broken down by the legal condition of the firm. Therefore we can distinguish between newly created limited liability corporations and self-employed individuals creating an enterprise. With this information we can compute aggregate (all firms) entry and exits rates and also those for corporations and entrepreneurs (whose empirical counterpart are the self-employed) separately.

The entry rate is defined as the 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 (which include the new and continuing firms). Consistently, the exit rate is defined as the number of firms that exit the market in a given year as a percentage of all the active firms in that market at the end of the year.

Both entry and exit rates show sizeable variation across provinces and years in Spain, notwithstanding that the rates are lower than in other countries as introduced in Section 1. Entry rates have decreased and exit rates have increased since the onset of the last recession (2007-2009), as shown in Figures 2 and 3, respectively. The exit rates of entrepreneurs have been systematically higher than those of corporations during the period of study (2001-2009), while there is no clear pattern in the case of entry rates. Aggregate entry rates range between the 15% of the

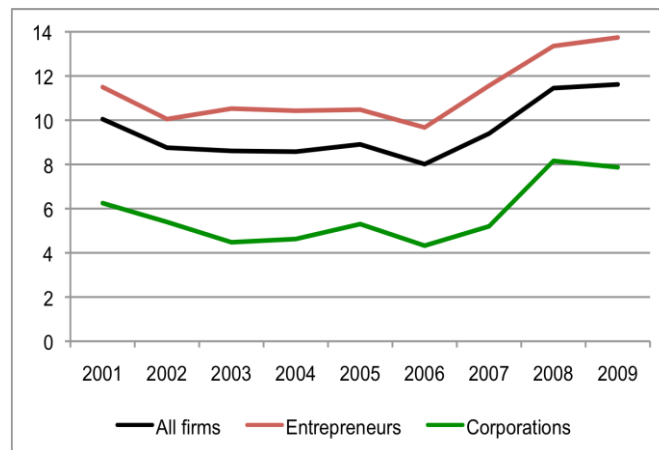
province of Caceres and the 8.2% of province of Soria, while aggregate exit rates range between the 11.8% of Gerona and the 7.6% of Soria. There is little correlation between entry and exit rates for all firms (0.01), while that correlation is moderately positive in the case of entrepreneurs (0.15) and negative for corporations (-0.22). The geographical and time distribution of entry and exit rates is shown in detail in Appendices B and C, respectively. In our empirical analyses the log transformation has been used for all entry and exit rates in order to correct for their skewed distributions⁸.

Figure 2: Entry rates (national means)



SOURCE: Self elaboration and Instituto Nacional de Estadística (2013).

Figure 3: Exit rates (national means)



SOURCE: Self elaboration and Instituto Nacional de Estadística (2013).

⁸ Moreover, there were some outliers. Specifically, the entry rates (both for corporations and self-employed) in the province of Caceres in 2001 were extremely high (see Appendix B). Those observations have been replaced by their province-means for the rest of years (2002-2009).

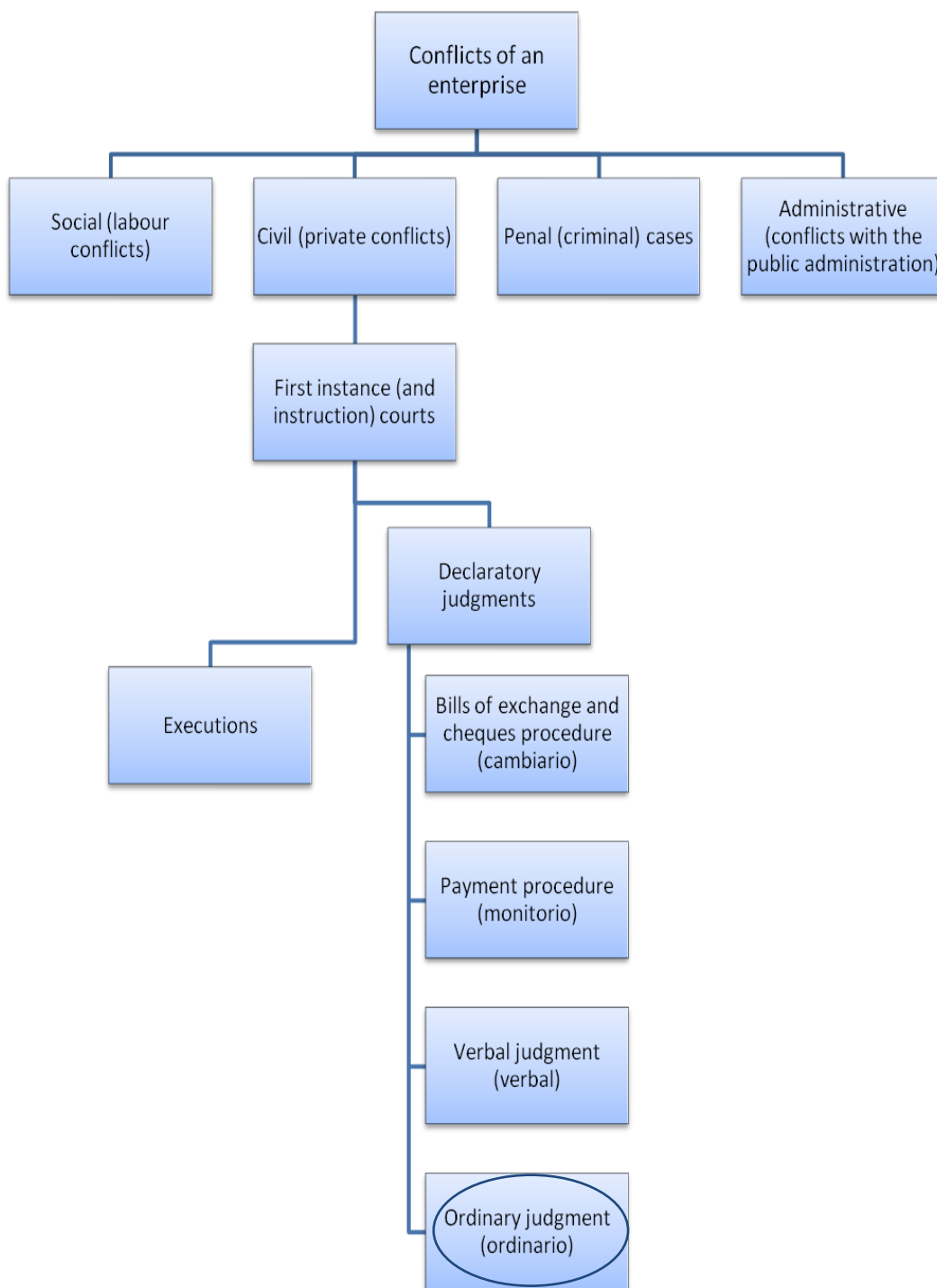
2.2 Constructing measures of judicial efficacy in Spain

In order to measure judicial efficacy in Spain this paper constructs a set of efficacy measures at the local (provincial) level using direct information provided by the courts to the Spanish General Council of the Judiciary (*Consejo General del Poder Judicial*, hereinafter CGPJ).

Specifically, the CGPJ database reports the number of cases filed, resolved and still pending in the Spanish judicial system by region, court, year, subject and procedure. Therefore, we will be able to distinguish the specific type of civil procedure used by the agents at the declaratory stage (*ordinary judgment, verbal, monitory and exchange*) or at the execution stage (see Figure 4 for further details). The database also provides information on the nature of the conflict (civil, penal, administrative or labour) and on the specific court in which the procedure takes place. Therefore constructing the indicators from the data is a complex issue. The following paragraphs explain how to build these efficacy measures.

As an outline (see Figure 4), first we should identify the jurisdiction that deals with the conflicts which we consider most relevant for the functioning of a company and therefore could affect more directly the decision of entry into the market (and, in general, the incentives for entrepreneurship). Different types of conflicts are dealt with by different jurisdictions inside the judicial system in Spain, which are served by different groups of judges. Once that jurisdiction (*orden jurisdiccional*) has been identified, we must identify the specific court in which a company has to initiate proceedings in order to defend its interests and the specific procedure that must be used.

Figure 4: The Spanish judicial system



SOURCE: Self elaboration.

Regarding the jurisdiction, a company in Spain may be confronted with very different types of conflicts in its daily functioning: labour legislation conflicts (which are dealt by the *juzgados de lo social* in Spain and are not considered “civil” unlike other European legislations), conflicts with the public administration, dealt by *juzgados contencioso-administrativos*, criminal cases or civil conflicts which are those that may arise with other private firms (competitors or partners) or other private parties such as suppliers and customers. Examples of the latter conflicts include disputes concerning the interpretation of a contract, disagreements regarding the quality of products, or claims related to the intellectual property of a work or service. Those conflicts will be dealt with by civil courts (*juzgados de lo civil*). We focus the analysis on civil conflicts because we consider that such conflicts are the most relevant to the daily activity of companies and affect all areas of business. They are also the conflicts that are quantitatively more important. Moreover, civil Law legislation in Spain is considered supplementary on all other areas of Law.

The civil jurisdiction (the relevant one for the cases explained above) is regulated by the Civil Procedural Law (CPL)⁹ which regulates all civil conflicts in Spain. This Law establishes that a new conflict must enter the judicial system through the first instance courts (*juzgados de primera instancia*) and the first instance and instruction courts (*juzgados de primera instancia e instrucción*). It must be noted that some extrajudicial solutions may be found by the parties, such as sending the case to arbitration (*Ley de Arbitraje*). However, even in that case only a judge (thus, the judicial system) can enforce an arbitral decision (*laudo*).

The CPL also determines the specific procedure that must be used before the judge. There are different procedures depending on the amount involved or the subject. On one side there are ordinary judgments (*juicios ordinarios*), which will be used if the conflict involves a sum of at least 6,000 Euros or relates to certain matters (such as appeals against decisions of the governing bodies of the company). On the other hand, verbal judgments (*juicios verbales*) take place when the disputed amount is less than 6,000 Euros. Finally, there are simpler procedures deciding claims arising out of bills of exchange and cheques (*juicios cambiarios*) and simple payment procedures (*juicios monitorios*) that may be converted into verbal or ordinary judgments if the debtor defends the claim. Appeals against corporate decisions are normally made in Spain through the *juicios ordinarios*. Thus, we

⁹ Law 1/2000, of January 7th (Civil Procedural Law).

consider them to be the most interesting to analyze (as “representative” type of procedure).¹⁰ After the declaratory stage an execution judgment may have to take place.¹¹

Using the raw data available from the CGPJ database, we have constructed a measure of efficacy for each court (that we have aggregated at the provincial level) and for each procedure (see Padilla *et al.* 2007, Mora-Sanguinetti, 2010 and 2012 or García-Posada and Mora-Sanguinetti, 2013): the congestion rate (see equation 1 below).

$$\text{Congestion rate}_{i,t} = \frac{\text{Pending cases}_{i,t-1} + \text{New cases}_{i,t}}{\text{Cases resolved}_{i,t}} \quad (1)$$

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 efficacy of the judicial system. For instance, an average congestion rate of 2.52 in Sevilla over the period 2001–2009 indicates that around two and a half cases (summing up the pending cases and the new cases arriving to the courts of Sevilla in a specific year) were awaiting resolution while the courts were able to resolve just one.

