

# The formal independence of regulatory agencies and Varieties of Capitalism: a case of institutional complementarity?

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## **Abstract**

The Varieties of Capitalism literature posits that national economic institutions reflect the mode of coordination of a country's market actors. Despite the importance of this claim and a rich literature on the emergence of regulatory capitalism, few studies test such prediction for Independent Regulatory Agencies (IRAs). This article connects the two fields of research by analysing the impact of economic coordination on the formal independence of IRAs. The results show that, beyond issues of credible commitment and policy stability, the collective action capacity of market actors matters. In particular, regulators in Coordinated Market Economies enjoy less independence than in Liberal Market Economies, while intermediate regimes grant IRAs the least autonomy. The policy implications are nontrivial. Similar to other macroeconomic institutions, inappropriate combinations of economic coordination and IRA independence may engender Pareto-suboptimal regulatory solutions. In such cases, policymakers should reconsider the rules governing national regulators.

**Keywords:** agency, coordination, independence, regulation, varieties of capitalism.

## 1 INTRODUCTION

During the past 20 years, two important literatures have appeared to explain fundamental aspects of advanced political economies. First, the Varieties of Capitalism (VoC) approach, developed by political economists Hall and Soskice (2001), applies the new economics of organization to the macroeconomy to distinguish between capitalist economies by reference to the ways economic actors coordinate their actions. According to this approach, nations cluster into identifiable groups based on the extent to which firms rely on market (Liberal Market Economies, LMEs), strategic (Coordinated Market Economies, CMEs) or intermediate, often state-led modes of coordination. Concomitantly, a vast literature has emerged on the rise of regulated capitalism (Majone 1994; Levi-Faur 2005; Gilardi 2008; Jordana *et al.* 2011). Market-liberalizing processes, such as deregulation and privatization, have been accompanied by the spread of Independent Regulatory Agencies (IRAs) in policy fields as diverse as telecommunications, competition enforcement, energy, food safety, environment. Part of this variegated literature endeavors to explain why the degree of independence of IRAs (formal or actual) varies between countries or sectors (Gilardi 2002, 2005, 2008; Elgie & McMenamin 2005; Maggetti 2007; Hanretty & Koop 2013; Thatcher 2002a). Within this subset, few studies investigate the impact of a country's political economy on the setup of its IRAs. Only three find any connection at all (Thatcher 2007; Maggetti 2007; Guidi 2014).

In this article we establish a link between the VoC and IRAs literatures by assessing whether economic coordination influences the *de iure* (formal) independence of regulatory agencies, that is, the political act of delegation to an IRA. With such analysis, we venture into uncharted territory: not only the connections between the two literatures are undertheorized, but also both approaches have mostly relied on comparative case studies. Mainly due to measurement problems, large-N statistical analyses are only gradually being developed (Hall & Gingerich 2009, p. 450; Gilardi 2008, p. 8).

We develop and test competing hypotheses on the importance of VoC for the independence of regulatory agencies, stemming from Thatcher's (2007) insight that there is coupling between economic systems and regulatory regimes. Our two pairs of hypotheses link two measures of economic coordination to regulatory independence. In the first, we posit that there is a linear relationship between the mode of coordination in corporate governance (the extent to which firms are nested in corporate networks, which is a proxy for the degree of 'liberalism' in an economy) and agency independence. In the second, we employ coordination in the labor market as a more refined

measure of the collective action capacity of economic actors. This allows us to distinguish between LMEs, CMEs and intermediate cases, which differentiate themselves from the ‘extremes’. We hypothesize that, in contrast to existing literature on IRAs, but in line with the literature on other types of delegation (including VoC), policy-makers not only take into account the capacity of regulators (the politicians themselves) to generate credible policy, but also the ability of regulatees (firms *in primis*) to send credible signals, when deciding on how to delegate. To use a favorite metaphor in the literature, we think that lashing to the mast equally depends on Ulysses and his crew, as it does on the Sirens, whose singing may or may not lure unwary sailors on to rocks.

The study recalculates two measures of coordination, developed by Hall and Gingerich (2009), and applies them to Gilardi’s (2005) dataset of Western European regulatory agencies. We find a statistically significant and robust relationship between IRA independence and coordination in the labor market. Our results show that where employers coordinate via market-based mechanisms (LMEs) IRAs are more independent than where there is strategic coordination (CMEs). More interestingly, we find out that agencies in intermediately coordinated economic systems tend to display lower degrees of independence. This may reflect the traditional negotiating or mediating role played by the state in these economies to supplant the incapacity of firms to send credible regulatory signals.

These findings provide further evidence that IRAs may be a constitutive part of the VoC architecture, and that this is reflected in their formal operational rules. Collaborative and less independent regulatory agencies are probably an institutional complementarity to strategic or intermediate coordination. By virtue of this, firms, either among themselves or through the intermediation of the state, can negotiate important aspects of regulation. On the contrary, where market coordination dominates, regulated competition, which requires a high degree of regulatory autonomy, is the norm.

The policy implications are nontrivial. Contrary to previous scholarship, which ascribed the deviations from standard recommendations from international organizations, such as the OECD, to set up independent regulators to political factors, this study shows that also economic coordination matters. Hence, and similar to other macroeconomic institutions, different varieties of capitalism may require varying degrees of regulatory agency independence in order to produce Pareto-efficient solutions. As decision-making (in our case the act of delegation) happens under bounded rationality, policy-makers are imperfectly informed on the interaction between economic

actors and IRAs. In case this produces suboptimal regulation, decision-makers may take stock and adapt the rules governing their country's regulatory agencies.

The article proceeds as follows. Section 2 presents a short literature review with a special focus on the existing attempts at connecting the VoC and IRA approaches. Section 3 illustrates the main hypotheses as well as their theoretical underpinnings. Section 4 presents the data used to operationalize our explanatory variables. Section 5 expounds the statistical analysis. Section 6 discusses the results and double-checks them with qualitative case studies. Section 7 concludes.

## **2 REGULATORY AGENCIES AND VARIETIES OF CAPITALISM**

### **2.1 The literature on Independent Regulatory Agencies: where we stand**

The rise of regulatory capitalism has generated abundant and multifaceted research. Its institutional manifestation are IRAs, defined as public organizations with regulatory powers that are neither elected by the people, nor directly managed by elected officials (Thatcher & Stone Sweet 2002, p. 2). IRAs soon became a favored subject of scholarship that mainly deals with three topics: their origins, their impact on decision-making and their implications for democratic legitimacy (Gilardi 2008, p. 22).

This article engages with the literature on the establishment of regulatory agencies, so their formal independence, and the variation in their institutional characteristics across economic systems. Here we focus on two main aspects dealt with in the literature: the factors influencing the degree of formal autonomy of IRAs, and the relationship between formal (*de iure*) and actual (*de facto*) independence.

With respect to the factors determining formal independence, Gilardi's work (2005, 2008) is the most exhaustive. He emphasizes three *explicantia*. First, politicians need to increase the credibility of policy commitments to attract investment. Decision-makers bind themselves to increase the time consistency of policies against changes in their own preferences. Moreover, certain sectors are more sensitive than others, and Gilardi shows that utilities require more independent IRAs than social sectors. Second, political uncertainty, that is, frequent and/or dramatic alternation in government, may also lead to time inconsistency of policy choices. Hence, countries that are politically more unstable display, on average, higher degrees of IRA independence. Finally, a country's institutional configuration also matters. Many checks and balances render policy change less likely, thereby not requiring highly autonomous IRAs. Hence, veto players

can be seen as functional equivalents of delegation.

Even though these explanatory factors are valid, we think that they refer to the regulator's side of the delegation equation (the political system's characteristics) and deal only in part with the regulatees (they account solely for sectoral differences). By not controlling for the economic environment that IRAs are supposed to regulate, within a European reality of highly divergent national modes of capitalism (see Thatcher 2002a, 2007), one risks to neglect important country-specific factors. Given the regulators' role in mitigating market failures, this study explores concurrent *explanantia* that refer to the regulatees' side of delegation, that is to the characteristics of the firms that are the object of regulation and their capacity to self-regulate.

