The Institutional Foundations of Regulatory Capitalism: The Diffusion of Independent Regulatory Agencies in Western Europe

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The Institutional Foundations of Regulatory Capitalism: The Diffusion of Independent Regulatory Agencies in Western Europe

By
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This article studies the diffusion of the main institutional feature of regulatory capitalism, namely, independent regulatory agencies. While only a few such authorities existed in Europe in the early 1980s, by the end of the twentieth century they had spread impressively across countries and sectors. The analysis finds that three classes of factors (bottom-up, top-down, and horizontal) explain this trend. First, the establishment of independent regulatory agencies was an attempt to improve credible commitment capacity when liberalizing and privatizing utilities and to alleviate the political uncertainty problem, namely, the risk to a government that its policies will be changed when it loses power. Second, Europeanization favored the creation of independent regulators. Third, individual decisions were interdependent, as governments were influenced by the decisions of others in an emulation process where the symbolic properties of independent regulators mattered more than the functions they performed.

Keywords: independent regulatory agencies; Europe; regulatory institutions; regulatory reform; diffusion

Since the early 1980s, a distinctive mix of privatization, liberalization, and reregulation has replaced the "positive" state (Majone 1997) or "welfare capitalism" (Levi-Faur 2005 [this volume]) and has led to the rise of a "regulatory state" (Majone 1997) or, more broadly, a "regulatory capitalism" (Levi-Faur 2005; Levi-Faur and Jordana 2005 [this volume]). At the institutional level, regulatory capitalism is grounded in the delegation of regulatory competencies to authorities that are partly independent from

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direct political control (hereafter independent regulatory agencies [IRAs]). IRAs have a long tradition in the United States, but in Europe they are a relatively recent institutional innovation. Although independent regulators have existed for a long time in some domains, notably financial markets and services, it is only since the mid-1980s that this organizational model has been widely adopted in other regulatory fields. Furthermore, most older agencies have been reformed in recent years, and their formal independence has in most cases been augmented.

Levi-Faur (2005) showed that such authorities have diffused worldwide in both telecommunications and electricity. This article shows that the extent of this spread is even wider. IRAs have been established in a broader range of regulatory domains. As Figure 1 documents, in addition to telecommunications and electricity, I include here financial markets, competition policy, food safety, pharmaceuticals, and environmental protection. Two points are noteworthy. First, the trend is similar in all regulatory domains. The number of IRAs has sharply increased since the mid-1980s. Second, there are significant differences between regulatory domains. IRAs have been established more in economic than in social regulation.[1]

How can the spread of IRAs be explained? The main hypothesis considered here is that the establishment of IRAs has been subject to a diffusion process, namely, individual decisions have been interdependent, that is, the decision of country A influences that of country B. More precisely, this article examines three classes of explanations, grounded in "bottom-up," "top-down," and "horizontal" explanations (Levi-Faur 2005). First, most countries may have experienced similar challenges at roughly the same time and have come up with similar solutions. If this is the case, IRAs will spread even though the process is not grounded in interdependencies among countries.[2] Second, some international organizations may have been willing and able to impose or promote the establishment of IRAs. Third, interdependencies among countries may explain the spread of IRAs.

The statistical analysis presented in this article aims at determining to what extent the diffusion of IRAs in Western Europe is due to bottom-up, top-down, and horizontal factors. The analysis is conducted on an original data set comprising information on 119 regulators in seventeen European countries (EU member states before enlargement plus Norway and Switzerland) and seven regulatory domains, of which four are "economic" (telecommunications, electricity, financial markets, competition policy) and three are "social" (food safety, pharmaceuticals, environment). These units are examined over a period roughly from 1950 to 2002. The dependent variable is binary and takes the value of one for country-sector-

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NOTE: Previous versions of this article were presented at the workshop "The Politics of Regulation," Universidad Pompeu Fabra, Barcelona, Spain, November 29-30, 2002; at the workshop "The Internationalization of Regulatory Reforms," Center for the Study of Law and Society, University of California, Berkeley, April 25-26, 2003; and at the CUSO methodological workshop, Graduate Institute of International Studies, Geneva, June 22, 2004. The arguments presented here are developed more in detail in my Ph.D. dissertation (Gilardi 2004). I thank workshop participants as well as Dietmar Braun, Adrienne Héritier, Jacint Jordana, Covadonga Meseguer, Yannis Papadopoulos, Mark Thatcher, and especially David Levi-Faur for helpful comments.

