CENTRALIZATION VERSUS DECENTRALIZATION OF LEGISLATIVE PRODUCTION AND THE EFFECT OF EACH ON THE DURATION OF DISPUTES

by

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Abstract. This paper is an empirical investigation into the effects of coordination externality, due to the decentralization of laws and regulating power from the state to the regions, on the duration of disputes. To this aim we refer to Italy, whose territory is divided into twenty regions, using a data set covering eight years, from 2000 to 2007, regarding eight-hundred judgements pronounced by the Italian regional administrative courts. The most important result of our research is that in sectors where the European legislation prevails, and lower coordination externalities are observed, we find a shorter duration of disputes. In sectors of the economy more exposed to decentralized legislation, with the relevant coordination externalities, disputes tend to have a longer duration.

JEL classification: C41; K41.

Keywords: Coordination externalities; Duration of disputes; Italian Regional Administrative Courts; Multi-level regulatory governance; Survival Analysis.

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1. Introduction. Economic theory has recently placed increasing attention on the role of the institutions in explaining the differences in performance observed in the economies of states (for an historical perspective see Greif, 1998, and Williamson, 1993). Within this stream of literature the question has been investigated whether a highly centralized state, that ensures uniformity in its policy within the borders, but ignores the peculiarities of single regions, is preferable to or a more decentralized state that sacrifices the uniformity of its measures to meet the specificity of each region. Both kinds of state structure have social costs and benefits. A cornerstone to evaluate the best structure for a state is represented, in economic literature, by the "coordination externalities" that emerge when decisions are taken in a decentralized way rather than a centralized one. The problem of coordination externalities has been investigated in economic theory since 1970 with regard to fiscal policy, with the seminal contributions of Oates (1972) and, in the following decade, of Ellingsen (1998).[1] Keen and Kotsogiannis (2002), in their theoretical model regarding fiscal decentralization, did not find strong evidence in favour of federalism.[2]

In recent years the problem of coordination externalities among countries with multilevel regulatory governance has been assessed by the most important institutions of the European Union (Parliament, Council and Commission); in 2005 an agreement on impact assessment was underwritten in the Inter-Institutional Agreement on Better Lawmaking (IIA) to improve the quality of EU legislation. Since this initial effort the OECD (2010) has published a report regarding fifteen member countries of the European Union, on the quality of regulation in the old Continent, laying emphasis on coordination externalities among different sources of rule-making at different levels of government.

[1] Ellingsen (1998) acknowledges the limits of his model when policy takes the form of law and regulations.
[2] On the debate on multilevel government and economic performances see Mazza and van Winden, 2002, 2008.

The OECD's 2005 Guiding Principles for Regulatory Quality and Performance "*encourage Better Regulation at all levels of government, improved co-ordination, and the avoidance of overlapping responsibilities among regulatory authorities and levels of government*" (OECD, 2010). More recently the European Commission (2012) has published a communication on legislation fitness (the quality of legislation), highlighting the nature of laws as a device to avoid or reduce coordination externalities. This kind of problem has recently been investigated theoretically by Loeper, who states that coordination externalities due to local policies taking the form of laws and regulations may assume: " … various forms: heterogeneous legal systems generate transaction costs, legal uncertainty, litigation costs, and duplication of drafting costs … " (Loeper, 2011).

The "one-size-fits-all" policy may not correspond perfectly to the social preferences of each region (or jurisdiction), but it has the advantage of promoting economic competition (Rodrik, 2004) and minimizing litigation costs (Carbonara and Parisi, 2007).

The negative impact of legal differences on international trade is well documented (see, for example, Rodrick, 2004); Brülhart and Jametti (2006) in their empirical paper on fiscal federalism (decentralization) found that the social cost due to externalities is higher in cases of multilevel governance of federalism than in the centralized system. There is no empirical research on the spillover costs of coordination externalities due to legislative decentralization among regions of the same country, or on their effect on the duration of disputes. Here the litigation costs are approximated by the duration of disputes, because in civil law countries these two factors are strongly correlated (Hodges *et al*., 2010, Felsö and de Nooij, 2012). For an empirical investigation of the effects of decentralization versus centralization of laws and

regulating power,[3] we consider Italy, a country that since the end of the Second World War has partially decentralized to the twenty regions the power to legislate in certain areas (with effect within the border of the region). This decentralization of legislative and regulatory power appears to satisfy local collective preferences and social customs, at the same time creating a coordination externality among regional laws and national laws, European Directives (OECD, 2012, Decarolis and Giorgiantonio, 2013) and sentences of the Italian Constitutional Court, which have the same effect as laws. This coordination externality may accentuate the problems of stratification and misinterpretation of laws and regulations, thus contributing to aggravate the problem of the slow pace of civil and administrative justice in Italy.

Previous studies have clearly shown how a simplification of the multitude of laws issued by the different sources, with a consequent reduction of "coordination externalities", determines a more prompt solution of disputes (Di Vita, 2010), because it renders easier the task of judges in identifying, interpreting and applying the rule of law to decide each dispute.[4]

Although it is well documented in economic literature that the main explanation for the duration of disputes is the workload of the courts (Di Vita, 2012, Mitsopoulos and Pelagidis, 2007, Priest, 1989, Rosales-Lopez, 2008), for the limited aims of this paper we are more interested in the variations in the time required to decide disputes depending on the different kinds of coordination externality considered.

In this paper we therefore attempt to study the implications for the duration of disputes of a choice between the centralization and decentralization of laws and regulations, using as an explanatory variable, among other covariates, European

[3] In consideration of the interdisciplinary nature of the topic and to avoid possible sources of confusion through the paper, the term legislation is used to refer to the laws enacted by the state or by the regions. Regulations are a source of legislation of a lower rank with respect to the law, and may be issued by the government as well as the public administration.

