The Responsiveness of Entrepreneurs to Working Time Regulations

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ABSTRACT

In this paper we analyse the impact of enforcement practices (proxied by judicial formalism) and the regulation of working time on entrepreneurial activity by opportunity. We find that higher enforcement formalism mitigates the negative impact exerted by rigid labour regulations on the number of entrepreneurs. While it is agreed that regulatory rigidities may increase productive costs, we show that entrepreneurs are less sensitive to labour regulations the higher the level of enforcement formalism in which they operate. Higher formalism is associated with lower enforcing efficiency and lower probability of being punished for transgressing laws. A policy implication is that encouraging labour flexibility may not improve conditions for entrepreneurial activity in procedurally formalist countries. This is due to the fact that, in those countries, flexibility *de facto* characterises employment relations, no matter what the law says.

KEY WORDS: Judicial Formalism, Observance, Compliance, Entrepreneur, Labour Contracts, Rigidity of Hours, Working Time

JEL CLASSIFICATIONS: L26, J83, K31, K42

1- Introduction

A number of empirical studies suggest that rigidities in the labour regulations have a negative impact on entrepreneurial activity (van Stel et al. 2007; Klapper et al. 2006; Scarpetta et al., 2002). This evidence supports the views of the Doing Business project. A combination of academic and regulatory advisory programme, the Doing Business project regards rigidities in labour laws as constraining economic development (Botero et al. 2004; Doing Business, 2006). As examples of good regulatory practices, they describe labour market reforms in Eastern European and Central Asian countries (Serbia and Montenegro, Macedonia, Kyrgytz Republic, Armenia, and Georgia). Basically these reforms consisted of making work hours more flexible and reducing the administrative burdens on dismissals of redundant workers (Doing Business, 2006, p. 22; Doing Business, 2007, p. 19).

Small firms inherently confront restricted combinations of factors of production. This competitive disadvantage is aggravated when additional contractual restrictions are imposed. Regulatory restrictions may thus impose fixed costs which are harder for smaller firms to meet. Self-employment is described as one possible strategy to circumvent rigid regulations, since aspects such as compensation and working time are totally unregulated. This may explain the high rate of self-employment observed in Italy (Henrekson, 2007, p. 738). Another possibility is simply not complying with the regulation.

Non-compliance and informal labour relationships are extended practices in developing countries, as shown by several studies on Latin American labour institutions (Marshall, 2007; Bensusán, 2007; Schrank and Piore, 2007). According to the Doing Business project, the difficulty of firing workers is one of the reasons why more than a third of economic activity in Uzbekistan takes place in the informal sector (Doing Business, 2005, pp. 28, 29). Lee et al. (2007) find that low income countries tend to have less stringent working time regulations. The fact that in such countries the observance of standard legal hours is lower suggests that legal rules do not coincide with real practices.

In our article we suggest that procedural traditions are a major conditioning factor of the effectiveness with which labour regulations are enforced. Rigid regulations affect the incentives to start a firm, when these regulations are enforced by relatively less formalist institutions. The significance of formalism is tested against other quality enforcement measures such as the number of labour inspectors or the number of occupational injuries.

The motivation in our analysis derives from the basic proposition in the Law and Economics literature that laws on the books need efficient enforcement mechanisms to effectively influence the incentives' structure in a society (see van Hemmen and Stephen, 2005, for a discussion in the Law and Finance literature; and Stephen and van Hemmen, 2007, for a wider institutional approach). We test this proposition in the context of entrepreneurship and the regulation of working time. With this contribution we add to our previous study showing that institutions (proxied by legal origins) account for a large proportion of the variance of the percentage of entrepreneurs by opportunity (Stephen et al. 2005). Here, we extend this idea to understand the potential impact of working time regulations, and the nature of the interplay between labour and enforcement institutions.

In the following section we comment some recent papers which emphasize the relevance of business regulations to entrepreneurial activity. Section 3 identifies enforcing institutions which have been shown to be relevant in explaining the compliance rates of labour regulations. Section 4 presents empirical evidence suggesting that the sensitivity of

entrepreneurship to working time regulations is conditioned by the quality of enforcing institutions. The article concludes with a discussion in section 5.

2- The relevance of business regulations to entrepreneurial activity

Djankov et al. (2002) show that administrative and bureaucratic costs of starting up a limited liability company vary significantly across countries. In a study which follows the methodological approach by Rajan and Zingales (1998), Klapper et al. (2006) identify industries which should experience 'naturally' high entry rates of newly incorporated firms. They examine the differential effect of cross-country regulation variables across industries in a number of European developed and transition countries, concluding that costly entry regulations reduce the number of new limited – liability firms in sectors which should naturally have high entry rates, increase the average size of entrants (due to the fixed cost component of entry procedures), and reduce the growth rates of value added per employee of incumbent firms in naturally high-entry industries. Thus where the bureaucratic costs of incorporation are high, small young firms are screened out and forced to grow without the protection of limited liability until they reach a scale that makes such costs affordable (Klapper et al, 2006, p. 593).