FIGURE 1
SHARE OF WEST EUROPEAN COUNTRIES THAT HAVE ESTABLISHED INDEPENDENT REGULATORY AGENCIES (IRAs)

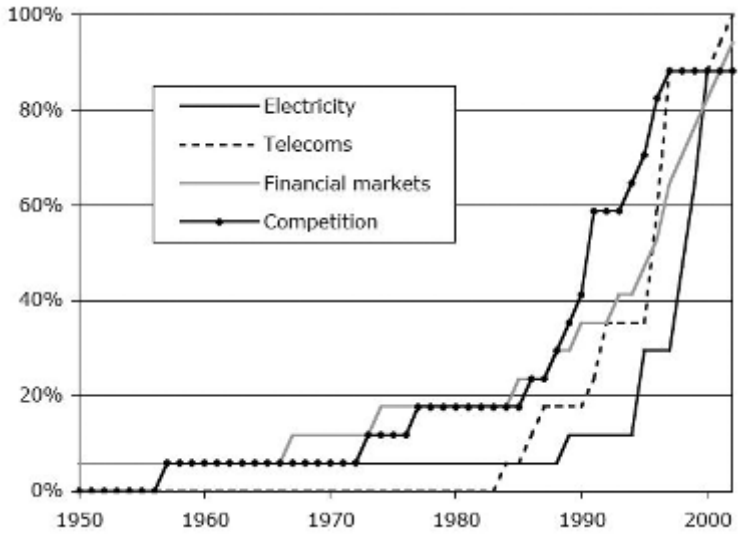

FIGURE 1A.

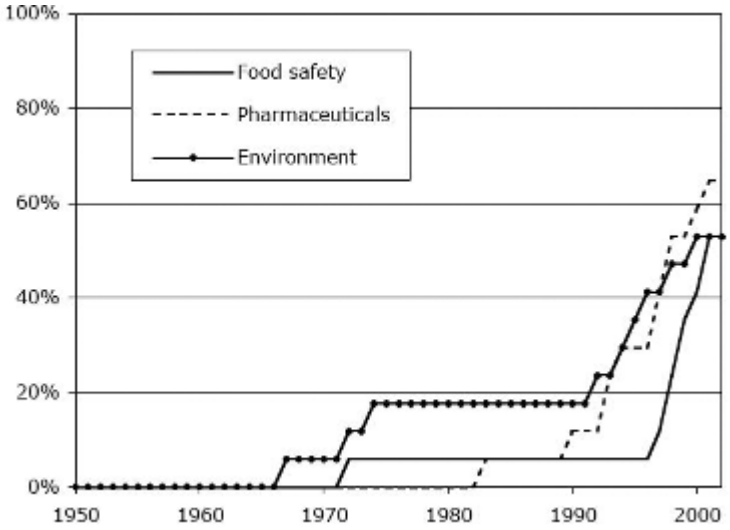

FIGURE 1B.

SOURCE: Gilardi (2004).

years where an IRA was established and zero otherwise. Given this structure, the data are analyzed through event history models (Box-Steffensmeier and Jones 2004).

The findings show that the spread of IRAs is not due to a single class of explanations. Interdependencies among countries matter, notably, in the form of emulation (which is one important mechanism of the "horizontal" class of explanations). But policy initiatives from the European Union (EU) level also increase the probability of IRA creation (in our case, these are the most likely top-down explanation). Credibility and political uncertainty pressures specific to each country are significantly associated to the establishment of IRAs (a major bottom-up explanation).

The rest of the article is structured as follows. The second section develops bottom-up, top-down, and horizontal hypotheses on the spread of IRAs; the third section presents the results of the statistical analysis; conclusions follow.

Explanatory Framework

Bottom-up: Credibility and political uncertainty

An important version of bottom-up explanations of diffusion implies that most countries experience similar problems at the same time and react to them in similar ways. Most governments may have had to cope with similar problems, and IRAs were an appropriate solution. I identify here two main functional pressures for the creation of IRAs: the credibility problem and the political uncertainty problem.