[4] Gravelle (1990) affirms that legislative simplification, under the form of centralization in laws and regulations, may help to reduce the social costs due to an excessive duration of disputes.

directives alternated with a simple indicator of legislative and regulatory decentralization.

This research offers different elements of novelty. The first is the use of a data set of microeconomic variables never previously applied to address the effects of coordination externalities due to centralization and decentralization of legislative and regulatory power. Secondly, despite the debate on the pros and cons of centralization and decentralization of legislative power, up to now no empirical analysis has been performed of the costs of this kind of coordination externality.

The econometric analysis is performed using the econometric models of ordinary last square (OLS), for reasons of immediate readability of results and simplicity, and panel random effects (RE) to account for the circumstance that our sample was built by choosing randomly eight-hundred observations among thousands of judgements. Moreover, for purposes of outcome regression comparison and to consider the time dimension of our data, the Cox model of survival analysis (Cox) was used. Finally, to address the dynamics among the variables considered these were transformed into their natural logs[5] and the regressions were performed using the Arellano-Bonver model (GMM).

This research confirms that coordination externalities due to legislative power decentralization are an obstacle to a prompt decision of disputes. In particular, we find that the best institutional choice is to have a uniform legislation among regions. This means sacrificing the social and economic peculiarities of each region, posing the question of trade-off between centralization / efficiency (uniform regulation) and decentralization/inefficiency (different regulation among regions/jurisdictions).[6]

[5] For a similar specification see Rosales-Lopez, 2008.

[6] The results of our paper may be interpreted, following Battaglini and Coate (2007), like that: productive spending is invested in a public good that benefits all citizens caused by national and European legislation versus distributive spending in district-specific transfers (e.g., pork barrel spending), here under form of regional laws.

The structure of the paper is as follows. After this short introduction, the Second Section aims to introduce the reader to the institutional warnings and definitions of externality. Section three offers a preliminary analysis of data. Section four presents the econometric analysis. Final remarks conclude the paper.

2. Institutional warnings and definitions of externality.

To better understand the paper it is necessary to introduce some institutional warnings about Italy. This state is divided into twenty regions that possess limited legislative and regulatory powers. Five regions (Friuli Venezia Giulia, Sicily, Sardinia, Trentino Alto Adige and Valle d'Aosta) possess a special statute and thereby enjoy a particularly extensive legislative and regulatory power, while the other Italian regions have an ordinary statute, that encounters only the limits of the principles stated in the constitution.

As Italy is a member of the European Union, the European directives outweigh the national and regional legislation and regulation and in case of conflict between these sources of law the national judges may refuse to apply the domestic legislation (both national and regional) in favour of the EU rule of law (Corte di Cassazione, 2011, n. 20980). The national laws have at least two limits: a domestic one, represented by the respect of constitutional limits, and an international one constituted by European legislation. Due to its quantitative irrelevance we ignore the coordination externality of sources of law considered in this research with international treaty. The conflicts (actual and potential) between national laws and European legislation are solved by the European court, while the conflict between domestic law and the constitutional Charter is decided by the Constitutional court.

The regional laws are effective exclusively within the border of each region, and should respect the principles and limits given in the national laws (so-called "potestà

normativa concorrente"); domestic and international limits are already imposed, respectively, by the Italian Constitution, the sentences of the Italian Constitutional Court, and by the European directives that represent an instrument to promote "legal harmonization" among the EU countries (Carbonara and Parisi, 2007).

The Constitutional Court, in Italy, exercises control over the accordance of the laws with the Constitutional Charter, but regarding regional laws it also monitors compliance with the limits to the power of the main and supplementary regulations of the Regions.[7]

So we may have two diametrically opposed situations. The first is a conflict, potential or actual, between the national law and the European directive. In this case there is no coordination externality because the EU normative prevails. The second is a more complex situation in which a potential or actual conflict exists among national laws, European directives, regional laws and judgments of the Constitutional court. This is an overlapping coordination externality that accounts for the lack of coordination among different sources of law, in principle, with the same effectiveness.

The analysis of centralization versus decentralization of laws and regulations is not easy to account for theoretically, but investigate empirically this topic is more complicated, especially if decentralization is currently implemented and the attempts to make the system more centralized are measured referring to the European directives. In particular, Italy has suffered from an internal conflict caused by two contrasting factors. After the second World War an attempt was made to promote the decentralization of laws and regulations, and this process has been amplified since 1990 by the moves towards federalism (Lippi, 2011, OECD, 2012); on the other hand, the creation of Euro (the European common currency) has led to the need for a more centralized legislation

[7] The Italian Constitutional Court may be called upon to resolve the conflict between internal rules and European rules. In this case it may solve the conflict between sources of law in terms of correct interpretation or refer the matter to the Court of Justice of the European Community in application of Article 267 of the Treaty on the Functioning of the European Union (TFEU).

and regulation to avoid any opportunistic behaviour of the countries belonging to the European Community. Thus in Italy two opposite forces have been simultaneously at work since the late fifties, in the process of centralization and decentralization of non-budgetary policies such as regional laws. The OECD (2012) highlights the fact that Italy is a typical country that may suffer from coordination externality among different sources of law-making due to multilevel regulatory governance.

2.1. Externality definitions and measurement issues. Before going further in the paper, we should introduce the concept of coordination externality, that emerges in a multilevel governance system as a consequence of non-uniformity of law due to decentralization of legislative and normative power (Loeper, 2011)[8]. In general, the coordination externalities, caused by the existence of different sources of law, can be broken down into two subsets of externalities: vertical externalities and horizontal externalities. The first emerges between two overlapping jurisdictions, one including the other (for example between one nation and its regions). Horizontal externalities occur between two distinct jurisdictions/regions which have no territorial or jurisdictional overlap.