Although the CGPJ performance data of the civil courts are available for the period 1995–2010, we must use only data from 2001 onwards as the civil procedural Law (and thus the procedures themselves) changed in 2000 (Mora-Sanguinetti, 2010).

We have aggregated the data at the provincial level,¹² although more disaggregated data on the judicial system are available. This is due to the lack of more disaggregated data on 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 part of the province of Madrid, but we have the GDP for the Madrid province as a whole). 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 depending on whether the company

¹⁰ Results for other procedures are available on request.

¹¹ Results of the estimation of the impact of this last step of the civil procedure are available upon request.

¹² Excluding Ceuta and Melilla (no information is available for those cities).

operates in a congested zone (for instance the city of Madrid) or in a less congested one (surroundings).

With respect to territorial competence, the CPL also establishes the relevant rules. As a general rule, claims are entered at the place of the registered office of the defendant.¹³ However, if the dispute concerns the annual accounts of the company, the court must be that of the province where the company has its registered office, and the same rule generally applies to bankruptcy proceedings. If the claim relates to real assets (i.e., buildings), the conflict will be resolved at the place where the real assets are located. 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.

Finally, access to aid programmes for the creation of new companies in Spain is closely related to the petitioner's residence while these programs tend to be managed by regional or even local administrations.¹⁴ For example, an entrepreneur cannot apply for support to entrepreneurship in Seville if she wants to create a business in Madrid. Also, the company must be located in "San Sebastian de los Reyes" (a municipality of the region of Madrid) if the manager wants to apply for a grant of the city council.¹⁵ All these rules lead us to consider that studying the judicial system at a local/provincial (rather than national) level is relevant to the production cycle of companies.

It is necessary to clarify that the CPL establishes the formal rules that the parties must observe, the role of the judge, the rules governing evidence, the control by superior courts and all related issues. Therefore that Law is a main determinant of the aggregate efficacy of the judicial system in Spain. However, although the CPL is a national 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.¹⁶ In the allocation of

¹³ Articles 50 and 51 of the CPL.

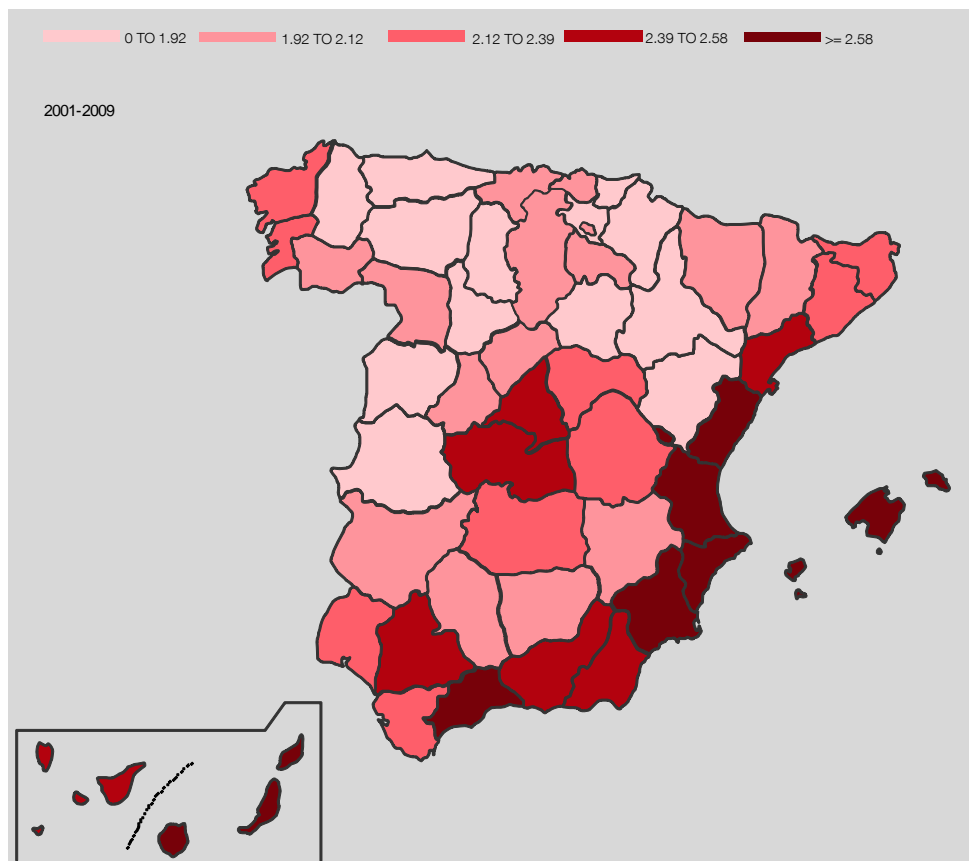
¹⁴ As an example: Decree-Law 8/2013 of Andalusia of May 28, *de medidas de creacion de empleo y fomento del emprendimiento*.

¹⁵ *Ordenanza (AGES 2013) reguladora de la concesión de subvenciones a pequeñas y medianas empresas de San Sebastián de los Reyes para la generación de empleo neto*.

¹⁶ The Spanish regions (Comunidades Autónomas) have some powers related to the administration of justice: Even though the judicial power is not properly transferred to the regions, management of judicial resources 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 into a system that is centrally governed.

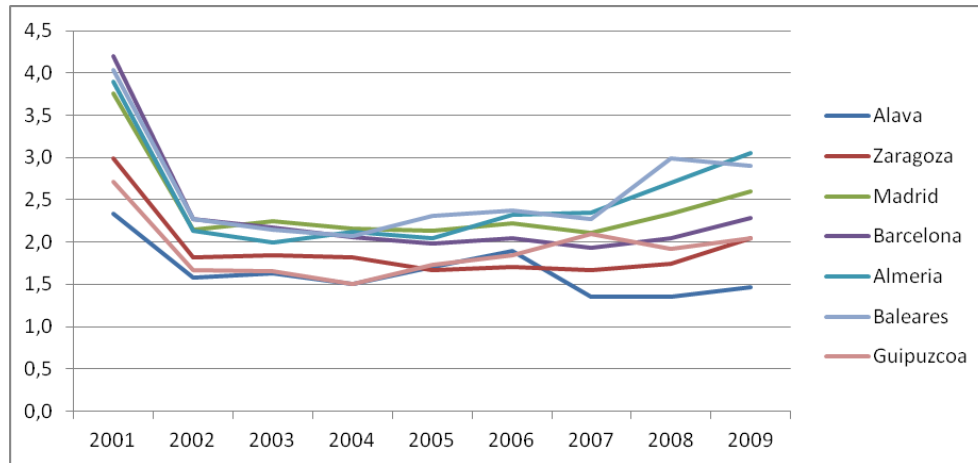
resources between different geographical units, the administration favours the population whose needs may not specifically reflect a particular type of conflict, its relative growth or its complexity (Fabbri *et al.* 2010, Mora-Sanguinetti, 2012). On the demand side, litigation propensity may differ among provinces. This geographical variation in efficacy is illustrated in Figure 5, which shows the average congestion rate for ordinary judgments. For greater clarity, Figure 6 graphs the results of the congestion rate of ordinary judgments for some of the provinces over the period considered (see Appendix D for a detailed table). There was, on average, a difference of 1.16 congestion points between the most efficient (Alava) and the least efficient (Alicante) province throughout the period.

Figure 5: Congestion rate: geographical variation



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

Figure 6: Congestion rate: time variation



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

2.3 Control variables

As discussed in the introduction, there is a wide array of factors that may affect business demography and entrepreneurship. We attempt to control for them through the following variables and our identification strategy.

We include GDP (in logs) as a measure of market size¹⁷. Economic development is captured by the unemployment rate¹⁸. Credit constraints seem to affect firm entry and they are themselves a function of the efficiency of the legal system (Levine, 1998, La Porta *et al.*, 1997, 1998, Ponticelli, 2012). See also Desai *et al.* (2005) already mentioned. Therefore, we include banking credit to GDP ratio (Credit/GDP), the number of bank branches per 1,000 persons (Branches), the non-performing loans ratio of credit institutions (Npl ratio) and the ratio of defaulted accounts receivable to GDP (Dar/GDP). Banking credit to GDP ratio and branches per capita are standard measures of financial development (Rajan and Zingales, 1995, Giacomelli and Menon, 2012). We expect higher ratios to be associated with less financial constraints. The ratio of defaulted accounts receivable to GDP is an

¹⁷ In several experiments we have used the province's population (in logs) instead. Same results were found, as the correlation between the two variables is 0.97.

¹⁸ GDP per capita has also been used in some specifications, yielding similar results. It has finally been dropped to avoid collinearity with GDP.

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 for 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.

It also seems appropriate to control for industrial composition since entry and exit rates vary across industries¹⁹. 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 also control for other market characteristics, such as the degree of vertical integration and the average level of capital intensity. Highly vertically integrated firms may be less harmed by judicial inefficacy, as they rely less on the judicial system to enforce contracts with suppliers and customers (Johnson *et al.*, 2002). Capital intensive firms may also be less affected by poor contract enforcement as, at least in developed economies such as Spain, the legal system may be good enough to protect the physical capital (as its measurement is quite straightforward) while the protection of the company's intangible assets (copyrights, patents, etc.) is more difficult (Kumar *et al.* 2001). Nonetheless, those firms may face higher entry costs due costly initial investments. Vertical integration is measured by the ratio of value added to sales, where value added has been corrected for extraordinary positions.²⁰ 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 we average it across firms. Regarding capital intensity, we first compute the firm-level capital intensity as the ratio of capital stock (tangible fixed assets plus inventories) to the number of employees and then we average it across firms.

We also include the share of foreigners (Foreigners) in the population to control for cultural differences, such as entrepreneurial spirit, between natives and immigrants.

¹⁹ See López-García and Puente (2006) for evidence on Spain.

²⁰ 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 (i.e., revenue minus costs of intermediate inputs) 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.

Finally, following the findings of Carmignani and Giacomelli (2010) we use the number of lawyers per 10,000 people (Lawyers) as a proxy of litigation intensity, since cheaper access to legal services may promote firm entry but it may also congest the courts²¹.

The impact of entry regulations and, in general, the regulatory environment is captured by our econometric exercise in several ways. Apart from including both fixed and time dummies, we included the variable ‘Regulation’ as a control. It is a proxy of product market regulation restrictiveness in the commercial sector at the regional level. The variable is taken from Matea and Mora-Sanguinetti (2012) and bears on the regulation of the following aspects: shop opening hours, seasonal sales, legal definitions of “large” retail outlets, regional licensing of hard discount stores, moratoria in retail trade licence issuance and specific taxes on large outlets.

Finally, regional fiscal regimes are controlled by the variable ‘Tax Pressure’ which approximates the tax burden on firms and entrepreneurs in each location. The variable is computed as the revenue from regional direct taxes as % of regional GDP. We selected direct taxes (e.g. income tax) because they are the ones that vary the most across Spanish regions²². A region (*Comunidad Autónoma*) may comprise one or more provinces.

Table 1 provides a description of all the variables used in our analyses, while Table 2 displays their descriptive statistics.

