

***INEQUALITY, REPRESENTATION, AND ENDOGENOUS  
FISCAL INSTITUTIONS***

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## ABSTRACT

Is inequality self-sustainable? And if so, under what conditions and through which mechanisms does it reproduce itself? This paper addresses these questions with a particular focus on the territorial dimension of redistribution and inequality. The argument goes as follows. While the decentralization of fiscal policy is to a large extent endogenous to previous distributive patterns in society, it is not a mere reflection of them. Representative institutions play a critical role in the way distributive tensions in society translate into the choice of the levels of decentralization of redistribution. Inequality yields more fragmented, inegalitarian fiscal structures only in the presence of systems of representation that privilege the voice of specific, territorialized interests. Otherwise, when the political process aggregates preferences on the basis of social and economic divides that cut across territorial jurisdictions, representative institutions work to overcome the constraints imposed by the geography of inequality on the formation of more integrated and encompassing redistributive systems.

## INTRODUCTION

Is inequality self-sustainable? And if so, under what conditions and through which mechanisms does it reproduce itself? These are pressing questions for comparative political economists as the field gradually moves away from overly simplistic models of the politics of redistribution, the median voter most prominently, to engage in theoretical and empirical endeavors that pay due attention to two issues: the multidimensionality of both inequality and the political world on the one hand, and the endogeneity of institutions on the other (Greif and Laitin 2004; Iversen 2006; Beramendi and Anderson 2008). In support of the notion of self-sustained inequalities a brewing literature on endogenous institutional choices makes the case that the distribution of income is a prominent factor behind the selection of institutions. Indeed, distributive tensions are the core of a recent turn in the analysis of regime choice and regime change (Boix 2003; Acemoglu and Robinson 2006), the economic effects of constitutions (Persson and Tabellini 2003) or the choice of electoral institutions (Cusack, Iversen and Soskice, 2007; Tichi and Vindigni 2003; Rogovski and Rae 2008). There is also a stream of literature more directly related to the topic of this paper. Starting from the seminal work by Bolton and Roland (1997), a number of contributions have placed the shape and territorial specificities of the distribution of income at the core of the analysis of the determinants of political integration and constitutional choices in federations (Alesina and Spolaore 2003; Beramendi 2007; Wibbels 2005b). In line with this stream of research, I argue that the levels of fiscal decentralization are associated with particular distributive outcomes not

because they exogenously generate them, but because distributional concerns play a fundamental role in the selection and design of fiscal institutions.

There are however several ways in which existing understandings of the endogenous relationship between inequality and decentralization can be improved. To begin with, existing accounts of the linkage between inequality and decentralization fail to recognize the multidimensionality of the choice faced by political actors deciding whether to (de)centralize redistribution. Tied to the advantages (and costs) of the median voter model, these analyses sacrifice the richness of alternative distributive scenarios and their influence on institutional preferences. Political unions are formed of regions with varying levels of wealth. In turn, the distribution of income in each of these regions may present varying levels of disparity. Political actors are not monolithic within regions. Implicit to the very existence of a minimum degree of inequality within regions is a distributive conflict between the rich and poor within each of the regions. As a result, one can immediately think of two dimensions (income levels and inequality) around which four politically relevant groups can be defined. In this context, Southern senators in the USA are the rich among the poor, whereas welfare recipients in Massachusetts are the poor among the rich. As I develop below, the institutional preferences of these groups cannot be captured by the simplification of politics inherent to the median voter model.

Likewise, the median voter is too straight a jacket to understand how political contenders incorporate these preferences into their political strategies. Along with the recent shift in focus from the optimal to the actual working of federations (Wibbels 2005, Rodden 2006, Weingast 2006), the argument I develop in this paper builds on the premise that electoral concerns dominate the choice of fiscal structures (O'Neill 2005). An

important part of the secret to gaining and retaining office lies in acquiring a position to forge successful electoral coalitions, an endeavor for which fiscal redistributive policies constitute a particularly powerful tool. Thus, political elites will support the specific fiscal structure that best serves their political interest. The question is what these interests are and how they get balanced. This brings us to the issue of representation. Contrary to the dominant assumptions in the recent literature on endogenous institutions (e.g. Bolton and Roland 1997; Beramendi 2007), the transition from preferences to outcomes is far from simple. Subject to a sudden transformation in the territorial structure of inequality, regional and federal incumbents face a trade-off between the protection of their own interests and costs of not coordinating with the other members of the union. In facing this trade-off, political actors do not operate in limbo. Rather, they work under designs that create different sets of winners and losers, depending upon the composition of preferences within each unit and the union as a whole. Hence, under any particular design, actors make use of their strategic advantage to reflect their preferences into the design of fiscal structures. This being the case, the interaction among relevant political actors is bound to change under different institutional circumstances. Through their impact on the strategic behavior of the relevant actors, I will argue, the type of power sharing arrangements within the union mediates the impact of territorial inequalities on the choice of fiscal structures.

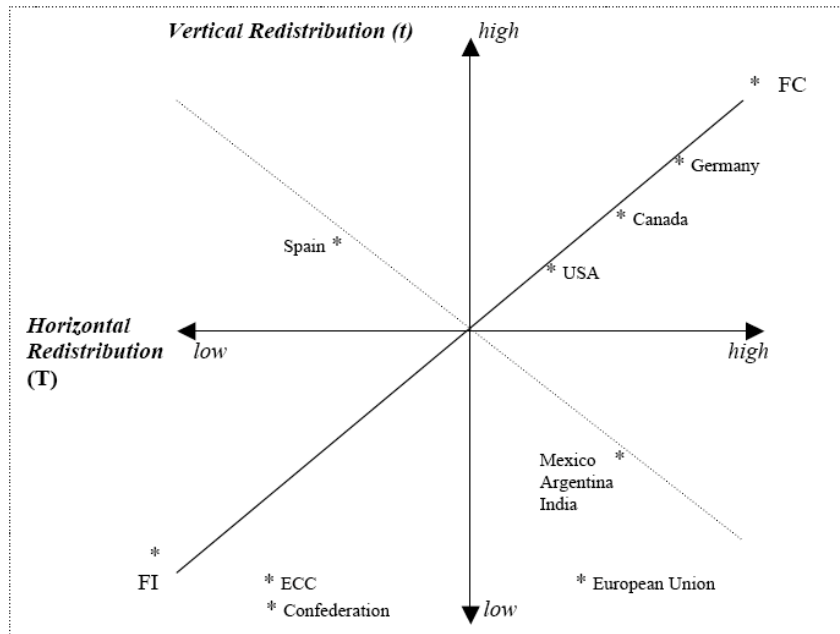
This paper sets out to advance current understandings of the relationship between inequality and the decentralization of fiscal institutions by developing the following argument: inequality within and between regions determine institutional preferences about the organization of the fiscal system, generating a set of contending preferences

beyond the scope of median voter models. In turn, the organization of political representation at the time in which distributive conflicts emerge determines how these preferences get translated into actual institutional choice. The rest of the paper is organized as follows. Section I presents the set of alternative fiscal structures over which the political conflict occurs. Section II develops the argument. Section III presents a statistical evaluation of its empirical implications on the basis of a panel of OECD countries over the period 1980-2000. Finally, section IV concludes.

## **I.- ALTERNATIVE FISCAL STRUCTURES**

The fiscal structure of unions is a two-dimensional policy space that combines vertical and horizontal redistribution. By vertical redistribution (henceforth noted as  $t$ ) I refer to the existence of a national system on interpersonal fiscal redistribution through taxes and transfers. Thus, large levels of vertical redistribution imply a sizable system of public insurance and redistribution controlled by the central government. Lower levels of vertical redistribution imply that taxes and transfers are decentralized, and, at the extreme, absence of vertical redistribution implies that there is no system of interpersonal redistribution at work yet. Such is the case of many developing and under-developed nations. In turn, horizontal redistribution (henceforth noted as  $T$ ) refers to the transfers of resources between units of government, either directly (that is from richer to poorer units) or indirectly (through the mediation of the central government as the agency in charge of collecting revenues from wealthier *regions* and transferring them to poorer ones). Figure 2 combines these two dimensions to display the array of possible institutional choices faced by citizens and political elites.

**Figure 1: Alternative Designs for Fiscal Institutions**



To appreciate the differences among the possible institutional choices depicted in Figure 1 consider first the cases located along the diagonal. The two extremes cases are self-evident: fully centralized fiscal systems (FC, that is to say, systems in which *all taxes and transfers between individuals and/or regions are performed by the “central” government*) are located at the top right-end, whereas the hypothetical case of full fiscal independence among the constituent elements of any given union falls at the bottom-left (FI). A wide range of options fall in between the two extremes. Unions, like Germany for instance, in which sub-national units play a significant role in of taxing and transferring income, at the same time that there are large levels of horizontal transfers between governments to ensure a common floor of resources across regions, display moderate levels of vertical redistribution and large levels of horizontal redistribution. Symmetrically, those unions in which redistributive policy is decentralized and transfers between governments are relatively minor fall in the bottom-left half of the diagonal.

The early stages of the Confederation in the United States or the early arrangements of the European Economic Community provide examples of the latter.