To the aims of this research we assume that the coordination externality caused by decentralization of legislation and regulatory power may be accounted for empirically by all four sources of law mentioned earlier (European directives, National Law, Regional Law and sentences of the Constitutional Court), that would all theoretically provide laws applicable to regulate a certain case.

The best situation we may find, to avoid coordination externalities, is when the potential or actual conflict is between national and European legislation, because in this

[8] Loeper (2011) affirms that " … Nonuniform consumer protection rules, accounting norms, or governance rules also increase legal uncertainty and compliance costs for firms which produce or invest in different jurisdictions … ".

case the latter prevails, as we have already affirmed. This may be considered the case of the centralized system.

Between these two extreme situations, coordination externality and centralization, we may have two different subsets of coordination externalities.

The first are the vertical externalities that occur when a coordination problem emerges between national legislation (NL) and regional legislation (RL). The second are the horizontal externalities emerging between Italian law and judgments of the Constitutional court (scc).

So when we find four different sources of law used to make a judgement we assume the worst situation because the judges have to coordinate four different sources of law. Although regulations may be sources of coordination externalities, they are not undertaken here, because they may be challenged in a dispute proposed to the administrative court (which constitutes the object of the judgement of the TAR and not the source of the law applied to reach the decision).

Unlike the vertical externalities and horizontal externalities regarding taxes in a multilevel regulatory framework (Brülhart and Jametti. 2006), the coordination externalities due to decentralization of legislative and regulatory power cannot be measured directly, because this is a typical situation in which no market exists for coordination among different sources of law. Moving from this premise, crucial in our paper, in order to estimate this negative externality, we have to use the hedonic price approach, attempting to derive from the observed values (the duration of disputes) the unobservable variables (the greater duration of disputes due to the legislative coordination externality).[9]

[9] For a similar approach see Timur *et al*. 2011.

3. Description of variables and preliminary analysis of data. The data regarding the judgements were extrapolated from a reading the web site www.giustizia-amministrativa.it, while all the other figures are available on line from the Italian Institute of Statistics (ISTAT).

For the purpose of this study we account for three kinds of data: data regarding the disputes; control variables, to consider the differences in socio-economic conditions among the twenty Italian regions; dummy variables.

3.1 Data regarding the disputes.

The description of our data set begins from the data drawn from a reading of eight-hundred judgements pronounced by the Italian Regional Administrative Court (TAR for simplicity) between 2000 and 2007. These consisted of forty sentences for each of the twenty Italian regions, five per year, randomly chosen. The disputes devolved to the jurisdiction of the TAR regarded the private enforcement of public law (so-called legitimate interest)[10], and only indirectly the protection of private interest. In consideration of the public interest involved, there are inflexible rules to determine which Court is territorially competent, with no possibility of pre-trial settlement, forum shopping or arbitration. The TARs have jurisdiction over the disputes suited against the public administration, and their territorial competence is limited to the border of the region where they are located, with the exception of the TAR situated in the Lazio region that possesses competence regarding regulations and administrative acts effective in the whole national territory. The TARs, for their jurisdiction in public law, represent the best source of information about the enforcement of decentralization and centralization of legislative power.

[10] For more details on "legitimate interest" (*interesse legittimo*) and the differences between it and "subjective right" (*diritto soggettivo*), see Di Vita 2012.

The time required to obtain a judgement of first instance is our dependent variable (dur); it is measured from the day when the administrative appeal is lodged at the court, to the day when a judgment of first instance is published.

To account for the effects of coordination externality on the duration of disputes, four sources of law are considered in our data set. National law (nl) is always present in the body of the eight-hundred judgements used to build the data base. Regional law (rl) is mentioned in 25,75% of the judgements. Decisions of the Italian constitutional court (scc) are employed in 13,65% of the TAR's judgements, while European directives (edir) are mentioned in 7,26% of the cases. Using this information it is possible to build a microeconomic indicator of negative coordination externality (ince)[11] to account for the effects of coordination externalities due to legislative decentralization from a quantitative point of view. This indicator may assume values from one to four, depending on how many sources of law are explicitly considered by the court to reach a decision. To account for the two subsamples of coordination externality, a variable was created to account for combinations of National law and regional law (rl), addressing the vertical coordination externalities, and another variable that considers the cases where the National law is used in connection with a sentence of the constitutional court in the judgement (scc), representing the horizontal coordination externalities.

3.2 Control variables.

In the wake of Aghion *et al*. (2010) and Kessler and Rubinfeld (2007) who emphasize the strong correlation between institutions and social capital, the number of volunteers enrolled in market and non-market no-profit associations is included among the covariates, weighted by the regional population (volunp). Instead of this indicator of social capital we may use the regional index of litigiousness (litig) given by the number

[11] Previous studies have considered an indicator of legislative complexity (Di Vita, 2010).

of disputes filed to the courts, weighted by the regional population, using data surveyed in 2000 by ISTAT.

The number of judges in force for each administrative regional Court, weighted by the regional population, may also be relevant to explain the duration of disputes (judp), since it represents the effort of the State, in terms of allocation of public resources, to promote justice. An alternative way to address the allocation of public resources to the courts is public spending on justice (pej), expressed in millions of euro at current prices.

Among the variables that may represent the general economic conditions of each region the regional consumption per capita (rcpc) was chosen, because it possesses the highest correlation value with the duration of disputes[12]. In place of the regional consumption for capita it is possible to use the regional gross domestic product (reggdp).