Another important aspect of IRAs is the interaction between their formal and actual independence. On the one hand, politicians may respect formal independence for several reasons: to further increase the credibility of long-term policy commitments; to use IRAs as a blame-shifting instrument, e.g. if something goes wrong; or because they find it counterproductive to interfere with organizations placed at arm's length. On the other hand, in institutional frameworks allowing for some discretion, agencies develop their own strategies and preferences. Their leeway is either enhanced or diminished by the practice of the law, which may diverge from the text of the law. Finally, a number of non-legal factors influence actual independence: the age of an IRA, the political salience of its tasks, successful bureaucratic practices and so on (Maggetti 2007; Hanretty & Koop 2013, p. 3).

So, the literature is divided. Among the studies relevant for this article, Maggetti (2007, p. 271), who employs a fuzzy-set QCA to investigate 16 regulatory agencies in 10 Western European countries and three sectors, contends that "High formal independence [is] neither a necessary nor a sufficient condition for a high level of *de facto* independence from politicians". In contrast, Hanretty and Koop (2013, p. 13), in a broader study, which analyzes IRAs in seven sectors and 17 Western European countries, write that "Formal independence, contra skeptical predictions, turn[s] out to be a significant predictor of actual independence."

As far as this article is concerned, we decide to set the issue of *de facto* independence aside. While we acknowledge that the relationship between economic systems and informal operational rules of IRAs is worth exploring, we prefer to start from formal independence, for three main reasons. First, the statutes of the agencies are the main 'variable' that politicians can change through legislation, and also the easiest to measure across countries and sectors. Second, while on the operationalization of for-

mal independence there is a broad consensus in the literature, *de facto* independence has been empirically analyzed only in two studies that employ different indicators. Third, no large dataset on *de facto* independence is available, as opposed to formal independence.

## **2.2 Modes of economic coordination and agency independence: what relationship?**

There are few studies that explicitly link the literature on IRAs and on VoC: two are quantitative analyses focussing on more than one country (Hanretty & Koop 2012; Guidi 2014), one employs a QCA analysis (Maggetti 2007), one is a quantitative comparison of Independent Administrative Authorities in France (Elgie & McMenamin 2005), so, less relevant for our study. Lastly, Thatcher (2007) provides an exhaustive account in a qualitative comparison of Germany, France and the United Kingdom.

Maggetti's (2007) QCA analysis draws explicitly on insights of VoC: in CMEs, the networks binding decision-makers, regulators and regulatees are denser than in LMEs because of the need for strategic coordination. Due to sectoral path dependence, a mode of regulation persists notwithstanding the formal independence granted to an IRA. Hence, Maggetti's (2007, p. 274) hypothesis states that "A highly coordinated economy and sectoral path dependency will be two concomitant conditions for the low *de facto* independence of agencies from both the politicians and the regulatees."

The author relies on a transformed index of coordination created by Hall and Gingerich (2009). He finds that the presence of highly coordinated economies turns out to be a causally equivalent condition to formal independence, thereby disconfirming the original hypothesis. As there seems to be no effect of path dependence from the prior mode of regulation, Maggetti (2007, p. 280) conjectures that "the need for coordination among relevant stakeholders may constitute a reciprocal control, implying that the politicians cannot critically sway the agencies."

In his study of Germany, France and Great Britain, Thatcher (2007) arrives to quite opposite conclusions. First, he draws strong parallels between the VoC and IRA literatures. He distinguishes between three different modes of regulation that emerged between the 1960s and 1980s and that dovetail with three varieties of capitalism: an industry model of regulation that emerged in CMEs, a state-led mode of regulation in countries such as France, an economy characterized by *étatisme* (a unique mix of weak organized interests and close state-economy relations, see Hancké *et al.* 2007, p. 25), and a regulated competitive market in LMEs. The author considers both the

formal and actual independence of IRAs. With regard to *de iure* independence, the influence of the EU on the single market is felt everywhere: the formal autonomy of IRAs increases as most countries converge towards LME-like regulated competition. However, Thatcher (2007, pp. 168–71) also notes that despite formal EU regulation, national path dependence matters. IRAs' actual independence differs across countries, as in hybrid regimes (France) and CMEs (Germany) the state and industry, respectively, continue to play a role.

Of the two quantitative analyses, Hanretty and Koop (2013) investigate whether the coordination of an economy has an effect on the actual independence of regulatory agencies. Their line of reasoning starts by noting that CMEs are more inimical to regulatory independence than LMEs, but that, following another argument by Maggetti (2007, p. 281), "it appears that an agency cannot be a servant of two masters: if it is scarcely independent from the politicians, it should be highly independent from those being regulated." In practice, this means that IRAs should be highly independent from politicians, but scarcely from regulatees. The hypothesis is, hence, a reversal of the original argument regarding CMEs, stating that "[t]he more coordinated the market economy in a country, the higher the degree of actual independence of IRAs" (Hanretty and Koop 2013, p. 5). The two authors do not find any significant correlation with an overall coordination index derived from Hall and Gingerich (2009).

Guidi (2014) analyzes one regulatory domain: competition enforcement in the EU. He investigates why, despite a common regulatory framework, the formal independence of national competition agencies in the 27 Member States of the EU varies substantially. Following Hall and Gingerich (2009), Guidi (2014, p. 349) notes that both LMEs and CMEs provide a more efficient economic environment than countries with intermediate levels of coordination. His main hypothesis states that politicians in hybrid regimes will grant more independence to competition authorities than CMEs or LMEs, in order to signal to investors their commitment to regulated competition.

The hump-shaped relationship is founded on well-established insights of Olson's (1965) collective action, which state that few uncoordinated actors may generate market failures. Employer density, defined as the proportion of wage earners working in firms organized in employers' associations (Visser 2011), is used as proxy for the coordination among firms. Not only the hypothesis is confirmed, but also the author finds out that NCAs in CMEs perform better than those in LMEs, in terms of formal independence. A tentative explanation is that CMEs are perceived (or perceive themselves) as a less favorable business environment than LMEs, a feature that might discourage

domestic and foreign investors.

Summing up, even though three studies (Guidi 2014; Thatcher 2007; Maggetti 2007) provide evidence that coordination of the economy matters, there is neither agreement on the relationship between VoC and IRAs, nor a clear demarcation between the influence of coordination on *de iure* and *de facto* independence.

### 3 THEORY AND HYPOTHESES

According to Thatcher (2007), national path dependence plays a prominent role in the development of IRAs across the varieties of capitalism. We contend that this also affects their formal operational rules. Hence, we develop two pairs of antithetical hypotheses that connect the IRAs and VoC literatures.

The first pair, H1a and H1b, pertain to the relationship between the coordination in corporate governance and the nature of regulation developed in the post-oil-shocks period. As Hall and Gingerich (2009, pp. 455–456) aptly remark, in CMEs the balance of influence on corporate governance tilts towards dominant shareholders, ownership is relatively concentrated and equity markets are small. So, securing access to external finance and negotiating corporate control is more likely to involve firms in strategic interaction within corporate networks. In LMEs these conditions are reversed: therefore, issues of finance and corporate control are determined by more competitive markets. Policy-makers, who are confronted with these dissimilar situations, are aware that delegation will have distributional consequences, especially in CMEs.

Hence, we envisage two competing arguments linking coordination in corporate governance to formal independence. H1a contends that politicians ‘accommodate’ the variety of capitalism and follow the signals sent by different types of firms. Capital in LMEs is impatient, and relies on credible signals to form expectations about future policy in the sector. As opposed to CMEs, firms in LMEs receive few or no signals about future policy development from corporate networks in which they may be embedded. Hence, they must rely on signals sent from a central authority, the IRA, which should then be granted a higher degree of independence than in CMEs, where corporate networks act as informal coordinators.

Therefore, H1a states that CMEs are more inimical to regulatory independence than LMEs:

*H1a:* The formal independence granted to regulatory agencies decreases with the degree of coordination of an economy in corporate governance.



The second hypothesis posits that politicians ‘react’ to the variety of capitalism. Whereas LMEs are in the vanguard with respect to the introduction of market coordination and, consequently, of regulated competition, we expect that firms in CMEs prefer to retain their industry or state-led modes of regulation. As a side effect, they may enact sub-optimal regulation that erects barriers to competition or prevents investors from entering a national market or providing capital for its utilities.

If this is perceived as a legitimate threat by policy-makers, then we expect that they may establish more, rather than less autonomous regulatory agencies in CMEs and hybrid regimes to assuage investors.

*H1b:* The formal independence granted to regulatory agencies increases with the degree of coordination of an economy in corporate governance.