One can also think of fiscal systems in which vertical and horizontal redistribution do not go hand in hand. These would be located in the top left and bottom right quadrants of figure 1. The upper left corner includes those unions in which interregional transfers are very limited in scope whereas the central government retains control on and makes use of most fiscal policy instruments. These cases, which Spain offers an example of, combine high levels of vertical redistribution with low levels of horizontal interregional fiscal transfers. In contrast, the mirror image of the latter case is to be found in many developing federations, such as Mexico, Argentina, Brazil or India.<sup>1</sup> These cases combine very thin inter-personal redistributive efforts on the side of the central government with significant transfers of resources among sub-national units, which are then used discretionally by local elites. In other words, they show low levels of vertical redistribution with large levels of horizontal redistribution. In what follows, I will refer to these cases as HR.

Central to the argument of this paper is the notion that the choice among alternative institutional configurations (FC, FI, HR) is not neutral from the standpoint of the distribution of disposable income in society. Thus, insofar as they will fare differently depending upon the institutional arrangements ultimately in place, different “groups” will have contenting preferences when choosing the combination of vertical and horizontal redistribution. The next hurdle in any explanation of the variation in fiscal institutions across space and over time is then to establish what defines these “groups” and how their

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<sup>1</sup> For a comparative analysis of these cases, see Beramendi and Diez-Cayeros (2007).



preferences relate to alternative institutional configurations. I develop this analysis in turn.

## II.- THE ARGUMENT: ENDOGENOUS FISCAL INSTITUTIONS

### *II.1.- Preference Formation: The Geography of Inequality and Institutional Preferences*

The analysis combines individual and aggregate characteristics at the regional level. The former include the individual's relative position within the distribution of income in the region and the union. To reduce the number of dimensions, I proceed on the premise that citizens preferences are exclusively driven by (re)distributive concerns.<sup>2</sup> Citizens' relative positions interplay with the level of wealth of the regions and the union and the shape of the different regional income distributions. To investigate these connections, I focus on how interpersonal inequalities within regions and inequalities in aggregate income between regions jointly shape citizens' institutional preferences.

Citizens of a political entity (call it region, province, state, canton...) must make a decision about two policy instruments, namely the level of interpersonal (vertical) redistribution ( $t$ ), and the level of horizontal transfers of resources among the members of the union, that is to say the level of horizontal redistribution ( $T$ ). At any given time individuals might be employed with probability  $\alpha$  or unemployed with probability  $(1 - \alpha)$ . Individuals maximize consumption across both states. Individual consumption is defined by  $c_i = (1 - t)w_i$  in the good state of the world and by  $b$  in the bad state of the world, where  $b$  represents the benefits individuals receive while being unemployed. In addition, citizens are affected by an interregional transfer that, when in place, is a

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<sup>2</sup> A more detailed analysis of the implications of including risks and insurance motivations to explain the choice of institutions is presented in Beramendi (2008).

function of the regional average income vis-à-vis the union. So, for regions wealthier than the average, the transfer is negative (and viceversa). Finally, there is a budget constraint given by  $\alpha wt = b(1 - \alpha) + T(w - w'')$ , where  $w$  is the average output in the region and  $w''$  is the average output in the rest of the union. Given these assumptions, citizens in any given region,  $i$ , have the following utility function:

$$V_i = \alpha c_i + (1 - \alpha)b - T(w - w'') \quad (1)$$

$$\text{s.t. } \alpha wt = b(1 - \alpha) + T(w - w'')$$

Differentiating (1) with respect to  $t$ , one obtains the following expression:

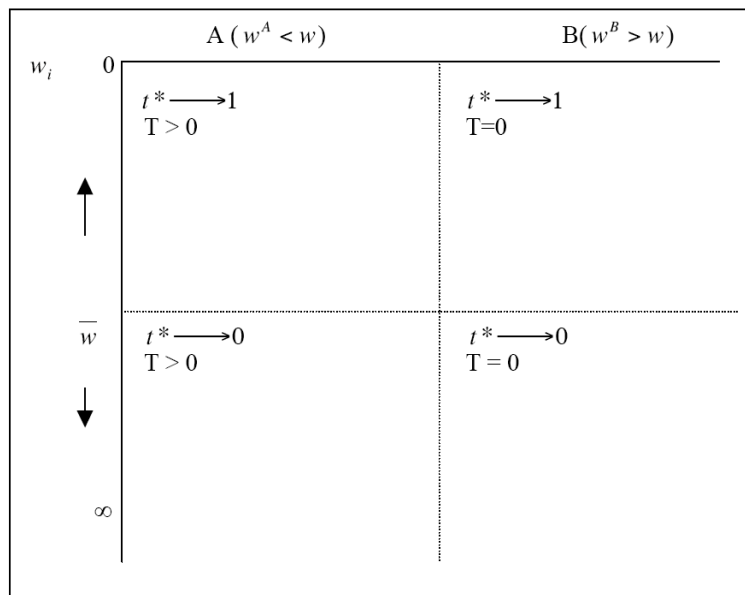
$$\frac{\alpha wt}{(1 - \alpha)} = \left[ 1 - \frac{\alpha}{1 - \alpha} \frac{w_i}{w} \right] + T(w - w'') \quad (2)$$

Expression (2) yields a number of interesting insights on individual preferences for redistribution in complex systems. First, other things being equal, individual income reduces the support for redistribution as it is clear that  $\frac{\partial t_i}{\partial w_i} < 0$ . More generally, the relative position of each individual vis-à-vis the average income in society determines her relative standing towards redistribution, as captured by the term  $\left( \frac{w_i}{w} \right)$  in (2). As a result, the larger the skew of the distribution of income, the larger the demand for redistribution. Second, individuals in wealthier countries are, *ceteris paribus*, more willing to entertain redistributive efforts, as reflected by the fact that  $\frac{\partial t_i}{\partial w} > 0$ . Finally, expression (2) also illuminates citizens' preferences for interregional redistribution by showing how the resources obtained (lost) through horizontal redistribution affect directly any entity's ability to engage in interpersonal redistribution ( $t$ ). As a result,

$$\begin{cases} T = 0 \text{ if } w \geq w'' \\ 0 < T < 1 \text{ if } w < w'' \end{cases} \quad (3)$$

That is to say, citizens in regions poorer than the union ( $w < w''$ ) benefit from the existence of interregional transfers of resources, whereas those in regions wealthier than the average ( $w > w''$ ) would suffer from it. How does this analysis of individual preferences illuminate the connection between the distribution of income and the choice of alternative fiscal structures? To address this question in the simplest possible way, consider a union with just two regions (A, B) where A is poorer than B, i.e.  $w^A < w < w^B$ , and whose individuals vary in their level of pre-tax income ( $w_i$ ). Given the model of individual preferences at work, class or income differences on the one hand and territorial differences on the other cut across each other in defining individuals' preferences. As a result, the following geographic pattern of inequality emerges.

**Figure 2: The Geography of Inequality and Institutional Preferences.**



Interestingly, none of the four groups defined in Figure 2 share a common set of preferences over the two policy instruments ( $t$ ,  $T$ ). This is a reflection of the interplay between the redistributive conflict among individuals within regions and the redistributive conflict between regions within income groups. To illuminate the logic underpinning the joint effect of these two dimensions, it is useful to contrast the expected preferences of the groups along the top-down diagonal with the expected preferences of the groups located in the off-diagonal of figure 2.

The two groups along the top-down diagonal have relatively intuitive preferences. The top-left quadrant captures the preference of relatively poorer individuals in the poor region. On the basis of expressions (2) and (3), their desire for redistribution increases as the distance from the average income within the region increases ( $t^* \rightarrow 1$  as  $w_i \rightarrow 0$ ) and they want to increase the tax base from which they extract their rents as much as possible ( $T > 0$ ). This implies that the larger the tax base, and the larger the levels of vertical redistribution, the better off they are. Hence their rank order of preferences about fiscal structures is as follows. Full fiscal centralization is their first preference as this is the system that maximizes their first preferences across all policy instruments. Their second best would be a system with high horizontal redistribution (HR), in which direct transfers out of the base of the rich region ( $T > 0$ ) actually take place. Finally, they would be worst off under fiscal independence (FI), that is to say under a system in which solidarity is fragmented across regions. In the case of a poor region, such as A, this would imply that, even if they were able to impose a moderately high  $t$ , the actual amount of resources extracted would be limited by the size of the tax base.

The preferences of the people located in the bottom-right quadrant are consistent with intuition as well. As one moves up in the income scale, the desire for redistribution among this particular subset of citizens declines ( $t^* \rightarrow 0$  as  $w_i \rightarrow \infty$ ), whereas, in principle, they have no incentive to accept any transfer of their regional tax base towards the government and citizens of the poorer region ( $T=0$ ). Thus, they are better off under a fully decentralized system (FI) in which  $t$  is kept as low as possible. For that to be the case, however, either of two circumstances must apply: the existence of moderate levels of interpersonal inequality within the region, or, even in the presence of a highly skewed distribution, the ability to exclude a majority of the poor from the political process. Under these circumstances, their second best is a system that minimizes vertical redistribution, even if it is at the expense of side payments to other regions (HR). Obviously, the smaller the size of these side payments the better, as they would optimally like to see  $T=0$ . Ultimately, any system that involves sharing the tax base with the poorer region and/or allowing the poor across the different regions to coalesce in support of redistribution makes them worse off. Therefore, full fiscal centralization would be their last choice (FC).<sup>3</sup>

In contrast, the preferences of the two groups along the off-diagonal in Figure 1 are less straightforward, as reflected by the fact that, as opposed to the previous two groups, their preferences with respect to inter-personal and inter-regional redistribution are inversely related. Citizens located in the bottom left quadrant, that is to say the *rich*

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<sup>3</sup> This ranking of institutional preferences is not universal, however, but rather contingent on the gap between regions along the two dimensions identified in Figure 1 and the political capabilities of lower income citizens. For instance, one could think of a region relatively much more unequal and only moderately wealthier than the rest of the union. Under these circumstances, and provided that the poor are politically engaged, the marginal benefit of sharing the burden of redistribution with the rich nation-wide may overcome the marginal cost of coping with a larger number of poor people.