3.3 The dummy variables.

Location of the regions within the national border is also relevant as we have seen previously, so three more dummies were introduced assuming a value of one for regions located in one of the three macro-areas in which Italy is divided (North, Centre and South),[13] and zero otherwise.

To account for unlike incidence of indicators of coordination externalities in the different sectors of the economy, the topics of judgement were codified in five subsets, based on their objects. The codes are: one for public procurement (code1); two for city planning (code2); three for public employment (code3); four for public utilities (code4); and five for expropriation (code5). To consider the horizontal coordination externality

[12] Using our database we may affirm that the per capita income showed a positive correlation with European directives (edir) and a partial negative correlation with the indicator of coordination externality (ince).

[13] The ISTAT classifies the Italian regions in the **NORTH**: Piemonte, Valle d'Aosta, Lombardia, Liguria, Veneto, Emilia-Romagna, Trentino-Alto Adige, Friuli-Venezia Giulia. **CENTRE**: Toscana, Umbria, Marche, Lazio. **SOUTH**: Abruzzo, Molise, Campania, Puglia, Basilicata, Calabria, Sicilia, Sardegna

further a dummy variable was also created, assuming the value of one for the five Italian regions with special statute and zero for the others (regspec).

3.4 Preliminary analysis of data.

The result of our textual analysis within the body of the eight-hundred judgments of the different sources of law and their combinations are graphically reported in Figure 1, below.

[Figure 1, about here]

The dotted area, denoted with α, represents all the judgements considered where the national law (NL) was always used to reach a judgement. In 478 cases, equal to 59.75% of the sample, only the national law was applied. The subset β, inscribed in the area α, constitutes the 168 judgements in which a regional law (RL) was used as well as a national law (the ratio is 168/800 = 21%). Proceeding in order of importance, the surface shaded with diagonal lines denoted with γ includes the 72 judgements in which a sentence of the Constitutional Court (SCC) was used to solve the legal dispute, in a ratio of 72/800 = 9%. Finally, the area shaded with a grid and marked with δ reports the 37 judgements, equal to 4.625% in terms of ratio, in which a European directive was employed together with a national law to solve the dispute.

It is possible to observe four more possible combinations among the sources of law considered in this research. In 27 judgments, corresponding to 3.375% of the entire sample, the national law, regional law and the sentences of the constitutional court were used together to make the judgment. Graphically this event is represented in the area ε. Finally, the less recurrent combinations of different sources of law to decide the disputes are present in 9 cases (equal to 1.125%, area ζ) in which, with the exception of the judgments of the constitutional court, all the other sources of law were considered. In only 8 judgments the regional law was not used together with other sources of law to

decide the dispute (area η in Figure 1). Finally, in only 1 case (0.013%, represented by area θ) all kinds of sources of law were used to decide the dispute. Following our analysis of the data, we may turn our attention to the topic of the judgments, as reported in Table 1, below.

[Table 1, around here]

Some simple and straightforward statistics are set out, reporting for each subset of disputes the incidence of European directives, the ince, the average duration of disputes, and the incidence of each topic on the entire sample of sentences reviewed in the analysis. For our purposes it is worth underlining that there is an inverse correlation between the edir and the ince, and that in the sectors more exposed to European directives and legislation (e.g. public procurement and public utilities), the disputes have a lower than average duration.

Finally, the location of the regions distributed among the three areas in which Italy is usually divided is considered in Table 2.

[Table 2, around here]

Some statistics are listed regarding the differences among the three macro areas in terms of duration of disputes, ince and European Directives. It is immediately possible to note that moving from the North to the South of Italy the duration of disputes and the values of the indicator of coordination externality increase. This confirms that the geographic localization of courts among the regions is relevant to our analysis.

The full description of the variables considered and the correlation matrix are reported in Tables 3 and 4, respectively.

[Tables 3 and 4, around here]

It is worth observing that all the correlation index as far from unit, thus excluding the risk of multi-collinearity. The duration of disputes is negatively correlated

with the European directives, and positively with the index of coordination externalities (ince), the regional law, and the judgements of the constitutional court (scc).[14]

3.5 Econometric strategy and *ex* ante assumptions.

Prior to performing the regressions it is worth making explicit the expected results of the empirical analysis based on the results of economic literature regarding the effects of "coordination externalities" due to decentralization of legislative power.

Firstly, we assume that there is a negative externality due to a coordination externality outweighing the benefit of decentralization of legislative and regulatory power and raising the social costs for society in terms of the duration of disputes. This kind of transaction cost falls within the general category of implementation (enforcement) cost due to decentralization of legislative power. So we expect to find a negative correlation between the duration of disputes and the European directives (edir) that are a proxy of the centralization of legislative power, while a positive relationship is predicted for the coordination externality index (ince), the regional laws (rl), accounting for vertical externality, and the constitutional court judgements (scc), measuring the horizontal externality.

Secondly, based on our theoretical assumption and preliminary analysis of data, as portrayed in Figure 1, we expect the estimated regression coefficient to decrease in the indicator of coordination externality, moving from a centralized situation to a maximum degree of coordination externality with four different sources of law.

Thirdly, the control variables applied to describe the socio- economic conditions of the regions are foreseen to be inversely correlated with the duration of disputes.

[14] It is worth noting that the correlation value between the natural log of judges and volunteers weighted by the regional population is -.2627. This implies that these two factors are alternative and their elasticity of substitution, measured by the correlation coefficient, is inferior to one.

Fourthly, the indicators of social capital and the measures of the resources allotted to the courts are expected to be negatively correlated with the duration of disputes.

In fifth place, the localization of the regions in one of the three macro-areas (North, Centre and South) of Italy is important. To avoid the so-called “dummy trap” just two dummy variables, North and South are enclosed among the covariates to account for the location of the regions.