An interesting result by Klapper et al (2006, p. 619) is that, along with the impact of entry regulation, entry figures decrease in labour intensive industries (measured by the number of employees to the amount of fixed assets) when they are subject to rigid labour regulation (as indexed by Botero et al, 2004). The importance of labour regulations is also stressed by Scarpetta et al (2002). By using firm-level survey data for OCDE countries, their study suggests that strict regulations on hiring and firing reduce entry rates in small and medium-sized firms (20-49 employees), but have an opposite effect (albeit significant at 10% level) for micro firms (fewer than 20 employees). According to these authors, the positive sign could be possibly explained by the fact that countries with relatively rigid labour regulation introduce exemption measures for smaller firms. However, they do not consider the possibility that the reduced significance of the coefficient may indicate that smaller firms are less subject to labour inspections and that lower unionization reduces the chances of labour rights being effectively protected.

In another article which models the dynamics of the transition from nascent to young firms, van Stel et al. (2007) stress that labour regulations, rather than entry procedures, exert a strong influence on the levels of entrepreneurial activity. In particular, labour regulations are shown to negatively impact nascent entrepreneurs. Entrepreneurs at early stages are expected to be more sensitive to entry regulation; however their results imply that the costs which labour rigidities would impose when the firm fully operates are sufficiently high to be taken into account in advance.

Various explanations have been proposed as to the effects of labour regulations on entrepreneurial activity. Van Stel et al (2007, p. 182) comment that while higher flexibility may play a push effect on employees (increasing the possible number of entrepreneurs), a pull effect would be exerted on potential entrepreneurs who would find it more attractive to run a firm in a flexible labour market context. Klapper et al (2006, p. 620) suggest that compliance with these regulations may have fixed components which would make them particularly costly for small businesses to meet. A flexible cost structure is a necessary

condition for small firms to survive downturns. On the other hand, Henrekson (2007) argues that the restrictive freedom of contracting reduces the possible combinations of factors of production, and that this restriction is particularly harmful for small and entrepreneurial employers. Entrepreneurs need flexible labour because they learn about workers' abilities over time and optimal assignments are likely to change.

While stressing the importance of labour regulations, we believe that the empirical contributions commented in this section wrongly assume that labour laws are effectively and uniformly enforced across all countries and firm sizes. As will be commented in the next section, this is far from being true.

2- The enforcement of labour regulations

Two mechanisms are devised for the supervision and enforcement of labour regulations: inspection, and courts with labour jurisdiction. These mechanisms take different forms across countries. Inspection may be entrusted to centralized institutions (inspectorates, which usually belong to the country's labour ministry) or by specialized bodies (which report to different government agencies or ministries). On the other hand, labour justice can be handled by specialized courts, or by civil courts. By drawing this stylized framework we do not deny the importance of other non-judicial solutions, such as arbitration and conciliatory mechanisms. However, legality basically depends on the efficiency of inspectorates and courts.

A variety of factors may explain low levels of compliance in most countries. A first frequently mentioned reason is the lack of resources suffered by enforcement institutions, particularly in poor and developing economies. Labour inspection systems are shown to be insufficiently staffed and funded in many Central American countries (Schrank and Piore, 2007). The same reasons underlie the inefficient functioning of the courts with labour jurisdiction in Latin America (Bensusán, 2007, pp. 32, 33; Sappia, 2002, pp. 13, 14). In Mexico, labour procedures may last two or three years to be solved (Bensusán, 2006, p. 46). The lack of resources generates corruption, which increases the costs of access to justice for poorer workers. Still, the Dominican Republic stands out as a successful experience. According to a CAFTA-DR (2005, p. 28) report, in ten years the number of labour judges has doubled in the Dominican Republic, which has eliminated delays in the labour section of the Supreme Court.

A closely related issue is the lack of expertise and specialization of both inspectors and judges. A major policy issue in Bulgaria has been the creation of labour specialized courts, where Civil courts rarely handle labour justice in less than one-and-a-half or two years. This measure is expected to alleviate the difficulties faced by workers in defending their rights (Neykov, 2004; Economic and Social Council, Republic of Bulgaria, 2006). From 1999 on, only professional lawyers serve as labour judges in Brazil, substituting the preceding practice of allowing the participation of labour union and business associations' members. Under the co-participation system reaching compromises was costly and time-consuming. The move towards specialized and resident judges allowed a significant reduction of the time needed to solve a labour dispute: by 2001 the average labour dispute had been cut from three to one and a half years (Doing Business, 2004, p. 39).

Another explanation lies in the inadequacy of procedural norms. Lengthy labour procedures may result from excessive formalisms such as giving priority to written documents, allowing meaningless procedural instances, appeals and rigid collection of evidence in the first instance and the need to supply additional evidence to the second instance.