*people in the poor region (A)* are driven by two considerations. On the one hand they want to minimize the amount of taxes they pay ( $t^* \rightarrow 0$  as  $w_i \rightarrow \infty$ ). On the other hand, they want to extract as much rent from the wealthier region as possible ( $T > 0$ ). This combination triggers a dilemma for this group of citizens. A fully centralized system (FC) will liberate them of some of the burden imposed by  $t_A$  by transferring it to the rich in B (which, incidentally, imposes a rent extraction by the rich among the poor on the rich among the rich that creates additional incentives for the latter to oppose vertical redistribution). This benefit, however, may be offset by two factors: first, the need to cope with a larger dependent population, which may result in a scenario in which the tax burden they face is actually higher. Second, under fiscal centralization, the rich among the poor face a loss of political leverage. The balance between these concerns will be dictated by the skew of the regional distributions of income, and the extent to which the rich among the poor feel threatened by the political process.

Provided that there is a fair amount of overlapping between political and economic elites, the optimal fiscal structure for richer citizens in poorer regions would be one that minimizes vertical redistribution (after all they would be, for the most part, net contributors in any hypothetically centralized tax-transfers system) and maximizes horizontal redistribution between regions (HR), thereby bridging the gap in terms of tax bases and increasing the amount of resources at their disposal for both public goods provision and rent extraction. Under these circumstances, a fiscal design that combines a decentralized  $t$  and very high values of  $T$  is their first preference (HR). Low vertical redistribution ensures both a smaller pool of dependents and a larger influence in the political process, whereas high horizontal redistribution increases the amount of

resources available to them. In turn, the worst case scenario for this subgroup of citizens would be a vertically integrated fiscal design in which they are exposed to the redistributive demands of a coalition of recipients across the union that leaves no horizontal transfers at their discretion. Both these features define a centralized fiscal system (FC).<sup>4</sup>

Finally, the *poor people of the rich region* also face a dilemma, yet of a rather different nature. They need to balance the amount of additional resources they would be able to extract from the rich by coalescing with the poor in A against the loss they would incur because of the change in their relative position within the new, union-wide, income distribution. Such loss would take the form of an implicit transfer of resources from the poor in B to the poor in A. In determining the size of this loss the key factor is the skew of the regional income distributions. If the rich region is very unequal, then a large share of the poor would remain net beneficiaries under a centralized redistributive system (FC). More formally, insofar as the income of the median poor is equal or less the income of the median voter of the union, a majority among the poor would support full fiscal centralization. In contrast, if the rich region is relatively more equal, an increase in the levels of vertical redistribution would imply that a large share of the poor in the rich region shift from net recipients to net contributors. As a result, given a relatively more equal regional income distribution, the ranking of preferences among the poor in B is

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<sup>4</sup> Intermediate solutions in which there are large inter-governmental transfers between governments but the political capabilities of poor region's elites are in part restricted would be marginally preferable to full centralization. As with the rich in B, though, one could imagine a set of specific and rather extreme circumstances in which the rich among the poor would prefer centralization. If the political process is such that poor people are mobilized to threaten regional elites under circumstances of very high inequality, then it is possible that  $t^A > t^U$ , in which case the costs of resisting vertical redistribution would outweigh the benefits.

much closer to the rich in B than it is to the poor in A. Because a majority of the poor in B will want to protect their relative position, fiscal independence (FI) would be preferred to any system implying a transfer of resources to A. Should fiscal independence not be an option, their second best would be to continue their alliance with the rich in support of fiscal structures that place more weight on horizontal than on vertical redistribution (HR). To summarize, the preferences of the different contending groups are as follows:

*Poor among the poor*.....  $FC > HR > FI$

*Rich among the rich*.....  $FI > HR > FC$

*Rich among the poor*.....  $HR > FI > FC$

*Poor among the rich*.....  $FI > HR > FC$  if B is relatively more equal

$FC > FI > HR$  if B is relatively more unequal

Given a certain geography of inequality, how are the preferences of the different contending groups will be weighted against each other during the process of aggregation? Under certain distributional assumptions, one can see a coalition among the poor emerging in favor of large scale redistributive efforts. But that is far from being the only feasible political solution. Under any given circumstance, many other coalitions are possible. The next hurdle is to unpack the political process linking the preferences emerging from the geography of inequality to the observable combinations of institutional choices and distributive outcomes. Thus the next section moves from citizen's preferences to the incentives and constraints of political elites.



**II.2.- The Political Process: Representation and the Transition from Preferences to Fiscal Designs.**

The political process is driven by the interplay between local and national elites within any given union. To simplify things for now, I assume that the party systems at the local and national levels are similar. That is, parties (P) competing across the districts (indexed by  $r=1, \dots, r$ ) and the national level (N) are the same. Local elites value office holding in their regions but also derive some benefit from their party winning the national election. Likewise, national elites gain utility from holding the national executive as well as from having their party win regional elections. Accordingly, their respective utility functions are defined as follows.

The utility of the any given party, P, leader in a district (r) is given by:

$$U_r^P = p_r^P \lambda_r^P + \Phi(q_n^P \phi_r^P) \quad (4)$$

where where  $p_r^P$  defines the probability of party P conquering the regional executive, and  $\lambda_n^P$  represent the rewards obtained by regional party elites from holding office at the national level. The second half of the expression captures the benefits that regional party leaders obtain from having their national elites win the national elections. Thus,  $q_n^P$  defines the probability of party P conquering the national executive and  $\phi_r^P$  captures the utility gains derived from having the same party control the national executive.

In turn, the utility the of P's national leadership is captured by:

$$U_n^P = q_n^P \lambda_n^P + (1 - \Phi) \sum (p_r^P \lambda_r^P) \quad (5)$$

where  $\lambda_n^P$  represent the rewards obtained by national party elites from holding office at the national level and  $\chi_r^P$  captures the benefits that the national elite of party P derives from winning elections in region r.

Recall that the two core elements of the theory of fragmented solidarity are (1) the connection between distributive conflicts and economic geography and citizen's institutional preferences; and (2) the way in which the political interaction between national and regional elites under different systems of representation mediates the translation of these preferences into institutional choices. The analysis of the political process developed in this section incorporates these two core elements in the following way.

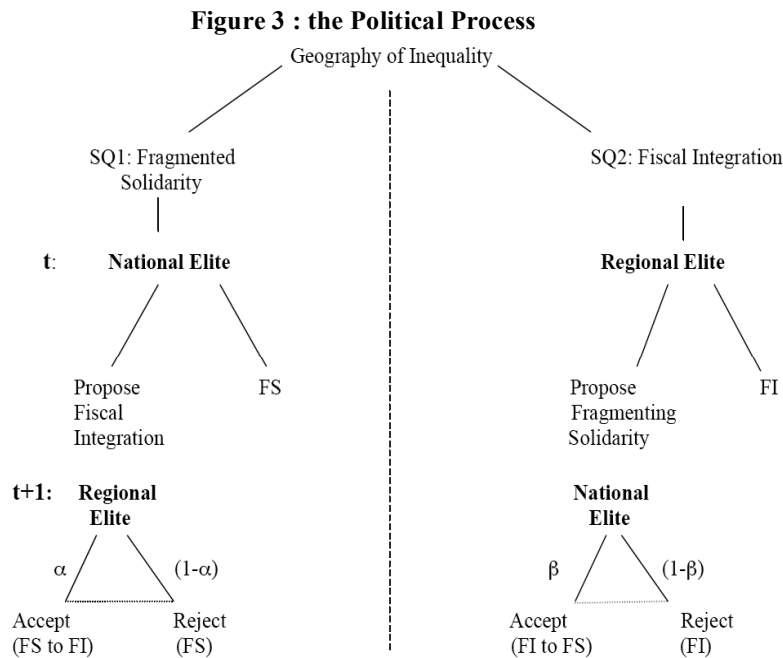
Citizen's institutional preferences, as driven by economic geography, play a key role in determining the probability of office holding at both levels of government. The probabilities of national and local elites to gain office are assumed to be a direct reflection of the need by both the national and the regional elites to minimize the distance between their proposals and citizen's optimal institutional preference. Let  $X_r^*$  and  $X_n^*$  represent the optimal institutional preference of the pivotal group of voters at, respectively, the regional and national level of government. In turn,  $X_r^P$  and  $X_n^P$  define the proposals made by the regional and national elites of party P. In line with the previous section, the set of proposals available for citizens and politicians are FC (centralization), FI (independence/decentralization), and HR (systems dominated by large levels of horizontal redistribution). Thus, a change in the direction (FI→HR→FC) is a move from fragmented solidarity to fiscal integration, whereas a change in the direction (FC→HR→FI) is a move from a centralized to a decentralized system of redistribution.