4. Econometric analysis.

On the basis of our preliminary assumptions, the econometric specification employed is:

$$[1]Dur_{j,t} = \alpha_1 const + \alpha_2 ince_{j,t} + \alpha_3 volp_{j,t} + \alpha_4 judp_{j,t} + \alpha_5 rcpc_{j,t} + \alpha_6 code1_{j,t} + \alpha_7 code2_{j,t} + \alpha_8 code3_{j,t} + \alpha_9 code4_{j,t} + \alpha_{10} code5_{j,t} + \alpha_{11} north_{j,t} + \alpha_{12} south_{j,t} + u_t.$$

where:

const = is the intercept term,

u_t = is a stochastic term;

α_i = are coefficient regressors (i = 1, … , 12);

j = 1, … , 20, denotes the twenty Italian regions;

t = 1, … , 8, is the period of observation (from 2000 to 2007).

This first specification takes into account the coordination externality among all the sources of law considered here. To address the vertical externality, the horizontal externality and the centralization of legislative power, the regressions were also performed using the regional laws (rl), judgements of the Italian constitutional court (scc) and European directives (edir) instead of the (ince) covariate, leaving unchanged the other explanatory variables, in order to compare the results. To render the findings of the empirical analysis more robust, different econometric models were used, starting

from standard OLS and continuing with random effects (RE), to account for the panel dimension of the dataset, and the fact that our observations were randomly extracted from all the sentences published by the TAR in the eight years considered. The temporal dimension of the duration of disputes was considered using the model of survival analysis, which allowed us to estimate the hazard rate, that, in our case, was simply the probability that the judgement of first instance would take place within a certain time. This hazard rate is a function of the explanatory variables. For the limited purposes of this paper we wanted to know how the duration of disputes is influenced by the covariates. The specification employed here was the Cox semi-parametric model (Cox) (Greene, 2008). Finally, the dynamic aspects of the relationship between the duration of disputes and the coordination externalities due to legislative decentralization, were addressed by using the Arellano-Bover (GMM) estimation method. Under the hypothesis of dynamic specification of the econometric model the regressions were performed using the natural logs of all non-dichotomous variables.[15]

The results of the regressions are reported in Table 5 below

[Table 5, about here]

We get the highest value of R-squared in the case of European directives, with a negative algebraic sign that is also statistically significant, using both OLS and RE. The indicators of coordination externality are always positive. The sum of the estimated regressor coefficients for rl and scc are greater than that for ince, implying that the two kinds of coordination externalities show negative cumulative effects greater than the overlapping one.[16]

[15] Under natural logs specification the coefficient of regressor represents the dynamic elasticity among the variables, while in the case of a dummy variable the regression gives a proxy of the semi-elasticity of the duration of disputes with respect to the dummy considered.

[16] To purposes of comparison we have already run the regression using the dummy accounting for the five Italian regions with special statute (regspec). This covariate possess a positive algebraic sign and is not statistically significant like the other indicator of coordination externalities.

The indicator of social capital shows a negative relationship with the duration of disputes, although it is not statistically significant. On the basis of our results it is possible to affirm that the administrative judges may be of help in reducing the duration of disputes, in fact this covariate denotes a negative correlation with the dependent variable and is significant.

The sectors of the economy where the application of European legislation is more recurrent, public procurement and public utilities, denote a negative algebraic sign and are always statistically significant. The outcome of the regressions confirms that disputes have a shorter duration in the North of Italy than in the South, as we can see from the positive algebraic sign between the duration of disputes and the dummy variable for countries located in the southern regions. The dichotomous variables accounting for regional localization are not statistically relevant except in cases of survival analysis, probably because this kind of covariate is time invariant.

To check the robustness of our results some explanatory variables were changed, using the OLS, as reported in columns I.e - I.g of Table 5, applying the regional GDP (reggdp) instead of regional consumption per capita; the index of litigiousness (litig) in alternative to the volunteers weighted by the regional population (volp); public expenditure in the service of justice (pej) in place of the number of administrative judges weighted by the regional population (judp), as a proxy of the amount of public resources allotted to justice systems. Despite the use of different covariates the values of the covariate coefficients and R-square remain substantially unaltered.

Also the outcomes obtained using the other three econometric models, described in the previous section and numbered from II to IV in Table 5, show that the results of the regressions using RE, Cox and GMM are quite similar, even in terms of the values of coefficient regression. It is worth highlighting that when we use the RE, the within regression coefficient increases when rl is included among the regressors.

Cox estimations clinch that a judgement of first instance is achieved more quickly if a European directive is used by the court to reach a decision. Moreover, the administrative judges and volunteers can help to reduce the slow pace of justice. Even using this econometric model it is confirmed that in sectors of the economy in which the European directives find more extensive application this prompts a rapid solution of disputes.

Finally, the dynamic specification of our model supports the theoretical assumption that all the indicators of coordination externality (ince, rl, scc) possess a positive correlation with the duration of disputes. When the GMM model is used edir is still negative, but not statistically significant. Moreover the regional per capita consumption shows a negative algebraic sign and is always statistically significant.

5. Final remarks.

Theory and empirical evidence do not always agree. Our empirical results did not support the theoretical findings of Loeper (2011) for which the benefits of decentralizing legislation and regulations outweigh the costs. This may be due to the constraint imposed on the theoretical framework that did not account for the legislative process, the influence of lobbies and transaction costs (here in terms of legal expenses) on law enforcement. Based to the findings of this research we may affirm that the coordination externalities due to decentralization of legislative power is a source of spillover costs in terms of greater disputes duration. The supremacy of a centralized system is also confirmed by Brülhart and Jametti (2006) regarding the tax system, in their research on Swiss municipalities.