The second pair of hypotheses (H2a and H2b) follow the same specular logic as H1a and H1b, but rely on a more refined measure of the firms’ capacity to interact, that is, on coordination in the labor market. The arguments stem from the insight that LMEs, characterized by decentralized market coordination, and CMEs, which resort to centralized strategic coordination, allow for Pareto-superior solutions than economies that display intermediate levels of coordination and often rely on state for leadership or mediation. Hence, we do not expect a linear relationship between the degree of coordination in the labor market and the autonomy of IRAs, as in the case of corporate governance. This rationale follows the Olsonian (Olson 1965) logic of collective action that is employed by both the literature on neo-corporatism (cf. Lehmbruch and Schmitter 1982; Calmfors and Driffil 1988) and the following VoC approach (Iversen 1999; Soskice 2007). Both approaches point out that, if not corrected (e.g. due to the bounded rationality of policy makers), intermediate levels of coordination are most likely to generate inefficient economic outcomes. Before turning to the formulation of our second pair of hypotheses, we present the application of this logic to monetary and fiscal policy.

As for the first case, Calmfors and Driffil (1988) noted a hump-shaped relationship between the centralization of wage bargaining and real wages, which are highest at intermediate levels of coordination of firms and unions. This generates negative externalities in the form of lower employment and higher unemployment that have a snowballing effect on economic performance. According to the authors, “organized interests may be most harmful when they are strong enough to cause major disruptions but not sufficiently encompassing to bear any significant fraction of the costs for society of their actions in their own interests” (Calmfors & Driffil 1988, p. 15). That is akin

to saying that intermediate levels of economic coordination produce worse economic outcomes than either fragmentation or high centralization.

Two decades later, Soskice (2007, pp. 100–102) argued that there is a similar relationship between the degree of coordination of an economy – decentralized (LMEs), intermediate and centralized (CMEs) – and the overuse of fiscal resources. In intermediate cases and in CMEs there are more powerful bargainers (unions, employer associations) making demands on government expenditures than in LMEs, where these are fragmented and unable to individually influence parties or ministries. Moreover, political systems in CMEs and intermediate regimes appear to be more permeable to external influence by interest groups than in LMEs, by virtue of their consensual decision-making, coalition governments and representative parties (Gourevitch 2003; Iversen & Soskice 2006). Yet, whereas in CMEs coordinated market actors find it convenient to negotiate among themselves Pareto-optimal agreements, the common pool problem (the overuse of fiscal resources) is exacerbated at intermediate levels of coordination, where uncoordinated individually powerful stakeholders have access to policy-making.

Iversen (1999) and Soskice (2007) find that various forms of delegation in the macroeconomy may mitigate the problems above. In the case of wage bargaining, Iversen (1999) states that non-accommodating monetary policy, usually requiring independent and conservative central banks, reins in the inflationary wage spirals common to intermediately coordinated regimes. By the same token, Soskice (2007) argues that non-discretionary fiscal policy (agreed in advance by the coalition partners in government or delegated to an autonomous finance minister) best quells the common pool problem in economies characterized by powerful but uncoordinated market actors. In both cases, policy-makers are required both to acknowledge the existence of the problem and to choose whether to delegate part of their macroeconomic policies to independent institutions or actors.

We hypothesize that a similar logic applies to delegation to IRAs. CMEs are exposed to powerful bargainers (employer associations, trade unions) that strive to prescribe their own regulatory standards, which may at times lead to Pareto-efficient outcomes. Market actors in LMEs do not self-regulate and are fragmented; hence, their capacity to request regulation that then creates market failures is more limited. Mixed regimes display the least favorable setup: intermediately coordinated, powerful individual bargainers are unlikely to self-regulate and often require the government or individual parties to act as brokers or legislate favorable regulation. Hence, their ca-

capacity to generate negative externalities, such as crowding out domestic or foreign investment by limiting the credibility of policy is great.

What is then the attitude of policy-makers? In our view it can be again either ‘accommodating’ or ‘reactive’, thereby eliciting different responses in the case of intermediately coordinated economies and CMEs.

H2a states that policy-makers ‘accommodate’ the variety of capitalism by giving in to regulatees, thereby ignoring (for example, due to imperfect information) that sub-optimal outcomes may ensue. In LMEs such decision plays a limited role: due to their lack of signalling capacity, firms that rely on market coordination by definition require highly independent IRAs. In CMEs, IRAs can be given relatively high levels of independence to signal the arm’s-length relationship with the policy-makers, but given wider public ownership of enterprises, we may expect lesser overall independence than in LMEs. Since firms are able to autonomously coordinate, according to Thatcher (2007: 151): “regulatory institutions aid in dealing with problems of credible commitment and innovation by allowing industry actors to lead and largely excluding government from many policy decisions”. In intermediately coordinated economies, instead, powerful market actors are unable to reach self-regulatory solutions and, hence, require the mediation or compensatory action from the state. Political involvement in regulation is greater, so IRAs are granted minimal autonomy. Therefore:

*H2a:* The formal independence granted to regulatory agencies when market actors are centralized is lower than to when they are decentralized. It reaches its minimum at intermediate levels of coordination (in the labor market).

H2b instead posits that decision-makers ‘react’ to the variety of capitalism and realize that market actors’ pressures to influence regulation may create an unfavorable business climate. Hence, politicians are required to send a strong signal to the business world by awarding a higher degree of independence to regulatory agencies in polities characterized by powerful bargainers.

As firms in LMEs rely on market coordination, characterized by free entry and competition that attracts investment, high autonomy of IRAs is required mainly to compensate for their lack of signalling capacity. In centralized economies, CMEs, strategically coordinated employers have the capacity to forge Pareto-optimal agreements that generate few externalities and possibly attract investment in view of their self-disciplining role. So, signalling through autonomous IRAs is needed, but not as much as at intermediate levels of coordination, where the probability that sub-optimal

regulation follows is great. Consequently, policy-makers are here required to grant the highest independence to IRAs to improve the overall business climate.

*H2b*: The formal independence granted to regulatory agencies when market actors are centralized is higher than to when they are decentralized. It reaches its maximum at intermediate levels of coordination (in the labor market).

As a final remark, we think that if any of the four hypotheses is confirmed by our analysis, economic coordination has a strong impact on the formal operational rules of IRAs. If either H2a or H2b are confirmed, then it means that the collective action capacity of market players influences the mode of regulation, which is in line with the wider literature on delegation in the macroeconomy.

#### 4 DATA AND OPERATIONALIZATION

Our dependent variable is the *formal independence of regulatory agencies*. We employ the index developed (following Cukierman *et al.* 1992) by Gilardi (2005), which codes every statutory provision regarding the formal independence of IRAs in 17 European countries:<sup>1</sup> the duration of the appointment of head and board, the possibility to dismiss them during their term of office, their incompatibility with other offices, the obligations vis-à-vis parliament and government, the IRAs' financial and organizational autonomy – to name but a few (for details, see Gilardi 2002; 2005). The data refer to the IRAs' institutional settings in the years 2001-2003, covering seven sectors: competition, electricity, environment, financial markets, food, pharmaceuticals, and telecom. Gilardi's independence index ranges from 0 (regulation carried out by the executive) to 1 (agency with "full" independence). In practice, there are several zero values in the data set, but no '1': the maximum value is 0.83, which corresponds to Ireland and Portugal's telecom regulators. The mean value across all agencies is 0.42.