For lack of directly relevant data on labour procedures (as will be explained in the next section) we use the Djankov et al. (2003) variables on two different procedures. These authors produced a detailed description of collection of a bounced check and eviction of a non-paying tenant procedures in 109 countries. Legal origins alone were found to explain around 40 percent of the variation in their measures of formalism, with French legal origin countries showing the highest formalism indexes. Interestingly, most Latin American labour procedures, which were designed in the first half of the twentieth century, narrowly followed the civil procedural features (Sappia, 2002).

Procedural inadequacy may explain why even in countries like Costa Rica (a country distinguished for its significant efforts to increase the number of judges and financial resources) delays in labour courts remain an issue of major concern. Actually, a report produced by the trade and labour ministries of the Central American countries and the Dominican Republic specifically recommended a reform in the procedural labour regulation to the Costa Rican government (CAFTA-DR, 2005, p. 24). As Djankov et al. (2003, p. 511) point out, formalism brings extreme costs and delays, unwillingness by potential participants to use courts, and ultimately injustice.

It can be argued that formalism only affects one of the two labour enforcement institutions, namely the courts, and that it is unrelated to the way the other one, inspectorates, operates. However, according to Schrank and Piore (2007, p 13), formalism has also played a significant influence in the design of labour inspection mechanisms. Following Wallin's (1969) description of the origins and development of labour administration between the two world wars, they point out that in some European countries (particularly France and Spain) inspectors operated with procedures which heavily restricted their powers. A measure intended to combat corruption, formalism produced the plausibly unintended consequence of reducing inspectors to mere tutors or consultants. As Wallin (1969, p. 56) points out, at the beginning of the twentieth century, ineffectiveness and limited powers typically characterised labour inspectorates: 'The main function of the inspectorates could also be to give advice and instructions to employers on accident prevention and hygiene. But their activities were often hampered by restricted powers or rules of procedure which reflected the fear felt by many governments that inspectors would take high-handed action at the employers' expense'. In some countries, as was the case in Spain, labour inspectors were charged with the responsibility to fill statistical questionnaires which would serve governments for policy purposes (San Miguel-Arribas, 1952, p. 59, 60).

The Franco-Iberian tutelary model migrated to Latin American countries. Although Schrank and Piore (2007) suggest that a full development of this model would produce efficient results in the Latin American context (i.e. it would increase compliance rates), the flexible interpretation of the law by tutelary inspectors partly explains why entrepreneurs in these formalist institutional environments are plausibly less responsive to rigid regulations, as the empirical analysis shown in the next section suggests.

3- The responsiveness of entrepreneurs to working time regulations

In this section we empirically examine the sensitivity of total percentage of adult population who are entrepreneurs to working time regulations. We specifically focus on entrepreneurs who respond to the Global Entrepreneurship Monitor questionnaire that they are currently pursuing attractive business opportunities (Reynolds et al, 2002). We start our assessment by successively testing the separate and joint explanatory power of the variables used in Lee et al (2007) and the *Doing Business* Rigidity of Hours index. From year 2002 to 2005, the Global Entrepreneurship Monitor has covered data on opportunity entrepreneurship for 55 countries, all of which are included in the Doing Business project. The study by Lee et al (2007) covers 48 countries. Merging these three sources produces a first sample which comprises 23 countries. As shown in table 3, this results in an unbalanced panel of 61 observations. Alternatively, table 4 reveals that by just merging the Global Entrepreneurship Monitor and the Doing Business data a larger sample of 52 countries and 140 point observations is obtained (the sample is reduced from the 55 Global Entrepreneurship Monitor countries to 52 because of the introduction of control variables). In table 1 we present the variables used in the analysis.

INSERT TABLE 1 AROUND HERE

Prior to the examination of the interaction between the law and its enforcement, in table 2 we present the correlations among alternative measures of enforcement quality. We observe that both formalism variables (Formalism and Dismissal procedures) are positive but weakly correlated. Interestingly, we also observe a positive and highly significant correlation between our averaged Formalism index and the rate of non-fatal occupational injuries. On the other hand, fatal injuries appear to be positively associated with dismissal procedures.

INSERT TABLE 2 AROUND HERE

These measures can be interpreted as components of an enforcement production function which has the objective of reducing the number of occupational injuries. While the outputs of the enforcement function would be the number of fatal and non-fatal injuries, the other variables could be considered as inputs: Formalism (which in part reflects the organizational technology of the enforcement institutions), dismissal procedures (proxying for formalism in the labour context), and the number of labour inspectors. We have run several regressions (not reported) and the link between formal procedural variables and occupational injuries holds even after adjusting for other control variables (such as per capita income). Although we would have preferred using direct measures of formalism in all labour enforcing institutions (namely, inspectorates and labour courts), in the context of our paper the significant association suggested by the correlations' table allows us to infer

that Formalism and Dismissal procedures contain relevant information regarding the quality of labour enforcing institutions.