²¹ It would also seem appropriate to control for population density, since regions with high population density, as those with large metropolitan areas, normally attract more human capital. While it has been used in a number of experiments -without changes in the results- it has finally been dropped because of the high correlation (0.81) with GDP.

²² Alternatively, we also constructed tax pressure either with only revenue from indirect taxes or with all regional tax revenue. The results are robust to any of the definitions, as the three alternative variables display correlations among each other higher than 0.9.

Table 1: Description of variables

Variable	Definition	Scale/units	Period	Source
Entry rate	Number of firms (entrepreneurs) (corporations) that enter a market in a given year as a percentage of all the active firms (entrepreneurs) (corporations) in the market at the end of that year.	%	By province, 2001-2009	Spanish National Statistics Institute (INE)
Exit rate	Number of firms (entrepreneurs) (corporations) that exit a market in a given year as a percentage of all the active firms (entrepreneurs) (corporations) in the market at the end of that year.	%	By province, 2001-2009	Spanish National Statistics Institute (INE)
Congestion Rate (ordinary)	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. Ordinary cases.	Fraction	By province, 2001-2009	Consejo General del Poder Judicial (CGPJ)
GDP	Current GDP at market price	Millions €	By province, 2001-2009	INE (Regional accounts)
Unemployment rate	Percentage of total workforce who are unemployed and are looking for a paid job.	%	By province, 2001-2009	La Caixa
Credit/GDP	Loans to Spanish companies by Spanish financial institutions, divided by GDP.	Fraction	By province, 2001-2009	Bank of Spain and INE
Npl ratio	Ratio of non-performing loans to total banking loans (only to Spanish companies by Spanish credit institutions)	Fraction	By province, 2001-2009	Bank of Spain
Trade/GDP	Trade credit in areas divided by GDP.	Fraction	By province, 2001-2009	Spanish National Statistics Institute (INE)
Branches	Number of bank branches per 1,000 people.	‰	By province, 2001-2009	La Caixa
Weight primary/energy/manufacturing/construction/services	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	Fraction	By province, 2001-2009	INE (Regional accounts)
Capital intensity	Average ratio of capital stock (tangible fixed assets plus inventories) to the number of employees	Fraction	By province, 2001-2009	SABI
Vertical integration	Average ratio of value added to sales, where value added has been corrected for extraordinary positions	Fraction	By province, 2001-2009	SABI
Foreigners	Share of foreigners in population.	Fraction	By province, 2001-2010	Fundación de las Cajas de Ahorros (FUNCAS)
Tax pressure	Revenue from regional direct taxes as % of regional GDP	Fraction	By region, 2001-2009	Regional Governments accounts and Bank of Spain
Lawyers	Number of lawyers inscribed in Bar associations per 10,000 people.	Per 10,000	By province, 2001-2009	Consejo General de la Abogacía
Regulation	Index (factor analysis) measuring the restrictiveness of the regulation (PMR) on retail trade.	Index	By region, 2001-2007	Mora-Sanguinetti and Llanos (2012)

SOURCE: Self elaboration

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Log(entry)	450	2.36	0.22	1.75	3.99
Log (entry entrepreneurs)	450	2.34	0.25	1.58	4.25
Log (entry corporations)	450	2.29	0.28	1.55	3.04
Log(exit)	450	2.22	0.22	1.49	3.21
Log (exit entrepreneurs)	450	2.40	0.22	1.70	3.43
Log (exit corporations)	450	1.68	0.36	0.48	2.94
Log (Congestion Ordinary)	450	0.75	0.24	0.31	1.69
Log (GDP)	450	17973.43	27686.95	1448.74	193049.50
Log (Unemployment rate)	450	1.80	0.38	0.88	2.87
Credit/GDP	450	0.52	0.22	0.19	1.52
Npl ratio	450	0.02	0.02	0.00	0.16
Dar/GDP	450	0.01	0.01	0.00	0.08
Branches	450	1.05	0.26	0.54	1.85
Weight primary	450	0.06	0.05	0.00	0.23
Weight energy	450	0.03	0.03	0.01	0.18
Weight manufacturing	450	0.15	0.07	0.03	0.38
Weight construction	450	0.12	0.02	0.06	0.20
Weight services	450	0.64	0.07	0.50	0.84
Log (Capital intensity)	450	5.00	0.40	4.00	6.33
Vertical integration	450	0.37	0.02	0.31	0.44
Foreigners	450	0.07	0.05	0.01	0.24
Log(Tax pressure)	450	2.39	1.04	-0.65	4.38
Lawyers	450	19.38	6.55	7.75	51.19
Regulation	350	4.45	1.00	2.89	7.56

SOURCE: Self elaboration

3 Empirical strategy

3.1 Model

We regress the entry and exit rates (for all firms, for entrepreneurs and for corporations) on the congestion rate, province fixed effects, time dummies and a group of relevant controls (as explained in section 2.3).

The estimates are obtained via the following specification:

$$W_{jt} = \alpha_j + \beta \text{CongestionRate}_{jt} + \sum_{k=1}^K \delta_k \text{Control}_{jt}^k + \sum_{t=1}^{T-1} \gamma_t d_t + \varepsilon_{jt}$$

Where W_{jt} is either the entry rate or the exit rate (for all firms, for entrepreneurs or for corporations) in logs, α_j are province fixed effects, $\text{CongestionRate}_{jt}$ is the measure of judicial inefficacy in levels, Control_{jt}^k is a set of K control variables (see section 3.2), d_t are time dummies and the indices j , t refer to the province and time period, respectively. Notice that this log-linear specification implies, if $\beta < 0$, that the entry (exit) rate is a decreasing and convex function of the congestion rate. In other words, if a province is extremely congested, further backlogs barely have an effect in the entry/exit decisions of firms, which seems a plausible assumption²³.

The above regressions are estimated via the within-group estimator with clustered standard errors robust to heteroskedasticity and serial correlation. The fixed effects have been found jointly significant via cross-section poolability tests, while cross-section correlation has been rejected using Pesaran's CD test (2004)²⁴. Serial correlation has been tested using the test of Wooldridge (2002)²⁵.

The identification strategy relies on the time dummies and the province fixed effects to ensure unbiased estimates. First, the entry and exit rates, the congestion rate, measures of macroeconomic performance (GDP, unemployment) and proxies of credit conditions (e.g. credit to GDP, non-performing loans ratio) are expected

²³ Nevertheless, log-log and linear-log specifications have also been fit, yielding similar results but a lower R-squared.

²⁴ Test results are available upon request.

²⁵ While the Wooldridge's test (2002) has not been able to reject the null hypothesis of no serial correlation, note that the power of this test may be low when N is small, as it is in this case (N=50). Drucker (2000) finds high power for samples between N=500 and N=1,000 and between T=5 and T=10. Test results are available upon request.

to be correlated along the business cycle. By including time dummies we control for this common factor. Second, entry rates and economic development are jointly determined by institutional factors and, more specifically, by regulations on entry (Djankov *et al*, 2002; Klapper *et al*, 2006). Although entry regulations and, in general, institutions, change slowly over time (and thus the province-fixed effects may capture them quite accurately in a short time period like the one used in our sample, 2001-2009), we have decided to control for the restrictiveness of the regulatory environment at the regional level by introducing the above mentioned variable ‘Regulation’. Same can be said about taxation. Finally, since the main regulations governing exit, the labour law and the bankruptcy code, are set at the national level, we do not expect institutional factors to determine the geographical variation of entry rates, while any nationwide change in these laws would be captured by the time dummies.

Alternatively, although there are no obvious mechanisms through which entry or exit rates could influence judicial efficacy, macroeconomic performance or the provision of credit, we have attempted to control for potential reverse causality using the Anderson and Hsiao (1982) estimator²⁶. However, the weak correlations between the (hypothetically) endogenous regressor $CongestionRate_{jt}$ and its instruments, as well as the first-stage results, which display highly insignificant coefficients on the IVs, suggest that the instruments are weak. This may explain why the estimation of the previous regressions by Anderson and Hsiao (1982) yields unstable coefficients on $CongestionRate_{jt}$ with very large standard errors.

3.2 Results

Tables 3 to 8 display the impact of judicial (in)efficacy, as measured by the congestion rate of ordinary judgments (Congestion Ordinary), on entry and exit rates for the cases of entrepreneurs (defined as self-employed), limited liability corporations and for all firms (total entry/exit rates). Specification (1) only includes Congestion Ordinary, fixed effects and time dummies. Specification (2) adds to (1)

²⁶ Other more general IV estimators, such as the difference GMM of Arellano and Bond (1991) or the system GMM of Arellano and Bover (1995) and Blundell and Bond (1998), require “small T, large N” panels to satisfy their asymptotic properties and may generate several problems in small N samples like ours (N=50). See Roodman (2009), pages 98-99.

a large set of controls, which is augmented in (3) and (4) by subsequently adding Lawyers and Regulation²⁷.

With respect to entry rates, the coefficient on Congestion Ordinary is negative and statistically significant in all the regressions where the dependent variable is the total entry rate (Table 3). However, when we differentiate the entries among those carried out by entrepreneurs (Table 4) and those by limited liability corporations (Table 5) notice that the negative impact is only significant in the first case. While the coefficients in Table 4 are always significant and equal or larger than those in Table 3, those in Table 5 are never significant and systematically much smaller. This finding may be explained by the fact that judicial (in)efficacy can be regarded as a fixed cost to be paid by the agents that litigate, so that it is expected to be a more important barrier to entry for entrepreneurs than for larger corporations.

Other controls, such as unemployment rate and proxies for credit availability, have the expected sign when significant: lower unemployment and a less risky credit market (lower npl ratios and less defaulted accounts receivable) are associated with higher entry rates. By contrast, 'Tax pressure' displays a surprisingly positive coefficient in some cases. However, most controls are not significant, as their impact is already captured by the fixed effects and the time dummies. In fact, the R-squared of the specifications with controls (2)-(4) are only marginally higher than the one of specification (1), where only fixed effects and time dummies are included.

We evaluate the size of the effect by means of a simple hypothetical experiment: attributing to the province with the worst judicial efficacy the best law enforcement in our sample²⁸, the relative increase²⁹ in the entry rate of entrepreneurs would range between 5% and 7%, depending on the specification. Hence the effect is not only statistically significant but also economically relevant: judicial efficacy promotes entrepreneurship.

²⁷ Correlations among the regressors, shown in Appendix E, suggest that there are no multicollinearity problems except for the case of Lawyers, so we only include this variable in some specifications.

²⁸ The province with the best law enforcement (i.e., lowest value of Congestion Ratio) is Alava, with an average value of 1.65 for the period 2001-2009, while the province with the worst law enforcement (i.e. highest value of Congestion Ratio) is Alicante, with an average value of 2.80 for the same period. Therefore, the simulated change amounts to $1.65-2.80=-1.15$.

²⁹ By relative change we mean $100*[X(1)-X(0)]/X(0)$, where $X(0)$ and $X(1)$ are the initial and final values, respectively.