In order to test H1 and H2, we operationalize *coordination in corporate governance* and *coordination in the labor market*. The first relates to the extent to which firms are controlled via agreements between relevant shareholders and banks, rather than via market-based mechanisms. The second measures the level of coordination (among

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<sup>1</sup> Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom. We excluded Luxembourg, because of lack of data for the explanatory variables.

firms and unions) in wage bargaining, which is an indicator of the strength and encompassing character of the coordination of firms vis-à-vis major market actors.<sup>2</sup> Following Hall and Gingerich (2009), we collected data on three variables for each type of coordination. The variables we used are the same as in Hall and Gingerich (2009), but for four out of six of them we gathered more recent data and used different sources. The two variables for which we used the same sources are: *i) shareholder power*, measured as the number of rights that ordinary shareholders enjoy compared to managers and dominant shareholders (La Porta *et al.*, 1998); *ii) dispersion of control*, i.e. the percentage of ‘widely-held’ (with no dominant shareholders) firms in the economy (La Porta *et al.*, 1999). The four other variables are: *iii) market capitalization*, as a percentage of GDP;<sup>3</sup> *iv) labor turnover*, measured as the percentage of employees who have held their jobs for less than one year;<sup>4</sup> *v) coordination of wage bargaining*, measured on a scale from 1 (fragmented bargaining, at company level) to 5 (economy-wide bargaining);<sup>5</sup> *vi) dominant wage bargaining level*, the main level at which bargaining takes place, on a scale from 1 (company level) to 5 (national level).<sup>6</sup>

Following Hall and Gingerich (2009), we run a confirmatory factor analysis in order to test whether the operationalization we propose is consistent. Our expectation is that the first three indicators (shareholder power, dispersion of control and market capitalization) should load on one factor, that is *coordination in corporate governance*, and the three other indicators (labor turnover, coordination of wage bargaining and dominant wage bargaining level) should load on another factor, that is *coordination in the labor market*. The set-up of the confirmatory factor analysis is represented in Figure 1. Table 1 shows the coefficients of the six parameters with respect to the two latent variables.

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<sup>2</sup> Guidi (2014) uses employer density instead, which is, however, unavailable for a significant portion of years and countries considered in this study.

<sup>3</sup> Source: World Bank (<http://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS>) and Eurostat ([http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama\\_gdp\\_c&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_gdp_c&lang=en)), data retrieved on February 2014. For our index, we took the mean across the period 1990-2002.

<sup>4</sup> Source: OECD iLibrary, data retrieved on 23 May 2013. Mean value across the period 1992-2002.

<sup>5</sup> Source: Visser (2011), based on Kenworthy (2001). Mean value across the period 1990-2002.

<sup>6</sup> Source: Visser (2011). Mean value across the period 1990-2002.

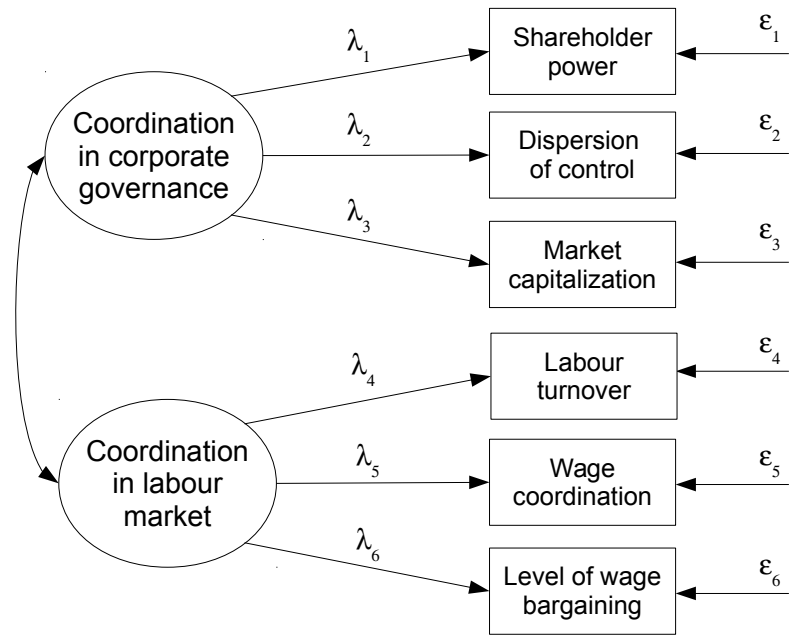


Fig. 1: Set up of the confirmatory factor analysis

Parameters	Coefficients
$\lambda_1$	0.530 (0.367)
$\lambda_2$	0.162*** (0.062)
$\lambda_3$	0.305*** (0.108)
$\lambda_4$	-31.492** (13.195)
$\lambda_5$	0.839*** (0.203)
$\lambda_6$	0.791*** (0.184)

Model  $\chi^2 = 15.281$ ;  $df = 8$ ;  $Pr > \chi^2 = 0.054$   
N=16      Goodness-of-fit index = 0.8

Tab. 1: Parameter estimates of the two indices of coordination (confirmatory factor analysis)

As we can see, the only parameter for which the relationship with the latent variable is rather weak is the first, related to the shareholder power indicator. For all the others, the correlation is significant and has the expected sign, positive for all parameters except for that of labor turnover.<sup>7</sup> From the factor scores we derive the indices of coordination in corporate governance and coordination in the labor market.<sup>8</sup>

The results, shown in Figure 2, reveal a lower-than-expected clustering of countries around similar levels of coordination in industrial relations and corporate governance, which may indicate we are in the presence of an LME (if both score low) or a CME (if both score high). The regression line indicates that the correlation between the two variables is positive but relatively weak (0.42). It significantly improves (0.7) if we remove France and Ireland, whose corporate governance and labor market coordination scores diverge. As we treat the two coordination variables separately, the results are

<sup>7</sup> Indeed, the fluidity of labor markets decreases with coordination.

<sup>8</sup> The *inverse* of the scores of the first factor have been taken for coordination in corporate governance. The scores of the second factor have been taken for coordination in labor market. We have rescaled both variables to have a [0; 1] range.

presented individually.

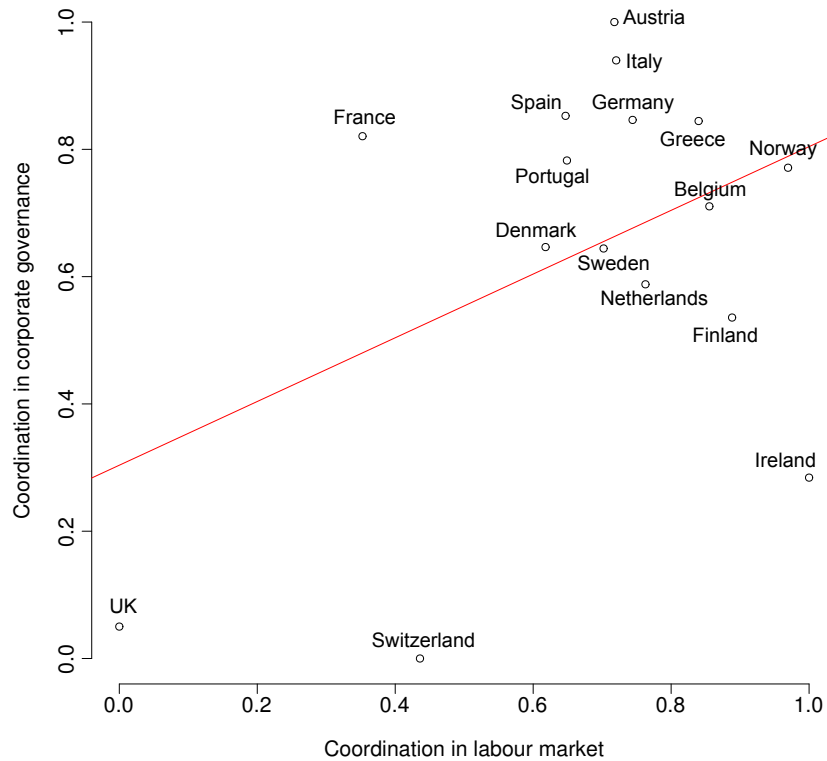


Fig. 2: Scatter plot of the indices of coordination in corporate governance and in the labor market

Coordination in corporate governance is minimal (below 0.333) in the UK, Ireland and Switzerland, whose level of coordination is, according to Hall and Gingerich (2009, p. 459), underestimated by the indicators employed. This means that Switzerland would appear less coordinated than it actually is. Afonso and Mach (2011, p. 105) note instead that there was “a clear breakdown of the Swiss intercompany network (interlocking directorates) during the 1990s”, and greater emphasis placed on shareholder value. Intermediate coordination (0.334 to 0.666) is found in Finland, the Netherlands and, very near to the threshold, in Denmark and Sweden. Interestingly, all of the countries in the low and intermediate brackets are either private pension fund veterans or have recently boosted their capital markets through quasi-mandatory pension



fund affiliation (see Ebbinghaus 2011). All other countries score above 0.667, which is in line with a more traditional CME setup. Some of the highest scores are taken up by Mediterranean countries, which may be attributable to a rather sclerotic type of managerial capitalism.