The credibility problem is linked to the fact that (regulatory) commitments may not be consistent over time. For example, decision makers may commit to low taxes at time t but nevertheless decide to raise taxes at time $t + 1$. There are several reasons for such time inconsistencies, including a change in the policy-making context. Or it may be simply that, as cognitive psychologists have demonstrated (Frederick, Loewenstein, and O'Donoghue 2002; Tversky and Tahler 1990), individuals are prone to sudden preference reversals that make them grossly discount the future and give disproportionate weight to short-term objectives. If private actors anticipate such inconsistencies, they may behave in ways that prevent policy makers from achieving their goals. For example, if prospective investors anticipate that the regulatory framework is likely to change in unfavorable ways, they may decide not to invest in the first place. As has been amply documented, private investment, especially if it involves important sunk costs (as is the case in utilities), requires guarantees against expropriation acts such as tax increases or discriminatory treatment (Carruth, Dickerson, and Henley 2000; Henisz 2002). Regulation thus requires a credible commitment capacity when one of its main objectives is attracting private investment, more especially if such investment involves important sunk costs that make it relatively irreversible. As many authors have noted,

regulatory commitments are more credible when there are more constraints on the decision-making process, so that change is more difficult (Henisz 2002; Levy and Spiller 1994; North and Weingast 1994). Alternatively, delegating regulatory competencies to authorities that are at least partly independent of direct political control permits achievement of a better credible commitment capacity (Levy and Spiller 1994; Majone 2001; Spiller 1993).

An important version of bottom-up explanations of diffusion implies that most countries experience similar problems at the same time and react to them in similar ways.

The second bottom-up explanation for the establishment of IRAs is linked to political uncertainty, namely, that the characteristics of the democratic process may (and often do) cause policies to be changed when a new party or coalition gains power. As Moe (1990, 1995) argued, authority over policy can be thought of as a property right that is transferred from one government to the other without compensations for the losers. An implication is that a government in power can be expected to try to prevent future governments from undoing its policies. Insulating policy from politics, for example, through delegation to an independent agency, is a means to make current policy choices endure beyond the moment when a new coalition takes office. In a formalization of Moe's arguments, de Figueiredo (2002) showed that the propensity to insulate policy from politics depends on the immediate reelection chances of the incumbent government but also on its longer-term prospects. In effect, a government may be at high risk of losing office but at the same time be very likely to return to office soon. This is a common situation in countries where high governmental instability implies that coalitions gain and lose office at relatively short intervals. In this context, insulating policy from politics means binding the hands of opponents, but also, and perhaps primarily, it means self-binding. Under these conditions, delegation to an independent authority is clearly not a very attractive solution to the political uncertainty problem. In addition, as with the credibility problem, the institutional context matters: if policy change is difficult because of constraints on the decision-making process, the political uncertainty problem will be less severe, and the incentives to insulate policy from politics through delegation will be less.

TABLE 1
SHARE OF PUBLIC OWNERSHIP IN INCUMBENT TELECOM OPERATORS, EU-15 COUNTRIES (IN PERCENTAGES)

	After First Sale of Shares[a]	1999[b]	2002[c]
Austria	NA	75.00	47.20
Belgium	50.10	50.10	50.10
Denmark	51.00	0.00	0.00
Finland	77.80	77.80	53.10
France	75.10	63.60	54.00
Germany	74.00	65.30	43.10
Greece	94.00	51.00	33.80
Ireland	NA	0.00	0.40
Italy	2.77	3.46	3.46
Luxembourg	NA	100.00	100.00
Netherlands	68.75	44.00	34.70
Portugal	72.70	10.50	6.50
Spain	NA	1.30	0.10
Sweden	NA	100.00	70.60
United Kingdom	49.80	0.10	0.00

a. Bortolotti et al. (2002, 246-47).
b. Commission of the European Communities (1999, 146).
c. Commission of the European Communities (2002, Annex 1).

Top-down: Europeanization

As Levi-Faur (2005, 25) explained, "Top-down explanations discuss the advance of regulatory reforms as a response of national policy makers to exogenous (and often common) pressures from various international sources on national political communities."[3] In the case of the establishment of IRAs in West European countries, the EU is clearly a suspect.[4] Important Europeanization literature has made the point that EU-level decisions have an impact on national-level policy making.[5] Specifically, Europeanization may work by imposing institutional compliance requirements, by excluding some options from the range of domestic policy choices, or by framing beliefs and expectations (Knill and Lehmkuhl 2002). The focus here is on the first of these mechanisms. No piece of legislation explicitly requires the establishment of IRAs (see also Levi-Faur 2004), but several directives, notably on the single market for energy and telecommunications, have promoted their creation through the imposition of separation of ownership and regulation. Directive 97/51, for example, requires that member states "ensure effective structural separation of the regulatory functions from activities associated with ownership or control" if they "retain significant ownership or a significant degree of control of organizations providing telecommunications networks and/or services" (Art. 1.5).

