

# **Inequality and Labor Market Coordination in the Early 20th Century**

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Paper prepared for presentation at the workshop on “Institutions and Inequality”, to be held at the  
Department of Politics and International Relations, University of Oxford  
May 8-9 2009

**Preliminary Draft: Comments Welcome**

**Acknowledgements:** We want to express our thanks to Tony Atkinson, for providing most of the inequality data, to Duane Swank, for providing the coordination data (as well as data for all of our control variables), and to Rob Franzese and the participants in the panel on “Inequality, Institutions and the Social Contract” at the APSA 2008 Annual Meeting in Boston for their comments and suggestions. We also thank Timo Idema for excellent research assistance.

## **Abstract**

In this paper we argue that to understand the observable associations between institutions and inequality today, it is critical to explore the selection of economic institutions, and in particular wage bargaining centralization agreements, as the outcome of a distributive conflict in which inequality itself plays a prominent role. Decreasing inequality facilitated the adoption of encompassing wage centralization agreements during the early 20th century in Europe, thereby creating a long-term association between low inequality and high centralization that, for a large subset of cases, remained stable throughout the century. We develop a theoretical argument as to why inequality should lead to lower levels of coordination and test it against competing hypotheses on the basis of a database on eleven OECD nations between the 1910s and the 1950s.

A cursory overview of recent scholarship on inequality suggests that it is institutional in nature. Wage bargaining institutions explain pay inequality, electoral institutions drive the politics of redistribution, as do different types of federalism and decentralization of political authority.<sup>1</sup> The recognition of the importance of institutions in explaining distribution and redistribution is clearly on the rise.<sup>2</sup> However, while most of the recent comparative political economy literature has emphasized the causes of inequality,<sup>3</sup> we want to return to one of the main themes in politics: the analysis of how inequality affects coordination and, ultimately, democracy and representation (see Schattschneider 1960 or Dahl 1971).

Existing data constraints reduce our historical and geographical breadth and limit our universe of reference to, at best, twenty advanced industrial societies for the last three decades. More importantly, our observations for the post-1973 period represent a specific sub-period of a longer process in which causality might work in very different ways. This is a point made forcefully in a recent article by Stasavage and Scheve (2009), whose analysis of inequality data based on the share of top 1% of the income distribution (as documented from available tax records in Atkinson and Piketty 2007) casts doubt on the alleged egalitarian effects of certain economic and political institutions. Making use of this new source, Stasavage and Scheve (2009) point out that the downward trend in the top income share started before these institutions were adopted, thus opening new questions on the direction of causality and the actual role of institutions such as wage coordination agreements in promoting and/or securing equality. This brings us back to endemic issues of endogeneity and to the need to extend our historical breadth to fully establish the nature of the causal links among institutions, political choices, and distribution.

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<sup>1</sup> For analysis of the influence of labor market institutions on pay inequality, see Wallerstein (1999); Rueda and Pontusson (2000); Beramendi and Cusack (2008) and Rueda (2008). On the effects of electoral institutions on redistribution and inequality, see Austen-Smith (2000), Austen-Smith and Banks (1988), Iversen and Soskice (2006), and Martin and Swank (2008). On the effects of federalism on the welfare state, see Obinger et al. (2006); and Martin and Swank (2008).

<sup>2</sup> For a detailed discussion, see Beramendi and Anderson (2008).

<sup>3</sup> See the references in footnote 1. For an analysis that, like ours, explores the consequences of inequality, see Beramendi (2008) and Pontusson and Rueda (2008 and Forthcoming).

This paper extends this line of work. We posit that to understand the observable associations between institutions and inequality today, it is critical to see the selection of economic institutions, and in particular wage bargaining centralization agreements, as the outcome of a distributive conflict in which inequality itself plays a prominent role. The argument goes as follows. Overall levels of economic coordination build, respectively, on the coordination within labor and capital. That is to say, before a large scale nationally binding agreement between peak capital and labor organization occurs, labor and employer organizations must overcome a collective action problem within each specific factor. Unions must agree to coordination amongst themselves first, prior to adopting coordination with capital. Likewise, employers have a choice between negotiating with labor individually or adopting a common position in advance. Herein lies the specific focus of this paper. We argue that the resolution of the collective action problem among employers is to a large extent a function of the levels of inequality at the top end of the income distribution: higher levels of inequality at the top end exacerbate the distributive trade-offs faced by employers and hence reduce the likelihood of coordination both within capital, and by implication, between capital and labor. By contrast, lower levels of inequality ease the distributional trade-off faced by individual employers. As a result, decreasing inequality facilitated the adoption of encompassing wage centralization agreements during the early 20th century in Europe, thereby creating a long-term association between low inequality and high centralization that, for a large subset of cases, remained stable throughout the 20th century, as documented by a large empirical literature.

By endogenizing economic coordination with respect to inequality, this article contributes in various ways to the literature on comparative politics and political economy. Primarily, the paper contributes to the comparative study of the origin and evolution of institutions (Thelen 2005). By identifying the levels of equality among employers as a necessary condition for coordination to emerge and persist over time this paper highlights a potential engine behind institutional change among coordinated market economies. With high levels of inequality among employers, as diversification in their realized and expected incomes increases, their incentives to challenge and/or abandon pre-existing coordination agreements increase. In this paper we argue that higher levels

of inequality among employers nourish institutional changes that in turn will contribute to a larger spread in the overall income distribution.

By exploring this process, our analysis sheds light on the causal links between economic institutions and income inequality over the long term, thus contributing to tease out chronic issues of causal identification in the existing literature. This has implications for several literatures, including those on the origins of varieties of capitalism and production regimes (Hall and Soskice 2001) and on the political origins of distribution and economic inequality (Iversen and Soskice 2009; Beramendi and Anderson 2008; Stasavage and Scheve 2009). Additionally, the paper also helps us understand the historical basis of specific country configurations which in more recent times have been able to overcome the equality-growth trade-off (Pontusson 2006; Kenworthy 2008).

The remainder of the paper is organized as follows. First, we describe our dependent variable, namely the patterns of economic coordination during the early 20th century. Second, we build a theoretical argument for the reasons why inequality is a major factor conditioning the incentives of capital and labor to pursue or reject these agreements. Third, we develop a set of exploratory analysis of the relationships implied by our theoretical argument. Fourth, we develop a multivariate analysis of the relationship between inequality and two measures of labor market coordination on the basis of data from eleven OECD nations between the 1910s and the 1950s. In this section we also test for alternative arguments about the origins of wage bargaining institutions. Finally, we draw the main implications from our results and point to additional lines of research.

### ***1. Patterns of Coordination in the First Half of the 20th Century***

The central claim of this paper is that the levels of inequality in a country are the most important determinant of coordination in the labor market. While we will explain the reasons for this relationship in more detail below, we start our analysis by describing the patterns of labor market coordination that we find in our sample. We use two different measures of labor market coordination in this paper. First, we look at coordination by

employers. We use an index of employer organization created by Martin and Swank (2008). Their index covers three dimensions of employer coordination: (1) the scope of employer organization; (2) the centralization of power in these organizations, and (3) the integration of these employer organizations into national policymaking forums (for more details, see Martin and Swank 2008: 186). Each of these dimensions receives a score between 1 and 3, and the three dimensional scores are added into an aggregate index. Second, we look at coordination between employers and unions. This measure is also provided by Martin and Swank (2008). It captures the centralization of collective bargaining between unions and employers. The variable receives scores between 1 (when collective bargaining centralization is low) and 3 (when it is high), and the coding is done in .5 increments.<sup>4</sup>

[Table 1]

Table 1 presents our data for employer coordination. The first thing to note about our employer coordination data (as well as the collective bargaining data) is the limited number of countries that they capture. Although Martin and Swank's data are available for 16 nations, the availability of our inequality variable (to be described in detail below) limits our analysis to 11 countries: Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the UK, and the USA. With some exceptions, we have coordination data for 4 decades: 1910s, 1920s, 1930s and 1950s. Although the observations are understood to reflect coordination in these decades, as Martin and Swank make clear, they reflect scores circa 1914, 1925, 1938 and 1955.

Table 1 illustrates the existence of a significant amount of cross-national variation in our sample. The average employer coordination level for all our countries is 4.99. There is, however, a group of countries characterized by a low level of employer coordination. Australia, Canada, the USA, and France and the UK (until the 1950s) are all clearly below the sample mean. The countries with high levels of employer coordination are Germany (during the two decades that we have data for), Sweden, Norway and Switzerland (especially since the 1930s), and the Netherlands and New Zealand (mostly in the 1950s). There is also a considerable amount of within-country

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<sup>4</sup> Martin and Swank rely on a number of sources for the coding of these two variables. See details in Martin and Swank (2008: Appendix).

temporal variation in our sample. In the Netherlands, New Zealand and the UK, employer coordination increases throughout the period under analysis. In Canada, Germany and the USA, employer coordination does not change from the 1910s to the 1950s. In France and Australia, employer coordination stays the same until the 1930s, but experiences an increase between this decade and the 1950s. Finally, in Norway, Sweden and Switzerland, employer coordination steadily increases until the 1930s, but experiences a slight decline since then until the 1950s.