By assumption, the distance between voter's ideal points and elites proposal are constrained to be between 0 and 1. Thus, the probability that the national elite will win the national election ( $q_n^P$ ) is given by  $(1 - (X_r^* - X_r^P)^2) = (1 - \Omega_r)$  under fiscal decentralization and by  $(1 - (X_n^* - X_n^P)^2) = (1 - \Omega_n)$  otherwise. Similarly, the probability that the regional elite wins the regional election ( $p_r^P$ ) is given by  $(1 - (X_r^* - X_r^P)^2) = (1 - \varphi_r)$  under decentralization and by  $(1 - (X_r^* - X_n^P)^2) = (1 - \varphi_n)$  under centralization.

Concerning the interplay between regional and national elites,  $\Phi$  is a parameter that captures the importance that party elites give to the result of elections held at a level of government other than their own. This parameter ranges between 0 and 1. A high level of  $\Phi$  indicates that national elections are of great importance in local leaders calculations, whereas low values of  $\Phi$  (and consequently, high values of  $(1 - \Phi)$ ) indicates that the results of regional elections are an important concern for national elites.

Within this analytical framework I turn now to analyze the political interplay between national and regional elites in the event of an exogenous change in the geography of inequality. Figure 3 displays the two possible patterns of strategic interactions between the two levels of government, as determined by the status quo. Under SQ1 the distributive conflicts associated with the geography of inequality emerge in a context of fragmented solidarity. Under these circumstances, the national elites evaluate whether to pursue centralization. If they opt not to, the game ends where it began. National elites operate under uncertainty. When they evaluate the pursuit of centralization, they are not sure what the response of the regional elites will be. Should national elites launch a the proposal to move from a system of fragmented solidarity to a

system of fiscal integration, regional elites will choose at t+1 between accepting (with probability  $\alpha$ ) or rejecting such move (with probability  $1-\alpha$ ). After the decision by the regional elites, the game ends either with an institutional change (FS $\rightarrow$ FI) or with the preservation of the status-quo in the aftermath of a conflict between national and regional elites. As a result of such conflict, the electoral chances of the national government ( $q_n^p$ ) are reduced by a factor of  $\frac{1}{\varepsilon}$  with  $\varepsilon > 0$ . The sequencing of the game has a similar structure under SQ2, that is to say when distributive tensions become politically relevant in a context of fiscal centralization. The mover at t is now the regional elite, that must decide whether to pursue fiscal decentralization (FI $\rightarrow$  FS). As before, it does so with some uncertainty about the response by the national elite at time t+1 (as captured by probabilities  $\beta$  and  $1-\beta$ ). A potential conflict between regional and national elites also reduces the electoral chances of the first mover ( $p_r^p$ ) by a factor of  $\frac{1}{\varepsilon}$ .



Solving this model illuminates how the geography of inequality and the balance between local and national interests affect both the probability ( $\alpha$ ) that the regional party elite accepts the centralization attempts of national party elites under SQ1 and the probability ( $\beta$ ) that the national elite will accept the decentralization attempts by the regional party elites under SQ2. In equilibrium, the indifference conditions for the first movers yield the following expressions:

$$\frac{(1 - \Omega_r)}{\Omega_n} = \alpha \frac{\left[ \frac{1}{\varepsilon} \Omega_r + \frac{(1 - \Phi) \chi_r^p (\varphi_r - \varphi_n)}{\lambda_n^p} \right]}{\Omega_n \left(1 - \frac{1}{\varepsilon}\right)} \quad \text{for SQ1} \quad (6)$$

and

$$\frac{(1 - \varphi_n)}{\varphi_r} = \beta \frac{\left[ \frac{1}{\varepsilon} \varphi_n + \frac{\Phi \phi_r^p (\Omega_n - \Omega_r)}{\lambda_r^p} \right]}{\varphi_r \left(1 - \frac{1}{\varepsilon}\right)} \quad \text{for SQ2} \quad (7)$$

A number of interesting insights emerge from expressions (6) and (7). *Ceteris paribus*, as the institutional preferences associated with income converge, that is as  $(\varphi_r - \varphi_n)$  tends to zero, the probability ( $\alpha$ ) that the regional elite accepts a centralization of the fiscal system increases (and vice-versa). This result follows directly from the previous analysis of the connection between inequality and institutional preferences as  $\left(\frac{w_i}{w}\right)_1 \neq \left(\frac{w_i}{w}\right)_2 \neq \dots \left(\frac{w_i}{w}\right)_r$ . Likewise, as the gap between the national and the regional distributions of income increase  $(\Omega_n - \Omega_r)$ , so do the electoral costs of decentralizing redistribution for the national elite. Therefore, other things being equal, the probability that they accept the decentralizing demands of regional elites under SQ2 declines. In

sum, distributive conflicts associated with the geography of inequality work to drive elite's preferences apart through their impact on their electoral constraints. As these tensions exacerbate, the probability that either level of government responds favorably to the possibility of institutional change becomes smaller and smaller. At the extreme, when this probability gets sufficiently small, first movers find no incentive to challenge the status-quo.

The analysis also suggests that the polarizing effects of the geography of inequality are mediated by two types of political considerations. First, it follows from both (6) and (7) that the probability of agreeing to an institutional change increases in the electoral price of intra-party conflict. As a result, central governments are more likely to yield to the institutional demands of particularly relevant regions within the country. Indeed,  $\varepsilon$  under SQ2 can be thought of as an indicator of the bargaining leverage of certain regions within the coalition sustaining the party nationally. In turn, under SQ1 high values of  $\varepsilon$  reflect higher levels of dependency by regional elites on the resources facilitated by the national leadership of the party.

Second, the weight of economic geography on elites' incentives is also muted and by the balance between national and regional interests in their political calculations. Interestingly, as the value attached by regional leaders to the incumbency of the national executive increases, the probability that they accept a change towards higher levels of fiscal integration also increases ( $\frac{\partial \alpha}{\partial \Phi} > 0$ ). In contrast, as the importance of national political contests rises, the probability that the national party elite agrees to decentralize redistribution declines ( $\frac{\partial \beta}{\partial \Phi} < 0$ ).

These results have important implications for the patterns of coalition formation among the groups identified in figure 2. Building on the seminal contributions by Crémer and Palfrey (1999, 2000), the parameters capturing the electoral cost of cross-jurisdictional conflict ( $\epsilon$ ) and the balance between the interests of national and local elites ( $\Phi$ ) define the political playing field in the event of an exogenous transformation of the territorial structure of inequality. A key distinction here is whether the way coalitions are formed is *centrifugal*, that is tailored towards the representation of territorialized interests, or *centripetal*, that is set up to increase the incentives of political actors to mobilize the interests of social groups that cut across subnational territorial boundaries. Centrifugal representation corresponds to very low values of both  $\epsilon$  and  $\Phi$ . In contrast, centripetal representation implies the preeminence of political competition at the national level (high values of  $\Phi$ ) and very high electoral costs for conflictive regional elites.

At the extreme of centrifugal representation ( $\Phi=0$ ) regional elites have no incentive to deviate from the preferences of the region's median voter.<sup>5</sup> The analysis above suggests that any deviation from the ideal fiscal structure of the region's median voter brings about a disutility for the regional party leader. Through this mechanism, then, the diversity of preferences determined by the uneven geographies of inequality and insurance drive exclusively the political process determining the selection of fiscal structures. As the process of coalition formation occurs primarily within the districts, provided that regional leaders have the institutional ability to veto any change against the

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<sup>5</sup> Assuming a standard democratic setup in which two parties compete for a majority of the voters within the district, and given the setup of this model, the probability of gaining and retaining office becomes a function of how closely the platforms offered by either party  $j$  approaches the ideal institutional configuration of the pivotal group of voters within the district. In accordance with previous contributions (Bolton and Roland 1997; Crémer and Palfrey 1999; Beramendi 2007) it is straightforward to see that such position corresponds to the median voter within the district. As a result, the preferences of the median voter within each district become the criteria according to which regional elites will evaluate alternative institutional designs.

interest of their core supporters (SQ1), the polarizing effects of the geography of inequality imply a conflict of interests between districts that will yield as a result a more fragmented fiscal structure. As a result, it is under these political conditions when one would anticipate a strongest association between territorial and inter-personal inequality. Ultimately, it is under these political conditions when one would expect inequality to be self-sustained over time through the politics of institutional choice. In turn, a reduction in the value of  $\Phi$  under conditions of centralization (SQ2) will increase the likelihood of success of the political push to decentralize redistribution, thereby contributing to a future rise in the levels of interpersonal inequality in society.

The nature of coalition formation changes radically as  $\Phi$  and  $\epsilon$  increase. The formation of the political will depends much less on the previously articulated preferences of districts, and much more on how parties target population subgroups that cut across regional boundaries. When centripetal representation is at its highest ( $\Phi=1$ ), the formation of the political will depends much less on the previously articulated preferences of regions, and much more on how parties target population subgroups that cut across regional boundaries. If representation operates under plurality in a common national circumscription, they will target the union's median voter. If representation works to preserve proportionality, national elites will device a combination of vertical and horizontal redistribution as close as possible to the interests of the median legislature of the winning coalition (Austen Smith and Banks 1988; Iversen and Soskice 2006). In any event, political alliances are much more likely to be class based, and therefore the specific distributive interests of certain regions are much less likely to be the primary concern when adjusting redistributive institutions to changes in the geography of



economic inequality. Party strategies are driven by national elites with little incentive to accommodate their institutional proposals to the interests of the pivotal voter of any particular region. This is consistent with the predictions emerging from the analysis above. In a status quo of decentralized redistribution (SQ1), centripetal representation works to overcome the resistance of local elites to centralize redistribution. In contrast, in a status quo of centralized redistribution (SQ2), centripetal representation reinforces the likelihood that national elites reject fiscal decentralization in the presence of large geographical disparities in the incidence of economic inequality. Thus, centripetal representation limits the extent to which territorial inequalities manage to constrain redistributive efforts and reproduce themselves over time.