In fact, while most countries did privatize the incumbent telecom operators, most also retained a significant number of shares, as Table 1 shows. Right after the

first sale of shares to private investors, most countries held more than half of them. In 1999, that is, after Directive 97/51, eight member states out of fifteen still controlled an absolute majority of shares; in one country, Luxembourg, the incumbent operator was still fully publicly owned, and in another country, the Netherlands, the state owned 44 percent of the shares. Three years later, the picture was not much different. In effect, in 2002 five countries still controlled a majority of shares, and four more owned more than a third. So although Directive 97/51 did not unconditionally require the establishment of IRAs, the conditions that did make their creation compulsory were undoubtedly present for most member states: many countries owned either an absolute majority of shares of the incumbent operator or a significant proportion. The EU has thus been the source of pressures to which member states have had to adapt, notably in the telecommunications domain.

Horizontal: Emulation

Horizontal explanations focus on interdependencies among countries that cause diffusion processes. There is of course no single reason why countries may be interdependent, and several diffusion mechanisms thus exist, including learning, competition, cooperation, taken-for-grantedness, and symbolic imitation (Gilardi 2004; Braun and Gilardi 2005). I focus here on the two latter mechanisms. Taken-for-grantedness is a concept from the sociological literature on organizations (Hannan and Carroll 1992) and refers to the fact that some policies or organizational forms may progressively become taken for granted as the normal solution to a given problem, regardless of their actual effectiveness. Policies or organizations become taken for granted when they are so widespread that there is little question that they are the appropriate choice. Symbolic imitation, on the other hand, means that the adoption of some policies and organizational forms is a ceremony intended to legitimize the actions of the adopters (Meyer and Rowan 1977). Again, adoptions are independent of actual functional properties. The argument is that some forms are socially more valued, notably those in line with the "rationalized environment" (Meyer 1994) that "structur[es] everyday life within standardized impersonal rules" (Meyer, Boli, and Thomas 1994, 20). Despite their differences, taken-for-grantedness and symbolic imitation can be brought together under the label "emulation,"[6] which indicates that functional properties are less important than symbolic properties in driving diffusion processes (Levi-Faur 2005). In line with these arguments, McNamara (2002) recently argued that central banks around the world have been granted independence not so much as a means to keep inflation low but because of the symbolic rewards of this reform.

Statistical Analysis

The hypotheses are operationalized as follows.[7] The credibility hypothesis states that the establishment of IRAs is an attempt to improve the credibility of regulatory commitments, a valuable political asset particularly when regulation aims at

attracting investment. This is the case in economic regulation more than in social regulation and especially when utilities are liberalized and privatized, since investment in this case involves important sunk costs. Therefore, the establishment of IRAs is expected to be more likely with the liberalization or privatization of utilities, and with other economic regulation (competition and financial markets), than with social regulation. Liberalization and privatization are operationalized as binary variables taking the value of one for years when telecoms and/or electricity were privatized or liberalized;[8] a time-invariant binary variable takes the value of one for competition and financial markets.

Second, the political uncertainty hypothesis states that governments have incentives to delegate when they fear being replaced by a coalition with different preferences *and* consider that their chances of gaining power again in the short term are slim. Following Franzese (2002), I measure political uncertainty as the product of the standard deviation of the partisan "center of gravity" of governments over seven years and of the inverse of the actual duration of governments. This gives information on the likelihood of a government being replaced by a coalition with different preferences. On the other hand, I take the mean value of political uncertainty over the whole period as a measure of reelection chances. In effect, high average values indicate frequent turnover in the executive, which implies that coalitions that lose office are likely to regain it quite soon. The hypothesis is that the impact of political uncertainty on the likelihood of IRA creation depends on its average long-term value (i.e., on reelection chances).

Both credibility and political uncertainty pressures are expected to be filtered by political institutions, in particular by institutions that impose constraints on decision-making processes, since they are functional equivalents of delegation for coping with problems of credibility and political uncertainty alike. The concept of veto players (Tsebelis 2002) captures the idea that some constellations of political institutions and of the actors that inhabit them make policy change easier or more difficult. Veto players are those whose agreement is necessary to change the status quo. Policy stability increases as the number of veto players increases. The hypothesis is that the impact of credibility and political uncertainty pressures is conditional on the number of veto players. The presence of many veto players constitutes a functional equivalent of delegation and thus moderates credibility and political uncertainty pressures. In the statistical analysis, veto players are taken into account through a measure in Henisz's (2002) data set (POLCON3) of the feasibility of policy change given the number of veto points in a political system and the preferences of the actors who control them. The measure is thus very close to Tsebelis's (2002) concept.