Nevertheless, one could argue that there is an alternative interpretation of the results and that judicial efficacy does not really imply firm creation, but rather a “poaching effect” or an “attraction effect” to the most efficient provinces from the most inefficient ones. Firms could choose the location of their registered office in provinces with high judicial efficacy even if carrying out most of their business operations elsewhere. If so, the negative relation between entry and judicial inefficacy would be due to an “attraction effect”, rather than to real firm creation. But this effect is expected to take place in corporations, rather than in self-employed businesses, due to the costs of such a strategy. But, as we find a negative relation between judicial inefficacy and entry in the case of entrepreneurs, but not in corporations, either an “attraction effect” does not exist or it’s too small to offset the fact that judicial efficacy has no impact on the creation of new companies.

With respect to exit rates (Tables 6 to 8), the coefficient on “Congestion Ordinary” is never statistically different from zero, suggesting that judicial efficacy is not a determinant of the decision of firms (neither for corporations nor for entrepreneurs) to leave the market. By contrast, ‘Tax Pressure’ has a positive and significant impact on the exit rates of entrepreneurs, indicating that high direct taxes, such as the income tax, make self-employed leave the market.

Table 3: Impact of judicial efficacy on entry of all firms

VARIABLES	(1)	(2)	(3)	(4)
	Log(entry)			
Congestion Ordinary	-0.04*	-0.05**	-0.05**	-0.05**
	(0.02)	(0.02)	(0.02)	(0.03)
Log (GDP)		0.21	0.21	0.38
		(0.29)	(0.29)	(0.36)
Log (Unemployment rate)		-0.15**	-0.15**	-0.14*
		(0.07)	(0.07)	(0.08)
Credit/GDP		0.02	0.02	0.02
		(0.05)	(0.05)	(0.05)
Npl ratio		-0.21	-0.17	-0.24
		(0.27)	(0.30)	(0.59)
Dar/GDP		-0.72	-0.68	0.38
		(1.82)	(1.79)	(1.23)
Branches		-0.32	-0.32	-0.25
		(0.26)	(0.26)	(0.22)
Weight energy		0.18	0.21	-1.07
		(0.80)	(0.81)	(0.73)
Weight manufacturing		0.16	0.16	-0.93
		(0.66)	(0.66)	(0.89)
Weight construction		0.23	0.22	-0.28
		(0.74)	(0.73)	(0.89)
Weight services		0.82	0.81	0.74
		(0.59)	(0.58)	(0.67)
Log (Capital intensity)		0.05	0.05	0.04
		(0.04)	(0.04)	(0.04)
Vertical integration		-1.16	-1.13	-1.20
		(0.71)	(0.72)	(0.78)
Foreigners		-0.33	-0.41	-0.49
		(0.50)	(0.55)	(0.65)
Log(Tax pressure)		0.04	0.04	0.04
		(0.02)	(0.02)	(0.02)
Lawyers			-0.00	-0.01
			(0.01)	(0.01)
Regulation				0.02
				(0.01)
Fixed effects		Yes	Yes	Yes
Time dummies		Yes	Yes	Yes
Observations	450	450	450	350
R-squared (Within)	0.59	0.62	0.62	0.32

The dependent variable is the log of the entry rate of all firms (corporations, self-employed and other legal forms). All regressions include a constant. “Npl” stands for non-performing loans and “Dar” for defaulted accounts receivable. Clustered standard errors below coefficients. The “within R-squared” is the R-squared from the mean-deviated regression. 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.

Table 4: Impact of judicial efficacy on entry of entrepreneurs

VARIABLES	(1)	(2)	(3)	(4)
	Log(entry entrepreneurs)			
Congestion Ordinary	-0.04*	-0.05**	-0.05*	-0.06*
	(0.02)	(0.02)	(0.02)	(0.03)
Log (GDP)		0.28	0.28	0.28
		(0.31)	(0.31)	(0.40)
Log (Unemployment rate)		0.00	-0.00	-0.12
		(0.11)	(0.11)	(0.09)
Credit/GDP		0.02	0.02	0.00
		(0.05)	(0.05)	(0.06)
Npl ratio		0.44	0.45	-0.10
		(0.38)	(0.40)	(0.71)
Dar/GDP		0.43	0.44	1.38
		(1.88)	(1.86)	(1.51)
Branches		-0.23	-0.23	0.21
		(0.34)	(0.34)	(0.26)
Weight energy		-0.38	-0.37	-0.70
		(0.97)	(0.98)	(0.95)
Weight manufacturing		-0.37	-0.37	-1.26
		(0.77)	(0.77)	(1.03)
Weight construction		-1.02	-1.02	-0.79
		(0.77)	(0.77)	(0.99)
Weight services		-0.22	-0.23	0.38
		(0.71)	(0.71)	(0.81)
Log (Capital intensity)		0.09*	0.10*	0.04
		(0.05)	(0.05)	(0.05)
Vertical integration		-1.45*	-1.45	-0.44
		(0.86)	(0.87)	(0.87)
Foreigners		-0.09	-0.11	0.15
		(0.54)	(0.61)	(0.64)
Log(Tax pressure)		0.05*	0.05*	0.04
		(0.03)	(0.03)	(0.03)
Lawyers			-0.00	-0.01
			(0.01)	(0.01)
Regulation				0.03**
				(0.01)
Fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes
Observations	450	450	450	350
R-squared (Within)	0.31	0.33	0.33	0.32

The dependent variable is the log of the entry rate of entrepreneurs. All regressions include a constant. “Npl” stands for non-performing loans and “Dar” for defaulted accounts receivable. Clustered standard errors below coefficients. The “within R-squared” is the R-squared from the mean-deviated regression. 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<

Table 5: Impact of judicial efficacy on entry of corporations.

VARIABLES	(1)	(2)	(3)	(4)
	Log(entry corporations)			
Congestion Ordinary	-0.02	-0.03	-0.04	-0.04
	(0.03)	(0.02)	(0.02)	(0.02)
Log (GDP)		0.16	0.16	0.38
		(0.35)	(0.34)	(0.39)
Log (Unemployment rate)		-0.31***	-0.32***	-0.21***
		(0.06)	(0.06)	(0.08)
Credit/GDP		0.05	0.05	0.02
		(0.07)	(0.06)	(0.06)
Npl ratio		-1.15***	-1.05**	-0.71
		(0.37)	(0.41)	(0.66)
Dar/GDP		-2.34*	-2.22*	-1.52**
		(1.30)	(1.23)	(0.61)
Branches		-0.35	-0.35	-0.69**
		(0.27)	(0.26)	(0.30)
Weight energy		0.57	0.64	-0.85
		(1.08)	(1.06)	(1.05)
Weight manufacturing		0.93	0.93	0.13
		(0.76)	(0.76)	(0.95)
Weight construction		1.51*	1.48*	1.04
		(0.85)	(0.83)	(1.11)
Weight services		2.09***	2.05***	1.52**
		(0.76)	(0.75)	(0.68)
Log (Capital intensity)		-0.02	-0.01	0.06
		(0.04)	(0.04)	(0.05)
Vertical integration		-0.67	-0.60	-2.21*
		(1.15)	(1.15)	(1.17)
Foreigners		-0.53	-0.75	-1.24
		(0.70)	(0.75)	(0.76)
Log(Tax pressure)		0.03	0.02	0.04*
		(0.02)	(0.02)	(0.02)
Lawyers			-0.01	-0.00
			(0.01)	(0.01)
Regulation				-0.01
				(0.01)
Fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes
Observations	450	450	450	350
R-squared (Within)	0.83	0.86	0.86	0.34

The dependent variable is the log of the entry rate of corporations (limited liability companies). All regressions include a constant. “Npl” stands for non-performing loans and “Dar” for defaulted accounts receivable. Clustered standard errors below coefficients. The “within R-squared” is the R-squared from the mean-deviated regression. 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 6: Impact of judicial efficacy on exit of all firms

VARIABLES	(1)	(2)	(3)	(4)
	Log(exit)			
Congestion Ordinary	-0.03	-0.03	-0.03	-0.04
	(0.04)	(0.04)	(0.04)	(0.05)
Log (GDP)		-0.20	-0.21	-0.44
		(0.26)	(0.26)	(0.34)
Log (Unemployment rate)		0.07	0.08	0.03
		(0.06)	(0.07)	(0.11)
Credit/GDP		0.02	0.02	0.04
		(0.06)	(0.06)	(0.07)
Npl ratio		0.25	0.19	0.43
		(0.35)	(0.34)	(0.53)
Dar/GDP		-0.42	-0.49	-0.90
		(2.13)	(2.10)	(2.06)
Branches		0.40*	0.39*	0.38
		(0.21)	(0.21)	(0.30)
Weight energy		1.31	1.26	0.55
		(0.99)	(1.02)	(1.29)
Weight manufacturing		0.97	0.97	0.51
		(0.84)	(0.85)	(1.38)
Weight construction		1.16	1.18	0.67
		(1.05)	(1.06)	(1.10)
Weight services		0.70	0.73	0.37
		(0.64)	(0.65)	(0.88)
Log (Capital intensity)		0.08	0.08	0.00
		(0.05)	(0.05)	(0.09)
Vertical integration		-0.85	-0.89	-1.62
		(1.01)	(1.01)	(1.60)
Foreigners		1.78**	1.91***	2.08**
		(0.69)	(0.66)	(0.81)
Log(Tax pressure)		0.08**	0.08**	0.07*
		(0.04)	(0.04)	(0.04)
Lawyers			0.01	0.02
			(0.01)	(0.02)
Regulation				0.01
				(0.02)
Fixed effects		Yes	Yes	Yes
Time dummies		Yes	Yes	Yes
Observations	450	450	450	350
R-squared (Within)	0.46	0.51	0.51	0.22

The dependent variable is the log of the exit rate of all firms (corporations, self-employed and other legal forms). All regressions include a constant. “Npl” stands for non-performing loans and “Dar” for defaulted accounts receivable. Clustered standard errors below coefficients. The “within R-squared” is the R-squared from the mean-deviated regression. 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: Impact of judicial efficacy on exit of entrepreneurs

VARIABLES	(1)	(2)	(3)	(4)
	Log(exit entrepreneurs)			
Congestion Ordinary	-0.03	-0.03	-0.02	-0.05
	(0.04)	(0.03)	(0.03)	(0.04)
Log (GDP)		-0.20	-0.21	-0.29
		(0.24)	(0.24)	(0.32)
Log (Unemployment rate)		0.10*	0.11*	0.09
		(0.06)	(0.06)	(0.11)
Credit/GDP		0.06	0.06	0.09
		(0.07)	(0.07)	(0.07)
Npl ratio		0.37	0.28	0.87
		(0.40)	(0.39)	(0.52)
Dar/GDP		-0.34	-0.44	-0.45
		(1.85)	(1.81)	(1.92)
Branches		0.27	0.26	0.23
		(0.21)	(0.21)	(0.26)
Weight energy		1.02	0.96	-0.12
		(0.98)	(1.03)	(1.28)
Weight manufacturing		1.05	1.05	0.61
		(0.80)	(0.81)	(1.31)
Weight construction		0.84	0.86	0.14
		(0.93)	(0.95)	(1.00)
Weight services		0.52	0.56	0.09
		(0.58)	(0.59)	(0.83)
Log (Capital intensity)		0.09*	0.08	0.00
		(0.05)	(0.05)	(0.09)
Vertical integration		-0.69	-0.75	-0.96
		(0.96)	(0.97)	(1.48)
Foreigners		2.08***	2.27***	2.15***
		(0.67)	(0.67)	(0.76)
Log(Tax pressure)		0.09**	0.09**	0.08*
		(0.04)	(0.04)	(0.04)
Lawyers			0.01	0.02
			(0.01)	(0.02)
Regulation				0.01
				(0.02)
Fixed effects	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes
Observations	450	450	450	350
R-squared (Within)	0.43	0.51	0.51	0.22