Before we present the results obtained for the key variables, note that in all the regressions where opportunity entrepreneurship is taken as the dependent variable (tables 3 and 4), three control variables have been included: a) the World Development Indicators' GNI per Capita index using Atlas method (current US$), lagged one year; b) the World Development Indicators' GDP growth, also lagged one year; and c) the Global Entrepreneurship Monitor measure of the stock of Business Owners (see Reynolds et al, 2002). It is worth remarking that the value and significance of coefficients is not substantially altered by introducing a larger number or combination of controls (we have mostly tested the ones appearing in van Stel et al, 2007, and in Klapper et al, 2006).

INSERT TABLE 3 AROUND HERE

Using our restricted sample of 23 countries, regression 1 in table 3 suggests that the number of normal statutory hours is positively associated with the rate of entrepreneurs by opportunity. As expected, less rigidity in normal hours' regulation is positively associated with entrepreneurship. It is worth pointing out that in the sample of 48 countries used by Lee et al. (2007), at least a 62.5% (30 countries) limit the normal statutory weekly time to 40 hours. France is the well-known exception with its normal limit of 35 hours. The remaining 35.42% countries have set a larger limit, with 10 countries reaching the maximum of 48 hours (Bolivia, Ethiopia, Guatemala, Mexico, Pakistan, Panama, Peru, Thailand, Uruguay and Zimbabwe). Note that the United Kingdom and Germany are excluded because their regulations only impose a limit on maximum hours (including overtime).

In regressions 2 and 3 (table 3) it is shown that observance rates also capture a relevant characteristic of working time practices: an increased proportion of employees working below the normal statutory limits reduces the observed rates of entrepreneurship. While the introduction of observance increases the r-squared, the normal statutory limit coefficient does not change significantly. This suggests that both variables have a complementary effect on the rate of entrepreneurial activity. However, we cannot interpret observance as a proxy for law enforcement because it captures both the effects of employers who do not respect the normal statutory limits and those who legally surpass the normal limits by assuming the cost of paying extra hours.

In the fourth regression, we assess the impact of the Lee et al (2007) effective working time regulation variable. This variable has been constructed to capture *de facto* rigidity and results from averaging the normalized values of the normal statutory limits and observance rates.

As shown in column 4, the effective regulation variable produces an improvement in the fitness of the model. Overall, regressions 1 to 4 support the emphasis Lee et al (2007) on *de facto* regulation, but do not exclude the possibility that *de jure* regulations have an impact by themselves.

The information contained in the variables used by Lee et al (2007) refers to the issue of *normal* statutory weekly working time. This specific aspect is not covered in the Doing Business Rigidity of Hours index. The Doing Business index is composed of 5 components: (i) whether night work is unrestricted; (ii) whether weekend work is unrestricted; (iii) whether the workweek can consist of 5.5 days; (iv) whether the workweek can extend to 50 hours or more (including overtime) for 2 months a year to respond to a seasonal increase in production; and (v) whether paid annual vacation is 21 working days or fewer. For each of these questions, if the answer is no, the country is assigned a score of 1; otherwise a score of 0 is assigned.

As Lee et al (2007) suggest, the Doing Business index is inadequate because it does not describe actual legal practices. Accordingly, we complement the Doing Business rigidity of hours index with two additional variables: a measure of the quality of enforcement, and its interaction with the Doing Business index. By introducing a measure of judicial quality we try to assess the extent to which the laws covered by Doing Business are effectively implemented.

We predict that the content of the law matters, but efficient enforcing mechanisms are needed. Specifically, we expect that sensitivity of entrepreneurial activity to working time regulation decreases with inefficiency levels of enforcement. Unfortunately, we have not found any convincing measure of the efficiency of labour enforcement institutions.

The measure of enforcement quality we use is the average of the two Formalism indexes which appear in the paper 'Courts', by Djankov et al (2003). Prior to commenting these regressions, we should note that we have tested the interaction of the Doing Business rigidity of hours index with the alternative enforcement measures presented in table 2, namely the Number of Inspectors, the Dismissal procedures, or the rates of occupational injuries. We have also tested the possible interaction effect with measures such as the Rule of Law and Corruption (see Kaufmann et al., 2004, and Kaufmann et al. 2007). However, none of the interactions did show any impact on the number of entrepreneurs (not reported in the tables).

Procedural formalism increases the costs of using the enforcing mechanisms: the higher the number of procedures, the costlier it is to enforce contracts. Formalism is associated with lengthy procedures and with a more intensive use of inspection and judicial resources. For any given level of resources, formalism reduces the efficiency of the system because more time and staff is needed for each case to be reviewed and resolved. If, as suggested by Djankov et al (2003), procedural formalism practices are historically inherited and are embedded in the legal system, reverse causality concerns can plausibly be ruled out. Following the authors' own description, the Formalism index measures substantive and procedural statutory intervention in judicial cases at middle-level civil trial courts, and is formed by adding up the several sub-indices (Djiankov et al, 2003, p. 461). The first one is related to the degree of professionalism of judges and lawyers (basically court specialization, training received by judges and the need for legal representation). Secondly, a sub-index captures whether written presentation dominates the procedure as opposed to oral presentation. The third, known as *Legal justification*, indicating whether judgements are based on statutory law rather than on principles of equity. The fourth dimension covers the degree of freedom and flexibility with which the judge gathers evidence. The fifth element relates to the judicial internal organization: the extent to which first instance judges' decisions are subject to the actions of their superiors. The sixth sub-index captures the level of engagement formalities which have to be followed (notification