As for the coordination in the labor market, only the UK, a prototypical LME, scores low in the distribution (below 0.333). At intermediate levels of coordination (0.334 to 0.666) lie Switzerland, whose system of industrial relations is considered a very light/liberal variant of corporatism (Afonso and Mach 2011, p. 113; Bartle 2006), Denmark, which has decentralized its industrial relations, plus two Southern countries (Portugal and Spain) that are typically included into a hybrid category, characterized by weak coordination. France falls by a small margin within the intermediate category, as its industrial relations “came to resemble those of market capitalist Britain” (Schmidt 2003, p. 535). Above the 0.667 mark, we find the bulk of our countries. Most of them are CMEs that still rely on highly coordinated bargaining: Belgium, Finland, the Netherlands and Norway. However, there has been a tendency towards more decentralized coordination in some former CME strongholds, namely in Austria, Germany and Sweden. It is important to note that the latter two experienced their worst crises in post-war history during the 1990s (reunification in Germany and banking in Sweden), which required the adoption of extensive market-oriented reform programmes. The presence of three countries is more surprising. Greece, where employer association members are obliged to participate in collective bargaining agreements, and Italy, whose centralization in bargaining peaked in the late 1990s, are still includable in a Southern model (see below). Ireland, usually depicted as an LME, instead became famous for eight nation-wide ‘social partnership programmes’ agreed between the government, unions, employers, farming bodies and civil society organization during 1987-2008 (see O’Donnell *et al.* 2011).

In sum, our indicators present the following picture. The UK is the only pure LME, where overall coordination is lowest. Higher levels of strategic coordination are found in traditional CMEs found in most Continental Europe and in Scandinavia with several cases that recorded a movement towards liberalism in their coordination capacity, either in corporate governance (Finland, the Netherlands and Sweden) or in the labor market (Austria, Germany and Sweden). Southern countries still represent a rather homogeneous cluster, where the coordination in the labor market is lower than in corporate governance, and which may represent a distinct variety of capitalism, characterized by the compensating state. At the same time, this divergence is in

France much wider, which is in line with Hancké *et al.*'s (2007) definition of *étatisme*. Two countries are somewhere halfway between market and strategic coordination: Denmark and Switzerland. Denmark is usually termed a hybrid case of 'negotiated economy', where the "institutionalized collective learning and decision making among firms, workers, policymakers, and others – a mainstay of CMEs [...] – was decentralized in ways reminiscent of LMEs" (Campbell & Pedersen 2007, p. 309). Switzerland was also traditionally a lean CME, which has quite dramatically decentralized and marketized due to international pressures and unprecedented stagnation during the 1990s (Afonso & Mach 2011). Finally, it is important to mention that the inconsistency with Hall and Gingerich (2009, p. 458) regarding Ireland, the major outlier, is attributable to the period of reference, as our data captures the extensive social pacting of the 1990s.

In testing our hypotheses, we also employ several control variables. The first is the replacement risk (Franzese 2002), that is the risk that a government faces of being replaced by another executive with different political preferences. This indicator is found to be positively related to formal independence by Gilardi (2008, p. 64), as politicians want to protect their policy choices from the risk that future incumbents will modify them. The higher the formal independence of the agencies, the more difficult is to influence their regulatory decisions. Our operationalization is slightly different from that of Gilardi (2008, p. 147), in that we use a different source, the *ParlGov* database (Döring & Manow 2012), to calculate the yearly risk.<sup>9</sup> Another variable potentially affecting the decision to delegate to IRAs is the number of veto players (Gilardi 2002; 2008). Like regulatory agencies, veto players serve as stabilizers of the policy output (see Tsebelis 2002). A political system with many veto players is, all else equal, less likely to face sudden changes of the regulatory environment. As policy stability, which "mitigate[s] both the credibility and the political uncertainty problems" (Gilardi 2005, p. 139), is one of the main reasons for which IRAs are established, we expect the presence of veto players to have a negative impact on regulatory agencies' independence.<sup>10</sup> Our proxy for veto players is the variable checks in the Database of Political Institutions (Beck *et al.* 2001; Keefer & Stasavage 2003).<sup>11</sup>

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<sup>9</sup> The replacement risk is operationalized as the product of hazard rate (the inverse of government duration) and political polarization. The latter is calculated, for each year, as the standard deviation of the governments' position on a left-right scale in the 7-year period including the previous 5 years, the year of interest, and the year after. The left-right position of each executive is calculated as a weighted mean of the parties supporting the government. We thank Chris Hanretty for providing us with the code for calculating the replacement risk (see: <http://goo.gl/g1rHpR>). For each country, we use the mean value across the 1990-2002 period.

<sup>10</sup> This has been confirmed by Gilardi (2002, 2005, 2008).

<sup>11</sup> For our analysis, we calculated the mean value across the 1990-2002 period.

We also control for the sector in which each regulatory agency operates. This choice derives from the expectation that not in all sectors politicians need to confer the same amount of independence in order to send a credible message to the market. Various studies confirm that the ‘need of credibility’ is higher in capital-intensive sectors, such as telecommunications or financial markets, than in pharmaceutical or food safety regulation (see Gilardi 2002, 2005; Elgie & MacMenamin 2005; Wonka & Rittberger 2010). Since the grouping and operationalization of policy sectors varies considerably in the literature, we chose the simplest option and use a dummy variable for each sector covered in Gilardi’s data set. Other variables that we employ to control for state intervention in the economy are government spending and government debt as a percentage of GDP.<sup>12</sup> Since several contribution in VoC theory point to the existence of a ‘state-led’ type of capitalism, we want to check if higher levels of state intervention are associated with higher IRA independence. Finally, we control for the economic<sup>13</sup> and demographic size of the countries.<sup>14</sup>

## 5 STATISTICAL ANALYSIS

As the agencies whose independence we aim to explain are nested in countries, we test the impact of the explanatory variables with multilevel regression models. We test our first couple of rival hypotheses with the following linear mixed model (Model 1 in Table 2):

$$IND_{ij} = \beta_0 + \beta_1(CCG_{ij}) + \beta_2(S_{ij}^1) + \dots + \beta_7(S_{ij}^6) + \beta_8 \log(GDP_{ij}) + \beta_9 \log(POP_{ij}) + u_j + e_{ij}$$

where  $IND$  is the formal independence of regulator  $i$  in country  $j$ ,  $CCG$  is coordination in corporate governance, the variables from  $S^1$  to  $S^6$  are the dummy variables for the sectors,<sup>15</sup>  $GDP$  is the gross domestic product,  $POP$  is the population,  $u$  is the country-level random intercept and  $e$  is the error term. In this model, we estimate

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<sup>12</sup> World Development Indicators (World Bank 2013), mean across the 1990-2002 period (government spending) and 1995-2002 period (debt).

<sup>13</sup> Gross domestic product at market prices, Eurostat data (accessed on 20 January 2014), 1990-2002 mean.

<sup>14</sup> Total population on 1 January, Eurostat data (accessed on 20 January 2014), 1990-2002 mean.

<sup>15</sup> The sector dummies included in the regression are: competition, energy, environment, financial markets, food safety, and telecom. The pharmaceutical sector is used as baseline category.

the impact of coordination in corporate governance on the formal independence of IRAs. We hypothesized a negative effect of coordination in corporate governance on independence in Hypothesis H1a, and a positive effect in Hypothesis H1b; therefore, a negative  $\beta_1$  coefficient will confirm H1a, and a positive coefficient will confirm H1b.

To test the second hypothesis, we use instead the following model (Model 2 in Table 2):

$$IND_{ij} = \beta_0 + \beta_1(CLM_{ij}) + \beta_2(CLM_{ij}^2) + \beta_3(S_{ij}^1) + \dots + \beta_8(S_{ij}^6) + \beta_9 \log(GDP_{ij}) + \beta_{10} \log(POP_{ij}) + u_j + e_{ij}$$

in which  $CLM$  is coordination in the labor market. The controls are the same as in the previous regression. Since both H2a and H2b hypothesize a non-linear relationship between coordination in the labor market and independence, we include the square of  $CLM$  as well. Being more specific, we will confirm H2a if  $\beta_1$  is negative and  $\beta_2$  is positive; vice versa, we will confirm H2b. In Model 3, we include both indicators of coordination, while in Model 4 we add the two controls pertaining to political institutions: replacement risk and veto players. To test the impact of state intervention in the economy, in Model 5 we add two further regressors, government spending and government debt as a percentage of national GDP. Finally, with Model 6 we test what we deem to be the best specification, including the ‘political institutions’ controls and excluding coordination in corporate governance and state intervention controls. The results of the regression models are shown in Table 2.