[Table 2]

Table 2 presents our data for collective bargaining coordination. A preliminary look reveals a strong correlation between employer coordination and collective bargaining coordination. In fact, the figures in Tables 1 and 2 have a correlation coefficient equal to 0.8485. This is not necessarily surprising, as the coordination of employers is a necessary step for successful collective bargaining. But it does emphasize the interconnectedness of labor and employer coordination (as analyzed by Hernandez and Rueda 2008). The important issue for the topic of this paper is that most of the observations about employer coordination made in the paragraph above can be extended to collective bargaining coordination.

Like Table 1, Table 2 reflects a substantial amount of cross-national variation. The average collective bargaining coordination level for all our countries is 1.59. The countries characterized by low collective bargaining coordination are Australia, Canada, the USA, the UK, and France and New Zealand (until the 1950s). The countries with high levels of collective bargaining coordination are Sweden, and, starting in the 1930s, Germany, the Netherlands, Norway, and Switzerland. Also as in Table 1, there is a considerable amount of within-country temporal variation in Table 2. The majority of countries experience an increase in collective bargaining coordination from the 1910s to the 1950s. This is the case in Australia, France, Germany, the Netherlands, New Zealand, and Switzerland. In Canada, the UK and the USA, collective bargaining coordination does not change at all during the period under analysis. Finally, in Norway and Sweden, collective bargaining coordination increases until the 1930s, but experiences a slight decline since then until the 1950s.

The paragraphs above make clear that patterns of coordination in the first half of the 20<sup>th</sup> century have been widely different. Whether we look at differences across countries or developments through time, a remarkable amount of variation emerges. In the following section, we explain why we think inequality is an important factor behind these differences.

## ***2. The Argument: Inequality, Employer Coordination and Wage Bargaining Institutions***

The main thrust of this paper's argument can be summarized quite simply: high levels of inequality at the top end of the distribution constrain coordination efforts among employers, and therefore, *ceteris paribus*, limit the scope of collective bargaining coordination in the labor market. In this context, our argument highlights distributional considerations as a key factor accounting for cross-national differences in the levels of economic coordination.

Economic institutions (and, particularly, those related to the labor market) are indeed no new acquaintance to political economy for it has been the object of a rich stream of scholarship, with two aspects worthy of particular attention: the problem of (1) intra-class coordination, and (2) inter-class coordination. The former concerns the incentives and constraints facing workers, on the one hand, and employers, on the other, to coordinate with other members within their same class. The latter concerns the incentives and constraints of relatively unified class actors to coordinate with one another on labor market and economic issues. Both problems are in turn directly affected by the expected behavior of governments, which constitutes an additional dimension to the origins of economic coordination (see Hernandez and Rueda 2008). In grappling with these relationships, previous scholarship shows two features. First, most authors, for the sake of analytical tractability, normally endogenize one of these factors, while choosing to exogenize the rest. Second, the general context is one of bias in focus towards labor and in detriment of employers despite the fact that, given the relational nature of the institution, the three dimensions involved, namely coordination within labor and capital, and coordination between the latter two and left-wing governments, are bound to covary

(Iversen 1999; Hernandez and Rueda 2008). Within these coordinates, one might distinguish four logics in existing accounts of labor market coordination.

The first logic is *structuralist* (Gerschenkron 1962; Kurth 1979). It posits that the nature of economic institutions is a function of the level and timing of industrialization. In Wilensky's account (2002), "late industrializers [...], facing already established developed countries with mass markets, must target niche markets, concentrate capital, and coordinate government and business effort. [...] Industrial and financial concentration, specialized products, mass production technology, large enterprises, and strong government guidance combine to produce more or less centralized political economies. Because union structures tend to mirror industrial structures, unions among the late industrializers developed fewer, more inclusive structures (multi-industrial, multi-craft) and more inclusive labor federations" (121-2). Arguments placing trade dependence as the key explanatory variable of wage bargaining coordination also show a certain structuralist flavor in as much as actors' preferences depend on their position in the international economy. Ultimately, outcomes reflect differences within nations in the relative distribution of beneficiaries (and cost bearers) of exposure to trade (Cameron 1978; Katzenstein 1985). Structuralist accounts do not fully flesh out the specific mechanisms behind the association between late industrialization/international openness and economic coordination. As a result, subsequent authors developed a number of alternatives.

The notion of coordination as an efficient institutional device to internalize externalities and prioritize society's interest over those of specific interest groups (Olson 1965; Lange 1984) provides a second framework to understand economic coordination. Within this family of arguments, actors' motivations appear driven not simply by their own welfare but primarily by a concern for the overall *functional efficiency* of the economy (or, as in Olson's arguments about encompassingness, the actor's welfare becomes dependent on the efficiency of the economy). In a well-known contribution, Calmfors and Driffill (1988) considered the macroeconomic effects of three levels of wage bargaining. They argued that good economic performance would result if wage bargaining took place either at the individual company or at the national level. In the first case the actions of unions would not be powerful enough to distort efficient market outcomes, while in the second

unions would be encompassing enough to act in favor of the interests of society as a whole. The worse macroeconomic performance would be associated with wage bargaining at the industry level because wage bargaining would be powerful enough to affect the market equilibrium outcome while not being encompassing enough to take society's interests into consideration.<sup>5</sup> The pay-off awaiting social partners who engage in collective action is not only the possibility of good macroeconomic outcomes (as shown by, among others, Alvarez, Garrett and Lange 1991) but also a more equal society free of industrial unrest. Note as well that the pursuit of society's interest may also work in favor of employers as a class. If adopted, employer's coordination offers a risk-sharing mechanism. Mares (2003) and Swenson (1991, 2002) show how coordination with labor, and support for the welfare state, is in the interest of employers commanding firms of small size in particularly exposed sectors. Moreover, external conditions may provide employers with additional reasons to embrace coordination. Faced with a highly mobilized labor force, presenting a united front increased the bargaining power of the business community (Martin and Swank 2008). Finally, there may be efficiency gains for employers themselves, not only for society, as they can benefit from coordination also in terms of training and high-skilled production. In coordinated labor markets employers are more likely to invest in general training for workers because poaching and free riding is then institutionally limited (see, Acemoglu and Pischke 1998, Hall and Soskice 2001, and Thelen 2004). In sum, the efficiency gains associated with improved macroeconomic conditions as well as some direct benefits for the group should spur coordination not only among worker's organizations, but also among employers.<sup>6</sup> Indeed, the latter is a pre-requisite for centralized wage bargaining to occur, since fragmented factor representation renders institutionalized economic coordination very unlikely.

A third logic, *partisan* in nature, shifts the focus from efficiency to politics as the key to understand the origins of these agreements. According to this logic, coordination emerges as a political exchange among actors concerned first and foremost with their own welfare. In "ideal type" terms, unions commit to wage moderation and social peace in return for the provision of a generous welfare state by social democratic governments. Capital

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<sup>5</sup> In analyzing the effects of labor market organization over macroeconomic outcomes, other authors have suggested that the level of wage bargaining centralization is not as important as "the degree to which bargaining is coordinated across the economy" (Hall 1994, 4). See also: Soskice (1990), Golden (1993), and Hall and Franzese (1998).

<sup>6</sup> The idea that businesses may promote coordination is relatively recent (see Swenson 1991, 2002 and Mares 2003).

accepts the development of a large public insurance system in exchange for the unions' moderation and the availability of a well-qualified labor force. Capital also commits to stable investment and long-term growth in return for the social democratic government's promise not to tax their benefits to finance the welfare state (Cameron 1984; Wilensky 2002; Przeworski and Wallerstein 1988; Cusack and Beramendi 2006; Beramendi and Rueda 2007). Given the potential benefits in place, left government plays a critical role in the formation and sustainability of this agreement over time. As a result, the exchange described above builds upon strong ties not only between left government and labor (Wallerstein 1989; Western 1997) but, as importantly, between left government and capital (Hall and Soskice 2001; Hernandez and Rueda 2008). Left governments value the potential for consensus-building of peak business associations, and this provides further incentives for business to coordinate (Windmuller and Gladstone 1984). Moreover, when there is more than a single interest group, the government must weigh the credibility of the various groups and decide what advise to consider and what to dismiss. Left governments therefore may promote business coordination so that they can use competing information sources to its advantage when lobbies have conflicting policy aims (Krishna and Morgan 2001). Regardless of the specific motivations at work, employer coordination is, according to this logic, the reflection of the incumbent's partisan concerns.