With respect to Europeanization, after a careful examination of EU legislation (see Gilardi 2004, 198-201), three directives have been selected that might have had an impact on domestic creations of IRAs, namely, Directive 96/92,[9] Directive 92/44,[10] and Directive 97/51.[11]

Emulation is taken into account by a measure of the share of IRAs existing at time $t-1$ at three different levels: overall, regulatory type (economic or social) and regulatory domain (utilities, other economic regulation, social regulation). This

measure is admittedly simple, but it has been widely used in the sociological literature on organizations (e.g., Hannan and Carroll 1992) and in political science studies of diffusion (e.g., Simmons and Elkins 2004). The idea is that as IRAs become increasingly widespread, they are increasingly likely to be seen as an appropriate way to organize regulatory policy, independently of their actual functional properties.

Finally, measures of the partisan composition of governments and its interaction with liberalization are included in the models to account for or control for their possible role. That is to say, IRAs need not be ideologically neutral, so some parties, notably to the right of center, may be more prone to establish them.

The results of the statistical analysis are shown in Table 2.[12] Starting with bottom-up hypotheses, it appears that both credibility and political uncertainty matter for the establishment of IRAs in Western Europe. Liberalization and privatization of utilities were expected to increase the likelihood of IRA creation, since both reforms need a credible commitment capacity to be successful. Across the three models, the establishment of IRAs is more likely when utilities are liberalized and/or privatized, and the relationship is statistically significant. Furthermore, the impact of liberalization, as expected, is conditional on the characteristics of the political system, notably the extent to which policy change is difficult. Since political constraints are a functional equivalent of delegation for achieving credible commitment capacity, the effect of liberalization is significantly stronger when few political constraints exist. By contrast, no such effect is found for privatization.

The theory also expected delegation to IRAs to be more likely with the economic regulation of competition and financial markets than with social regulation. Models 1 and 2 show, consistent with this view, that IRAs are significantly more likely to be established in these two sectors. The relationship, however, wanes in model 3. An explanation could be that diffusion effects, which are measured at a lower level in this model, make bottom-up forces irrelevant in this specific case. Recall, however, that the measurement of credibility pressures in competition and financial markets regulation is not very refined.

The theoretical predictions for the second bottom-up force, namely, political uncertainty, find empirical support. Across the three models, the probability that an IRA is established significantly increases with a higher risk of a government being replaced by a coalition of different party composition. As expected, the impact of replacement risk depends on reelection chances, measured by the mean value of replacement risk of a country. The fact that a government is at high risk of losing office makes the establishment of an IRA most likely if this is not a common situation in the country. In this case, losing office means staying in the opposition for a considerable time. Thus, delegation binds the new government but does not imply self-binding. This effect is statistically significant in the three models. In addition, the impact of replacement risk is also conditional on political constraints. Like credibility, political constraints are a functional equivalent of delegation, in this case not for achieving a credible commitment capacity but for binding future governments. Thus, replacement risk most increases the chance that an IRA is