In Model 1, we find that the coefficient of coordination in corporate governance is not significant, thereby not confirming either H1a or H1b. All other models lead us to confirm H2a and disconfirm H2b: overall, the coefficient of coordination in the labor market is negative, and that of its square is positive (both are significant at less than 0.01 in all models). When both explanatory variables are included (Model 3), coordination in corporate governance is still not significant, while the U-shaped relationship between coordination in the labor market and independence is confirmed. When the two indicators of political institutions (veto players and replacement risk) are added to the previous regressors (Model 4), we see an improvement in the overall fit of the model: while the veto players coefficient is not significant, replacement risk appears to positively affect regulatory independence, in accordance with Gilardi’s (2008) findings; the estimates of the two indices of coordination are not sensibly affected. Only in Model 5, where we do not detect any impact of either government spending or debt

Tab. 2: Multilevel regression models

	<i>Dependent variable: formal independence of regulatory agencies</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Coord. corp. gov.	-0.115 (0.102)		0.102 (0.120)	-0.197 (0.126)	-0.221* (0.129)	
Coord. lab. mark.		-0.911*** (0.293)	-1.105*** (0.365)	-0.929*** (0.304)	-0.864*** (0.307)	-1.197*** (0.255)
Coord. lab. mark. ( <i>sq.</i> )		0.728*** (0.264)	0.835*** (0.286)	0.835*** (0.239)	0.801*** (0.241)	0.956*** (0.229)
Sector: competition	0.017 (0.066)	0.022 (0.065)	0.024 (0.065)	0.024 (0.063)	0.021 (0.063)	0.026 (0.064)
Sector: electricity	0.140** (0.061)	0.141** (0.061)	0.142** (0.061)	0.134** (0.059)	0.135** (0.058)	0.137** (0.059)
Sector: environment	-0.177*** (0.066)	-0.180*** (0.065)	-0.179*** (0.065)	-0.184*** (0.063)	-0.183*** (0.063)	-0.182*** (0.064)
Sector: financ. mark.	0.153** (0.063)	0.151** (0.063)	0.154** (0.063)	0.151** (0.061)	0.152** (0.060)	0.155** (0.061)
Sector: food safety	-0.171*** (0.064)	-0.170*** (0.064)	-0.167*** (0.064)	-0.170*** (0.062)	-0.168*** (0.061)	-0.163*** (0.062)
Sector: telecom	0.237*** (0.062)	0.236*** (0.062)	0.238*** (0.062)	0.233*** (0.060)	0.233*** (0.059)	0.237*** (0.060)
Gov't expenditure					0.006 (0.005)	
Debt over GDP					-0.0003 (0.001)	
Veto players				0.026 (0.018)	0.018 (0.020)	0.020 (0.018)
Replacement risk				0.270*** (0.086)	0.258*** (0.096)	0.197*** (0.073)
<i>log</i> (GDP)	-0.018 (0.127)	-0.036 (0.094)	0.007 (0.104)	-0.246** (0.113)	-0.241* (0.134)	-0.132 (0.088)
<i>log</i> (population)	0.005 (0.113)	0.003 (0.081)	-0.048 (0.099)	0.174* (0.105)	0.176 (0.122)	0.058 (0.075)
<i>Intercept</i>	0.606 (0.440)	1.023** (0.450)	1.337** (0.576)	0.750 (0.519)	0.565 (0.549)	1.262*** (0.408)
Observations	102	102	102	102	102	102
Log Likelihood	30.776	34.088	34.444	40.683	41.358	39.472
Akaike Inf. Crit.	-37.551	-42.176	-40.887	-49.367	-46.717	-48.944
Bayesian Inf. Crit.	-6.052	-8.052	-4.138	-7.367	0.533	-9.569

*Note:* Number of countries: 16. Variance components estimated with maximum-likelihood procedure. Estimates' significance: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01

on agencies' independence, the coefficient of coordination in corporate governance is significant and negative, thus apparently confirming H1a. However, we are cautious in giving too much credence to the results of a model that is not particularly parsimonious or efficient (as indicated by the highest BIC). As already said, Model 6 seems to be the best specification.

### Estimates and confidence intervals of coordination in labour market

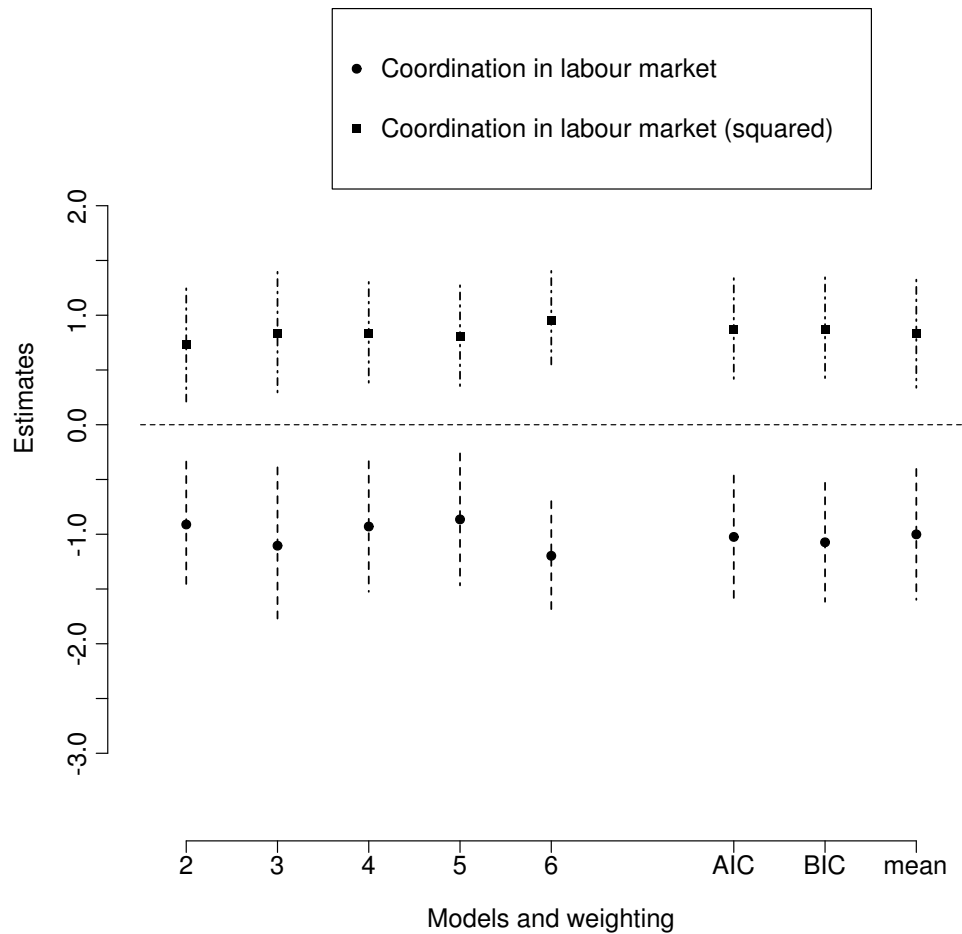


Fig. 3: Estimates and 95% confidence intervals of coordination in the labor market in models from 2 to 6, and averaged coefficients

The most important effect highlighted by our statistical analysis is the U-shaped relationship between coordination in the labor market and agency independence. As

Table 2 illustrates, the effect is constant across different model specification. Figure 3 shows the coefficients of coordination in the labor market and its square in Models from 2 to 6. On the right side of the graph, we can observe the average coefficients, weighted by the AIC of the models, the BIC, and with no weighting. The fact that the coefficients of coordination in the labor market and its square have the same sign and significance regardless of different specifications leads us to consider this effect as robust.<sup>16</sup> Also running the models after removing particularly influential cases does not affect the results.<sup>17</sup>

The impact of coordination in the labor market on independence of regulatory agencies is summarized in Figure 4. We can observe a relationship between coordination in the labor market and independence that takes the U-shaped form predicted in H2a: where market coordination among firms prevails, IRAs are very independent (expected independence equals 0.74); where there is strategic coordination between firms and unions, agencies are significantly less independent (0.47); in countries that lie at the centre of the distribution, we have some of the least independent agencies (0.36).<sup>18</sup>

## 6 DISCUSSION OF RESULTS

The results of our statistical analysis confirm that the VoC framework adds considerable explanatory power to the analysis of IRA autonomy (see Thatcher 2007, p. 148), and that this is not confined to the regulatory agencies' informal operational rules. H2a suggests that there is overlap between types of economic coordination and complementary modes of regulation. Where firms rely on market-based coordination (typically in LMEs), there is a higher demand for institutions that guarantee fair competition and a stable regulatory environment, and therefore IRAs independence is high.<sup>19</sup> Where firms coordinate among themselves and with other powerful market actors, such as trade unions (in CMEs), there is less need to rely on market-based mecha-

<sup>16</sup> See Plümper and Neumayer (2014) for a thorough discussion of robustness tests and their interpretation in political science.