While the efficiency and partisan logics are built primarily around the nature of specific actors' preferences, a fourth stream of scholarship points to yet another relevant factor, namely the political institutions through which contending preferences are aggregated. Wilensky (2002: 119) discusses electoral systems as a cause of corporatism, pointing to the fact that "historically the PR compromise in 11 out of our rich democracies preceded the corporatist compromise." According to this *institutional* logic (Lijphart 1984), PR systems foster consensual bargaining among interests groups, thereby facilitating the formation of democratic corporatist arrangements and economic coordination more generally. More recently, Martin and Swank (2008) have revisited this claim to argue that the corporatist organization of employers is a positive function of the level of proportionality in voting, as well as an inverse function of fragmentation of political power (federalism/decentralization). They offer a mechanism beyond the consensual nature of PR systems. To the extent that each party has a dedicated business base, the fact that a large number of parties is necessary to change policy in PR systems,

facilitates the emergence of policy commitments between parties first, and, subsequently among employers associations. Federal institutions, in contrast, work to undermine the feasibility of these commitments as national employer organizations lack political clout.

There is no gainsaying that each and every one of these arguments illuminates some aspect of the processes behind the origins and workings of economic coordination. We contend, however, that to understand the observable associations between institutions and inequality today, it is critical to see the adoption of labor market institutions, and in particular wage bargaining centralization agreements, as the outcome of a distributive conflict in which inequality itself plays a prominent role. Thus, we propose an alternative *distributional* logic that situates the distribution of income at the time of negotiation of the very first wage bargaining centralization agreements as the key explanatory factor of economic coordination. We do not contend to be the first in highlighting the importance of distributional conflicts to understand the patterns of labor coordination. To the best of our knowledge, however, no previous paper focuses directly on the importance of these conflicts for understanding the patterns of employers' coordination, and thereby, of the overall levels of coordination in the labor market.

In the case of labor, we follow in the footsteps of a relatively small number of very insightful models. Common across these models is the recognition that precisely because collective bargaining produces numerous externalities (e.g., between high and low skill producers of good A, between producers of A and producers of either complements or substitutes of A, between current producers and potential entrants in the market for A, and between workers and society at large), the prospect of wage bargaining centralization triggers multiple distributive conflicts within labor (Przeworski and Wallerstein 1982).

Wallerstein (1990) focuses on the tension between high and low wage earners and its implications for the dynamics of bargaining centralization and its ability to internalize the cost of externalities. Swenson (1991) and Iversen (1999), among others, focus on the importance of international openness to explain the cleavages within labor and the cross-class alliances between those workers and employers exposed to international competition. More recently, Lee and Romer (2005) place the distribution of skills at center stage by linking the level of inequality among workers to the incentives of the

“pivotal” worker to coalesce with either the low skill, low earning workers or with high skill earners and capital owners. The model predicts that when inequality is either very high or very low, the former occurs, thus giving birth to a highly unionized labor market. In turn, intermediate levels of inequality are the breathing ground for majorities in favor of more deregulated, competitive labor markets. Finally, Ahlquist (2008) creatively makes use of recent analytical models of federalism and decentralization to revisit the question of confederation within labor, a prerequisite for the bargaining with employers to occur. His analysis emphasizes the trade-off between the scope and the size of union confederations.<sup>7</sup> Distributional concerns are at the core of this trade-off. Large confederations are likely to be more heterogeneous in terms of the endowments of their members. Along with such heterogeneity comes an exacerbation of distributive trade-offs. If the poorer members of the union use the binding rules of the confederation to make demands from the wealthier members that go beyond what the latter find beneficial, there is no incentive for the wealthier sector of the labor to join or remain in the confederation.

This general logic applies broadly to problems of integration in other settings. In the context of a study of the determinants of endogenous fiscal policy in complex unions, Beramendi (2007) uses a similar framework to understand the conditions under which different members of an economic union decide to oppose/endorse the adoption of a centralized redistributive system. In pure income terms, and in the absence of cross-regional economic externalities, wealthier members of any given union have no incentive to delegate fiscal policy decision-making to bodies whose decision is, in part or in full, affected by the preferences of the poorer members of the union. Our analysis below shows that, much like the issues of fiscal policy integration in complex unions or the problem of confederation within labor, distributional concerns are central to the problem of coordination within capital, that is to say to the incentives of different types of employers to coordinate their wage bargaining strategies with one another. Because distributional tensions within capital are severely downplayed in the recent literature on employer’s coordination, by analyzing the distributive conflict among

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<sup>7</sup> A related point about the degree of labor coordination being inversely related to the size of the labor force is made by Wallerstein (1989).

employers we make a contribution to the understanding of the origins of both employer's economic coordination and wage bargaining centralization.

Our approach to employers' preferences is as follows. At any given time employers might be in a good state of the world with probability  $\alpha$  or in a bad state of the world with probability  $(1-\alpha)$ . The good state of the world is defined by employers being able to produce effectively in the absence of threats such as strikes or external economic shocks. The bad state of the world is defined by the realization of one or several of these threats. Employers maximize net returns across both states. Net returns are defined by  $nr_i = (1-t)gr_i$  in the good state of the world, where  $gr_i$  stands for gross returns, and by  $b$  in the bad state of the world, where  $b$  represents the insurance benefits employers received from coordination, that is the benefits they received from pooling risks with other firms. Finally, there is a budget constraint given by  $\alpha grt = (1-\alpha)b$ , where  $gr$  is the average gross output per firm. Thus,  $t$  is the cost incurred by firms to support the benefits of coordination. If there is no coordination,  $t$  is zero, and therefore so is  $b$ . Given these assumptions, employers in any given economy maximize the following utility function:

$$\begin{aligned} V_i &= \alpha nr_i + (1-\alpha)b & (1) \\ \text{s.t. } \alpha grt &= (1-\alpha)b \end{aligned}$$

Solving the employer's optimization problem produces the following expression:

$$\frac{\alpha grt}{(1-\alpha)} = \left[ 1 - \frac{\alpha}{1-\alpha} \frac{gr_i}{gr} \right] \quad (2)$$

which is analogous to

$$b = \left[ 1 - \frac{\alpha}{1-\alpha} \frac{gr_i}{gr} \right] \quad (3)$$

Expressions (2) and (3) yield a number of interesting insights on employers' benefits from, and therefore support for coordination within capital, and by implication, coordination with labor in wage bargaining centralization systems.

First, support for coordination increases when the number and scope of threats associated with the bad state of the world also increase. Consistent with previous findings, employers confronting a higher likelihood of strikes because of the presence of a highly mobilized and contentious working class, for instance are less resistant to enter

coordination agreements (Windmuller and Gladstone 1984). Likewise, as established by a long tradition in political economy (Cameron 1978 1984; Katzenstein 1985), employers who are more integrated in international markets, and thus more exposed to the possibility of negative external shocks, have stronger incentives to enter into coordination agreements, as the benefits provided by taking this path are also larger. These predictions are captured by the fact that  $\frac{\partial b}{\partial(1-\alpha)} > 0$ .

Second, and more central to the core argument of this paper, the benefits of coordination decline with income. The richer any given company relative to the average firm in the economy, the lower the benefits of coordination ( $b$ ) and the higher the costs (and therefore the lower the preferred level of  $t$ ) incurred by this particular firm by entering coordination agreements. Formally,  $\frac{\partial b}{\partial gr_i} < 0$  and  $\frac{\partial a}{\partial gr_i} < 0$ . An important implication follows from this result: if support for coordination declines in corporate gross returns, the more concentrated income and wealth are among a few employers in any given economy, the lower the likelihood that coordination will emerge. Concentration of a large share of returns in a relatively smaller number of producers also implies a higher level of inequality among producers, as well as between producers and the rest of society. Therefore, one should expect that, *ceteris paribus*, the concentration of income and wealth in the top end of the economy constraints the development of coordination agreements among producers first, and by implication between producers and the rest of actors in the economy.

At this point, a word on an implicit assumption behind the model is in order. The assumption concerns the link between employers' preferences and actual institutional outcomes. The results above derive from an analysis of employers' optimal preferences. Obviously, the link between these preferences and actual institutional developments presupposes a set of decision-making rules among employers that allow their preferences to be translated into the politics of institutional choice. Empirically, these rules could adopt multiple forms. The most extreme case would be a requirement of unanimous consent by all relevant employers for coordination to emerge and persist. This would

effectively grant veto power to all potential members of the federation.<sup>8</sup> Under these circumstances, even a minimum degree of inequality jeopardizes the existence of coordination.<sup>9</sup> Other less extreme situations involve less restrictive decision making procedures. For the purposes of this paper, we are quite agnostic about the specifics of the decision making procedures among employers. The only binding constraint for our analysis to hold is that employers organizations are assumed to be *confederations*, that is organizations in which it is possible to exercise the exit option under previously agreed procedures. If, on the other hand, individual employers are constrained by collective entities that can effectively prevent them from exercising the exit option, then the results of the model need not apply directly.