The dependent variable is the log of the exit rate of entrepreneurs. All regressions include a constant. “Npl” stands for non-performing loans and “Dar” for defaulted accounts receivable. Clustered standard errors below coefficients. The “within R-squared” is the R-squared from the mean-deviated regression. 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 8: Impact of judicial efficacy on exit of corporations

VARIABLES	(1)	(2)	(3)	(4)
	Log(exit corporations)			
Congestion Ordinary	-0.03	-0.04	-0.03	-0.03
	(0.05)	(0.05)	(0.05)	(0.06)
Log (GDP)		-0.06	-0.07	-0.84
		(0.43)	(0.44)	(0.57)
Log (Unemployment rate)		0.03	0.04	-0.05
		(0.11)	(0.11)	(0.16)
Credit/GDP		-0.05	-0.05	-0.12
		(0.10)	(0.10)	(0.13)
Npl ratio		-0.10	-0.17	-1.42*
		(0.41)	(0.46)	(0.75)
Dar/GDP		-2.44	-2.53	-3.88
		(3.34)	(3.30)	(2.58)
Branches		0.69**	0.68**	1.25***
		(0.28)	(0.28)	(0.46)
Weight energy		2.15	2.10	2.09
		(1.63)	(1.65)	(1.77)
Weight manufacturing		0.43	0.43	-1.60
		(1.40)	(1.40)	(1.95)
Weight construction		0.98	1.00	0.86
		(1.82)	(1.82)	(1.99)
Weight services		0.91	0.94	0.27
		(1.25)	(1.25)	(1.39)
Log (Capital intensity)		0.16**	0.16**	0.03
		(0.07)	(0.07)	(0.12)
Vertical integration		-2.16	-2.22	-2.37
		(1.67)	(1.67)	(2.20)
Foreigners		1.08	1.24	2.37*
		(0.97)	(0.93)	(1.25)
Log(Tax pressure)		0.07	0.07	0.06
		(0.05)	(0.05)	(0.05)
Lawyers			0.01	0.01
			(0.01)	(0.02)
Regulation				-0.01
				(0.03)
Fixed effects		Yes	Yes	Yes
Time dummies		Yes	Yes	Yes
Observations	450	450	450	350
R-squared (Within)	0.58	0.60	0.60	0.30

The dependent variable is the log of the exit rate of corporations (limited liability companies). All regressions include a constant. “Npl” stands for non-performing loans and “Dar” for defaulted accounts receivable. Clustered standard errors below coefficients. The “within R-squared” is the R-squared from the mean-deviated regression. 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

4 Conclusions

Entry of new firms is relatively low by international standards in Spain and entrepreneurship (defined in this study as the new businesses created by those “self-employed”) is also lower than in other countries with similar levels of development.

Several factors affect entrepreneurship ranging from access to credit to market size. This study concentrates on the effects of the institutional environment. Specifically, we focus on the design and efficacy of the judicial system as the representative enforcement institution as it guarantees the application of regulation and private contracts.

This study shows that more effective courts seem to promote the entry of entrepreneurs into the market in Spain. Attributing to the province with the worst judicial efficacy the best law enforcement in our sample, the relative increase in the entry rate of entrepreneurs would range between 5% and 7%, depending on the specification.

We must emphasize, however, that judicial (in)efficacy seems to be an important barrier to entry for entrepreneurs, but not for corporations. This finding may be explained by the fact that access to justice can be regarded as a fixed cost to be paid by the agents that litigate, so that it is expected to have a larger influence on entrepreneurs than on larger firms.

We should note that this is the first study on entrepreneurship which uses real judicial efficacy measures at the local level in Spain. That is, we used real data obtained directly from the courts to calculate our own measures of judicial efficacy. The data allow us to differentiate the efficacy of the judicial system by province and by type of procedure.

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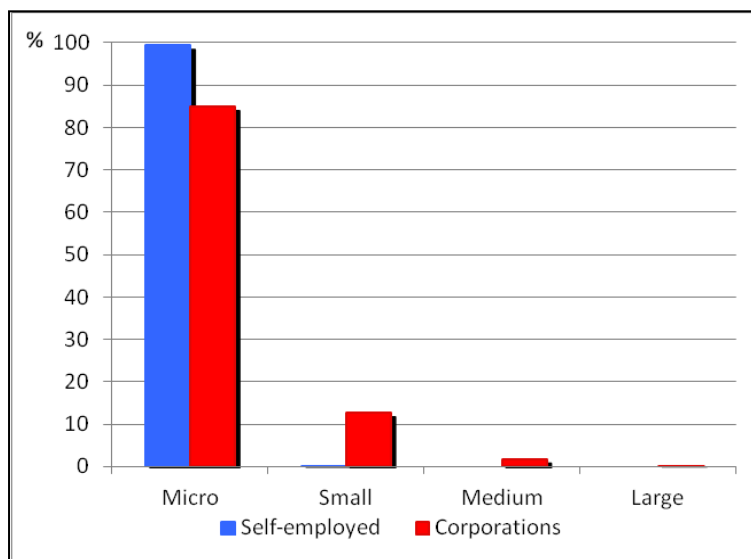
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Appendix A: Size distribution of corporations and self-employed

Following the classification of the European Commission (2003)³⁰, we can measure firm size by number of employees and split any size distribution into four categories: micro firms (less than 10 employees), small (between 10 and 49), medium (between 50 and 199)³¹ and large (more than or equal to 200). According to the business register of the Spanish National Statistics Institute (period 2001-2009), 99.5% of the firms run by self-employed were micro firms, while this figure amounted to 85% in the case of corporations. Small firms accounted for 0.5% of the total self-employed businesses, while they were a 12.7% in the case of corporations. Finally, while there were neither medium nor large self-employed firms, there were a 1.8% of medium and a 0.4% of large corporations. Hence Spanish corporations are, on average, substantially larger than the businesses run by self-employed, as also shown in Figure A1.

Figure A1: Size distribution per legal form: average 2001-2009.



SOURCE: Instituto Nacional de Estadística (2013). Corporations are private or publicly quoted joint stock companies with limited liability for those owning shares. Self-employed are personally owned businesses with no limit to personal liability. Size in terms of number of employees: micro: [0,9]; small:[10,49]; medium: [50,199]; large: 200 employees or more.

³⁰ Available in: <http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/>

³¹ The exact classification of the European Commission uses 250 as the threshold between medium and large firms. Here we have to use 200 due to data constraints.

Appendix B: geographical and time distribution of entry rates

Table B1: Entry rates all firms

	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	10.6	9.1	8.7	7.6	9.7	9.2	11.2	7.1	6.1	8.8
Albacete	11.0	11.0	10.8	13.0	12.1	12.9	11.4	11.2	8.5	11.3
Alicante	13.5	13.5	10.2	15.6	16.1	14.6	12.5	9.7	9.5	12.8
Almeria	14.4	13.5	13.7	16.0	15.6	16.0	12.8	10.1	10.1	13.6
Avila	7.7	8.7	7.7	10.2	9.4	11.3	9.9	8.1	7.5	8.9
Badajoz	10.2	13.7	9.5	12.4	11.4	12.6	12.0	10.4	9.8	11.3
Baleares	12.5	12.1	18.3	13.3	12.1	13.2	12.4	9.9	9.3	12.6
Barcelona	12.3	11.0	11.6	11.9	13.4	13.2	11.8	9.0	9.0	11.5
Burgos	8.9	8.7	9.2	10.1	10.2	10.2	9.6	7.6	7.8	9.1
Caceres	54.0	8.0	9.3	13.7	11.1	10.9	10.9	8.7	8.3	15.0
Cadiz	12.1	12.4	12.9	12.4	13.1	12.6	12.6	10.3	10.0	12.0
Castellon	13.3	11.8	14.8	11.7	13.4	14.0	13.1	8.9	8.7	12.2
Ciudad Real	10.5	11.1	14.2	10.6	12.0	12.3	11.8	8.7	8.2	11.0
Cordoba	7.8	13.1	12.7	11.5	12.5	12.4	11.4	9.3	9.1	11.1
La Coruña	9.0	11.3	10.5	10.6	10.7	11.1	10.2	8.3	8.1	10.0
Cuenca	10.1	10.0	8.9	11.2	10.7	11.8	10.3	9.7	7.4	10.0
Gerona	10.8	11.6	9.8	11.4	11.5	12.7	11.3	25.0	9.6	12.6
Granada	11.1	11.4	11.8	16.3	14.7	14.2	12.2	9.5	9.7	12.3
Guadalajara	11.8	12.1	11.8	9.7	19.9	15.4	15.0	10.0	10.4	12.9
Guipuzcoa	10.5	9.8	8.4	8.4	10.1	9.8	10.4	6.3	5.8	8.8
Huelva	12.7	12.7	15.5	12.7	12.9	13.9	12.2	10.1	9.6	12.5
Huesca	9.8	9.6	11.4	9.6	10.3	10.8	10.8	7.7	6.9	9.7
Jaen	10.8	11.3	11.4	13.2	11.7	12.4	11.0	9.3	9.4	11.2
Leon	9.6	9.3	8.4	9.9	10.3	10.3	9.7	7.7	7.5	9.2
Lerida	9.3	9.5	12.6	11.1	11.8	12.1	12.1	8.6	8.2	10.6
La Rioja	10.1	10.1	11.6	10.4	11.5	12.0	10.7	8.5	8.3	10.4
Lugo	8.4	8.4	8.5	8.9	9.0	8.7	9.2	8.0	7.4	8.5
Madrid	11.3	12.6	13.4	12.1	12.5	12.4	12.1	8.9	9.0	11.6
Malaga	15.1	15.9	15.6	15.5	15.4	14.5	13.3	10.6	11.2	14.1
Murcia	12.4	12.9	15.8	13.3	15.2	15.0	12.8	9.0	9.4	12.9
Navarra	12.2	11.7	10.9	10.7	10.6	13.3	11.4	9.6	6.7	10.8
Orense	8.9	8.8	9.5	9.0	9.9	9.6	9.1	7.9	8.3	9.0
Asturias	7.1	9.0	13.3	10.0	11.3	10.9	10.3	8.4	8.0	9.8
Palencia	8.4	8.5	8.1	8.3	8.5	9.6	8.8	6.9	6.3	8.2
Las Palmas	13.6	12.8	11.2	13.0	13.5	14.5	12.5	9.2	9.5	12.2
Pontevedra	11.0	11.1	11.3	11.0	12.1	12.0	10.8	8.4	8.3	10.7
Salamanca	8.8	8.7	8.8	9.6	10.8	10.2	9.6	7.6	8.0	9.1
S.C.Tenerife	13.4	13.1	10.3	13.9	12.7	12.5	12.4	9.6	9.5	11.9
Cantabria	10.4	10.1	10.9	9.4	13.4	11.9	10.9	8.3	8.3	10.4
Segovia	7.8	8.7	10.1	8.7	11.3	10.9	9.8	7.5	7.2	9.1
Sevilla	10.5	15.0	13.1	13.2	14.3	14.0	13.2	10.8	10.4	12.7
Soria	8.4	8.0	7.9	8.6	8.6	8.6	8.7	7.7	7.0	8.2
Tarragona	9.5	12.9	14.6	12.6	14.3	14.4	13.2	9.4	9.1	12.2
Teruel	8.7	9.2	10.4	9.1	10.4	11.1	9.5	7.6	7.5	9.3
Toledo	10.7	13.0	13.1	12.4	13.3	13.8	12.5	8.8	8.8	11.8
Valencia	10.8	11.4	13.9	11.9	13.5	13.8	12.5	9.5	9.3	11.8
Valladolid	10.3	9.8	9.7	9.8	12.0	12.1	10.8	8.3	8.8	10.2
Vizcaya	10.1	9.9	8.7	8.6	10.9	9.7	10.4	6.8	6.4	9.1
Zamora	7.9	8.2	8.2	9.5	8.7	9.4	9.3	7.5	6.9	8.4
Zaragoza	7.6	10.0	10.9	10.5	11.6	12.2	12.0	9.1	8.9	10.3
MEAN	11.4	10.9	11.3	11.3	12.0	12.1	11.3	9.1	8.5	10.9

SOURCE: Self elaboration and Instituto Nacional de Estadística (2013).