<sup>17</sup> We calculated the Cook's distance for each agency and used the customary  $4/(N - k - 1)$  threshold to identify influential cases.

<sup>18</sup> Expected values of independence for values of coordination in labor market ranging from 0 to 1 have been calculated through stochastic simulation using the function *mvrnorm* (Venables and Ripley 2002) in R (R Core Team 2013). These values have been used for the graph in Figure 4.

<sup>19</sup> Within Gilardi's dataset, the UK is the sole LME. Qualitative studies, however, suggest that other LMEs, such as Canada and New Zealand (see Hall and Gingerich 2009, p. 458), establish similarly autonomous IRAs (Aucoin 2006; Gregory 2006).

nisms, and hence IRAs can be less independent. Moreover, in intermediately coordinated regimes IRAs are, all else equal, even less likely to be autonomous, possibly by virtue of the more discretionary mediating or coordinating role played by the state.

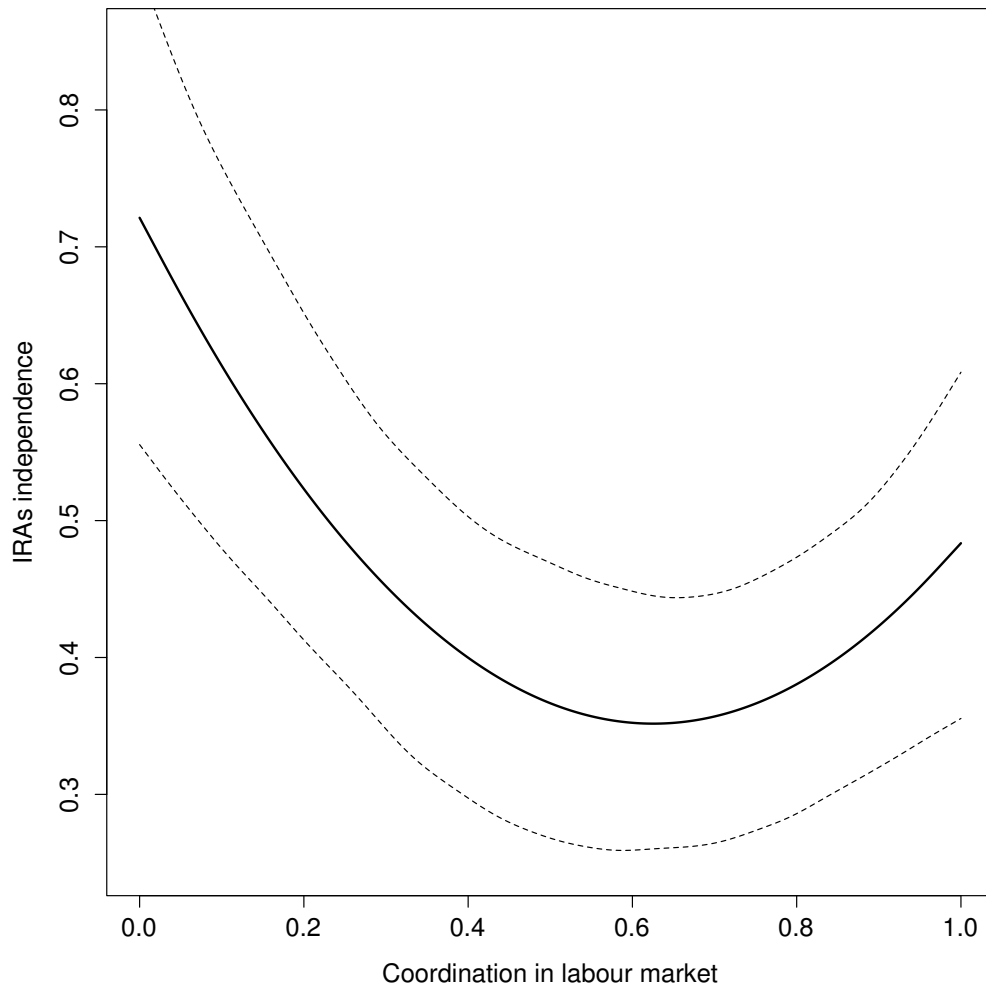


Fig. 4: Impact of coordination in the labor market on regulatory agencies' independence (Model 6)

Obviously, these are average effects, and the impact of other variables must also be considered when looking at single countries. Countries like France or Italy, which are usually categorized as intermediately coordinated regimes, where the state plays a major role, have rather more autonomous IRAs than one would expect. At the other



end, some archetypical CMEs are either latecomers that established few IRAs (Austria) or have systematically set up scarcely autonomous agencies (Germany). How can these divergences be explained?

As for the first two countries, the explanation is simple: their respective replacement risks are the highest in the sample, leading to high *de iure* independence. Additionally, France is a rather unique case of *étatisme* within European modes of capitalism as it combines close state-economy relations with very fragmented market actors, which in our framework require independent signalling. However, it has been well documented that the high *de iure* autonomy of France and Italy's IRAs is only partly reflected in *de facto* autonomy. Even though France moved from *étatisme* to regulated competition, it maintained state-led policy to create international champions through re-regulation and informal networks at home (Thatcher 2007, pp. 162–163). In Italy, instead, widespread politicization is what reduces IRAs' supposed actual autonomy (Thatcher 2002b, p. 959–960).

The two German-speaking countries represent a more intricate puzzle, which may require in-depth case study analysis to be solved. It is possible, in fact, that politicians in the two countries either have so much faith in their respective self-regulating market actors that they never contemplated establishing very independent regulatory agencies in the first place, or believe that even if endowed with scarce formal autonomy, IRAs may achieve in time enough reputation for impartiality. Regarding Germany, it has also been argued that the Germans are “very cautious of setting up IAAs [Independent Administrative Authorities] due to the constitutional principle of democracy” (van Aaken 2004, p. 91). Even if independence is deemed to be important, German administrative law leaves little room for delegation, thereby prescribing ministerial oversight. This results in low formal independence for German IRAs, although their *de facto* independence appears to be high.

That said, the U-shaped relationship illustrated in Figure 4 holds for most countries in the sample, and it can also be observed in most sectors, such as in electricity, financial services, environment, food or telecommunications (whose dummies are all significant at less than 0.05 level in all models). In the following paragraphs, we show this tendency by comparing agencies from different countries in one sector pertaining to economic regulation (electricity) and in a social regulation sector (food safety); we also briefly analyze the results for the competition sector, whose dummy is statistically not significant in all models.

If we look at the electricity sector, where independence is highly valued, the regu-

lator in the only LME, the UK, has an independence score of 0.64 (very high, although not the most independent within the sample), while the average independence in intermediately coordinated countries is 0.46, and in highly coordinated ones 0.57. A cursory glance at the growing comparative literature on this sector lends some credence to the mechanisms underpinning our hypotheses.