The scenarios in between ( $0 < \Phi < 1$ ) vary significantly in the balance between regional and national electoral concerns, and therefore in the extent to which pressures to either retain or move towards a more fragmented solidarity system succeed. Strongly malapportioned chambers (upper and lower) work hand in hand with heterogeneous and fragmented party systems to reduce the salience of national electoral contests vis a vis regional, territorialized, contests.<sup>6</sup> To the extent that this is the case, the institutional implications of a more diverse and polarizing geography of inequality will be more visible. In contrast, insofar as the system of representation opens fewer windows for local representatives to act as brokers of local, specific interests, as opposed to members of a party endorsing a national political platform, the imprint of the geography of inequality on the fragmentation of social solidarity will be less marked.

### *Summary*

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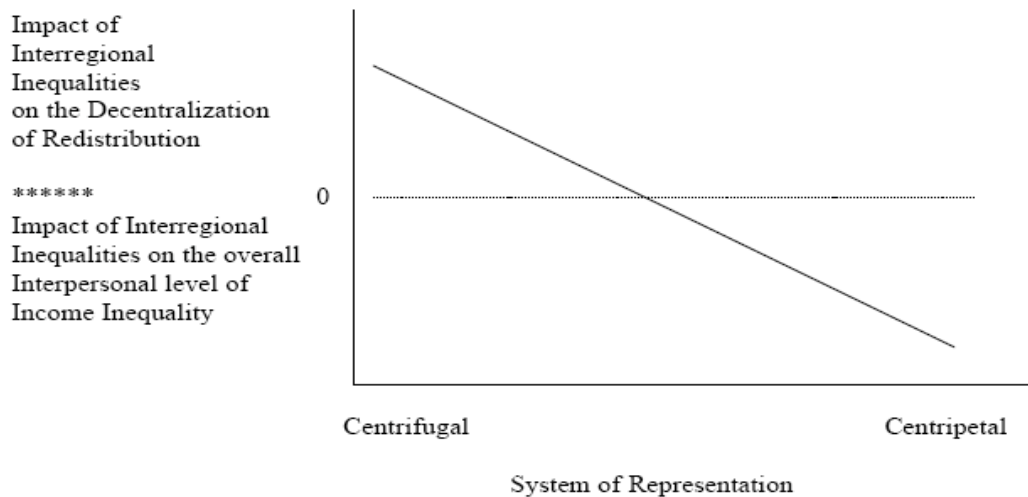
<sup>6</sup> For an empirical analysis of the effects of these features on the economic performance of federations, see Rodden and Wibbels (2002).

This analysis of the interplay between the geography of economic inequality on the one hand and political representation on the other generates the following empirical implications (graphically represented in figure 4):

I.- The degree of decentralization of redistribution is endogenous with respect to the distributive tensions associated with the territorial structure of inequality. However, the extent to which these distributive tensions determine the level of decentralization of redistribution is contingent on the system of representation in place.

II.- Through its mediating impact on the selection of fiscal institutions, the system of representation in place also determines the extent to which territorial inequalities contribute to the overall pattern of inequality in society. *Ceteris paribus*, interregional inequalities will lead to larger inequalities of interpersonal income in those countries with more centrifugal mechanisms of political representation.

**Figure 4: Representation, Redistribution, and the Self-reproduction of Inequality**



### III. EMPIRICAL ANALYSIS

I turn now to evaluate the empirical plausibility of these predictions. I proceed in two steps. First, I evaluate the mechanism that, according to the argument developed in this paper, mediates the relationship between inequality and fiscal structures. That is, I evaluate the notion that levels of territorial fragmentation fiscal institutions are a function of the interplay between the territorial structure of inequality on the one hand and the nature of political representation on the other. Second, I address whether, as proposed in this paper, the same processes that drive the choice of fiscal institutions are the ones that mediate the extent to which territorial inequalities are reflected into the overall levels of inequality.

#### *The Mechanism: Inequality and the Endogenous Selection of Institutions*

This section focuses on the contention that the effects of inequality on decentralization are contingent on the balance of power between the regions and the center, in turn dictated by the institutional status quo. In addressing this task, one obvious concern is reversed causality. Though the argument developed in this paper addresses the process linking inequality to decentralization, it seems logical that the pre-existing levels of territorial fragmentation of the welfare state feedback on the regional patterns of market inequality, for instance through the provision of different levels of generosity across regions. This reciprocity between inequality and decentralization has important implications for the estimation. To address a potential endogeneity problem, I rely on an instrumental variable approach (Baltagi 1995). Based on data for 14 countries over the period 1980-2000, I seek to identify the impact of interregional differences in the

incidence of inequality on the levels of territorial fragmentation of the redistributive system. I estimate the following equations:

$$f(ineq_{it}^{ir}) = \alpha + \beta_1 \widehat{gdp}_{it}^{ir} + \beta_2 \widehat{unemp}_{it}^{ir} + \beta_3 tradeop_{it} + \beta_4 mobility_{it} + \varepsilon \quad (8)$$

$$f(FD_{it}) = \alpha + \widehat{ineq}_{it}^{ir} + bp_{it} + (\widehat{ineq}_{it}^{ir} * bp)_{it} + \theta_{it} + \varepsilon \quad (9)$$

Where  $ineq_{it}^{ir}$  is an indicator measuring interregional differences in income inequality in a particular country at a particular point in time (superscript ir stands for interregional),  $FD_{it}$  represents the level of fiscal decentralization in a particular country at a particular point in time,  $bp_{it}$  defines the balance of power between the center and the units, and  $\theta_{it}$  depicts a set of controls (to be detailed below).<sup>7</sup>

The term  $\widehat{ineq}_{it}^{ir}$  in (9) indicates that its values are predicted by a set of factors of the territorial structure of inequality other than  $FD_{it}$  itself. To the extent that some of these variables have no effects on  $DRP_{it}$  other than those working through  $ineq_{it}^{ir}$ , the estimates of (9) are not biased by reversed causality. In searching for instruments, the goal is to find a good predictor of  $ineq_{it}^{ir}$  that is unrelated to the decentralization of redistributive policy. In this quest, I turn to international markets, on the assumption that exposure to the international economy (*tradeop*) does not depend upon the previous levels of territorial fragmentation of the fiscal system. In addition, I include three other predictors identified by the theoretical model. The *coefficient of variation in regional gdp per capita* ( $\widehat{gdp}^{ir}$ ) captures differences in terms of average income (w). The *coefficient of variation in regional unemployment rates* measures regional differences in the incidence

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<sup>7</sup> For definitions, construction, and sources of variables, see the Data Appendix.

of (realized) labor market risks and the relative size of the dependent population  $(1 - \alpha)$ . Moreover, on the assumption that there is a trade-off between the degree of asset specificity of the regional economy and the overall levels of geographical labor mobility (Boix 2003), the inclusion of an indicator of *labor mobility* (*mobility*) taps further on the risks differentials across regional labor markets, and therefore on the incentives to centralize. Labor mobility is defined as the rate of inter-industry labor mobility for any given country-year. To the extent that regions concentrate asset specific manufacturing industries, the levels of inter-industry labor mobility will be lower and the regional incidence of risks emerging from immobile assets will be higher. These three variables predict  $\hat{ineq}_{it}^{ir}$  in the first equation of the two stage instrumental variables approach (8).

In turn, the set of predictors in (9) include the instrumented version of  $ineq_{it}^{ir}$  from (4) in interaction with a measure of the balance of power between the center and the regions. On the latter I use two measures. The first one captures the structure of political representation within the federation, in particular the role of the subnational units in the formation of the national will. It is defined as

$$Representation = Riker\ Index / n$$

where *party centralization* is Riker's index of party centralization (share of subnational incumbents that belong to the same political party in power at the federal level) and  $n$  is the number of levels directly elected represented at the national level. If subnational representatives are directly elected by their local constituencies,  $n$  takes the value of 2, because a stronger link to the local constituency of local candidates weakens party centralization. Otherwise,  $n$  takes the value of 1. Overall, representation can range

between 0 and 1. Values closer to 0 indicate a more centrifugal system of representation of interests (and vice-versa).

The second measure of representation captures the extent to which the structure of political competition varies across the subnational units of any given multitiered system. More diverse structures imply a more centrifugal system of representation of interests. Heterogeneity of political competition across subnational units is defined as:

$$\frac{1}{n} \sum_{r=1}^n (| ENP_r - ENP_u |)$$

where  $ENP_r$  represents the effective number of parties in region/subnational unit  $r$ , and  $ENP_u$  defines the effective number of parties at the union level/centre. The intuition is that the larger the distance between the center and the units in terms of the effective number of parties, the higher the more different the patterns of political competition.

The models reported in table 2 include estimates in which  $ineq^{ir}_{it}$  is interacted with both indicators of the balance of power between the center and the units, thereby providing additional robustness checks.