Finally, the analysis also offers relevant implications to understand the dynamics of the linkages between distribution and economic coordination. If the concentration of top incomes imposes a critical constraint on the possibility of economic coordination, one should observe that coordination emerges only when the distribution of resources in society become more disperse. In other words, lower levels of income inequality should be associated over time with a higher likelihood that coordination will emerge. The next two sections provide an empirical evaluation of the argument.

### ***3. An Initial Empirical Analysis: Exploring the Relationship between Inequality and Coordination***

While we will provide a more systematic test of our hypotheses in the next section, a preliminary exploration of the plausibility of our theoretical claims is in order. We propose to do this by looking at the relationship between inequality and coordination in the first half of the 20th century. In previous sections, we have provided a detailed account of what our measures of coordination consist of and also a detailed description of the patterns of coordination in our sample. Our measure for inequality comes from three main sources Atkinson and Piketty (2007), Aaberge and Atkinson (2008), and Leigh

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<sup>8</sup> The Bolton and Roland (1997) model of political (dis)integration offers an example of this logic in the context of a model analyzing the choice to join a larger political union or secede.

<sup>9</sup> Suppose  $b$  and  $t$  are set by the median employer. According to the well known mechanics of the Meltzer and Richard's model (1981), the median employer's choice of  $t$  and  $b$  is going to be driven by the gap between the median and the average level of employers' income. As inequality spreads, employer's above the mean will have fewer incentives to continue with the coordination agreements.

(forthcoming).<sup>10</sup> Our measure of inequality captures the share of income held by the richest 1% of the population, derived from tax return data. Although there are some complications inherent in these data (for example, do individuals underreport income to tax authorities?), we are convinced by the arguments in, among others, Atkinson and Piketty (2007) and Leigh (forthcoming) about the data's success at capturing inequality. In the words of Leigh, panel data on top income shares are "a useful substitute for other measures of inequality over periods when alternative income distribution measures are of low quality, or unavailable" (forthcoming: 1). Several characteristics of the data, however, should be kept in mind: (1) the data are based on individual tax return data and its units vary (the tax unit is the individual, married couple, or household); (2) the income total used to derive the top income shares in each country is the sum that would have been reported were all adults to have paid tax (Leigh forthcoming: 9); and (3) the measure for income excludes capital gains (for Australia and New Zealand, a measure excluding capital gains is not available, so for these countries it include realized capital gains to the extent that such gains were taxable).<sup>11</sup>

We have explained in the previous sections why we think that greater levels of inequality should be associated with a higher likelihood of coordination within business (and, indirectly, between business and unions). Our theoretical claims have clear empirical implications: we expect low shares of income held by the richest 1% of the population to be associated with high levels of coordination. Figure 1 illustrates the relationship between coordination and inequality in the 1910s, 1920s, 1930s, and 1950s. Because of the availability of inequality data, a few observations are lost from those presented in Tables 1 and 2.

[Figure 1]

Figure 1 presents the levels of employer coordination (in the x axis) and the decade averages for the share of income held by the richest 1% of the population (in the y axis) for all the countries and decades in our sample.<sup>12</sup> The line represents a simple bivariate regression linking the two variables. The figure provides some support for our

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<sup>10</sup> See Appendix for country-specific sources.

<sup>11</sup> Capital gains refer to profits derived from the sell or exchange of assets such as stocks, bonds, or real state. The measure does include other forms of capital income.

<sup>12</sup> We transform the original yearly inequality data into decade averages. Some decades have years with missing data (the exact years used for the decade average calculations are available from the authors).

hypothesis. It is clear that high levels of inequality are associated with low levels of coordination, while low levels of inequality correspond with high levels of coordination. Let's focus on some cases in the figure. France from the 1910s to the 1930s is one of the countries characterized by very high levels of inequality (the share of income held by the richest 1% of the population is between 15% and 20%). The figure also shows that, consequently, the levels of employer coordination were very low during this period (they equaled 3). France is not unusual in having this combination of high inequality and low coordination; the USA from the 1910s to the 1930s and Canada in the 1920s and 1930s are very similar. On the other side of the spectrum, we have Norway and Sweden in the 1930s and 1950s. These country-decades are characterized by low levels of inequality (the share of income held by the richest 1% of the population is between 7% and 13%) and high levels of employer coordination (a score equal to about 9). The negatively sloped line is consistent with the thrust of our argument, with decreasing levels of inequality promoting higher levels of employer coordination and most observations concentrated around the line.

[Figure 2]

To the degree that employer coordination contributes to the success of collective bargaining, we would expect the same relationship to apply when we plot the share of income held by the richest 1% of the population and the levels of collective bargaining coordination. Figure 2 shows that this is the case. In fact, the position of country-decades in Figure 2 is remarkably similar to those in Figure 1. France, the USA and Canada from the 1910s to the 1930s are again characterized by high levels of inequality and low levels of collective bargaining coordination (they equaled 1). Norway and Sweden in the 1930s and 1950s, on the other hand, experienced low levels of inequality and high levels of collective bargaining coordination (scores around 3). As was the case with Figure 1, the negatively sloped line seems to capture the general relationship quite well.

The second implication of our theoretical claims is that changes in inequality affect the probability of coordination. We have argued that a high increase in inequality should make employers less likely to believe that they have anything to gain from coordinating. If inequality is perceived to be on the wane, on the other hand, employers are more likely to perceive coordination as advantageous. Given the strong

contemporaneous decade relationships shown in Figures 1 and 2, it is pertinent to ask whether the changes in inequality experienced in these countries in the first half of the 20<sup>th</sup> century is a good predictor of the levels of coordination at the end of our time series (the 1950s).

To test this claim, we first calculate the percentage change in inequality from decade to decade and then we calculate the average decade percentage change in each country in our sample. For example, in the USA, the average share of income held by the richest 1% of the population was 17.37% in the 1910s, 16.98% in the 1920s, 15.87% in the 1930s, and 9.49% in the 1950s.<sup>13</sup> This means that inequality decreased by around 2% from the 1910s to the 1920s, by around 7% from the 1920s to the 1930s, and by around 28% from the 1930s to the 1950s. The average decade percentage change in inequality in the USA is, therefore, a 12.5% decrease.

[Figure 3]

Figure 3 presents the average decade percentage change in inequality plotted against employer coordination for each of the countries in our sample in the 1950s.<sup>14</sup> Again the figure supports our argument. The greater the decrease in inequality, the greater the coordination among employers in the 1950s. In Sweden, for example, inequality decreased by a decade average of 36% from the 1920s to the 1950s (or -.36 in the figure). The level of employer coordination in the 1950s was the highest in the sample (a score of 9). In the USA, on the other hand, inequality decreased by a decade average of only 12.5%, and employer coordination remained at a low score of 3 in the 1950s. In the figure, Canada, the USA, France, and Australia all experience moderate decreases in inequality and therefore do not possess significant employer coordination in the 1950s. In Norway, the Netherlands and Sweden, inequality experiences much larger decreases and coordination is high in the 1950s. The UK experiences a medium-sized decrease in inequality and employer coordination in the 1950s is also medium sized. New Zealand and Switzerland are more ambiguous cases.

[Figure 4]

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<sup>13</sup> We don't have data for the 1940s for any country in our data set so we calculate the change from the 1930s to the 1950s.

<sup>14</sup> We lose Germany because we only have inequality data for the 1920s and 1950s.

In Figure 4, we repeat the same exercise, but this time looking at the relationship between the average decade percentage change in inequality and collective bargaining coordination. Although the line is flatter (and there are more potential outliers), the figure is generally consistent with the previous one. Canada and the USA emerge from Figure 4 as two countries with moderate decreases in inequality and, consequently, with low levels of collective bargaining coordination in the 1950s. The Netherlands, Norway and Australia emerge as countries with significant decreases in inequality and high levels of collective bargaining coordination in the 1950s. In this figure, New Zealand and Switzerland again become outliers, but, unlike in Figure 3, Sweden joins them.<sup>15</sup>

#### ***4. A Multivariate Analysis of the Relationship between Inequality and Coordination***

##### *Model Specification*

While the previous section's preliminary analysis supports our theoretical argument, it follows from our discussion above that labor market coordination may be the result of several additional variables, as suggested by a number of authors in the comparative political economy literature. Given the constraints imposed by data availability, our approach to alternative hypotheses in the multivariate analysis runs as follows.<sup>16</sup> In an effort to account for the *structuralist* logic, we include controls for country size,<sup>17</sup> a measure of GDP per capita<sup>18</sup> that is meant to capture the level of industrialization during the period of interest, and a measure of international openness.<sup>19</sup> The latter two also serve as indirect controls for the evolution of the economy, and together with a measure of union density,<sup>20</sup> tap on some of the aspects of interest from the

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<sup>15</sup> We could push the theoretical claims presented in the previous section even further and argue that the starting level of inequality in the 20th century should be a significant determinant of the levels of coordination that different countries developed in the 1950s. Our data do in fact show this is the case. Those countries with low (high) levels of initial inequality tend to exhibit high (low) levels of coordination in the 1950s. However, the relationship is not as strong as those showed in Figures 1-4.