This research maybe useful in future as a benchmark for further and deeper empirical cost-benefit analysis of coordination externalities in a multilevel regulatory

governance, where a choice between centralization and decentralization may emerge, as in cases of federal states or states organized in districts/regions.

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FIGURE 1

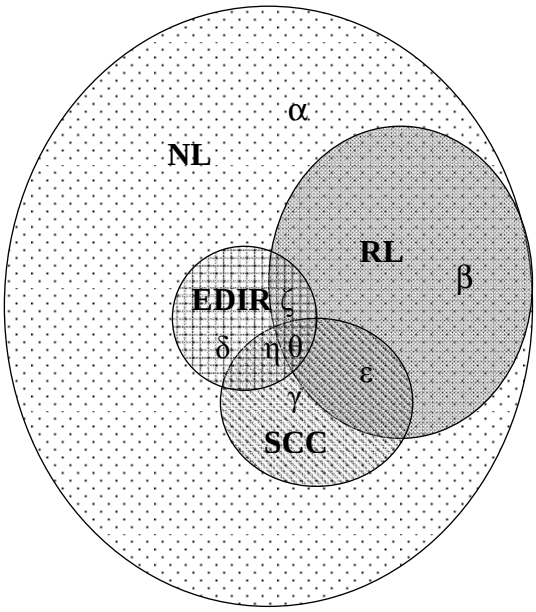

TABLE 1
TOPICS, LEGISLATIVE INDICATORS AND DURATION OF DISPUTES

	INCE	EDIR	DURATION	RATIO (% ALL SAMPLE)
Public procurement (code1)	1.3605	,1224	449,61	18,93%
City planning (code2)	1,5528	,0373	1.252,34	19,85%
Public employment (code3)	1,3956	,0267	1.637,66	28,69%
Public utilities (code4)	1,4654	,1028	871,42	29,65%
Expropriation (code5)	1,8696	,1304	1.424,96	2,88%
All disputes	1,4587	,0726	1.101,99	100%

TABLE 2
REGIONAL LEGISLATIVE INDICATORS AND DURATION OF DISPUTES

	North	Centre	South	Italy
Duration (in days)	907,39	1.162,13	1.266,53	1.101,99
Ince	1,4344	1,4688	1,4781	1,4587
Edir	0,2438	0,2187	0,2906	0,0726

TABLE 3
SUMMARY STATISTICS

Variables	Obs.	Mean	S.D.	Min.	Max
(1) Duration of administrative disputes (dur)	800	1101.99	1261.38	6	6860
(2) European Directives (edir)	800	.0726	.2596	0	1
(3) Ind. of coord. negative externality (ince)	800	1.4588	.6114	1	4
(4) Regional consumption per capita (rcpc)	800	19.18	3.76	13.03	32.09
(5) Regional Gross Domestic Product (reggdp)	800	1	.8949	0	2
(6) No. of volunteers per region/rpop (volunp)♦	800	60.47	33.93	20	173
(7) No. adm. judges per region/rpop (judp)♦	800	7.21	5.32	1.94	25.19
(8) Public procurement (code1)	800	.1825	.3864977	0	1
(9) City planning (code2)	800	.2	.406456	0	1
(10) Public employment (code3)	800	.2825	.4587557	0	1
(11) Public utilities (code4)	800	.30625	.5077235	0	1
(12) Expropriation (code5)	800	.03125	.1741015	0	1
(13) Regional laws (rl)	800	.2575	.4375306	0	1
(14) Regions with special statute (regspec)	800	.25	.4332836	0	1
(15) Judgements of Constitutional Court (scc)	800	.0675	.3613959	0	2
(16) Dummy for regions located in the North (north)	800	.4	.4902044	0	1
(17) Dummy for regions located in the Centre (centre)	800	.2	.4002502	0	1
(18) Dummy for regions located in the South (south)	800	.4	.4902044	0	1
(19) Public expenditure for justice	800	292.8313	251.8571	8	937

♦ Indicates that the variable is weighted by regional population (rpop). Regional consumption per capita, expressed in current euro.

TABLE 4
CORRELATION MATRIX

VARIABLES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Duration of administrative disputes (dur)	1																		
(2) European Directives (edir)	-.1019	1																	
(3) Ind. of coord. negative externality (ince)	.0267	.4139	1																
(4) Regional consumption per capita (rcpc)	-.1097	.0297	.0107	1															
(5) Regional Gross Domestic Product (reggdp)	-.0047	.0839	-.0279	.0960	1														
(6) No. of volunteers per region/rpop (volunp)	-.1039	.0352	.0468	.6119	.0027	1													
(7) No. adm. judges per region/rpop (judp)	-.0993	-.0157	.0491	.3833	-.3403	-.0630	1												
(8) Public procurement (code1)	-.2454	.0924	-.0789	.0229	.0092	.0207	.0341	1											
(9) City planning (code2)	.0523	-.0666	.0943	.0648	-.0463	.0592	.0244	-.2250	1										
(10) Public employment (code3)	.2527	-.1094	-.0604	-.0714	.0033	-.0449	-.0191	-.2845	-.3039	1									
(11) Public utilities (code4)	-.1223	.0598	-.0193	-.0276	-.0134	-.0274	.0089	-.2847	-.2967	-.3714	1								
(12) Expropriation (code5)	.0393	.0328	.1123	-.0236	.0424	-.0520	-.0737	-.0664	-.0886	-.1108	-.0940	1							
(13) Regional laws (rl)	.0619	-.0318	.6945	.0075	-.1112	.0790	.0677	-.1072	.2535	-.0999	-.0373	.0426	1						
(14) Regions with special statute (regspec)	-.0068	-.0050	-.0339	.2885	-.1260	-.0041	.1876	.0647	.0153	-.0586	-.0272	.0461	.0062	1					
(15) Judgements of Constitutional Court (scc)	.0423	.0151	.5555	-.0126	.0277	-.0541	.0221	-.0739	-.0961	.0879	-.0234	.1158	.0003	-.0513	1				
(16) Dummy for regions located in the North (north)	-.1255	.0379	-.0340	.6458	.3101	.6029	-.0101	.0179	.0574	-.0849	-.0223	.0003	-.0284	.2337	-.0554	1			
(17) Dummy for regions located in the Center (center)	.0236	.0167	.0087	.0847	.0358	.0568	-.1304	-.0586	-.0234	.0460	.0440	-.0720	-.0433	-.2882	.0466	-.4079	1		
(18) Dummy for regions located in the South (south)	.1062	-.0515	.0268	-.7147	-.3392	-.6490	.1166	.0299	-.0382	.0473	-.0137	.0585	.0637	.0018	.0173	-.6663	-.4090	1	
(19) Public spending on justice (pej)	-.0141	.0749	-.0052	-.1617	.7612	-.3675	-.1849	.0256	-.0631	.0378	-.0138	.0511	-.1065	-.0552	.0819	-.1404	.1151	.0464	1