requirements…). Finally, formalism also includes the number of independent procedural actions, defined as 'every step in the procedure, mandated by law or by court regulation, which demands interaction between law or by court regulation, which demands interaction between the parties or between them and the judge or court officer … (Djankov, 2003, p. 475)'. In short, Formalism describes the procedural practices with which contracts are enforced and captures the costs of enforcing institutions. Bureaucratic procedures reduce the quality of enforcement in many ways, one of which is the inefficient use of human resources involved in the task of enforcing laws and contracts.

The index ranges from 0 to 7, where 7 means a higher level of control or intervention in the judicial process (Djankov et al, 2003, p. 469). Formalism is measured for two types of procedures: the procedure for collecting a bounced check, and the procedure to evict a non-paying tenant. As the correlation between these two indexes is very high (0.83), our results are similar, regardless of the chosen formalism index (not reported). In order to capture this dimension in the widest possible context, our variable Formalism results from averaging both formalism indexes.

Regression 5 shows that the effective working time variable is significant even after controlling for the effect of these additionally three variables. Furthermore, we find that the interaction of laws on the books and enforcement quality increases the fitness of the model. The coefficients show the predicted signs: the Doing Business *de jure* regulation index appears to exert a negative impact on entrepreneurship, but this effect is reduced as the levels of judicial formalism increase. The coefficient value of the effective regulation variable produced by Lee et al (2007) decreases but it is still significantly different from 0 at the 98% level. An F test shows that the decrease in the effective regulation coefficient is insignificant, suggesting that both *de facto* dimensions (i.e. the effective regulation on normal statutory hours and the enforcement of the Doing Business rigidity of hours index) have a complementary influence on the levels of entrepreneurship.

In table 4 we continue our analysis of the effects of formalism by sacrificing Lee et al (2007) variables to check the robustness of the interaction in a larger sample of countries. We start by running the model where the Doing Business index is interacted with the formalism index.

INSERT TABLE 4 AROUND HERE

Regression 1 suggests that the negative impact of rigidity of hours on the rate of entrepreneurial activity decreases with higher levels of judicial formalism. The positive sign of the interaction implies that the burden imposed by labour regulation on entrepreneurs is reduced as the enforcement formalism increases. As formalism increases (enforcing mechanisms are inefficient), entrepreneurs are less concerned with the content of laws on the books. Indeed, our results suggest that for highly formalist and bureaucratic countries (basically Latin American and Iberian countries, see table 6) the impact of working time regulations is virtually nil.

To rule out the possibility that the interaction term is mainly capturing the effect of the rigidity of hours index, we split the sample in two groups: countries with lower than the median formalism levels (regression 2) and countries with higher than the median

formalism levels (regression 3). Columns 2 and 3 confirm that working time regulations have a significant impact in less formalist judicial systems, but it is insignificant in the more formalist ones.

Our results suggest that the probability of laws having any impact on entrepreneurs depends on the efficiency of enforcement mechanisms. At this point, however, one may conjecture that historically originated inefficient enforcement institutions may generate higher rates of informal economy in the long run. It is plausible that the number of entrepreneurs who are able to elude working time regulation increases in countries where the informal sector is large. This possibility is tested in columns 4 to 6 (table 4), by using a slightly smaller sample of 50 countries and 134 point observations. Regression 4 suggests that the interaction effect of informal economy is similar to the one observed when the formalism variable is interacted (regression 1). Again, splitting the sample provides confirmatory evidence: in low informal economies the impact of working time regulation is significant (regression 5); however, laws show no effect in countries with a larger informal sector (regression 6).

The size of informal economy has been associated with the existence of costly regulation (De Soto, 1986). On the other hand, Almeida and Carneiro (2005) suggest that stricter enforcement mechanisms substantially reduce informal employment. They also find that surveyed managers who report that labour regulations are a severe obstacle to business are more likely to report employment of informal workers by similar firms operating in their industry (Almeida and Carneiro, 2005, p. 12). As pointed out by the Doing Business (Doing Business, 2007, p. 20), in developing countries, labour laws only apply to a minority of workers. A possibility then is that the formalism index actually proxies for the level of shadow economy, rather than capturing the current or inherited inefficiencies of enforcing mechanisms. Indeed, as shown in table 5 (panel A), the informal economy variable is significantly correlated with the formalism index.