<sup>16</sup> All these variables were generously provided by Cathie Jo Martin and Duane Swank. See Appendix for more details on the variables and their sources.

<sup>17</sup> Log of area: The area surface in thousands square miles (natural log).

<sup>18</sup> Log of GDP per capita: GDP in 1990 Geary Khamis Dollars (thousands), divided by the population of each country expressed in thousands of inhabitants (natural log).

<sup>19</sup> International openness: Level of merchandise exports expressed in 1990 Geary Khamis Dollars (thousands), divided by GDP in 1990 Geary Khamis Dollars (thousands).

<sup>20</sup> Union density: Union membership as percentage of labor force.

perspective centered around *functional efficiency*. Our control for union density also helps us differentiate between the distributional motives implied in our variable of interest and what is an exogenous factor putting pressure for employers to organize (simply as a defensive response to labor coordination). In addition, to incorporate the *partisan* logic into the empirical estimations, we also include a measure of the ideological profile of government incumbents.<sup>21</sup> Finally, the *institutional* logic is directly captured by the same measures of federalism<sup>22</sup> and proportionality<sup>23</sup> used by Martin and Swank (2008).

To identify the effect of inequality on the level of economic coordination in the presence of this set of controls, we adopt the following strategy. Given the dynamic nature of the data (and to make our results comparable to those in Martin and Swank 2008), we introduce all our explanatory variables as averages for the 5 years previous to the measure of coordination. As we mentioned above, although the observations are understood to reflect coordination in the entire decade, they reflect scores circa 1914, 1925, 1938 and 1955. Our measures for the explanatory variables look at the averages of the 5 years before these dates. For example, the 1950s measures of coordination are the scores for 1955, so our explanatory variables measure the averages from 1950 to 1954. This makes our results less vulnerable to accusations of reverse causality (i.e., the suggestion that coordination in fact determines inequality) since, given the temporal variance of inequality, it seems unlikely that coordination at time  $t$  would affect inequality in the previous 5 years.

As indicated above, our dataset combine time-series and cross-sectional variation. To analyze our data, we estimate two different models. First, we run the following model:

$$Y_{it} = \beta_0 + \beta_1 X_{1it-1} + \dots + \beta_n X_{nit-1} + \varepsilon_{it}$$

where  $\beta_0$  represents a general intercept,  $X_1$  to  $X_n$  are the explanatory variables,  $\beta_1$  to  $\beta_n$  are the slopes of the explanatory variables, and  $\varepsilon_{it}$  denotes the errors. Our

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<sup>21</sup> Left party support: Country average of interwar parliamentary vote for Left parties.

<sup>22</sup> Countries (in each decade in our sample) are classified by Martin and Swank (2008) as federal (0), semi-federal (1), or unitary (2).

<sup>23</sup> Electoral system proportionality is measured in two ways. First, the disproportionality of the electoral system is measured using the vote and seat shares of parties. Second, all countries (in each decade in our sample) are classified by Martin and Swank (2008) as SMDP (0), semi-proportional (1), or proportional (2).

explanatory variables are subscripted as  $t-1$  to signify that they are the average of the previous 5 years.

A modified Wald test for panel-specific heteroscedasticity revealed a significant amount of heteroscedasticity in our data. We therefore estimate ordinary least squares (OLS) models with panel-corrected standard errors (PCSEs).<sup>24</sup> Beck and Katz (1995) show that, in the absence of autocorrelation, PCSEs are consistent even when there is panel-specific heteroscedasticity. Our model also assumes that the errors are contemporaneously cross-nationally correlated.

Secondly, we also estimate:

$$Y_{it} = \beta_0 + \beta_1 X_{1it-1} + \dots + \beta_n X_{nit-1} + N_i + \varepsilon_{it}$$

where  $\beta_0$  represents a general intercept,  $X_1$  to  $X_n$  are the explanatory variables,  $\beta_1$  to  $\beta_n$  are the slopes of the explanatory variables,  $N_i$  are country fixed effects, and  $\varepsilon_{it}$  denotes the errors.

In this model, we introduce fixed effects to deal with country-specific omitted variables. This makes a good deal of sense in comparative political economy analyses since there are bound to be country-specific factors that matter to the outcomes of interest but cannot be introduced into the model (specific historical circumstances, difficult to capture institutional developments, etc). In dealing with these country-specific factors, however, fixed-effects specifications focus on the within-unit share of the variance in the data (in our case, over-time patterns of association among our variables). This, when put together with the fact that our country series are very short (we have a maximum of 4 observations per country), severely limits our fixed-effects analysis.

### *Findings*

Table 3 presents our first set of results. The dependent variable is the level of employer coordination and we estimate 7 different models. In each of these models we add an increasing number of the explanatory variables described above. And we use two alternative measures of electoral disproportionality. In model (1), we introduce only our measure of inequality as an explanatory variable. In model (2), we add the variables

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<sup>24</sup> Alternative results without PCSEs and estimating Huber/White robust standard errors instead produce similar results to those reported.

measuring the proportionality of the electoral system (as the actual difference between votes and seats), federalism, international openness and union density. Model (3) is the same as model (2), but it uses the alternative measure of proportionality (as categorical electoral system). In model (4), we reproduce model (2) and add variables capturing the size of a country and its economic development (measured as log of GDP per capita). Model (5) is the same as model (4), but it once again uses the alternative measure of proportionality. Finally, models (6) and (7) add one more variable, our country-specific measure of Left party support.

[Table 3]

The most important point to make about Table 3 is that, as hypothesized in previous sections, inequality emerges as a very significant determinant of employer coordination. The share of income held by the richest 1% of the population is associated with lower levels of employer coordination in a highly significant way (at higher than the 1% level of confidence, no matter what model we look at). In fact, the number of control variables that we throw into the analysis does not fundamentally change the estimate of the effect of inequality on employer coordination since the coefficient ranges from -0.192 to -0.311. If we take the coefficient of model (1) as our guide, our results suggest that changing the level of inequality from 9.38 (the level in Norway in the 1930s) to 15.865 (the level in the USA also in the 1930s) would increase employer coordination by 2 entire score points (as a reminder, the highest score in the employer coordination index is 9).

The estimates for the control variables in the models are not as important to the main argument in this paper, but Table 3 still presents some interesting findings. Our results confirm Martin and Swank's (2008) argument about proportionality, but only when we use the electoral system categorical variable. When we use the, arguably, more accurate measure of the actual difference between votes and seats, the effects of proportionality become more ambiguous. They are negative and significant in model (2), as Martin and Swank hypothesize, but insignificant in model (4) and positive and significant in model (6). The effects of federalism, on the other hand, do not seem to support Martin and Swank (2008). They are negative and significant in model (4), as Martin and Swank hypothesize, but insignificant or positive and significant in all the rest of the models. Our results also show openness and union density to be statistically

insignificant predictors of employer coordination.<sup>25</sup> Neither the structuralist nor the functional efficiency logics, therefore, seem to help us when trying to understand coordination in first half of the 20th century. The estimates in Table 3 indicate that a country's area and GDP per capita are negatively associated with the levels of employer coordination, but the significance of these findings goes away when we use the categorical control for proportionality (which has little within-country variability). Finally, our results show that Left party support is a significant determinant of employer coordination (again, when we don't control for the electoral system). More support for the left in interwar parliamentary elections is correlated with higher levels of employer coordination (as suggested by the arguments in Hernandez and Rueda 2008).

[Table 4]

Table 4 presents the results from our country fixed effects analysis. In these regressions we have eliminated those variables that exhibit no (or very little) within-country variation. They include the electoral system measure of proportionality, federalism, and Left party support. They leave 3 models to be estimated in Table 4. Once again, the most important point to make is that inequality emerges as a very significant determinant of employer coordination. In Table 4, the share of income held by the richest 1% of the population is associated with lower levels of employer coordination in a highly significant way (at higher than the 1% level of confidence, no matter what model we look at). In fact, when we look at within-country variation (admittedly, in a limited way, given the short length of our time series), inequality is the only significant predictor of employer coordination. The control variables, all of them insignificant, do not fundamentally change the estimate of the effect of inequality on employer coordination since the coefficient ranges from -0.191 to -0.195.

[Table 5]

[Table 6]

Tables 5 and 6 are equivalent to Tables 3 and 4, but they present collective bargaining coordination as the dependent variable. We have explained in previous sections how our argument implies a relationship between inequality and collective

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<sup>25</sup> Our results confirm other analyses exploring union organization that have not found international trade to be a significant determinant (Wallerstein 1989; Lee and Roemer 2005).

bargaining coordination (since the coordination of employers is an important condition for the success of collective bargaining). Tables 5 and 6 prove this point. The results in these tables show that inequality has an effect on collective bargaining coordination that is quite similar to the one on employer coordination.

