

Private Business Regulation and Public Policy: A Network Approach

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Abstract

Many scholars continue to view private business regulation as a threat to traditional 'command and control' regulation by the state. This paper takes an alternative view, showing how private actors have used voluntary standards, not to replace government, but to drag it into policy areas that have been neglected or ignored. Looking at the development of corporate non-financial reporting regulation in Europe, the paper explores the relationship between private regulation and public policy using network methods. I argue that network analysis is useful here because it can give us a meaningful indicator of how popular voluntary standards are among companies in a given country-year. This indicator is then shown to be a powerful predictor of new public policy across a sample of 14 countries. In addition, I find that while private regulation represents a necessary (though not sufficient) condition for new public policy in this case, the arrival of new formal rules does not render voluntary standards superfluous. Instead, I find that new public policy strengthens private regulatory networks by increasing their size and rate of growth, ultimately leading to a ratcheting up of existing standards.

1 Introduction

Numerous scholars have called attention to the rise of private business regulation in recent years (see [Vogel 2008](#)). As many have noted, nonstate actors are playing increasingly prominent roles in various stages of the regulatory process, including agenda-setting, rule-making, and implementation ([Buthe 2010](#)). While the spread of private regulation has fueled a great deal of skepticism among political scientists, some important aspects of this trend remain undertheorized. In particular, I argue that we still do not understand (1) how the rise of private business regulation impacts traditional forms of state regulation, and (2) how new public policy affects the development of existing private regulatory schemes. In this paper I attempt to address both deficiencies through the application of network theory and methods.

Private regulation is the result of both political contestation and institutional entrepreneurship ([Bartley 2007](#)). It is in part a response to economic globalization and the resulting governance gap between state regulators and transnational corporations ([Vogel 2010](#)). However, it is also the product of a neoliberal context in which traditional ‘command and control’ state regulation came under fire. In this context, social movement campaigns worked outside the political system to pressure companies by publicly naming and shaming corporate wrongdoers ([Bartley 2003](#)). As companies looked to protect themselves, institutional entrepreneurs emerged, developing new voluntary standards and certification systems that could provide reputational benefits to companies while also improving corporate social and environmental performance ([Potoski and Prakash 2005](#)).

Since many companies could potentially be targeted by public interest movements on the basis of their social and environmental performance, one might expect corporate participation in private regulatory schemes to be high. However, while participation rates in many programs have been rising steadily, in most cases companies that do not participate vastly outnumber those that do. Part of this difference may stem from institutional conditions ([Campbell 2007](#)). Although there is disagreement in the literature over whether

private regulation serves as an institutional mirror or substitute (Jackson and Apostolaki 2010), many argue that differences in national or system-level factors like existing regulatory requirements, NGO activity, or organized stakeholder dialogues may make a company more or less likely to voluntarily self-regulate. At the firm-level, companies are also responding to internal pressures related to leadership, corporate culture, and organizational structure (Brown, Vetterlein and Roemer-Mahler 2010). Less understood are the ways in which the relationships between firms also drive participation (Bansal and Roth 2000).

Leaving aside questions of why or how it emerged, private business regulation has gained a great deal of support and legitimacy—particularly among large businesses, multilateral organizations, and NGOs—and in that sense it is here to stay. Still, there exists a great deal of tension between the “business-driven” forms of private regulation that emphasize voluntary engagement and the “multi-stakeholder” forms that point toward binding rules (Brammer, Jackson and Matten 2012). As a result, policymakers are often divided over whether private regulation should remain voluntary or whether it should morph into state regulation (Fairbrass 2011). In Europe, this ambiguity has led the European Union to vacillate between the roles of a “neo-liberal cheerleader” and a “social-liberal standard-setter” (Kinderman 2013).

Thus far it is not clear in the literature how the continued development of private regulation impacts public policy. Werner (2012) argues that by engaging so many key members from business, government, and civil society, private regulation ends up crowding out support for formal rules. Other research suggests a less adversarial relationship between private and public regulation. For example, Levi-Faur (2005) notes that the need for more rules (and expertise) in what he calls “regulatory capitalism” has opened the door to a new division of labor between public and private actors.

In this paper I use network theory and methods to assess the impact of private business regulation on the development of new public policy in the case of corporate non-

financial reporting. The following sections (1) introduce fundamental concepts from network theory, (2) provide an overview of corporate non-financial reporting regulation, (3) describe the data and structure of the networks under study, (4) compute basic network measurements to track the development of private regulatory networks, (5) assess the impact of private regulatory network development on public policy, and (6) examine the feedback effects of new public policy on the continued development of private regulatory networks.