TABLE 5
RESULTS OF REGRESSIONS PERFORMED WITH OLS AND RE
THE DEPENDENT VARIABLE IS THE DURATION OF ADMINISTRATIVE DISPUTES (DUR)

INDEPENDENT VARIABLES	I. OLS							II. RE			
	(I.a)	(I.b)	(I.c)	(I.d)	(I.e)	(I.f)	(I.g)	(II.a)	(II.b)	(II.c)	(II.d)
Constant	567.9561 (1.21)	606.4507 (1.32)	607.7541 (1.32)	651.2371 (1.42)	1500.682 (5.55)[a]	823.4885 (1.55)	1681.528 (4.02)	635.1282 (1.27)	676.9202 (1.38)	674.5904 (1.38)	716.86 (1.47)
Index of coordination externality (ince)	29.54979 (.24)				27.17137 (.39)	18.85084 (.27)	18.66329 (.27)	30.07818 (.43)			
Regional laws (rl)		146.848 (1.46)							144.5718 (1.44)		
Constitutional Court Judgements (scc)			15.10548 (.12)							24.6966 (.20)	
European Directives (edir)				-259.46 (-1.67)[c]							-262.88 (1.64)[c]
Regional consumption per capita (rcpc)	55.8102 (2.31)[b]	56.01885 (2.32)[b]	55.63679 (2.30)[b]	55.13076 (2.29)[b]		38.76311 (1.56)	-8.349665 (.48)	49.37917 (1.96)[b]	49.24901 (1.95)[b]	49.02699 (1.94)[b]	48.706 (1.94)[b]
Regional GDP (reggdp)					-.0124376 (.02)						
No. volunteers per region/population (volp)	-2.352076 (-1.32)	-2.691671 (-1.50)	-2.268172 (-1.28)	-2.250433 (-1.27)	-1.188515 (-.64)		-1.929875 (-1.01)	-2.162591 (-1.02)	-2.481936 (-1.14)	-2.067538 (-.97)	-2.055 (-.96)
Regional index of litigiousness (litig)						-.9290971 (-.89)					
No. of TAR judges for region/pop. (judp)	-41.24698 (-3.67)[a]	-41.93972 (-3.73)[a]	-41.01069 (-3.65)[a]	-41.01857 (-3.65)[a]	-22.95139 (-2.67)[a]	-34.95223 (-3.04)[a]		-39.01414 (3.07)[a]	-39.5612 (3.07)[a]	-38.73807 (-3.04)[a]	-38.766 (-3.04)[a]
Public spending on justice (pej)							-.2407141 (1.28)				
Public procurement (code1)	-850.4491 (-4.32)[a]	-843.3719 (-4.30)[a]	-854.8751 (-4.34)[a]	-851.7625 (-4.35)[a]	-845.9102 (-4-28)[a]	-862.4447 (-4.39)[a]	-848.5545 (-4.28)[a]	-816.3041 (-4.16)[a]	-806.7983 (-4.12)	-818.2985 (-4.16)[a]	-815.70 (-4.17)[a]
City Planning (code2)	-42.25937 (-.22)	-76.46038 (-.40)	-39.92469 (-.21)	-59.51733 (-.31)	-39.02036 (-.21)	-51.32267 (-.29)	-49.98807 (-.26)	-4.413415 (.02)	-34.95531 (-.18)	.8094745 (.02)	-18.688 (-.02)
Public employment (code3)	297.8506 (1.63)[c]	300.5367 (1.63)[c]	293.4067 (1.58)	273.0208 (1.47)	291.4751 (1.56)	292.1694 (1.57)	293.2808 (1.57)	333.8408 (1.80)[c]	338.9288 (1.83)[c]	330.955 (1.79)[c]	310.35 (1.67)[c]