Looking at Table 5 reveals that inequality is a consistently significant determinant of collective bargaining coordination (as was the case with employer coordination). The share of income held by the richest 1% of the population is associated with lower levels of collective bargaining coordination at higher than the 1% level of confidence, no matter what model we look at. Regardless of the number of control variables introduced into the analysis, the effect of inequality on collective bargaining coordination is quite consistent, ranging from -0.054 to -0.080. If, as we did when analyzing Table 3, we take the coefficient of model (11) as our guide, our results suggest that changing the level of inequality from 9.38 (the level in Norway in the 1930s) to 15.865 (the level in the USA also in the 1930s) would promote an increase in collective bargaining coordination of 0.5 units (as a reminder, our measure of collective bargaining coordination ranges from 1 to 3).

As in previous models, the estimates for the control variables are not as important to the main argument in this paper. Nonetheless, Table 5, albeit marginally refining them, is generally consistent with the findings in Table 3. Our results, once again, question Martin and Swank's (2008) argument about proportionality. Whether we use the electoral system categorical variable or the measure of the actual difference between votes and seats, the effects of proportionality seem ambiguous and mostly insignificant. The estimated effects of federalism also do not seem to support Martin and Swank's findings. They are positive and significant in models (12) and (13), which militates against Martin and Swank's hypotheses, and insignificant in all the rest of the models. Our results also show union density to be a statistically insignificant predictor of employer coordination. International openness, on the other hand, is often significant but consistently negative. This seems to contradict the generally accepted views on the effects of trade. Economic openness and dependence, Katzenstein argues, establishes a "compelling need for consensus" (1985: 34). Our results seem to suggest this is not the case. As was the case in Table 3, the estimates in Table 5 indicate that a country's area and GDP per capita are

negatively associated with the levels of collective bargaining coordination, but the significance of these findings goes away when we use the categorical control for proportionality (which has little within-country variability). Finally, our results show that Left party support is not a significant determinant of collective bargaining coordination.

Like Table 4, Table 6 presents the results from our country fixed effects analysis. Interestingly enough, even when country fixed effects freeze out a large share of the variation in a rather scant dataset, the share of income held by the richest 1% of the population is associated with lower levels of collective bargaining coordination in a highly significant way (at higher than the 1% level of confidence, no matter what model we look at).

## ***5. Conclusion***

The role of economic institutions in shaping the politics of redistribution and inequality has been the object of careful scholarly scrutiny over the past two decades. In line with the shift of attention from the exogenous effects of institutions to its endogenous nature, we have developed an argument about the origins of coordination in the labor market. Our argument differs from previous contribution in that it places inequality and the distributive conflicts associated with it as the key factor to understand the patterns of variation in the levels of coordination, both cross-nationally and over time. Our empirical results have shown, quite robustly, that our measure of inequality is the only predictor of coordination whose effects remain substantively and statistically significant regardless of the specification or econometric strategy adopted. Higher levels of inequality at the top of the distribution limit the possibility of coordination agreements among employers because they exacerbate the distributive trade-offs among producers. By implication, higher levels of inequality at the top end of the distribution also constrain the possibility of coordination between capital and labor in the labor market, thus constraining the scope of wage bargaining centralization agreements.

These results have a number of implications for the way the field conceptualizes more generally the relationship between institutions and inequality. To identify the

exogenous effects of institutions, their impact on the outcome of interest must be clearly differentiated from the conditions under which these institutions came into existence in the first place (Przeworski 2007). Particularly if, as suggested by the findings of this paper, what is normally considered the result of coordination happens to be its primary determinant a few decades earlier. This challenge calls for a much needed increase in the historical breadth of our analyses as the only feasible strategy to identify the marginal effects of political agents and institutions over time, and therefore to establish empirically the direction of causality between inequality and political factors at different points in time. Otherwise, one runs the risk of misreading the outcome of historical selection as exogenous effects. To confront this logic, Rogowski and MacRae (2008) propose a framework in which social and structural changes alter the relative value of assets and produce changes in inequality, which, in turn, leads to institutional changes that may bring about further changes in inequality. Our analysis has operated a wide incision into this long term process, showing that at the time in which the first labor market coordination agreements were adopted, inequality played a prominent role in shaping the incentives of actors towards them. Thus, contrary to what is the dominant practice in the literature (see fn. 1-2), any consideration about the ulterior distributive effects of coordination ought to pay careful consideration to the fact that equality caused coordination in the first place.

Finally, a number of aspects of our research are in need of further scrutiny in subsequent iterations. First, while we have offered preliminary evidence on the dynamic effects of inequality on coordination, a more systematic analysis of this contention is warranted, possibly using data spanning across the entire 20th century to evaluate if changes in inequality at  $t$  constitute a good predictor of changes in the level of labor market coordination at  $t+1$ . Second, it is very plausible that inequality does not relate additively to some of the other determinants of coordination. Parties may have incentives to adjust their strategies under different distributive scenarios, and it is equally plausible that some of the effects attributed to political institutions vary in their scope as a result in the surrounding distribution of assets. The proper exploration of these contingencies will require richer and more nuanced data, and remains the object of future research efforts.

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**TABLE 1****Employer Coordination**

COUNTRY	1910s	1920s	1930s	1950s
AUSTRALIA	3	3	3	4
CANADA	-	3	3	3
FRANCE	3	3	3	5
GERMANY	-	7	-	7
NETHERLANDS	-	5	6	7.9
NEW ZEALAND	3.5	4	4	6.5
NORWAY	-	6	9	8.7
SWEDEN	-	6	9	8.7
SWITZERLAND	5	6	7.5	7
UNITED KINGDOM	-	3.5	4	5.5
USA	3	3	3	3
<i>AVERAGE</i>			4.99	
<i>STANDARD DEVIATION</i>			2.06	

*Notes and Sources:* See Appendix.

**TABLE 2****Collective Bargaining Coordination**

COUNTRY	1910s	1920s	1930s	1950s
AUSTRALIA	1	1	1	2.5
CANADA	-	1	1	1
FRANCE	1	1	1.5	2
GERMANY	-	1.5	-	2
NETHERLANDS	-	1.5	2	3
NEW ZEALAND	1	1	1	2
NORWAY	-	1.5	3	2.8
SWEDEN	-	2	3	2
SWITZERLAND	1.5	1.5	2	2
UNITED KINGDOM	-	1.5	1.5	1.5
USA	1	1	1	1
<i>AVERAGE</i>			1.59	
<i>STANDARD DEVIATION</i>			0.64	

*Notes and Sources:* See Appendix.

**TABLE 3****The Determinants of Employer Coordination, No Fixed Effects**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
INEQUALITY (INCOME HELD BY RICH 1%)	-0.311 (0.090)**	-0.238 (0.037)**	-0.250 (0.015)**	-0.240 (0.024)**	-0.254 (0.018)**	-0.192 (0.033)**	-0.251 (0.026)**
DISPROPORTIONALITY		-0.105 (0.035)**		0.039 (0.025)		0.039 (0.015)**	
ELECTORAL SYSTEM			1.545 (0.048)**		1.651 (0.203)**		1.639 (0.203)**
FEDERALISM		1.231 (0.424)**	0.806 (0.514)	-1.013 (0.485)*	0.966 (0.316)**	-0.932 (0.559)	0.957 (0.309)**
OPENNESS		-0.041 (2.429)	0.847 (2.527)	-2.947 (2.893)	1.242 (2.100)	-1.137 (3.104)	1.29 (2.394)
UNION DENSITY		-0.017 (0.019)	-0.004 (0.023)	0.056 (0.022)*	-0.011 (0.026)	0.007 (0.029)	-0.013 (0.032)
LOG OF AREA				-0.83 (0.081)**	0.054 (0.119)	-0.697 (0.038)**	0.054 (0.119)
LOG OF GDP PER CAPITA				-4.689 (0.565)**	0.549 (0.726)	-3.294 (0.474)**	0.583 (0.817)
LEFT PARTY SUPPORT						0.046 (0.014)**	0.002 (0.014)
CONSTANT	8.835 (1.038)**	8.549 (0.705)**	6.463 (0.748)**	25.068 (1.625)**	4.902 (2.125)*	20.183 (1.211)**	4.807 (2.412)*
OBSERVATIONS	28	28	28	28	28	28	28
COUNTRIES	11	11	11	11	11	11	11

**Notes:** OLS results. Numbers are estimated coefficients; numbers in parentheses are panel-corrected standard errors. \* if significant at 5% level; \*\* if significant at 1% level.