The set of controls includes a number of other “usual suspects” included in the literature on decentralization. These include: Country size is included to consider the argument that the need for multi-level government structures increases with the size of the country. Total taxation as a percentage of GDP introduces a control for the effect of the size of government on the levels of fiscal decentralization (Persson and Tabellini 2003). In turn, the inclusion of a control for ethnic fractionalization follows from the well established link between the existence of multiple cultural, linguistic and/or religious identities and the use of decentralized political arrangements to accommodate them

(Fearon and Van Houten 1998; Linz 1997; Stepan 2001). Put briefly, decentralized/federal polities are more likely to emerge in ethnically, linguistically, and/or culturally fragmented social contexts. The expected direction of the relation is clear. Notwithstanding the inherent limitations of any measurement of fractionalization, the higher its values the higher the theoretical levels of decentralization. Finally, I also control for aggregate national income.

I turn now to discuss the findings, starting with the first stage. The first equation is helpful in ascertaining whether the territorial structure of inequality reflects the factors identified in the theoretical model. In addressing these questions, Table 1 reports four different estimations of equation (8), including OLS (robust) and Panel Corrected Standard Errors (with and without correcting for autocorrelation). The results (presented in table 1) generally support the logic established in the model of preference formation. While income and labor market risks differences increase cross-regional differences in terms of inequality, more exposure to external shocks and larger levels of mobility increase the levels of risk sharing between regions, and reduce the differences in the shape of the income distribution between regions, thereby reducing the incentives to pursue or sustain separate tax rates.

**Table 1**  
**Determinants of Interregional differences**  
**in Income Inequality, 1980-2000**

	<b>OLS Robust</b>	<b>Pcse</b>	<b>Pcse (ar1)</b>
	$\beta$ (s.e)	B (s.e)	$\beta$ (s.e)
Interregional Differences in Growth	2.59*** (.81)	2.59*** (.81)	1.44 (1.2)
Inter-regional Differences in the Incidence of Unemployment	.312** (.12)	.312** (.12)	.17 (.20)
Trade Openness	-.0025*** (.0006)	-.0025*** (.0006)	-.0024*** (.0008)
Mobility	-.0058* (.003)	-.0058* (.003)	-.0009 (.0008)
Intercept	1.07*** (.10)	1.07*** (.10)	1.23*** (.131)
N	60	60	60
F/Wald Chi	11.39	346.28	141.34
R-squared	.47	.62	.76

I turn now to assess how these inequalities are translated into different choices about the territorial fragmentation of redistribution. The results of the different estimations of equation (9) are displayed in Table 2.<sup>8</sup> The control variables show the anticipated effects. Consistent with previous literature, both ethnic fractionalization and country size are positive and significantly associated with higher levels of fiscal decentralization across the different specifications. The indicator of aggregate national

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<sup>8</sup> These versions, reported in table 2, include an OLS estimation with robust standard errors, a panel corrected standard errors approach with a common (ar1) serial correlation correction (a version that applies the Prais-Winsten (first differences) correction to panel data) and a version of the two-stage instrumental variable approach for panel data created by Baltagi. I should note that all three sets of results are instrumental variables approaches, that is to say, they try to contain the effects of endogeneity by instrumenting  $ineq_{it}^{ir}$ . The difference between them lies in the set of instruments being included. While the OLS, robust estimation restricts the number of instruments to those included in (4), the Baltagi approach takes as instruments all the exogenous variables in the system.



income adds nothing to the explanation of the levels of fiscal decentralization in the OECD.

**Table 2: Determinants of the Levels of Decentralization of Redistribution: 1980-2000**

	Inequality interacted with Representation			Inequality interacted with heterogeneity in the structure of Political Competition		
	<i>Pcse (ar1)</i>	<i>TSIV(1)</i>	<i>TSIV(2)</i>	<i>Pcse (ar1)</i>	<i>TSIV(1)</i>	<i>TSIV(2)</i>
<b>Inequality (_hat)</b>	12.3** (5.3)	18.20*** (3.81)	<b>6.35**</b> <b>(3.0)</b>	.772 (.87)	2.24 (2.70)	<b>2.32</b> <b>(1.95)</b>
<b>Representation</b>	18.04* (9.84)	30.5*** (7.07)	<b>13.6**</b> <b>(5.6)</b>			
<b>Heterogeneity Party System</b>				-9.41*** (3.14)	-14.18** (7.0)	<b>-6.38***</b> <b>(2.38)</b>
<b>Inequality* Representation</b>	-15.17* (8.8)	-26.39*** (5.72)	<b>-11.6**</b> <b>(4.5)</b>			
<b>Inequality* Heterogeneity</b>				7.52*** (2.55)	11.32** (5.68)	<b>5.11***</b> <b>(1.90)</b>
<b>Country size (log)</b>	1.06*** (.210)	1.10*** (.25)	<b>.684*</b> <b>(.36)</b>	.564*** (.15)	.939*** (.26)	<b>.38</b> <b>(.32)</b>
<b>Ethnic fractionalization</b>	11.4*** (.95)	10.24*** (1.76)	<b>12.07***</b> <b>(2.8)</b>	13.9*** (.81)	12.1*** (2.1)	<b>11.56***</b> <b>(2.38)</b>
<b>Total Taxation</b>	.225*** (.063)	.28*** (.078)	<b>.065</b> <b>(.048)</b>	.126*** (.04)	.22*** (.07)	<b>.040</b> <b>(.048)</b>
<b>Economic Growth</b>	.013 (.106)	.05 (.21)	<b>.076</b> <b>(.078)</b>	.04 (.05)	-.028 (.257)	<b>.013</b> <b>(.085)</b>
<b>Intercept</b>	-38.99*** (9.87)	-48.70*** (8.57)	<b>-20.32***</b> <b>(6.32)</b>	-14.35*** (3.9)	-25.33*** (7.4)	<b>-10.12**</b> <b>(4.5)</b>
<b>R-squared</b>	.73	.77	<b>.78</b>	.78	.70	<b>.72</b>
<b>N</b>	60	60	<b>60</b>	60	60	<b>60</b>

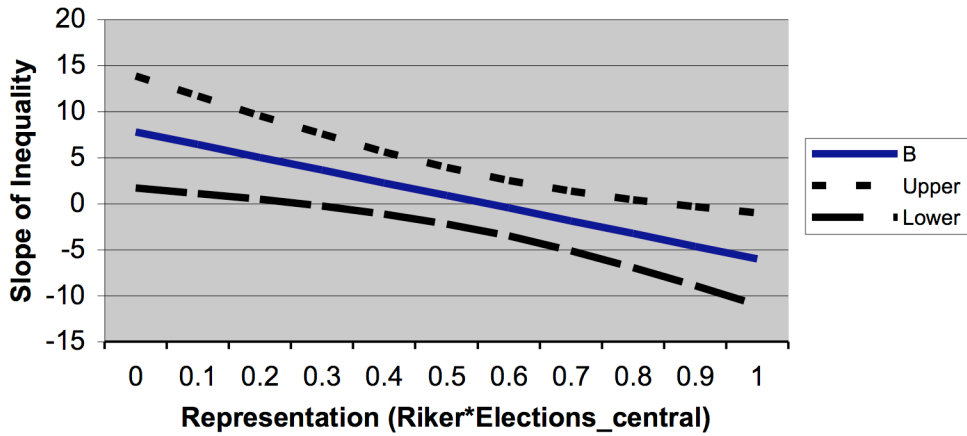
To properly assess the magnitude and significance of the effects of interests, I calculate the conditional coefficients and standard errors on the basis of the TSIV(2) specifications. Figure 5 presents the conditional coefficients and standard errors for the interactions between inequality and representation, whereas figure 6 performs a similar exercise for the interaction between inequality and the levels of heterogeneity in the patterns of political competition across subnational units.

In both cases, the argument that effect of inequality on the fiscal decentralization (fragmentation of solidarity) is contingent on the specific architecture of power at work in different multi-tiered systems receives considerable empirical support. The results suggest that inequality is positively associated with decentralization in those cases in which parties are hardly centralized at the national level and/or subnational representatives at the national level are directly elected. In contrast, as the balance of power between local and national elites becomes more equilibrated (e.g. federations with an integrated party system), inter-regional differences in the incidence of inequality are less and less reflected in the actual fiscal design of institutions. Finally, in heavily centralized contexts, higher inequalities are associated with more, rather than less, centralization of the fiscal system. This is consistent with the hypothesis that the winners under the status quo constitute a powerful veto coalition with strong incentives to block any proposal of reform that jeopardizes their relative position (the dynamics of the Spanish process of decentralization provides a good historical example of the workings of this process). Likewise, figure 6 shows very clearly how inequality carries a much stronger effect on decentralization in those multi-tiered systems in which the structure of political competition is heavily fragmented. The more idiosyncratic the political

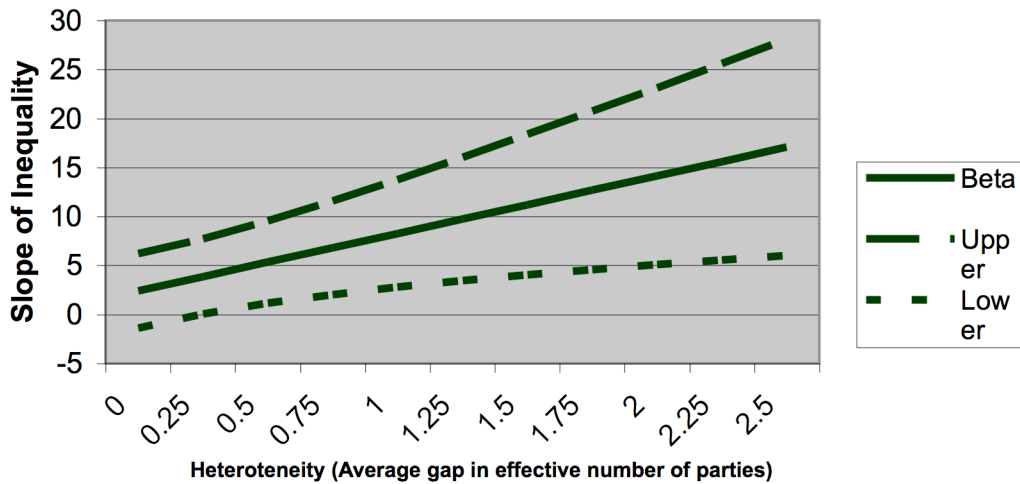
competition in different units, the less able subnational incumbents are to weight into their strategies the preferences of the national party. As a result, the fragmentation of political incentives enhances the institutional consequences of changes in the territorial patterns of inequality.