Public utilities (code4)	-387.581 (-2.33)[b]	-390.6053 (2.36)[b]	-389.5659 (2.34)[b]	-393.0628 (-2.37)[b]	-398.2099 (-2.39)[b]	-391.6518 (-2.35)[b]	-408.8096 (-2.44)[b]	-356.7664 (-2.14)[b]	-357.6753 (-2.15)[b]	-356.6884 (-2.14)[b]	-60.08 (-2.17)[b]
Expropriation (code5)	-29.64396 (-.10)	-41.45857 (-.14)	-22.52973 (.08)	-15.2725 (-.05)	29.28446 (.10)	-10.57392 (-.05)	104.6479 (.36)	4.64357* (.02)	-4.089004 (-.01)	11.58801 (.04)	20.363 (.47)
Dummy for north Italian regions (north)	-225.8049 (-1.81)[c]	-221.2456 (-1.77)[c]	-228.2298 (-1.82)[c]	-229.1915 (-1.83)[c]	-146.9714 (-1.16)	-283.781 (-2.25)[c]	-169.715 (-1.35)	-217.1658 (-1.43)	-212.4394 (-1.38)	-218.9424 (-1.44)	-220.66 (-1.45)
Dummy for south Italian regions (south)	373.5143 (2.34)[b]	354.9737 (2.21)[b]	375.3925 (2.35)[b]	366.1507 (2.29)[b]	148.5516 (1.11)	425.5806 (2.65)[a]	30.96148 (.21)	348.3194 (1.88)[c]	328.8256 (1.74)[c]	349.9977 (1.88)[c]	341.01 (1.83)[c]
R-squared Within Between	.1421	.1442	.1419	.1445	.1363	.1410	.1293	.1420 .1149 .5288	.1441 .1169 .5325	.1418 .1148 .5272	.1443 .1178 .5268
Observations	800	800	800	800	800	800	800	800	800	800	800

Standard errors in brackets and t-values in Parentheses. a, b and c, indicate statistical significance at the 1%, 5% and 10% level respectively. Cox indicate the semi-parametric model of survival analysis.

TABLE 5 (FOLLOWS)
RESULTS OF REGRESSIONS PERFORMED WITH COX AND GMM ECONOMETRIC MODELS
THE DEPENDENT VARIABLE IS THE DURATION OF ADMINISTRATIVE DISPUTES (DUR)

INDEPENDENT VARIABLES	III. Cox				IV. GMM			
	(III.a)	(III.b)	(III.c)	(III.d)	(IV.a)	(IV.b)	(IV.c)	(IV.d)
Constant					14.78026 (3.78)[a]	15.18059 (3.89)[a]	15.01869 (3.84)[a]	15.18132 (3.83)[a]
Disputes duration (dur) lagged by one year					.0281262 (1.00)	.0267144 (.95)	.0292957 (1.03)	.0264255 (.93)
Index of coordination of negative externality (ince)	.9738449 (-.43)				.1189722 (1.67)[c]			
Regional laws (rl)		.8525853 (-1.91)[c]				.1974411 (1.82)[c]		
Constitutional Court Judgements (scc)			1.047265 (.44)				.1641055 (1.27)	
European Directives (edir)				1.326648 (2.02)[b]				-.104978 (-.60)
Regional consumption per capita (rcpc)	.968489 (-1.56)	.9695477 (-1.50)	.9681457 (-1.58)	.9687852 (-1.54)	-1.099479 (-1.84)[a]	-1.084248 (-1.81)[a]	-1.1436 (-1.91)[a]	-1.080866 (-1.75)[c]
No. of administrative judges for region/pop. (judp)	1.030205 (3.14)[a]	1.03029 (3.14)[a]	1.030125 (3.13)[a]	1.030132 (3.12)[a]	.3071644 (.78)	.2685827 (.68)	.344986 (.88)	.3173576 (.80)
Number of volunteers per region/population (volp)	1.002882 (1.88)[c]	1.003112 (2.02)[b]	1.00289 (1.88)[c]	1.002696 (1.76)[c]	-1.378615 (1.83)[a]	-1.428345 (-1.90)[a]	-1.385804 (1.84)[a]	-1.440445 (-1.91)[c]
Public procurement (code1)	2.362917 (5.35)[a]	2.364636 (5.39)[a]	2.397577 (5.44)[a]	2.39754 (5.44)[a]	-.8511514 (-3.96)[a]	-.8589546 (-4.01)[a]	-.8346725 (-3.87)[a]	-.8492485 (-3.94)[a]
City Planning (code2)	.9654281 (-.23)	.991325 (-.06)	.9767295 (-.15)	.9943835 (-.04)	.0676491 (.32)	.0251921 (.12)	.1093602 (.5\)	.0813301 (.38)
Public employment (code3)	.7710173 (-1.71)[c]	.7612694 (-1.80)[c]	.776046 (-1.68)[c]	.7951362 (-1.51)	.3694601 (1.81)[c]	.354617 (1.74)[c]	.375583 (1.83)[c]	.3608894 (1.76)[c]
Public utilities (code4)	1.311675 (2.20)[b]	1.309143 (2.21)[b]	1.324773 (2.29)[b]	1.323734 (2.27)[b]	-.3260582 (-1.73)[c]	-.3376877 (-1.79)[c]	-.3097842 (1.65)[c]	-.3153377 (-1.67)[c]
Expropriation (code5)	.9521246 (-.20)	.9628461 (-.16)	.9390286 (-.26)	.9582351 (-.18)	.2752431 (.90)	.2788254 (.91)	.3088244 (1.01)	.3235797 (1.05)
Dummy for north Italian regions (north)	1.135192 (1.21)	1.12371 (1.11)	1.140552 (1.25)	1.143203 (1.28)	-.4446857 (-.99)	-.4736994 (-1.05)	-.4413431 (-.98)	-.4584497 (-1.02)

Dummy for south Italian regions (south)	.8365998 (-1.27)	.8525175 (-1.23)	.8377944 (-1.26)	.8413923 (-1.23)	-.9606627 (-1.10)	-1.009957 (-1.16)	-1.019268 (-1.16)	-1.054606 (-1.20)
Observations	800	800	800	800	780	780	780	780

Standard errors in brackets and t-values in Parentheses. a, b and c, indicate statistical significance at the 1%, 5% and 10% level respectively. Cox indicate the semi-parametric model of survival analysis.