**TABLE 4****The Determinants of Employer Coordination, Country Fixed Effects**

	(8)	(9)	(10)
INEQUALITY (INCOME HELD BY RICH 1%)	-0.195 (0.040)**	-0.193 (0.053)**	-0.191 (0.037)**
DISPROPORTIONALITY		0.024 (0.085)	0.016 (0.084)
OPENNESS		5.162 (12.753)	9.903 (16.556)
UNION DENSITY		0.039 (0.064)	-0.032 (0.094)
LOG OF AREA			-5.034 (22.341)
LOG OF GDP PER CAPITA			3.162 (2.028)
CONSTANT	5.397 (0.456)**	3.557 (1.924)	74.873 (330.77)
OBSERVATIONS	28	28	28
COUNTRIES	11	11	11

**Notes:** OLS results. Numbers are estimated coefficients; numbers in parentheses are panel-corrected standard errors. \* if significant at 5% level; \*\* if significant at 1% level. Country dummy estimates not reported, available from the authors.

**TABLE 5****The Determinants of Collective Bargaining Coordination, No Fixed Effects**

	(11)	(12)	(13)	(14)	(15)	(16)	(17)
INEQUALITY (INCOME HELD BY RICH 1%)	-0.08 (0.030)**	-0.065 (0.015)**	-0.072 (0.017)**	-0.065 (0.015)**	-0.069 (0.016)**	-0.054 (0.020)**	-0.067 (0.022)**
DISPROPORTIONALITY		-0.042 (0.015)**		-0.01 (0.018)		-0.01 (0.016)	
ELECTORAL SYSTEM			0.405 (0.061)**		0.333 (0.172)		0.325 (0.137)*
FEDERALISM		0.346 (0.100)**	0.282 (0.037)**	-0.144 (0.075)	0.175 (0.179)	-0.126 (0.078)	0.168 (0.143)
OPENNESS		-2.376 (0.798)**	-1.551 (0.811)	-2.963 (0.846)**	-1.804 (0.669)**	-2.562 (0.864)**	-1.768 (0.794)**
UNION DENSITY		0.000 (0.021)	0.006 (0.022)	0.017 (0.014)	0.011 (0.023)	0.006 (0.024)	0.009 (0.030)
LOG OF AREA				-0.178 (0.034)**	-0.034 (0.085)	-0.149 (0.012)**	-0.034 (0.086)
LOG OF GDP PER CAPITA				-1.091 (0.531)*	-0.403 (0.255)	-0.782 (0.171)**	-0.378 (0.374)
LEFT PARTY SUPPORT						0.01 (0.012)	0.002 (0.010)
CONSTANT	2.615 (0.389)**	2.941 (0.481)**	2.162 (0.463)**	6.573 (1.214)**	3.221 (1.406)*	5.491 (0.506)**	3.151 (1.756)
OBSERVATIONS	28	28	28	28	28	28	28
COUNTRIES	11	11	11	11	11	11	11

**Notes:** OLS results. Numbers are estimated coefficients; numbers in parentheses are panel-corrected standard errors. \* if significant at 5% level; \*\* if significant at 1% level.

**TABLE 6****The Determinants of Collective Bargaining Coordination, Country Fixed Effects**

	(8)	(9)	(10)
INEQUALITY (INCOME HELD BY RICH 1%)	-0.057 (0.022)**	-0.055 (0.016)**	-0.05 (0.009)**
DISPROPORTIONALITY		-0.01 (0.038)	-0.016 (0.036)
OPENNESS		-3.373 (8.824)	0.002 (10.762)
UNION DENSITY		-0.032 (0.044)	-0.093 (0.043)*
LOG OF AREA			-2.552 (11.554)
LOG OF GDP PER CAPITA			2.636 (1.345)
CONSTANT	-0.057 (0.022)**	-0.055 (0.016)**	-0.050 (0.009)**
OBSERVATIONS	28	28	28
COUNTRIES	11	11	11

**Notes:** OLS results. Numbers are estimated coefficients; numbers in parentheses are panel-corrected standard errors. \* if significant at 5% level; \*\* if significant at 1% level. Country dummy estimates not reported, available from the authors.

Figure 1:

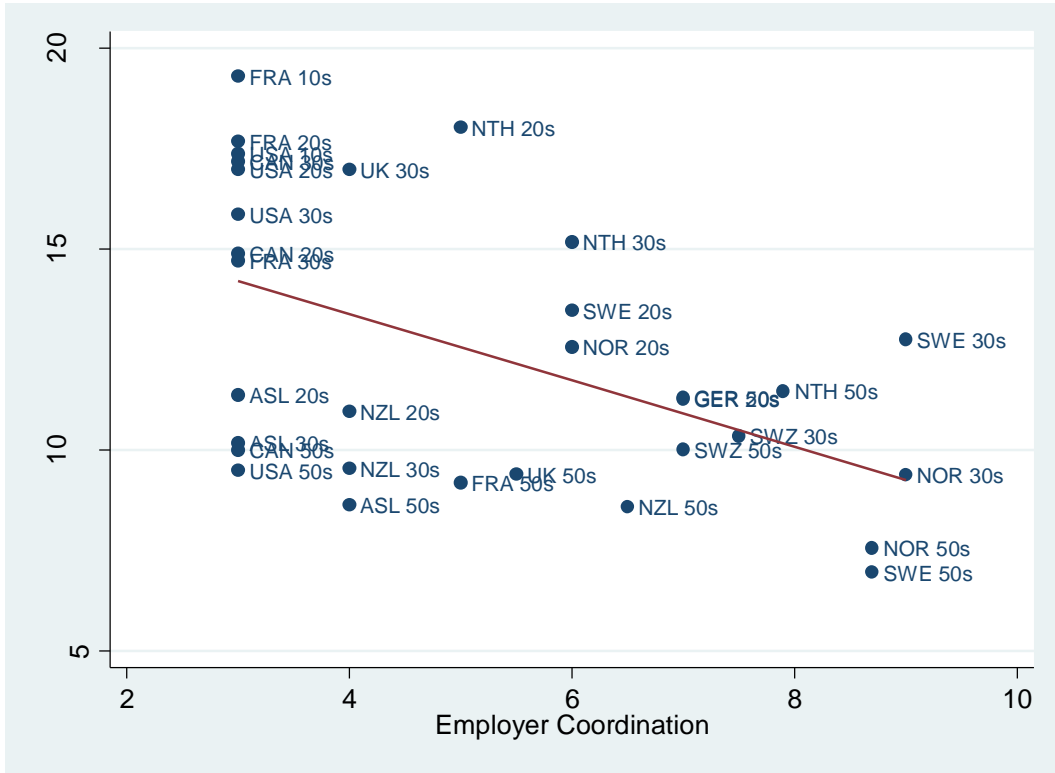
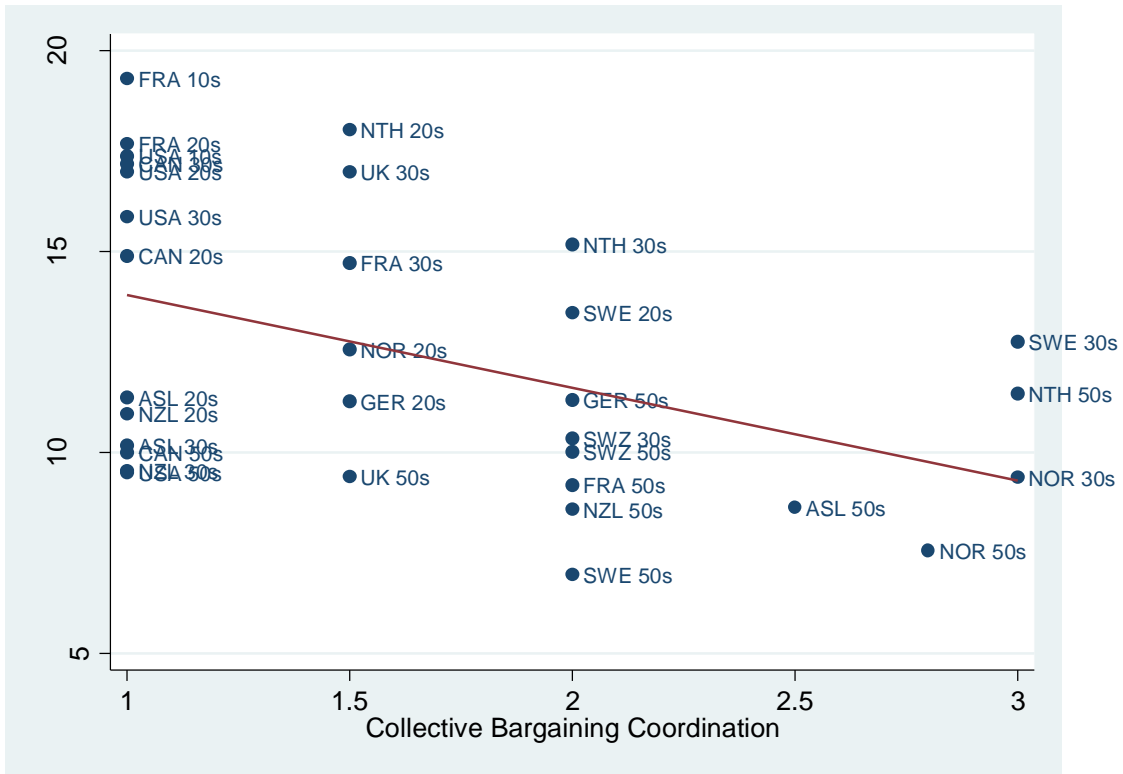
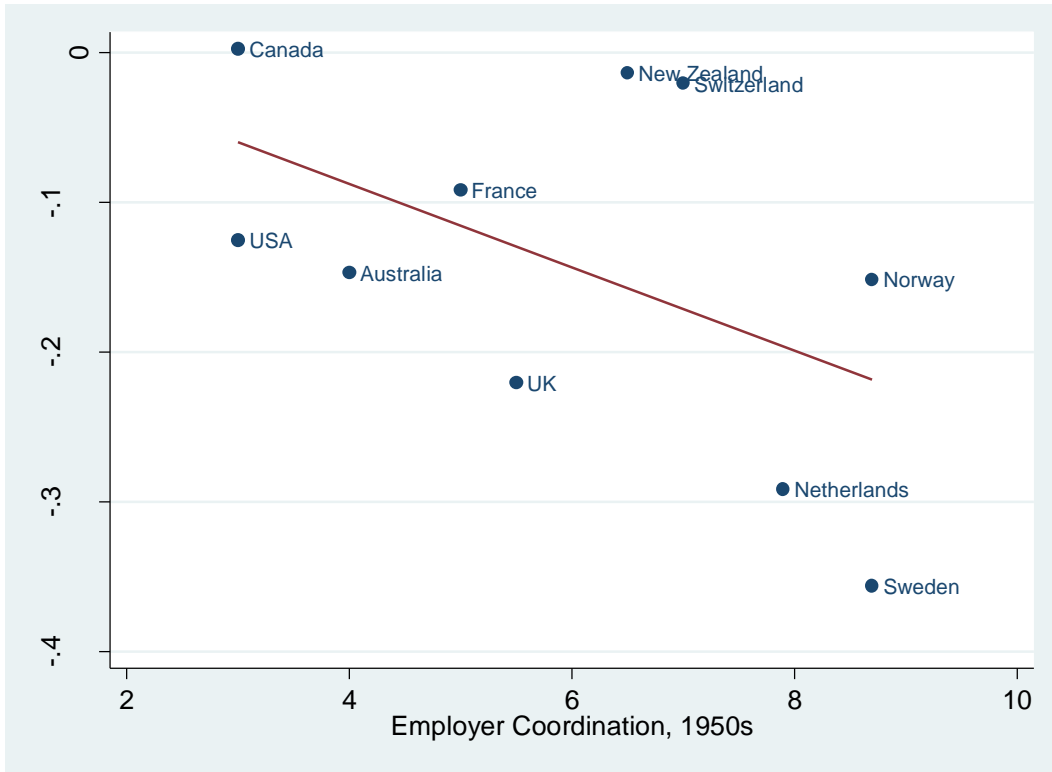