INSERT TABLE 5 AROUND HERE

Furthermore, after controlling for other endowments, such as latitude and a socialist legal origin dummy, panel B in table 5 suggests that formalism produces a long term effect on the size of the informal economy. These explanatory variables potentially provide a good instrument for the impact of the informal economy on the number of entrepreneurs. However, a Hausman test performed after running instrumental variable regression (not reported) suggests that formalism (along with latitude and the socialist legal origin) has no significant impact on entrepreneurship through informal economy (Prob>chi2 = 0.1741). Consequently the last column in table 4 (regression 7) shows the result of introducing informal economy and formalism and their respective interactions. This regression shows that the impact exerted by formalism is stronger, suggesting that it has a direct impact on the number of entrepreneurs by opportunity. On the whole, our results provide evidence that long term inherited inefficiencies of enforcement mechanisms (as proxied by the level of formalism) reduce the impact of working time regulations on the rate of entrepreneurial activity by opportunity.

We finish this section by listing ten countries with the higher averaged Formalism index in our sample. It can be observed that there is only one country (i.e. Slovenia) which is not a Latin American or Iberian country.

INSERT TABLE 6 AROUND HERE

Table 6 also exhibits the ten least formalist countries, all of which belong to the English legal origin group.

4- Discussion

Although most labour procedures and inspectorates were created between the end of the nineteenth and beginning of the twentieth century, the weight of the legal traditions in the way these institutions operate seems to be strong. As Djanov et al. (2003, p. 459) suggest, if countries select their legal procedures voluntarily, formalism may be an efficient adaptation to a weaker law and order environment. Alternatively, when procedural traditions are transplanted through conquest or colonization, we should attribute the consequences of legal formalism to the exogenously determined features of legal procedures, 'and in this way consider the efficiency of alternative rules'. While in our paper we do not consider the convenience of alternative procedures, we show that labour regulations, whatever their content, appear to have little effect on the decision to start a firm in highly formalist countries. We believe that earlier approaches to the impact of labour regulation on entrepreneurial activity wrongly assume that laws on the books are uniformly and effectively enforced across countries. Our article pays attention to the frequently neglected issue that the effectiveness of laws cannot be isolated from the enforcement institutions. Our formalism explanatory variable is less subject to causality issues than other enforcement measures, since they are embedded in legal traditions and are likely to be stable in the long run. Although we have used measures such as the number of labour inspectors, the main limitation is that we have not used a direct measure of formalism in labour courts.

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TABLES

Table 1: Description of the variables

Name in tables	Description	Source
Opportunity entrepreneurship	Entrepreneurs who respond to the Global Entrepreneurship Monitor questionnaire that are currently pursuing attractive business opportunities. This includes both nascent entrepreneurs (when they have committed resources or started a business) and new entrepreneurs (who own and manage a firm which has paid wages for more than three months but less than 42 months). See Reynolds et al. (2002)	Global Entrepreneurship Monitor (GEM). Data are obtained from several reports retrieved from the GEM Web site: http://www.gemconsortium.org/
Business ownership	Established entrepreneurs who own an manage an established business which has been in operation for more than 42 months. Reynolds et al. (2002)	Global Entrepreneurship Monitor (GEM). Data are obtained from several reports retrieved from the GEM Web site: http://www.gemconsortium.org/
Normal Statutory	Number of weekly normal statutory hours of work without	International Labour Organization (ILO)

Hours	incurring in overtime.	Working Time Database. Downloaded from the ILO Web site: http://www.ilo.org/travaildatabase/servlet/workingtime
Observance in Working Time	Proportion of paid employees who are working at or below the standard statutory hours in each country as of year 2000	International Labour Organization (ILO). Statistical Annex in Lee et al. (2007)
Effective hours	Average of the normalized values of the Normal Statutory Hours and Observance in Working Time. Using the authors own notation, the formula for normalization is [(10/13 * (48-*SHi*)] and [(1/10 **ORi*)], where *SHi* is country *i*'s statutory hours and *ORi* refers to country *i*'s observance rate. The index ranges between 0 and 10, with higher values meaning stricter practices.	Statistical Annex in Lee et al. (2007)
Non–fatal Occupational Injuries	Rates of total (male and female) occupational non-fatal injuries per 100.000 employees	Laborsta Internet Yearly Statistics, International Labour Organization. Downloaded from: http://www.ilo.org/global/What_we_do/Statistics/lang--en/index.htm
Fatal Occupational Injuries	Rates of total (male and female) occupational fatal injuries per 100.000 employees	Laborsta Internet Yearly Statistics, International Labour Organization. Downloaded from: http://www.ilo.org/global/What_we_do/Statistics/lang--en/index.htm
Number of inspectors	Number of labour inspectors per 100.000 employees.	- International Labour Office Committee on Employment and Social Policy, retrieved from ILOs' Web site: http://www.oit.org/public/english/standards/relm/gb/docs/gb297/pdf/esp-3.pdf - When available, we have used the Schrank and Piore (2007) data for Central American and Caribean countries. - Work force is obtained from World Development Indicators Online database: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135
Dismissal procedures	This variable results from averaging the first four out of the seven dummy variables used by Botero et al (2004, p. 1348, Table I)) to measure the costs of dismissal: '(1) if the employer must notify a third party before dismissing more than one worker, (2) if the employer needs the approval of a third party prior to dismissing more than one worker, (3) if the employer must notify a third party before dismissing one redundant worker, (4) if the employer needs the approval of a third party to dismiss one redundant worker, (5) if the employer must provide relocation or retraining alternatives for redundant employees prior to dismissal, (6) if there are priority rules applying to dismissal or layoffs, and (7) if there are priority rules applying to reemployment.' The last three cannot properly be interpreted as 'procedural' steps. Thus, we average the first four sub-indexes.	Botero et al. (2004)
Formalism	We average the two formalism indexes by Djankov et al (2003). Each formalism index for ranges from 0 to 7. The index is composed of the following sub-indices: (i) professionals vs. laymen, (ii) written vs. oral elements, (iii) legal justification, (iv) statutory regulation of evidence, (v) control of superior review, (vi) engagement formalities, and (vii) independent procedural actions. The index ranges from 0 to 7, where 7 means a higher level of control or intervention in the judicial process.	Djankov et al. (2003)
Rigidity of hours	An index composed of 5 components: (i) whether night work is unrestricted; (ii) whether weekend work is unrestricted; (iii) whether the workweek can consist of 5.5 days; (iv) whether the workweek can extend to 50 hours or more (including overtime) for 2 months a year to respond to a seasonal increase in production; and (v) whether paid annual vacation is 21 working days or fewer. For each of these questions, if the answer is no, the country is assigned a score of 1; otherwise a score of 0 is assigned	Botero et al. (2004)