As for Great Britain, the neo-liberal and unconstrained conservative government of Margaret Thatcher proceeded with the privatization and restructuring of the electricity industry at breathtaking speed (Bartle 2002, p. 11). The new commitment to regulated competition required a highly independent regulator, originally called Office of Electricity Regulation (established in 1989). Moving towards intermediately coordinated cases, we can see a wide divergence in the mechanisms leading to the delegation to IRAs. In Switzerland, a 'liberal corporatist' country, the failure to establish a regulator is at least partly attributable to the imperfect coordination of firms in the electricity sector. Larger and smaller companies disagreed on the extent of liberalization and the unions neatly opposed it. This ambiguous stance has been backed by the Swiss electricity supply association, which asked for a slow process and for compensation to losers (Bartle 2006, pp. 16–18). Only in 2008 the sector was liberalized and an independent agency (*ElCom*) was established. However, as Maggetti *et al.* (2011, p. 205) note, "traditional patterns of auto-regulation by private actors have been particularly resilient". In Spain, an economy characterized by corporate statism and close state-business links, the electricity market was dominated by private suppliers that limited the role of the state until the 1970s, when the government increasingly started to take over. Even though there is evidence that Spain moved towards competition and independent regulation during the Socialist governments headed by Felipe González (1982–96), progress has been slow and ineffective. The relevant IRA, the *Comisión Nacional de Energía*, was awarded only advisory functions and an intermediate level of formal independence (0.44) (Jordana *et al.* 2006, p. 453). Leaving aside the German paradox (Gilardi 2008, p. 127), where there was no regulator until the mid-2000s, in CMEs there is considerable variation. However, even where IRA autonomy is at its maximum the influence of corporatism is still felt. In Belgium the electricity sector was consensually administered by the Control Committee for Electricity and Gas, a proper corporatist institution that comprised representatives of industry, unions, as well as national and regional authorities, up until 2003. This has now changed: the newly established Commission for the Regulation of Electricity and Gas is very autonomous (highest score in the sample, 0.75), however, it mainly has advisory functions and is continuously

assisted by industry representatives (Verhoest & Sys 2006).

In the food safety sector we find, in accordance with the literature, lower degrees of formal independence than in the electricity sector. However, the U-shaped relationship is clearly observable: the British agency scores 0.41, while the average independence for intermediately coordinated countries is 0.09, and that for coordinated economies is 0.24.

The UK's food safety agency (Food Standards Agency, FSA) was established in 1999. The event that triggered the creation of the agency, like in other countries, was the epidemic of bovine spongiform encephalopathy (usually known as the "mad cow disease"), whose transmission from cows to humans was proven in the second half of the 1990s. However, the (neo-)liberal principles that inspired the establishment of the FSA were pointed out explicitly in the white paper that the Blair Government presented to the parliament ahead of discussing the proposal. The government, in particular, stated that its aim was to avoid "conflicts of interest within MAFF [Ministry of Agriculture, Fisheries and Food] arising from its dual responsibility for protecting public health and for sponsoring the agriculture and food industries" (UK Government 1998, p. 6). The stress on the need to protect consumers and to prevent producers from seeking protection from the government is typical of a LME. Among intermediately coordinated economies, no independent food agency was present in 2001-2003 (and until today) in Denmark, Switzerland, and Portugal. France established its food agency (*Agence française de sécurité sanitaire des aliments*) in 1999, Spain (*Agencia Española de Seguridad Alimentaria y Nutrición*) in 2002. Both agencies were later merged with other bodies (the French agency in 2010, the Spanish one in 2014). In France, although the agency was established in the same year as in Great Britain, the emphasis was less on avoiding conflicts of interest and more on the technical expertise needed for supervising food security (Benamouzig and Besançon, 2005). Regarding coordinated economies, we observe a significant variance. In some countries (Belgium, Sweden, Finland) the food agency is very independent, while several other countries do not even have one. This demonstrates that the impact of economic coordination needs to be further investigated, and that more qualitative studies on social sector regulation are highly desirable.

Finally, our study does not reveal a U-shaped relationship for the competition sector, which is indeed the only non-significant dummy in all models. Although the sample of competition agencies in Gilardi's dataset is too small to draw general conclusions, CMEs award on average less independence (0.37) than hybrid regimes (0.44) (no

competition agencies from LMEs are present in this dataset). This finding is compatible with Guidi's (2014) analysis of the formal independence of national competition agencies in the EU. Guidi's results point out that countries with an intermediate level of coordination tend to have more independent competition agencies than countries with high and low degrees of coordination. As competition is not a 'sector' in the strict sense but rather an overarching framework of market rules, a different logic of delegation may apply. In line with Guidi (2014) and our hypothesis H2b, politicians may, in contrast to the general findings of our analysis, 'react' and use delegation to compensate for market failures, which are most prominent in intermediate cases of market coordination.<sup>20</sup>

Concluding this brief qualitative analysis of the results, we want to emphasize that our study must be read as a picture of the first years of the 2000s. As has been shown, several countries have established regulators after 2003, and others have merged them after their creation. Economic and social regulation undergoes a continuous redefinition, which affects both the norms and the organizations in charge of enforcing them. The determinants of these changes may be of different kinds. For instance, in the case of Germany's electricity sector, a significant role in finally delegating powers to an IRA has been played both by EU pressure due to the enforcement of Directive 2003/54/EC (which required Member States to regulate the energy market through an *ad hoc* agency) and by the inefficiency of previous self-regulatory practices. In 2003-5, the German government first announced and then delegated regulatory competencies in the energy domain to the telecoms regulator, which later became the *Bundesnetzagentur* (BNA), a sort of regulatory hub for all network industries (Gilardi 2008, pp. 128-31; Müller 2006). A similar process (see above) has occurred in Switzerland. These cases may point to a process of learning, as it happened over the past decades in central banking. Countries can establish IRAs or reform them after recognizing the failure or the inefficiency of previous arrangements. Yet, innovations can also take place because the type of economic system changes: for example, a country that reforms its corporate and employment policies so as to make them more liberal might create independent regulators or make those already existing more independent, in line with our theoretical model. This can only be ascertained by gathering more recent data on the independence of regulatory agencies, and comparing them with the 'snapshot'

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<sup>20</sup> The divergence may also be attributed to the differences in the research design of the two studies, notably the indicators employed for the indices (employer density instead of coordination in labor market) and the different sample, which in Guidi (2014) includes all EU Member States and for the year 2009 (not 2001-03 as in Gilardi's data).

analyzed in this article.

## 7 CONCLUSIONS

In this paper, we have sought to establish a link between varieties of capitalism and the institutional design of regulatory institutions. The VoC approach predicts that “nations with a particular type of coordination in one sphere of the economy should tend to develop complementary practices in other spheres as well” (Hall & Soskice, 2001: 18). Hence, our article aimed to answer the following question: is there a relationship between modes of coordination in the economic sphere and the degree of independence from politics granted to regulatory agencies?

We have identified two distinct dimensions in which economies diverge: the first relates to the embeddedness in corporate networks, the second to the collective action capacity of its major market actors. By testing the impact of coordination in corporate governance and coordination in the labor market on the formal independence of regulators in 16 European countries, we have found out that the latter helps us explain why regulatory agencies are more independent in some countries than in others. This confirms that there is coupling between economic and regulatory regimes and that this is not confined to the informal operational rules of regulatory agencies. Our analysis not only shows that IRAs in highly centralized CMEs are, on average, less independent than in LMEs, but also that economies with an intermediate level of coordination among firms are expected to endow regulatory agencies with the lowest degrees of independence. In other words, where coordination is present but rather poor, the government and the parliament retain more discretion in regulatory policies.

These findings both have policy implications and open new and exciting venues for research. With respect to the recommendations by international organizations (EU, OECD) to establish independent regulatory agencies, the article shows that during the 1990s and early 2000s, when IRAs were still in their infancy, differences in their design reflected not only political, but also economic factors. As it happened with other macroeconomic institutions, the degrees of coordination of an economy and of regulatory agency independence may interact and produce Pareto inefficient solutions. In such case, policy-makers may undergo a learning process, as it happened, for example, for the electricity sector in Germany or in Switzerland, and drastically reconsider the rules governing some of their IRAs.

As for academic considerations, further research can develop at least into three directions. First, the natural extension of our analysis would be to test the relation-

ship between coordination and *de facto* independence, as more data on IRAs' actual autonomy are becoming available. Second, we think that the notion that IRAs are a constituent part of the VoC architecture calls for further investigation. In fact, the role and importance of regulatory agencies in the overall coherence of different economic regimes has been almost entirely left out from the scholarship dealing with varieties of capitalism. Finally, as mentioned above, we think that the relationship between coordination and independence is neither exclusive nor time-invariant. Regulatory agencies are a relatively recent phenomenon that is rapidly evolving. As policy-makers revise and refine their preferences, it would be of foremost importance to gather updated qualitative and quantitative data on the current functioning of IRAs and compare them with the situation in the early 2000s.

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