Table B2: Entry rates entrepreneurs

province_id	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	9.6	7.9	7.1	6.8	10.1	8.7	12.3	5.7	5.9	8.2
Albacete	10.5	10.9	11.0	12.5	12.4	13.7	11.3	9.0	10.1	11.3
Alicante	13.2	13.4	9.2	14.0	16.9	15.6	13.5	11.0	12.0	13.2
Almeria	13.4	12.3	13.1	15.0	14.7	15.7	13.3	10.9	11.9	13.4
Avila	7.2	8.3	7.4	9.6	9.2	10.5	8.9	8.1	7.8	8.6
Badajoz	9.7	13.5	8.9	11.8	10.5	11.5	11.6	10.3	10.5	10.9
Baleares	11.8	11.5	20.2	13.3	11.3	13.6	12.6	10.6	11.5	12.9
Barcelona	11.7	10.7	11.7	10.9	12.8	12.8	11.5	9.2	9.9	11.2
Burgos	8.4	8.4	8.5	8.9	9.1	9.9	8.9	7.4	8.3	8.7
Caceres	70.1	7.6	9.2	13.8	10.4	10.3	10.2	8.8	8.9	16.6
Cadiz	11.4	11.8	12.6	11.4	12.3	12.3	12.9	11.4	11.8	12.0
Castellon	13.2	11.9	16.0	11.7	13.3	14.7	14.3	10.7	11.5	13.0
Ciudad Real	9.9	10.7	15.4	9.8	11.4	12.5	11.5	8.8	9.6	11.1
Cordoba	7.2	13.0	12.9	10.9	12.0	12.6	11.5	10.2	10.7	11.2
La Coruña	8.2	10.7	10.4	9.7	9.9	10.6	9.7	8.4	8.8	9.6
Cuenca	9.8	9.6	8.6	11.1	10.0	12.2	9.7	7.5	8.3	9.6
Gerona	9.5	11.0	7.2	7.2	7.5	10.0	9.0	39.0	12.6	12.6
Granada	10.3	10.4	11.2	15.7	14.1	13.7	12.3	10.4	11.3	12.2
Guadalajara	12.0	12.4	12.2	8.6	19.1	15.3	15.6	10.7	11.9	13.1
Guipuzcoa	10.0	9.3	7.6	7.9	10.5	8.9	11.3	4.9	5.4	8.4
Huelva	12.3	12.4	16.8	12.4	12.3	14.2	13.1	11.7	11.9	13.0
Huesca	9.4	9.5	11.4	9.1	9.8	11.0	10.3	8.1	7.8	9.6
Jaen	9.9	10.8	11.5	12.8	11.3	12.5	10.9	10.0	10.6	11.1
Leon	8.6	8.4	8.0	8.9	10.3	10.5	9.5	7.7	8.2	8.9
Lerida	8.3	8.5	12.2	9.7	11.1	11.5	12.1	8.7	8.7	10.1
La Rioja	9.1	9.2	10.9	9.2	10.4	11.8	10.2	7.6	8.6	9.7
Lugo	7.9	7.8	7.7	7.9	8.3	7.9	8.2	7.6	7.5	7.9
Madrid	11.0	12.8	14.1	12.0	13.3	13.5	13.0	9.9	11.3	12.3
Malaga	13.4	14.7	14.9	13.1	14.6	14.9	13.7	11.9	13.8	13.9
Murcia	11.7	12.2	15.9	12.3	15.1	15.8	13.1	9.7	11.0	13.0
Navarra	11.9	12.0	11.2	11.3	11.1	13.1	12.5	8.9	6.8	11.0
Orense	8.5	8.6	9.3	8.0	9.7	9.1	8.1	8.1	9.0	8.7
Asturias	6.2	8.4	13.0	9.4	11.1	10.8	9.6	7.9	8.5	9.4
Palencia	8.1	8.0	7.6	7.8	8.0	9.1	8.3	6.8	6.9	7.9
Las Palmas	12.8	12.7	11.0	13.2	14.6	15.7	14.0	11.0	12.0	13.0
Pontevedra	10.7	10.5	11.0	10.4	11.5	11.8	10.4	9.0	9.6	10.5
Salamanca	8.2	8.1	8.6	8.6	10.4	9.7	8.8	7.7	8.6	8.7
S.C.Tenerife	12.2	12.1	9.6	14.1	13.1	13.9	13.7	11.0	12.4	12.5
Cantabria	9.5	9.4	10.0	7.9	12.3	11.2	10.2	8.2	8.7	9.7
Segovia	7.0	8.2	10.3	7.6	10.9	10.3	9.6	7.1	7.3	8.7
Sevilla	9.3	15.2	13.1	12.6	14.1	14.0	13.4	11.6	12.2	12.8
Soria	7.9	7.3	7.2	7.8	8.5	8.4	8.3	7.1	7.3	7.7
Tarragona	8.5	12.0	14.0	11.2	12.8	13.8	12.9	9.7	10.2	11.7
Teruel	8.6	9.0	11.4	8.7	10.0	11.5	9.5	8.0	8.4	9.4
Toledo	10.7	13.9	13.7	11.9	13.0	14.7	13.0	9.7	10.9	12.4
Valencia	10.5	11.3	14.4	11.4	13.5	14.1	13.1	10.5	11.2	12.2
Valladolid	9.2	8.9	9.0	8.1	11.5	11.7	10.1	8.1	9.4	9.6
Vizcaya	9.2	9.2	7.5	7.9	11.0	9.0	11.1	5.6	6.2	8.5
Zamora	7.4	7.7	8.1	9.0	7.8	8.8	8.1	6.9	6.8	7.8
Zaragoza	6.4	9.3	10.4	9.5	11.2	10.8	10.4	8.3	9.4	9.5
MEAN	11.0	10.5	11.1	10.5	11.6	12.0	11.2	9.5	9.6	10.8

Source: self elaboration and Instituto Nacional de Estadística (2013).

Table B3: Entry rates corporations

province_id	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	11.7	10.0	10.5	8.0	8.5	9.4	9.7	8.1	5.7	9.1
Albacete	11.7	10.4	10.2	12.8	11.0	11.4	11.1	14.6	5.9	11.0
Alicante	13.7	13.3	11.4	17.3	14.4	12.7	10.6	7.6	6.4	11.9
Almeria	16.1	15.0	13.9	17.9	16.8	16.1	11.6	8.3	6.9	13.6
Avila	8.8	9.4	8.2	12.6	10.0	12.5	11.7	7.2	5.3	9.5
Badajoz	10.9	13.0	10.1	12.4	12.0	14.2	10.7	9.1	7.3	11.1
Baleares	12.8	11.9	13.2	13.0	12.3	12.0	11.5	8.0	5.9	11.2
Barcelona	12.6	10.9	10.7	12.4	12.6	12.2	10.7	7.4	6.6	10.7
Burgos	9.2	8.5	9.4	9.8	9.4	9.2	8.9	5.7	4.8	8.3
Caceres	18.6	7.4	7.1	11.7	10.9	10.2	10.3	7.1	5.6	9.9
Cadiz	13.1	13.3	13.5	14.3	14.1	12.5	11.6	7.4	6.2	11.8
Castellon	12.6	10.5	11.9	11.1	13.0	12.5	11.1	6.0	4.9	10.4
Ciudad Real	11.6	11.5	11.2	11.2	12.9	11.2	12.1	8.1	5.4	10.6
Cordoba	8.4	11.7	11.3	11.7	12.0	10.7	10.3	7.2	5.7	9.9
La Coruña	9.6	11.0	9.5	10.6	10.6	10.7	9.7	6.9	5.6	9.3
Cuenca	10.7	10.7	8.8	11.1	11.7	11.3	11.0	13.8	5.3	10.5
Gerona	12.4	11.8	12.2	14.7	14.0	13.4	11.3	13.3	5.7	12.1
Granada	12.7	13.5	12.6	17.3	15.3	14.6	11.5	7.7	6.5	12.4
Guadalajara	11.0	11.3	11.4	11.7	20.8	15.0	13.2	7.9	6.9	12.1
Guipuzcoa	12.4	10.8	10.1	9.6	8.8	10.0	8.9	8.0	5.7	9.4
Huelva	13.2	12.2	12.0	12.9	13.1	13.0	10.3	7.5	5.7	11.1
Huesca	10.2	9.7	10.0	10.0	10.6	10.1	9.8	6.1	4.8	9.0
Jaen	12.5	12.6	10.3	14.4	11.8	12.0	10.5	7.5	6.2	10.9
Leon	10.4	10.3	8.2	10.6	9.1	8.8	8.8	6.7	5.4	8.7
Lerida	10.7	10.5	12.3	12.9	12.3	12.2	11.1	7.4	5.4	10.5
La Rioja	9.9	9.9	10.9	10.8	11.4	10.8	9.4	7.4	5.2	9.5
Lugo	8.5	8.9	8.7	10.1	8.6	9.2	9.6	6.8	5.3	8.4
Madrid	11.3	11.8	12.2	11.9	11.4	10.9	10.6	7.4	6.3	10.4
Malaga	17.7	17.7	16.2	19.2	16.0	13.5	12.2	8.3	7.6	14.3
Murcia	12.5	13.0	14.4	14.1	14.9	13.1	11.3	7.0	6.4	11.9
Navarra	12.1	11.2	10.0	9.5	10.1	13.6	9.6	7.7	5.5	9.9
Orense	8.5	8.0	8.7	10.1	8.9	8.8	9.1	5.9	5.4	8.2
Asturias	8.2	9.6	11.6	10.2	10.0	9.9	9.9	7.5	5.9	9.2
Palencia	8.8	9.5	9.5	9.3	8.9	10.6	9.6	6.7	4.7	8.6
Las Palmas	14.2	12.4	10.6	11.9	11.3	11.7	9.3	5.8	5.0	10.3
Pontevedra	10.4	11.1	10.6	10.8	11.6	11.2	10.1	6.7	5.6	9.8
Salamanca	9.7	9.5	8.9	10.8	10.1	10.5	10.0	6.5	5.6	9.1
S.C.Tenerife	15.6	14.5	11.1	13.4	11.7	10.5	10.2	7.0	4.9	11.0
Cantabria	11.6	10.3	10.7	11.6	13.4	12.1	11.0	7.2	6.1	10.4
Segovia	9.5	8.6	9.0	11.5	12.1	11.3	9.4	6.8	5.3	9.3
Sevilla	11.9	13.7	12.2	13.8	13.8	13.0	11.9	8.7	7.3	11.8
Soria	10.3	8.6	8.3	9.3	7.8	9.0	8.1	6.0	5.1	8.0
Tarragona	11.1	13.6	14.1	13.8	14.6	13.9	11.7	7.6	6.1	11.8
Teruel	7.6	8.4	7.3	7.9	9.4	9.5	8.1	6.0	4.8	7.7
Toledo	10.3	11.1	11.4	12.7	13.5	12.2	11.0	6.7	5.4	10.5
Valencia	10.5	10.7	12.0	11.9	12.7	12.4	10.4	7.2	6.0	10.4
Valladolid	12.3	10.9	10.0	12.4	11.6	12.1	10.3	7.8	6.7	10.5
Vizcaya	11.8	11.3	9.7	9.6	9.8	10.0	8.8	7.8	5.8	9.4
Zamora	8.8	8.9	7.8	10.1	9.0	9.4	11.5	8.3	6.0	8.9
Zaragoza	9.3	10.3	10.2	10.6	10.6	12.3	11.8	8.3	6.6	10.0
MEAN	11.4	11.1	10.7	12.0	11.8	11.6	10.5	7.7	5.8	10.3