Ln GNP per Capita	GNI per Capita index using Atlas method (current US$), lagged 1 year	World Development Indicators Online database: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135
GDP Growth	Annual rate of GDP growth, lagged 1 year	World Development Indicators Online database: http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135
Informal Economy	Estimates of the size of unofficial economy as a percentage of total GNI in the year 2000	Schneider (2002)
Socialist	Socialist or former socialist countries	CIA Factbook
Latitude	Absolute value of the latitude of the capital of the country, scaled to take values between zero and one.	CIA Factbook

Table 2: Quality of enforcement measures

Correlation matrix					
Pairwise correlations (a)	**Occupational Non–fatal injuries**	**Occupational Fatal injuries**	**Formalism**	**Dismissal procedures**	**Number of inspectors**
Non–fatal Occupational Injuries	1.000				
Fatal Occupational injuries	-0.158 (0.3967)	1.000			
Formalism	0.5312 (0.0018)	0.0998 (0.5744)	1.000		
Dismissal Procedures	0.16 (0.3818)	0.386 (0.0242)	0.1854 (0.1041)	1.000	
Number of inspectors	0.2722 (0.392)	-0.277 (0.359)	0.1518 (0.314)	-0.132 (0.4103)	1.000
(a) Pairwise correlation coefficients between selected variables, significance levels in brackets					

Table 3: Opportunity Entrepreneurship: assessing its sensitivity to Statutory Working time and Rigidity of Hours

Model[(a)]	Dependent variable: Opportunity entrepreneurship				
	[1]	[2]	[3]	[4]	[5][(b)]
Ln GNP per Capita	0.0052956	-0.2712457	0.2565649	0.2873857	0.3084494
(lagged 1 year)	(0.995)	(0.721)	(0.743)	(0.715)	0.695
GDP Growth	0.3414259	0.4083516	0.3399748	0.3238763	0.3044098
(lagged 1 year)	(0.130)	(0.070)	(0.124)	(0.140)	0.157
	0.1717291	0.2102414	0.1842969	0.1737278	0.1550326
Business Ownership	(0.104)	(0.049)	(0.078)	(0.092)	(0.127)
	0.6683623		0.5998944		
Normal Statutory hours	(0.044)		(0.044)		
		-0.1699629			
Observance in Working		(0.008)	-0.1644986		
Time			(0.009)		
Effective hours (statutory				-2.077545	-1.655042
rigidity in practice)				(0.002)	(0.016)
Rigidity of Hours (Doing					-0.3704604
Business)					(0.012)
Formalism (c)					-2.178812
					(0.344)
Rigidity of Hours x					0.0932813
Formalism					(0.040)
	19.82448	-23.00846	-10.06536	15.22223	20.97257
Constant	(0.011)	(0.193)	(0.545)	(0.033)	(0.0720)
Obs.	61	61	61	61	61
R-squared	0.2437	0.3252	0.3643	0.3964	0.5562

(a) Unbalanced panel data regression, P-*values* in brackets. Breusch and Pagan Lagrangian multiplier tests indicate that random effects are significant (b) Test Effective Regulation = -2.077545 Prob > chi2 = 0.5389 (c) Formalism is the average of the Djankov et al (2003) formalism index for Check Collection and Eviction of a Tenant

Table 4: Opportunity Entrepreneurship: interaction of Rigidity of Hours with Judicial Formalism and Informal Economy