To illustrate the magnitude of the effects, table 3 presents the predicted values of fiscal decentralization under different levels of representation and inequality. These values are calculated on the basis of the TSIV(2) version of the equations reported in table 2. In countries where representation (i.e integration between regional and national parties) is low, an increase in the ratio between the Gini coefficient of the richest region, and the Gini coefficient of the poorest region from 1.24 to 1.84 increases the level of fragmentation of solidarity from 2.4 % to 11.25%. In conclusion, the hypothesis that the effects of inequality on the fragmentation of solidarity are contingent on the way different political institutions shape the balance of power between the center and the regions, thereby leading regional incumbents to weight differently their political loyalties (electorate, national parties), receives a good deal of empirical support.

**Figure 5: Impact of Inequality conditional on Representation, 1980-2000**



**Figure 6: Impact of Inequality conditional on the level of heterogeneity in the structure of political competition, 1980-2000**



**Table 3: Predicted Values of the Decentralization of Redistribution**

$ineq_{it}^{ir}$	Representation		
	Low (.12)	Medium (.67)	High (1)
1	0	0	0
1.14	0.93	0.72	0.49
1.24	2.40	1.2	0.46
1.5	6.23	2.57	0.38
1.84	11.25	4.44	0

*Political Institutions and the Self-Reproduction of Inequality*

A central implication of the argument in this paper is that the decentralization of fiscal institutions (i.e. the territorial fragmentation of solidarity) does not operate as a mechanism that generates a particular outcome exogenously, but rather as a mechanism that, once selected and established, sustains and reinforces the same patterns of inequality that facilitated its emergence in the first place. If this “transmission/reproduction” effect of decentralization is to hold, the same set of political and institutional conditions that mute the link between the territorial patterns of inequality and the fragmentation of solidarity should mediate the relationship between the territorial patterns of income inequality and the overall levels of interpersonal inequality. In other words, the relationship between inter-regional inequalities and inter-personal inequalities should be ruled by the same political process that rules the selection of the transmission mechanism, in this case fiscal decentralization. In addition, once we control for the generating

process, the direct effect of fiscal decentralization on interpersonal income inequality should be significantly muted or ceased to be significant.

I address these questions by contrasting several models of the determinants of interpersonal income inequality in the OECD (Gini coefficients\_LIS data). I present panel corrected standard errors (controlled for autocorrelation and tobit models).<sup>9</sup> The specification includes controls for the following factors: (a) political and institutional factors that affect redistribution other than decentralization; (b) the variables conditioning the distribution of disposable income that relate to demographic processes, general economic conditions, and the structure and organization of the labor market (which are known to be major determinants of wage inequality: Rueda and Pontusson 2000; Wallerstein 1999); and (c) the effects of previous redistributive policies on pre-tax income inequality (Beramendi 2001). The inclusion as explanatory variables of the incumbent's ideology and the level of wage bargaining coordination (Kenworthy 2001), together with fiscal decentralization, satisfy the controls required in (a). The specialized literature has consistently shown these variables to be major determinants of redistribution (see, for instance, Huber and Stephens 2001).

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<sup>9</sup> Standard OLS and panel corrected standard errors unadjusted for autocorrelation yield very similar results. The inclusion of a Tobit estimation addresses a potential problem of misspecification due to the fact that the dependent variable ranges between 0 and 1. In principle, Tobit models are a special case of lower truncation in which the censor limit is set to 0. More generally, the likelihood function can be rewritten to take into account an upper limit, in this case 1. In real terms, however, taking the Gini coefficient as the dependent variable, the lower limit never equals 0 (a perfectly egalitarian society) nor does the upper one equal 1 (a perfectly inegalitarian society). A more realistic specification for the OECD would be to set the truncation points at 0.20 and 0.60. The existence of an upper and a lower limit could also suggest a third alternative approach other than Tobit. Let  $G$  represent the Gini Coefficient. By taking the  $\log \{G/1-G\}$ , the dependent variable would range between minus infinity and plus infinity, facilitating the implementation of the standard assumptions of the regression model.

In turn, controlling for market income inequality provides a straightforward solution for (b) and (c). Inequalities of disposable income are a function of market income inequalities and the direct effect of redistributive policies. What is to be assessed in the different specifications is the impact of one variable that affects redistribution and, therefore, the distribution of disposable income. This goal makes an indicator of market income inequality a very useful tool. It aggregates the impact of economic, demographic, and labor market related variables. More importantly, it also includes the feedback effects of previous redistributive policies on people's labor market behavior and, subsequently, on the distribution of wages and additional sources other than earnings and welfare state transfers.

Table 4 presents the results. The control variables behave as expected, with the exception of the variable measuring the incumbent's ideology. Obviously, market income inequality is a strong and consistent positive predictor of disposable income inequality. In addition, the levels of wage bargaining coordination are, *ceteris paribus*, generally negatively correlated with the levels of disposable income inequality, although they are not robust to different specifications. In contrast, the estimates of the variable of partisanship show no effect across the board.

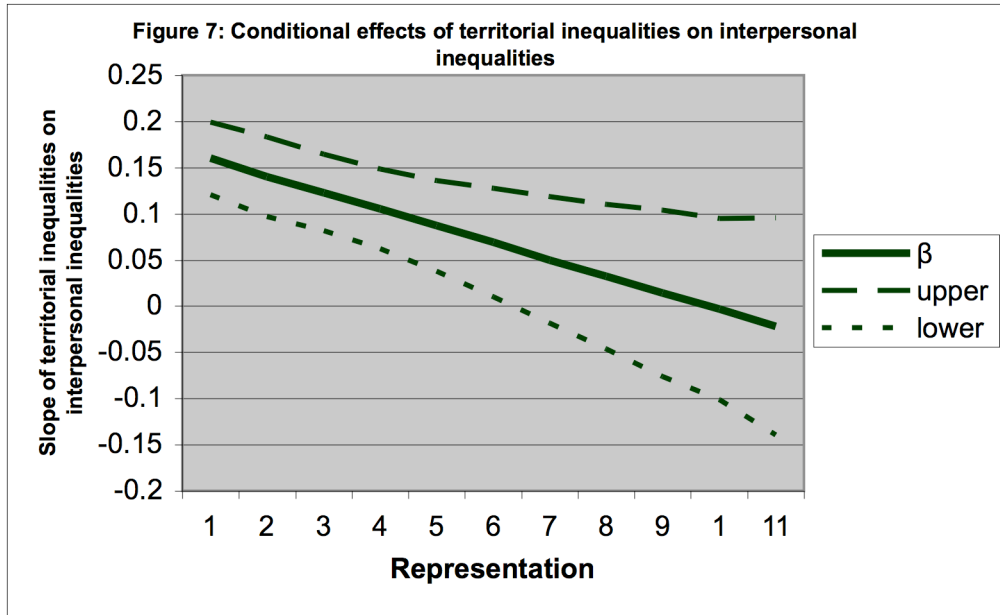
The findings in Table 4 suggest that the mechanisms that link the inter-territorial with the inter-personal dimensions of income inequality are very similar to the mechanism that link inter-territorial inequalities with the adoption of fiscal decentralization. This can be better seen by analyzing the conditional effects of interregional inequalities on to inter-personal inequalities, given different values of the index of representation (figure 7). Much like in the case of decentralization, higher values

of representation mute the link between inter-regional and inter-personal inequalities. This offers some support to the notion of decentralization as a transmission mechanisms between different types of inequalities (or different dimensions of inequality). In conclusion, inequality is able to reproduce itself by facilitating the selection of less integrated redistributive institutions. However, this only occurs when the system of political representation of interests allows local leaders to translate their preferences onto the choice of fiscal institutions.