Source: self elaboration and Instituto Nacional de Estadística (2013).

Appendix C: geographical and time distribution of exit rates

Table C1: Exit rate all firms

	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	9.6	8.0	8.9	7.9	8.4	8.5	4.4	9.6	8.7	8.2
Albacete	10.0	8.9	7.3	8.6	8.7	7.7	9.8	12.6	11.0	9.4
Alicante	10.7	10.4	9.2	9.2	8.7	10.0	11.7	14.6	13.6	10.9
Almeria	10.9	8.8	7.6	9.8	10.2	9.6	11.1	14.4	13.9	10.7
Avila	8.7	6.0	7.1	8.2	7.1	7.4	8.5	11.0	14.6	8.7
Badajoz	9.0	12.5	9.3	8.9	9.0	7.7	9.5	12.2	13.9	10.2
Baleares	11.4	10.0	7.8	13.0	10.1	10.0	10.6	12.2	13.5	11.0
Barcelona	10.2	10.3	8.4	7.9	13.9	8.0	10.1	11.4	11.4	10.2
Burgos	8.6	6.7	6.9	6.8	6.8	6.9	7.9	9.2	9.5	7.7
Caceres	9.5	8.0	20.7	9.4	10.9	7.9	9.8	10.0	11.8	10.9
Cadiz	9.4	9.6	8.8	10.9	9.5	10.6	11.6	13.7	13.7	10.9
Castellon	11.8	8.7	7.2	10.1	8.6	7.7	10.4	13.5	13.2	10.1
Ciudad Real	10.9	7.1	7.2	9.1	8.3	8.4	9.2	12.2	12.0	9.4
Cordoba	6.3	10.5	8.9	9.1	8.8	8.8	10.4	11.9	12.0	9.6
La Coruña	15.0	8.2	6.9	8.0	8.1	7.1	8.9	9.3	9.9	9.0
Cuenca	9.7	8.5	7.1	7.8	7.2	6.3	9.6	11.3	10.3	8.6
Gerona	8.5	8.6	24.7	9.3	9.1	7.6	10.0	12.9	15.6	11.8
Granada	6.9	9.0	12.0	10.0	9.9	8.4	10.8	13.7	13.7	10.5
Guadalajara	10.9	10.0	7.8	8.8	9.4	9.1	11.3	13.8	13.3	10.5
Guipuzcoa	10.9	9.0	8.4	7.6	8.9	8.2	4.5	9.2	8.9	8.4
Huelva	11.0	10.1	8.3	11.3	9.7	8.5	11.3	13.2	15.1	10.9
Huesca	8.6	7.8	6.8	7.8	6.6	7.2	8.5	10.0	11.0	8.3
Jaen	10.5	9.7	8.1	10.5	9.5	8.7	10.5	12.0	13.1	10.3
Leon	10.0	8.1	7.1	8.1	8.2	7.1	8.7	9.6	10.0	8.6
Lerida	8.2	7.7	7.1	7.5	8.5	6.9	8.4	11.0	10.6	8.4
La Rioja	8.3	8.1	7.6	8.2	8.4	7.3	9.1	10.5	10.1	8.6
Lugo	9.3	7.3	8.5	6.1	6.4	5.7	7.9	9.2	8.9	7.7
Madrid	10.6	8.8	7.7	7.8	7.5	7.3	8.7	10.3	11.2	8.9
Malaga	11.8	10.5	7.6	10.1	9.4	10.1	12.3	14.0	15.3	11.2
Murcia	10.1	9.2	8.1	10.5	8.9	8.5	10.6	13.9	14.5	10.5
Navarra	12.2	9.7	10.3	9.6	10.8	9.6	10.7	12.1	10.1	10.6
Orense	9.4	8.0	7.5	7.6	8.0	7.0	8.5	10.1	9.6	8.4
Asturias	11.1	7.4	11.7	8.5	8.5	8.3	9.6	10.7	10.7	9.6
Palencia	9.5	7.0	7.7	7.0	7.0	6.7	8.6	8.7	8.4	7.8
Las Palmas	10.7	10.0	9.6	7.2	10.4	8.8	11.0	12.8	12.8	10.4
Pontevedra	9.3	8.5	6.9	8.7	8.1	7.6	9.2	10.4	10.7	8.8
Salamanca	12.8	6.5	8.6	7.2	8.2	7.4	8.7	9.7	8.9	8.7
S.C.Tenerife	10.5	9.7	9.7	7.9	8.6	8.5	10.7	12.5	12.5	10.1
Cantabria	9.2	8.0	7.1	8.0	10.6	7.9	9.3	10.7	10.8	9.1
Segovia	8.9	6.9	6.7	7.0	7.2	6.4	8.2	10.0	9.5	7.9
Sevilla	10.6	12.0	7.3	9.4	9.6	10.0	10.5	12.4	13.1	10.5
Soria	7.6	7.1	6.6	6.8	7.0	6.6	7.3	8.5	10.5	7.6
Tarragona	8.3	12.2	7.9	10.7	12.5	8.5	10.9	14.2	12.7	10.9
Teruel	8.5	6.9	5.8	7.7	7.1	7.1	7.7	9.9	9.6	7.8
Toledo	16.0	8.0	8.1	8.6	8.6	7.7	10.0	14.1	13.9	10.6
Valencia	10.8	9.3	8.2	9.8	8.8	8.7	10.8	12.8	13.5	10.3
Valladolid	11.3	8.1	7.5	7.5	7.7	7.5	8.7	10.3	10.6	8.8
Vizcaya	11.5	8.7	9.1	7.9	9.4	7.9	5.1	9.0	8.0	8.5
Zamora	9.5	7.7	6.7	8.3	6.7	6.9	8.9	9.6	9.6	8.2
Zaragoza	7.4	10.1	8.5	5.4	16.1	8.0	9.4	11.3	10.9	9.7
MEAN	10.0	8.8	8.6	8.6	8.9	8.0	9.4	11.5	11.6	9.5

Source: self elaboration and Instituto Nacional de Estadística (2013).

Table C2: Exit rate entrepreneurs

province_id	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	11.9	10.0	11.1	9.4	10.1	10.6	5.5	10.6	9.5	9.9
Albacete	11.6	10.4	9.6	10.4	11.2	9.3	12.2	16.0	14.1	11.7
Alicante	12.0	11.7	11.0	11.2	10.8	13.0	15.2	17.7	16.9	13.3
Almeria	12.4	9.9	9.3	11.6	12.1	11.7	13.8	16.7	16.2	12.6
Avila	9.7	6.6	8.5	9.4	7.9	8.2	9.6	12.5	15.4	9.8
Badajoz	10.0	13.8	10.8	10.3	10.7	8.7	11.4	14.0	15.4	11.7
Baleares	12.7	11.5	9.8	16.7	12.4	11.4	13.6	15.1	16.7	13.3
Barcelona	11.9	11.9	10.4	9.3	13.7	9.9	12.6	13.5	14.0	11.9
Burgos	9.9	7.8	8.6	8.5	8.4	8.0	10.0	11.2	12.5	9.4
Caceres	12.0	9.1	23.6	10.8	12.8	9.2	12.1	11.3	13.6	12.7
Cadiz	10.7	10.6	10.4	11.7	11.1	12.2	13.5	15.6	15.5	12.4
Castellon	13.7	10.3	9.4	13.4	11.0	9.8	13.4	16.6	16.6	12.7
Ciudad Real	12.4	8.3	8.8	11.4	10.1	9.6	11.2	14.1	14.4	11.1
Cordoba	7.6	12.0	10.9	11.2	10.8	10.8	12.7	13.0	14.4	11.5
La Coruña	17.1	9.3	8.4	9.6	9.4	8.4	10.9	10.6	11.6	10.6
Cuenca	10.9	10.0	8.9	9.3	8.7	7.5	11.2	13.7	13.4	10.4
Gerona	9.4	9.8	31.0	11.6	11.2	9.4	12.4	15.5	18.8	14.3
Granada	7.6	10.5	14.1	12.2	11.6	9.9	12.9	15.0	15.7	12.2
Guadalajara	11.6	11.5	9.7	11.4	11.2	11.0	14.2	16.3	16.5	12.6
Guipuzcoa	12.9	10.7	9.9	8.8	10.4	10.2	5.6	10.0	9.7	9.8
Huelva	12.6	11.8	10.1	14.0	12.1	10.4	13.7	15.2	17.5	13.1
Huesca	10.0	9.3	8.7	9.9	8.1	8.6	10.9	12.7	13.0	10.1
Jaen	11.5	10.6	9.3	12.1	10.9	9.7	12.0	13.4	14.8	11.6
Leon	11.3	9.0	8.7	9.4	9.8	8.4	10.6	10.9	11.6	10.0
Lerida	9.9	9.2	9.0	9.5	10.1	8.8	11.2	13.6	13.1	10.5
La Rioja	9.6	9.3	9.6	10.0	9.8	8.7	11.5	12.7	12.1	10.4
Lugo	10.2	8.0	9.9	7.1	7.6	7.0	9.6	10.2	9.8	8.8
Madrid	12.8	10.9	10.5	10.6	10.3	10.3	12.3	13.8	14.9	11.8
Malaga	13.1	11.6	9.3	12.7	11.5	11.9	15.3	15.9	17.4	13.2
Murcia	11.6	10.7	10.1	13.1	10.9	10.6	13.2	16.5	17.1	12.6
Navarra	15.2	12.0	12.9	11.9	13.3	11.9	13.8	14.5	12.1	13.0
Orense	10.5	8.9	9.2	9.2	9.3	8.2	10.3	11.6	11.2	9.8
Asturias	12.0	8.2	13.5	9.9	9.4	9.4	10.9	11.5	11.7	10.7
Palencia	10.7	7.6	9.1	8.2	8.3	8.1	9.3	9.8	9.7	9.0
Las Palmas	12.6	11.6	12.2	9.1	13.3	11.1	14.0	15.3	16.0	12.8
Pontevedra	10.9	10.0	8.8	11.1	9.9	9.5	11.6	11.9	12.5	10.7
Salamanca	13.9	7.4	10.6	9.0	9.9	9.2	10.9	11.2	10.6	10.3
S.C.Tenerife	12.1	11.3	12.1	9.9	10.7	10.6	13.7	15.1	15.0	12.3
Cantabria	10.0	8.8	8.3	9.1	12.2	9.0	10.7	11.8	11.9	10.2
Segovia	9.8	7.5	7.7	8.2	8.5	7.4	9.7	11.6	11.1	9.1
Sevilla	12.0	14.2	9.1	11.6	11.9	11.9	12.9	14.5	15.3	12.6
Soria	8.7	7.9	8.2	8.5	8.1	7.8	8.5	10.0	11.7	8.8
Tarragona	9.2	13.6	9.4	11.0	13.2	10.2	13.1	16.2	15.5	12.4
Teruel	10.1	8.1	7.7	9.8	8.5	9.3	9.4	12.1	12.0	9.7
Toledo	18.9	9.5	10.0	11.0	10.5	9.4	12.8	17.3	17.3	13.0
Valencia	12.3	10.7	10.0	12.4	10.7	10.8	13.5	14.9	16.0	12.4
Valladolid	13.1	8.9	9.3	9.1	8.7	9.1	10.5	11.4	12.6	10.3
Vizcaya	13.2	10.1	10.5	8.8	11.0	9.4	6.3	9.2	9.0	9.7
Zamora	10.6	8.4	7.9	9.7	8.0	8.2	10.2	10.7	10.5	9.4
Zaragoza	8.5	11.9	10.6	7.2	11.7	9.7	11.7	13.2	13.3	10.9
MEAN	11.5	10.1	10.5	10.4	10.5	9.7	11.6	13.4	13.7	11.3