Model[a]	Dependent variable: Opportunity entrepreneurship						
	Interacting Formalism			Interacting informal economy			
	[1][b]	[2][c]	[3][d]	[4]	[5][e]	[6][f]	[7]
Ln GNP per Capita	-0.8153016	-1.356032	-0.68511	-0,2121811	-1,247849	-0,6487103	-0.1779505
(lagged 1 year)	(0.043)	(0.072)	(0.077)	(0,654)	(0,114)	(0,218)	(0.701)
GDP Growth	-0.0689718	-0.0915171	0.1871369	-0,0869681	-0,0994251	0,1323266	-0.0837615
(lagged 1 year)	(0.102)	(0.060)	(0.169)	(0,048)	(0,046)	(0,354)	(0.052)
	0.0628106	0.0731918	0.0953487	0,0855861	0,0362274	0,1731718	0.0743935
Business Ownership	(0.262)	(0.331)	(0.293)	(0,130)	(0,607)	(0,119)	(0.179)
Rigidity of Hours	-0.3166211	-0.0316719	-0.0770744	-0,1600119	-0,0326849	-0,0699605	-0.3673838
(Doing Business)	(0.000)	(0.592)	(0.001)	(0,001)	(0,549)	(0,005)	(0.000)
Formalism (g)	-0.2435745						-1.005265
	(0.859)						(0.458)
Rigidity of Hours x	0.06958						0.07207
Formalism	(0.010)						(0.011)
				0,0742186			0.1341054
Informal Economy				(0,462)			(0.168)
Rigidity of Hours x				0,0033722			0.0007513
Informal Economy				(0,093)			(0.711)
	17.61262	21.55101	13.96364	10,16673	20,36615	13,76356	12.04235
Constant	(0.004)	(0.001)	(0.000)	(0,064)	(0,002)	(0,013)	(0.075)
Obs.	140	70	70	134	67	67	134
R-squared	0.4015	0.2802	0.4541	0.4350	0.3095	0.5367	0.5283

(a) Unbalanced panel data regression, P-*values* in brackets. Breusch and Pagan Lagrangian multiplier tests indicate that random effects are significant. (b) A likelihood ratio test shows that we cannot impose the restriction that the interaction term is zero: LR chi-square = 4.31; Prob > chi2 = 0.0379.

(c) The sub-sample includes observations with Formalism higher than the median obtained in regression [1] observations

(d) The sub-sample includes observations with Formalism lower than the median obtained in regression [1] observations

(e) The sub-sample includes observations with Informal Economy higher than the median obtained in regression [4] observations.

(f) The sub-sample includes observations with Informal Economy lower than the median obtained in regression [4] observations.

(g) Formalism is the average of the Djankov et al (2003) formalism index for Check Collection and Eviction of a Tenant

Table 5: Association between Informal Economy and Formalism

Panel A Correlation matrix				
Pairwise correlations (a)	**Informal Economy**	**Latitude**	**Formalism**	**Socialist**
Informal Economy	1.0000			
Latitude	-0.4038 (0.0000)	1.0000		
Formalism	0.3781 (0.0005)	-0.09470 (0.3392)	1.0000	
Socialist	0.3052 (0.0016)	0.3511 (0.0000)	0.0218 (0.8382)	1.0000
Panel B Regressing Informal Economy on Formalism and other long term controls				
Model(b)	[1]	[2]	[3]	[4]
Formalism	6.040873 (0.001)	4.798661 (0.003)	6.14764 (0.000)	4.606944 (0.001)
Latitude		-29.0022 (0.000)		-36.90437 (0.000)
Socialist			21.80717 (0.002)	29.97287 (0.000)
Constant	9.343642 (0.153)	23.83624 (0.001)	7.852609 (0.205)	25.73565 (0.000)
Obs.	80	80	80	80
R-squared	0.1429	0.2919	0.2236	0.4495

(a) Pairwise correlation coefficients between selected variables, significance levels in brackets (b) OLS regression, with *P-values* in brackets

Table 6: List of countries with higher and lower formalism

Country	Formalism in Check collection	Formalism in Eviction of a Tenant	Formalism index (1)
Countries with the highest Formalism index in our sample			
VENEZUELA	6,01	5,81	5,91
PERU	5,60	5,42	5,51
ARGENTINA	5,40	5,49	5,44
SPAIN	5,25	4,81	5,03
PHILIPPINES	5,00	5,00	5,00
ECUADOR	4,92	4,64	4,78
MEXICO	4,71	4,82	4,76
CHILE	4,57	4,79	4,68
SLOVENIA	4,26	4,26	4,26
PORTUGAL	3,93	4,54	4,23
Countries with the lowest Formalism index in our sample			
UNITED STATES	2,62	2,97	2,80
MALAYSIA	2,34	3,21	2,78
SOUTH AFRICA	1,68	3,68	2,68
UGANDA	2,61	2,51	2,56
UNITED KINGDOM	2,58	2,22	2,40
JAMAICA	2,34	2,38	2,36
CANADA	2,09	2,32	2,20
HONG KONG	0,73	3,13	1,93
AUSTRALIA	1,80	1,99	1,90
NEW ZEALAND	1,58	1,25	1,41

(1) In this column we average the indexes for Check collection and Eviction of a tenant.