**Table 4: Does Inequality Reproduce itself? Determinants of inter-personal inequality in OECD countries (1980-2000)**

	PCSE (ar1)-Prais Winsten			Tobit		
	<i>I</i>	<i>II</i>	<i>III</i>	<i>I</i>	<i>II</i>	<i>III</i>
<b>Decentralization of Redistribution</b>	.0013** (.0006)		.002 (.0015)	.004*** (.0007)		.001*** (.0007)
<b>Inequality (ir)</b>	---	.136*** (.016)	.159*** (.025)		.134*** (.016)	.104*** (.06)
<b>Representation</b>	---	.17** (.075)	.20*** (.07)		.203*** (.056)	.135*** (.036)
<b>Inequality*Repres</b>	---	-.152** (.068)	-.182*** (.069)		-.18*** (.049)	-.127*** (.032)
<b>Market Income</b>	.72*** (.05)	.34*** (.038)	.299 (.037)	.56*** (.03)	.278*** (.053)	.33*** (.047)
<b>Wage Bargaining</b>	-.007* (.003)	-.010*** (.003)	-.012*** (.004)	-.016* (.08)	-.0019 (.002)	-.003 (.002)
<b>Partisanship</b>	-.002 (.008)	-.0022 (.011)	.001 (.008)	.006 (.005)	-.004 (.005)	.0024 (.004)
<b>N</b>	60	60	60	60	60	60
<b>R-sq</b>	.97	.982	.984			
<b>Wald Chi (p-value)</b>	---	----	---	8680 (.000)	11350 (.000)	19845 (.000)





Moreover, once this generating process is controlled for, the remaining direct effect of decentralization on interpersonal inequality is either reduced by a factor of four (tobit estimations) or simply disappears (pcse-ar1). In sum, to the extent that there is an association between inequality and decentralization, it occurs not because decentralization creates inequality, but because, under specific historical, political, and institutional conditions, the pre-existing patterns of inequality contribute to the selection of large levels of fragmentation of the welfare system that in turn may work to sustain, perpetuate or reproduce inequality. Finally, there is a broad range of multi-tiered systems in which territorial inequalities are not reproduced into larger levels of inequality. Consistent with the argument developed in this paper, this set of cases corresponds to the same range of multi-tiered systems in which territorial inequalities do not get reflected into extreme levels of fragmentation of the welfare state.

#### **IV.- CONCLUSION**

This paper has presented an argument that helps understand better the observable associations between fiscal structures and distributive outcomes in advanced industrial societies. Why do some unions show low levels of centralization of redistribution while others, in the presence of increasing interregional distributive tensions, show highly integrated, large scale, redistributive systems? The analysis in this paper has shown that to fully answer this questions one needs to endogenize fiscal structures with respect to pre-existing distributive patterns. The analysis also shows that this is just the first step though. In complex, multidimensional political systems, the extent to which inequality drives the selection of institutions is contingent upon the system of representation at work. In turn, by highlighting this contingency, this paper also provides insights to the question of whether and how inequality reproduce itself. Inequality is self-sustainable only under institutional conditions that maximize the leverage of particularistic, territorialized interests. Otherwise, the political process is set-up, at least in part, to minimize the extent to which inequality is able to reproduce itself.

The analysis in the paper is by definition preliminary. In particular, two aspects of the analysis warrant caution. First, the empirical data provide a snapshot (1980-2000) of a long-term process with much earlier origins in time. Certainly, the observed associations are consistent with the empirical implications of the theory, but they are very limited in the extent to which they tap onto the specific causal mechanisms established in the argument of the paper. Complementary case study research of actual responses to exogenous shocks to the territorial structure of inequality is in progress as a necessary

complement to these statistical findings. The second aspect in need of further research is the exogeneity of representation. While it seems plausible to claim that in the context of a specific shock, the system of representation is unlikely to change (unless the entire political regime collapses), it is equally plausible to suppose that in the long-run representation itself becomes the object of political conflicts ultimately aimed to change the existing distributive outcomes in society. Thus explaining when and why some unions have more centrifugal systems of representation is a necessary step in our collective efforts to better understand the links between political institutions and distributive outcomes.

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## APPENDIX

<p><b><i>Decentralization of Redistributive Policy (FD)</i></b></p>	<p>Measuring FC is far from straightforward as the indicators conventionally at use, such as the regional share of public expenditures or revenues based on IMF data, suffer from important limitations concerning the attribution of political capacities across policy fields (Rodden 2004). For the purposes of the empirical analysis I measure the decentralization of redistributive policy through an index that combines the following three dimensions:</p> <p>1.-A measure of welfare transfers decentralization (<math>ITH_{it}</math>), that is, of the decentralization of direct income transfers to households in OECD countries. Transfers decentralization is defined as 100 minus the percentage of direct transfers to households by consolidated central governments. This component captures the degree of vertical redistribution (t) in our model of preference formation. This indicator ranges between 0 and 100.</p> <p>2.-A measure of revenue autonomy (<math>RA_{it}</math>), i.e., of the extent to which subnational governments depend upon their own resources to effectively perform the income transfers included in (1). This indicator is based on the assumption that to the extent that regions rely on their own resources, they will have more discretion to design their redistributive policies, and therefore, the degree of decentralization of redistributive policy will be higher. This measure ranges between 0 and 1 and is defined, on the basis of IMF data, as the proportion of own generated revenues out of total regional revenues. This component captures the horizontal redistribution term (T) in the model of preference formation.</p> <p>3.-An indicator of legislative leverage by subnational governments (<math>LL_{it}</math>). The welfare state is not territorially fragmented if subnational levels of government tax and spend according to provisions established exclusively by the national parliament. This type of administrative decentralization, largely at work in Scandinavian countries, should not be mistaken for the actual decentralization of redistributive policy. To prevent such misconception this indicator takes the value of one in those cases in which subnational governments either have autonomy to legislate or a direct input into the (national) policy making process, and zero otherwise. Thus, the existence of some legislative leverage is taken to be a pre-requisite for the ability to tax and spend to actually reflect a territorial fragmentation of the welfare state.</p> <p>These three dimensions are combined in a single scale measuring the overall decentralization of redistributive policy that is defined as <math>FD = \frac{ITH_{it} * RA_{it}}{LL_{it}}</math>. This summary indicator continues to range</p>
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	between 0 and 100.
<b><i>Interregional Differences in the Incidence of Income Inequality</i></b> ( $Ineq_{it}^{ir}$ )	$Ineq_{it}^{ir}$ is meant to capture the territorial structure of inequality, that is to say the regional variation in the incidence of inequality. <sup>10</sup> I base my analysis on the Luxembourg Income Study (LIS) dataset. The LIS data allows one to decompose by subnational unit of government the distribution of income of 14 OECD countries over a period of time ranging between 1980 and 2000. <sup>11</sup> The countries included in the analysis are Australia, Belgium, Canada, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, the United Kingdom, and the United States. <sup>12</sup> On the basis of these data, I measure the <i>regional variation in inequality</i> with the ratio between the highest and the lowest regional Gini coefficient of household market income per equivalent adult. <sup>13</sup> Theoretically, this variable ranges between 1 (indicating that all regions have the same incidence of inequality) and infinity (indicating that the level of inequality in the most unequal region is x times larger than in the most egalitarian one). Empirically, the range is much more limited (between 1 and 1.9).
<b><i>Interregional Differences in GDP per capita</i></b>	Data from the OECD Territorial Database
<b><i>Inter-regional Differences in the Incidence of Unemployment</i></b>	The term regional refers to a level of government similar to the German länder, the Canadian provinces or the American states. Sources: OECD Territorial Database, EUROSTAT-New Cronos Database (NUTS-3 regions); Statistics Canada; Bureau of the Census; Australian Bureau of Statistics; Statistics Finland; Statistics Norway; Statistics Denmark; and Statistics Sweden.
<b><i>Mobility</i></b>	Data from Hiscox and Rickard (2002), generously facilitated by the Michael Hiscox. Updated by the author to 2000 on the basis of OECD and STAN databases.
<b><i>Decentralization of Redistributive Policy</i></b>	Calculations by the author. See text for details. Original data from OECD data on consolidated central government direct transfers to households (generously facilitated by Thomas R. Cusack), IMF Government Finance Statistics on revenue collection by regional governments, Watts (1999) and domestic legislative sources.
<b><i>Territorial Structure of Inequality</i></b>	Calculations by the author on the basis of the Luxembourg Income Study and the European Community Household Panel databases.
<b><i>Ethnic Fractionalization</i></b>	From all the alternatives available in the literature (Laitin 2000: 142-155) I have adopted the one that measures ethnic fractionalization as one minus the sum of squared population proportions in each “ethnolinguistic” group, where the groups were originally defined according to the 1960 Soviet Ethnographic Atlas. The final figure represents the probability that two people drawn randomly are from a different ethnic group since the sum of squared population proportions

<sup>10</sup> Superscript *ir* stands for interregional.

<sup>11</sup> In some European country/years I have complemented the LIS data with other sources such as the European Community Household Panel. In these cases (Spain, Denmark), I have used the same income variables and equivalence scales in calculating the inequality measures.

<sup>12</sup> While LIS includes a few surveys on Ireland and Switzerland, the datasets do not allow to decompose market inequality by region for these two countries. Given that Ireland is a very centralized economy and Switzerland is among the few federations in the OECD, the amount of variation in the data is limited, which in turn makes the empirical tests a more conservative exercise.

<sup>13</sup> All equalized income measures are calculated using the LIS equivalence scale ( $0.5 + (.25 * (n - 1))$ ), where *n* is the number of members in the household.

	is the probability that two random people are from the same group.
<b><i>Log Country Size</i></b>	Data gathered from Geohive: Global Data Index.
<b><i>Total Taxation</i></b>	Source: OECD. Data generously facilitated by Thomas R. Cusack
<b><i>Trade Openness</i></b>	Sum of total imports and exports on good and services as a percentage of GDP. Source: OECD, National Accounts, Part II: Detailed Tables (various years)
<b><i>Economic Growth</i></b>	Penn World Tables, various years.
<b><i>Wage Bargaining Centralization</i></b>	See Kenworthy (2001)
<b><i>Party Centralization</i></b>	Calculations by the author on the basis of regional and national official electoral results of OECD countries between 1980 and 2000.