TABLE 2

THE DIFFUSION OF INDEPENDENT REGULATORY AGENCIES (IRAs) IN WESTERN EUROPE: STATISTICAL ANALYSIS

	1	2	3
Bottom up: credibility			
Financial markets/competition	0.979** (0.252)	0.750** (0.256)	0.338 (0.329)
Privatization	1.703* (0.660)	1.572** (0.591)	1.752* (0.686)
Liberalization	12.229** (2.705)	12.015** (2.569)	11.957** (2.737)
Liberalization × Political Constraints	–15.116** (4.935)	–15.176** (4.749)	–14.264** (4.963)
Partisan Composition of Government × Liberalization	–2.104** (0.334)	–2.021** (0.320)	–2.146** (0.343)
Bottom up: political uncertainty			
Replacement risk	4.493** (1.468)	4.554** (1.484)	4.742** (1.464)
Mean replacement risk	2.967** (0.827)	2.918** (0.842)	2.982** (0.840)
Replacement Risk × Mean Replacement Risk	–5.407* (2.147)	–5.454* (2.148)	–5.739** (2.124)
Replacement Risk × Political Constraints	–5.199** (1.856)	–5.256** (1.881)	–5.342** (1.877)
Top down: Europeanization			
EU Directive 92/44 (telecoms)	0.762 (0.775)	0.502 (0.738)	0.791 (0.800)
EU Directive 96/92 (energy)	0.524 (0.466)	0.237 (0.493)	0.407 (0.477)
EU Directive 97/51 (telecoms)	2.645** (0.380)	2.319** (0.399)	2.587** (0.388)
Horizontal: diffusion (emulation)			
Share of existing IRAs (all sectors)	3.418** (1.156)		
Share of existing IRAs (same regulatory type)		2.686* (1.053)	
Share of existing IRAs (same regulatory domain)			2.835** (1.007)
Institutions and parties			
Political constraints	1.052 (1.414)	0.989 (1.424)	1.071 (1.446)
Partisan composition of government	–0.196 (0.144)	–0.185 (0.143)	–0.195 (0.144)
Constant	–15.755** (4.024)	–16.948** (4.363)	–16.381** (4.179)
Alpha	3.466 (1.054)	3.849 (1.133)	3.712 (1.081)
Wald chi-square	649.27	597.65	679.54
Sectors × Countries (IRA creations)	117 (77)	117 (77)	117 (77)
n of observations	4,405	4,405	4,405

NOTE: Entries are estimated coefficients from Weibull event history analysis models. Robust standard errors in parentheses (for clustering on sector-countries).
*$z < .05$. **$z < .01$.

established when few political constraints exist, as indicated by the significant coefficient of the interaction between replacement risk and political constraints.

The fact that the same effect of political constraints is found for both credibility and political uncertainty is important because it strongly corroborates the controversial argument that veto players are a functional equivalent of delegation. In effect, a robust finding of the literature on central banks reveals more delegation in the presence of *many* veto players because delegation itself is credible only when it cannot be revoked easily (see, e.g., Keefer and Stasavage 2003). In this sense, the presence of many veto players is a precondition for credible delegation. The results presented here go against this view and support an alternative theoretical argument.

The data also support top-down explanations, specifically for the hypothesis that Europeanization processes have promoted the establishment of IRAs. The evidence is especially strong for Directive 97/51. The establishment of IRAs was significantly more likely for the period in which member states had to pass legislation

[Independent regulatory agencies] have spread not only because countries have independently responded to common functional pressures but also because countries are interdependent and are influenced by the choices taken abroad.

implementing that directive, controlling for the impact of all other variables. The other two directives seem less relevant, as their coefficients are not significant. But note that the joint significance of the three directives (which can be thought of as the significance of all the Europeanization effects taken into account here) is strong.

Finally, the horizontal hypothesis argues that the interdependencies among countries may have caused a diffusion process; that is, the decision to set up an IRA partly depends on what others have done. While several diffusion mechanisms can be identified on the conceptual level, the focus here is on emulation, where the symbolic properties of IRAs are more important than the functions they can fulfill. The results presented in Table 2 show that a "social logic of delegation" (McNamara 2002) has been at work. The establishment of IRAs becomes significantly more likely as the share of existing IRAs increases, regardless of the level at which the number of existing IRAs is measured (overall level, regulatory type, reg-

TABLE 3
PREDICTED HAZARDS OF INDEPENDENT REGULATORY AGENCY (IRA) CREATION

	Average Political Constraints	Few Political Constraints	Many Political Constraints
Credibility			
Liberalization			
No		.00	.00
Yes		.10	.00
Privatization			
No	0.04		
Yes	0.14		
Political uncertainty			
Low replacement risk			
Poor reelection chances		.01	.02
Good reelection chances		.03	.04
High replacement risk			
Poor reelection chances		.07	.04
Good reelection chances		.06	.03
Europeanization			
EU Directive 97/51			
No	.03		
Yes	.42		
Emulation			
Share of IRAs established (at the regulatory domain level)			
10 percent	.03		
50 percent	.11		
90 percent	.33		

NOTE: Predicted values are computed on the basis of model 3. All predicted values assume year = 1995. The values can meaningfully be compared only inside boxes. For the present purposes, hazards can be considered as essentially identical to probabilities.

ulatory domain). This suggests that IRAs have progressively become a normal way of organizing regulatory policy, and as a result, further creations have become more likely whatever the functions IRAs actually perform.[13] Contrary to what McNamara (2002) suggested, however, the fact that the logic of delegation has a "social" component does not imply that other arguments, such as credibility and political uncertainty, are "rational fictions." The findings presented here clearly show that emulation has supplemented rather than replaced functional reasons in driving the spread of IRAs in Western Europe.