Source: self elaboration and Instituto Nacional de Estadística (2013).

Table C3: Exit rate corporations

province_id	2001	2002	2003	2004	2005	2006	2007	2008	2009	MEAN
Alava	4.6	3.4	4.6	4.9	5.3	4.3	2.4	6.5	4.7	4.5
Albacete	6.8	5.5	3.5	5.4	4.3	4.5	5.6	8.1	6.9	5.6
Alicante	8.1	7.9	6.5	6.2	5.8	5.8	6.9	11.0	9.7	7.6
Almeria	7.2	6.2	3.9	5.8	6.4	5.6	6.4	11.0	10.1	6.9
Avila	5.3	3.7	2.5	5.4	4.5	4.6	5.1	7.6	12.2	5.7
Badajoz	5.2	7.7	4.8	4.8	4.0	3.9	4.6	8.4	10.2	6.0
Baleares	7.9	6.5	4.2	6.4	6.0	6.6	5.7	8.2	8.6	6.7
Barcelona	6.8	7.2	5.1	5.4	12.9	4.6	6.2	8.6	8.1	7.2
Burgos	4.9	3.6	2.9	3.0	3.4	4.0	3.9	6.5	5.5	4.2
Caceres	3.8	3.7	11.7	4.4	4.7	3.4	3.9	6.4	8.0	5.6
Cadiz	5.4	6.4	4.8	8.4	5.5	6.7	7.5	10.2	10.3	7.3
Castellon	8.1	5.6	3.8	5.0	4.4	4.1	6.0	9.7	9.0	6.2
Ciudad Real	6.7	4.4	3.6	4.6	4.5	5.2	5.0	8.6	7.7	5.6
Cordoba	3.3	6.6	4.5	4.6	4.6	4.8	6.1	9.5	7.6	5.7
La Coruña	8.5	4.8	3.0	3.9	4.4	3.5	4.2	6.4	6.4	5.0
Cuenca	6.2	4.8	3.2	4.1	3.7	3.1	6.1	7.5	5.7	4.9
Gerona	6.4	6.0	14.4	5.7	6.0	4.9	6.7	10.4	12.5	8.1
Granada	4.7	5.2	6.4	4.9	5.6	4.7	6.4	11.3	9.9	6.6
Guadalajara	8.5	5.9	3.2	2.9	5.1	4.6	5.3	9.9	8.0	5.9
Guipuzcoa	5.2	4.3	4.8	4.9	5.6	4.3	2.1	7.1	4.2	4.7
Huelva	6.4	6.2	4.7	5.2	4.7	4.1	7.2	10.1	11.1	6.6
Huesca	5.2	4.1	3.5	4.0	3.0	3.7	3.6	5.9	7.0	4.5
Jaen	6.9	6.5	4.4	5.1	5.1	5.0	6.0	8.1	8.6	6.2
Leon	6.3	5.5	3.1	4.5	4.3	3.5	4.3	6.8	6.2	4.9
Lerida	4.3	4.5	3.8	3.5	5.5	3.1	4.3	7.2	6.6	4.8
La Rioja	4.5	4.5	3.1	4.2	4.8	3.4	4.4	5.8	6.0	4.5
Lugo	5.5	4.3	3.8	2.6	2.5	2.0	3.3	6.6	5.9	4.1
Madrid	7.3	5.9	4.4	4.6	4.3	3.9	4.9	7.1	7.8	5.6
Malaga	8.8	7.7	4.3	5.7	5.9	7.3	7.9	11.3	12.4	7.9
Murcia	6.7	5.8	4.3	6.0	5.2	4.6	5.9	9.9	11.1	6.6
Navarra	5.8	4.5	4.9	5.1	5.6	5.1	5.6	6.8	6.4	5.5
Orense	5.0	4.3	3.1	3.4	4.1	3.3	4.4	7.1	5.6	4.5
Asturias	7.9	4.6	7.1	4.9	5.6	4.9	5.9	8.3	8.0	6.4
Palencia	6.5	4.6	4.4	3.2	3.4	3.0	6.8	6.4	5.9	4.9
Las Palmas	6.2	6.4	4.5	3.6	5.3	4.5	6.0	8.9	7.9	5.9
Pontevedra	5.5	5.0	3.3	4.4	4.7	3.9	5.2	7.7	8.0	5.3
Salamanca	9.5	3.7	3.8	3.2	4.1	3.5	4.1	6.7	6.0	5.0
S.C.Tenerife	6.6	6.3	5.0	4.3	4.7	4.7	5.7	8.6	8.7	6.1
Cantabria	6.0	5.1	3.5	5.1	6.5	4.3	5.2	7.9	7.8	5.7
Segovia	5.1	4.6	3.6	3.5	3.7	2.8	3.7	5.9	5.2	4.2
Sevilla	7.2	6.9	4.0	4.9	5.4	6.5	6.6	9.3	9.7	6.7
Soria	4.2	4.6	2.8	2.9	3.9	3.4	3.2	5.2	7.6	4.2
Tarragona	6.2	8.6	5.2	7.8	9.8	4.8	7.0	11.0	8.6	7.7
Teruel	4.2	2.9	1.6	3.0	2.9	1.8	3.3	5.3	5.1	3.4
Toledo	10.3	4.8	4.3	4.2	4.8	4.2	5.2	9.4	8.8	6.2
Valencia	8.0	6.5	5.0	5.3	5.5	5.2	6.4	9.8	10.0	6.9
Valladolid	6.5	5.7	3.3	4.0	5.5	3.9	5.0	8.3	7.5	5.5
Vizcaya	6.9	4.9	5.7	5.8	5.8	4.4	2.8	7.9	4.6	5.4
Zamora	4.9	4.9	3.2	4.1	3.0	3.6	4.7	7.4	6.8	4.7
Zaragoza	4.7	6.2	4.6	2.6	19.0	4.5	5.3	8.2	7.2	6.9
MEAN	6.2	5.4	4.5	4.6	5.3	4.3	5.2	8.2	7.9	5.7

Source: self elaboration and Instituto Nacional de Estadística (2013).

Appendix D: Judicial Congestion rates (ordinary proceedings)

	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
Guadalajara	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

Source: self elaboration and Consejo General del Poder Judicial (2013).

Appendix E: regressors' correlation matrix (pairwise correlations).

	Log (Congestion Ordinary)	Log (GDP)	Log (Unemployment rate)	Credit/GDP	Npl ratio	Bar/GDP	Branches	Weight primary	Weight energy
Log (Congestion Ordinary)	1								
Log (GDP)	0.21	1							
Log (Unemployment rate)	0.01	0.12	1						
Credit/GDP	-0.03	0.45	0.17	1					
Npl ratio	0.15	0.05	0.45	0.14	1				
Bar/GDP	0.14	0.26	0.13	0.33	0.26	1			
Branches	-0.20	-0.52	-0.48	-0.06	-0.03	-0.06	1		
Weight primary	-0.11	-0.70	-0.08	-0.39	-0.02	-0.15	0.39	1	
Weight energy	-0.07	-0.16	0.06	-0.19	0.01	-0.03	0.08	-0.09	1
Weight manufacturing	-0.12	0.04	-0.41	0.12	-0.19	0.04	0.21	-0.20	-0.14
Weight construction	-0.17	-0.19	0.30	-0.03	0.08	0.00	-0.01	0.15	0.14
Weight services	0.28	0.52	0.21	0.21	0.19	0.07	-0.49	-0.44	-0.24
Log (Capital intensity)	-0.08	0.47	0.20	0.68	0.13	0.24	-0.14	-0.52	-0.20
Vertical integration	-0.10	0.37	0.31	0.47	0.35	0.15	-0.10	-0.58	0.05
Foreigners	0.11	0.38	-0.10	0.45	0.21	0.25	-0.10	-0.34	-0.21
Lawyers	0.14	0.81	0.07	0.47	0.00	0.14	-0.43	-0.59	-0.22
Log (Tax pressure)	-0.38	-0.43	-0.04	-0.04	0.13	-0.04	0.31	0.20	0.01
Regulation	-0.24	0.11	-0.10	0.00	-0.09	-0.01	0.15	-0.12	0.04

	Weight manufacturing	Weight construction	Weight services	Log (Capital intensity)	Vertical integration	Foreigners	Lawyers	Log (Tax pressure)	Regulation
Weight manufacturing	1								
Weight construction	-0.58	1							
Weight services	-0.65	0.11	1						
Log (Capital intensity)	0.02	0.06	0.36	1					
Vertical integration	0.16	-0.09	0.21	0.47	1				
Foreigners	-0.13	0.19	0.37	0.53	0.31	1			
Lawyers	0.00	-0.26	0.54	0.44	0.28	0.21	1		
Log (Tax pressure)	0.08	0.17	-0.27	0.01	0.06	0.00	-0.37	1	
Regulation	-0.17	0.20	0.17	0.24	0.10	0.21	0.04	0.17	1