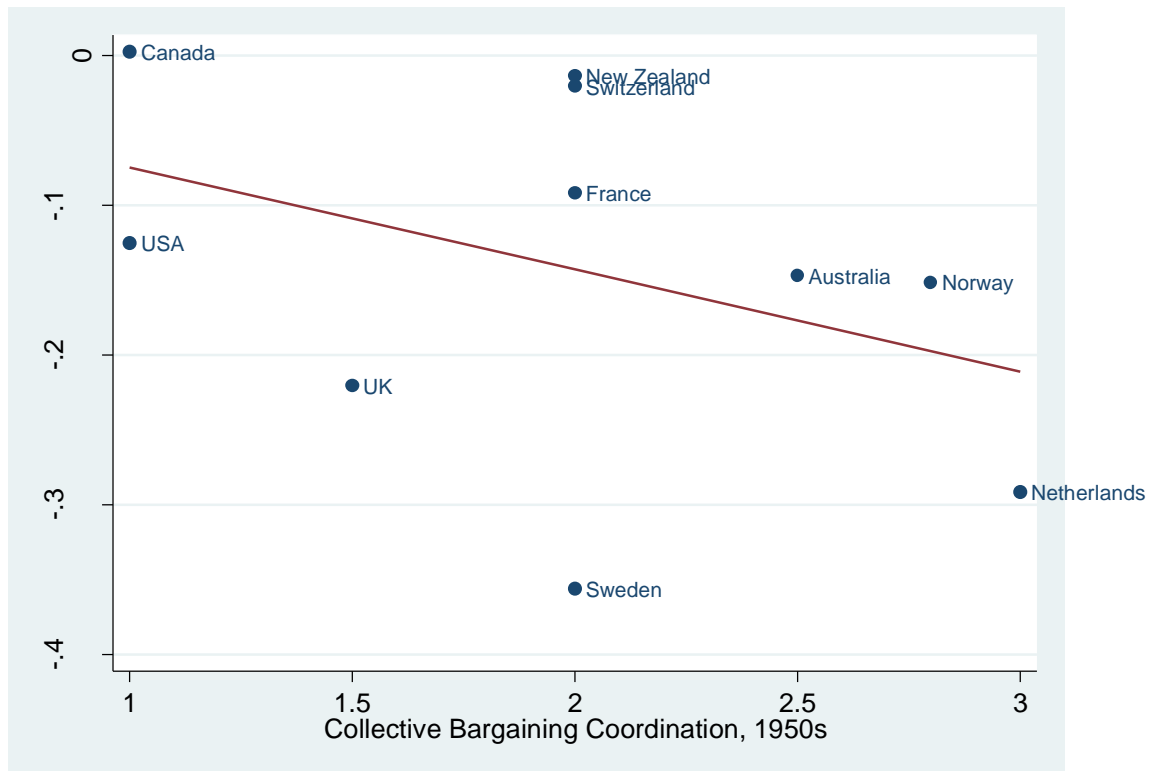
Figure 2:



**Figure 3:**



**Figure 4:**



## *Appendix:*

**Employer coordination:** We use an index of employer organization created by Martin and Swank (2008). Their index covers three dimensions of employer coordination: (1) the scope of employer organization; (2) the centralization of power in these organizations, and (3) the integration of these employer organizations into national policymaking forums (for more details, see Martin and Swank 2008: 186). Each of these dimensions receives a score between 1 and 3, and the three dimensional scores are added into an aggregate index.

**Collective bargaining coordination:** We use a measure of coordination between employers and unions provided by Martin and Swank (2008). It captures the centralization of collective bargaining between unions and employers and it ranges between 1 (when collective bargaining centralization is low) and 3 (when it is high). The coding is done in .5 increments.

**Inequality:** Share of income held by the richest 1% of the population, derived from tax return data. Data for Norway in Aaberge and Atkinson (2008). Data for Sweden in Leigh (forthcoming) and, originally, in Roine and Waldenström (2006). Data for the rest of countries in Atkinson and Piketty (2007) and originally in Atkinson and Leigh (2007) for Australia; Saez and Veall (2005) for Canada; Piketty (2007) for France; Dell (2007) for Germany; Salverda and Atkinson (2007) for the Netherlands; Atkinson and Leigh (2005) for New Zealand; Dell, Piketty and Saez (2007) for Switzerland; Atkinson (2007) for the UK; and Piketty and Saez (2007) for the USA.

**Federalism:** All countries (in each decade in our sample) are classified as federal (0), semi-federal (1), or unitary (2). Source: Martin and Swank (2008), who use data from Jagers and Gurr (1996).

**Electoral System Proportionality:** We use two measures. First, the disproportionality of the electoral system is measured using the vote and seat shares of parties. Source: Martin and Swank (2008), who use data on elections from Mackie and Rose (1974) and the formula developed in Gallagher (1991). Second, all countries (in each decade in our sample) are classified as SMDP (0), semi-proportional (1), or proportional (2). Source: Martin and Swank (2008), who use data on elections from Mackie and Rose (1974).

**International Openness:** Level of merchandise exports expressed in 1990 Geary Khamis Dollars (thousands), divided by GDP in 1990 Geary Khamis Dollars (thousands). Source: Martin and Swank (2008).

**Union density:** Union membership as percentage of labor force. ). Source: Martin and Swank (2008), who use data from Stephens (1980).

**Log of area:** The area surface in thousands square miles (natural log). Source: Martin and Swank (2008).

**Log of GDP per capita:** GDP in 1990 Geary Khamis Dollars (thousands), divided by the population of each country expressed in thousands of inhabitants (natural log). Source: Martin and Swank (2008).

**Left party support:** Country average of interwar parliamentary vote for Left parties. Source: Martin and Swank (2008), who use data from Boix (1999).