To refine the interpretation of results, Table 3 shows predicted hazards[14] of IRA creation for a few theoretically interesting configurations. Note two caveats about their interpretation: (1) hazard values can be meaningfully compared only inside boxes, since the values at which the other variables are kept constant vary across boxes; and (2) the hazards are informative only in relative terms (that is, in compar-

ison with the other hazards in the same box) because their absolute values depend very much on the levels at which the other variables are set.

The first interesting insight, which confirms the interpretation offered above, concerns the role of credibility pressures. It can clearly be seen that liberalization, which creates a need for a credible commitment capacity, increases the likelihood or "hazard" of IRA creation, but only in the presence of few political constraints. As already emphasized, this demonstrates that political constraints work as a functional equivalent of delegation for improving credibility.

Furthermore, the hazard is bigger when utilities are privatized. Again, this supports the credibility hypothesis. Since the models in Table 2 found that the effect of privatization, unlike that of liberalization, does not depend on the level of political constraints, the variation of the hazard in the presence of privatization is examined only at mean values of political constraints.

[V]eto players, which make policy change more difficult, work as a functional equivalent of delegation for, respectively, improving credible commitment capacity and preventing future governments from changing policy.

Although the picture is somewhat ambiguous with respect to the political uncertainty hypothesis, the following points emerge to lend it further support. First, the hazards of establishing IRAs when there are few political constraints increases when replacement risk increases. Second, the hazards under high replacement risks are higher when there are few political constraints. This shows that political constraints are a functional equivalent of delegation for alleviating the political uncertainty problem. As indicated above, finding this "political constraints as functional equivalent" effect for both credibility and political uncertainty considerably reinforces confidence in the results, especially since the central banks literature comes to an opposite conclusion. Third, the hazards under both high replacement risk and few political constraints show that the establishment of an IRA is a more attractive option when reelection chances (measured as average replacement risk) are poor because delegation binds only other governments and does not imply self-binding.

Table 3 also documents the relevance of Europeanization. Directive 97/51 magnified the hazard of IRA creation ten times, controlling for the impact of the other

variables. The "net impact" of Europeanization on regulatory reforms (Levi-Faur 2004) seems therefore very important, although a more accurate assessment would require a comparison with non-European countries.

Finally, the substantive significance of diffusion effects, in particular emulation, emerges clearly from the examination of predicted hazards. When 90 percent of IRAs have been established, the hazard of a new IRA creation is three times greater than when 50 percent have been established and as much as ten times greater than when only 10 percent exist. It is important to stress that this very sizeable effect is observed keeping all other variables constant, including functional pressures. This result indicates that the institutional foundations of regulatory capitalism have spread not only because of their functional properties but also because they are a socially valued organizational form. This finding nuances Majone's (1997) argument that the rise of the regulatory state is due essentially to powerful functional pressures and structural trends. It also implies that IRAs have spread not only because countries have independently responded to common functional pressures but also because countries are interdependent and are influenced by the choices taken abroad.

Conclusion

The institutional foundations of regulatory capitalism, namely, independent regulatory agencies, have spread in all West European countries and well beyond utilities, financial institutions, and the regulation of competition. This article shows that the three classes of explanations discussed by Levi-Faur (2005)—bottom-up, top-down, and horizontal—all matter in accounting for the diffusion of IRAs. With respect to bottom-up hypotheses, the need to improve credible commitment when privatizing and liberalizing utilities increases the likelihood that an IRA will be established. This likelihood also increases with higher risk of a government being replaced by a coalition of different preferences (political uncertainty), still more if that government's chances of being reelected soon are slim. For both the credibility and political uncertainty problem, veto players, which make policy change more difficult, work as a functional equivalent of delegation for, respectively, improving credible commitment capacity and preventing future governments from changing policy. In the top-down perspective, Europeanization matters. In the telecom domain in particular, directives that required the structural separation of regulation and ownership of telecom operators significantly increased the probability that new IRAs were established. Finally, evidence for the horizontal perspective confirms the hypothesis that individual IRA creations have not been independent. A diffusion process has been at work. The likelihood of IRA creation significantly increases as the number of other existing IRAs is higher, which suggests the presence of an emulation process where the symbolic properties of IRAs are more important than the functions they perform.

More generally, this article has raised two issues about the global diffusion of regulatory capitalism. First, any explanation that neglects horizontal factors misses

an important point. Common pressures and imposition by powerful organizations matter, but interdependencies among countries are also a fundamental driver of regulatory reforms, indeed of policy change more generally. The literature has just started to acknowledge these interdependent diffusion effects, and more work is needed. Second, the rise of the regulatory state has a very important social (or nonfunctional) component. This component has been largely neglected in the literature. Here too more work is needed, notably to separate empirically the relevance of the various mechanisms subsumed under the label "emulation."

To conclude, let me note that an implication of this research is that policy change comes in waves. This is not a new phenomenon; as Levi-Faur (2004, 21-24) showed, the wave of utility privatization was preceded by a wave of nationalization. Therefore, while this article has demonstrated that IRAs are now widespread, it would be a bold claim to say that they are here to stay.

Appendix
Summary of Variables, Measures, and Data Sources

Variable	Measures	Data Sources
Dependent variable		
Establishment of an independent regulatory agency (IRA)	Binary variable taking the value of 1 if an IRA is established	Gilardi (2004)
Credibility		
Financial markets/competition	Binary variable (1 for financial markets and competition)	—
Liberalization	Binary variable (1 for years when market was opened in telecoms or electricity)	Boylaud and Nicoletti (2000); Steiner (2000)
Privatization	Binary variable (1 for years when telecoms or electricity companies were privatized)	Boylaud and Nicoletti (2000); Levi-Faur (2003)
Political uncertainty		
Replacement risk	Replacement risk	Gilardi (2004); Woldendorp, Keman, and Budge (2000)
Rapid reelection chances	Mean replacement risk	—
Emulation		
Share of IRAs (t – 1) (all sectors)	—	Gilardi (2004)
Share of IRAs (t – 1) (same regulatory type)	Regulatory types: economic, social	Gilardi (2004)
Share of IRAs (t – 1) (same regulatory domain)	Regulatory domains: social regulatory, utilities, financial markets/competition	Gilardi (2004)

(continued)

Appendix (Continued)

Variable	Measures	Data Sources
Europeanization		
EU legislation requiring IRAs	Binary variable (1 for years during which member states had to pass laws implementing EU directives requiring or promoting the setting up of IRAs)	Gilardi (2004)
Institutions and parties		
Veto players	Political constraints	Henisz (2002)
Partisan composition of government	Left = 1, center-left = 2, center = 3, center-right = 4, right = 5	Gilardi (2004); Woldendorp, Keman, and Budge (2000)

Notes

1. Conventionally, regulation is termed "economic" when it deals with the price, entry, exit, and service of an industry; while it is termed "social" when it concerns noneconomic issues such as safety and health (see, e.g., Meier 1985, 3).

2. As independent reactions to similar functional pressures may lead to diffusion-like patterns, bottom-up mechanisms can be considered as sources of "spurious diffusion" (Gilardi 2004; Braun and Gilardi 2005).

3. Top-down explanations thus resonate with the notion of "coercive isomorphism" developed by DiMaggio and Powell (1991).

4. Of course, pressures from the EU cannot be considered fully exogenous to member states. The same point, however, could be made for most international organizations.

5. For a skeptical analysis, see Levi-Faur (2004).

6. In addition, these two mechanisms are particularly difficult to disentangle empirically and, given their theoretical proximity, can be examined together.

7. A summary of variables, measures, and data sources is given in the appendix.

8. For more details, see Gilardi (2004, 209-11).

9. Common rules for the internal market in electricity.

10. Application of open network provision to leased lines.

11. Amending Directives 90/387 and 92/44 for the purpose of adaptation to a competitive environment in telecommunications.

12. Due to space constraints, only three models are considered, which differ only with respect to the level at which emulation variables are measured. The three emulation variables are not entered simultaneously in the same model because they are highly collinear (correlations range between .85 and .95). As a result, if the three variables are included in the same model, none reaches statistical significance. Note, however, that even in this case, they are jointly significant at the .05 level (Gilardi 2004, 249). For a wider range of models and further discussion of specification issues, see Gilardi (2004, 236-66).

13. It should be stressed that since the measure used to capture emulation is the *sheer number* of existing independent regulatory agencies (IRAs) (at the three levels), the results presented here cannot be taken as evidence of learning, since learning implies, at the very least, that all available experience does not matter equally.

14. For the present purposes, the hazard can be considered equivalent to a probability (in this case, the probability that an IRA is established). For more details see Box-Steffensmeier and Jones (2004, 13-15).

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