2 A Network Approach

Most studies examining the political behavior of business focus on firm-level attributes such as location, industry, or size. Attributes such as these are treated as variables, which are then used to explain some other attribute or behavior. In statistical analyses, it is typically assumed that these attributes are drawn independently across firms—we assume, for example, that the decision of firm *A* to join a particular initiative is made without consideration to the choice of firm *B*. In contrast, the network approach is a *relational* one ([Wasserman and Faust 1994](#)). Rather than looking simply at the attributes of different social entities, the focus is instead on the relationships between these entities. It is the entities (often referred to as nodes or vertices) and the connections between them (referred to as ties or edges) that constitute the network.

Most political scientists and sociologists agree that economic action is embedded in structures of social relations ([Granovetter 1985](#)). Network methods capture these structures by analyzing the interdependence among individuals, groups, and institutions (see [Hafner-Burton, Kahler and Montgomery 2009](#); [Ward and Stovel 2011](#)). In the case of private business regulation, networks are constituted by the relations between businesses, NGOs, and multilateral organizations ([Hirschland 2006](#)). One advantage of the network approach is that it allows us to treat these relationships as conditionally dependent, where

the presence of a tie between a given firm and NGO, for example, depends on the presence of other ties between firms and NGOs in the network (Wang et al. 2009). By confronting this kind of dependency, researchers acquire a more realistic perspective on how networks form and change over time.

In addition to providing a more realistic depiction of firm behavior, network analysis can also be used to link micro- and macro-level theories (Granovetter 1973). While researchers may employ network tools in order to understand micro-level behaviors, the results often have implications for phenomena that exist at a higher level of analysis. To bridge the gap between micro- and macro-level theories we can look at measurements of system-level integration that refer not only the behavior of particular actors but also to overall properties of the network (Skvoretz and Faust 1999). In this way, network analysis can work as a measurement tool, providing specific indicators that describe a phenomenon consisting of a large number of actors *and* the ties between them. This paper introduces network density and clustering statistics as indicators of system-level integration in private regulatory networks—that is, as measurements of how entrenched voluntary standards are in a particular regulatory environment—and then uses these measurements in a regression analysis to estimate their impact on the development of new public policy.

3 Example: Corporate Non-Financial Reporting Regulation

Over the past decade, demand for information related to corporate social, environmental, and governance (ESG) performance has increased dramatically across a wide range of stakeholders, including investors, consumers, business partners, employees, communities and governments (Moon et al. 2012). From the stakeholder’s point of view, corporate non-financial reporting provides valuable information needed to integrate social and environmental preferences into various decision-making processes—e.g. deciding which

firms to invest in, work for, purchase goods from, or do business with. Similarly, from the firm's point of view, such disclosures bring with them the possibility of attracting new capital, better workers, and more business.

As demand for this kind of information has continued to rise from the late 1990s through to the present (Kolk 2008), so too has the demand for rules and frameworks that could be used to harmonize firms' disclosure practices (so that information can be compared across firms and/or over time), to monitor and enforce compliance with quality assurance standards (so that disclosures are truthful and of material interest to stakeholders), and to simply increase the number of firms reporting. The development of these rules and frameworks has taken place largely within the private sector, and as a result corporate financial reporting represents an interesting case study in private regulation.

3.1 Private Regulation

Organizations such as the Global Reporting Initiative (GRI), the Carbon Disclosure Project (CDP), and the UN Global Compact (GC) play a key role in the global governance of corporate non-financial reporting. Although each organization differs in important ways (e.g. funding support, mission statement, organization, etc.), they all have succeeded in stimulating demand for new rules and frameworks, and they have transformed that demand into new global norms. In fact, GRI, CDP, and GC are not simply the names of organizations; they are also widely recognizable brand names that firms around the world use to signify their commitment to corporate social responsibility in general, and to corporate non-financial reporting in particular. In turn, the success of these brands signifies the command these organizations hold over agenda-setting and rule-making processes (see Figure 1).

3.1.1 Global Reporting Initiative

The Global Reporting Initiative (GRI) is a multi-stakeholder initiative designed to provide guidance on corporate non-financial reporting for business organizations around the world. The GRI originally formed in Boston through collaboration between the Coalition for Environmentally Responsible Economies (CERES) and the Tellus Institute in 1997. The United Nations Environment Programme (UNEP) joined the GRI as a partnering institution the following year, providing key administrative and financial support as well as enhancing the organization's legitimacy. Now headquartered in Amsterdam, the GRI has produced a comprehensive set of reporting standards known as the Sustainability Reporting Guidelines. These guidelines, currently in their fourth version ("G4") since being introduced in 2000, have been used by nearly 6,000 companies in 96 countries. Often

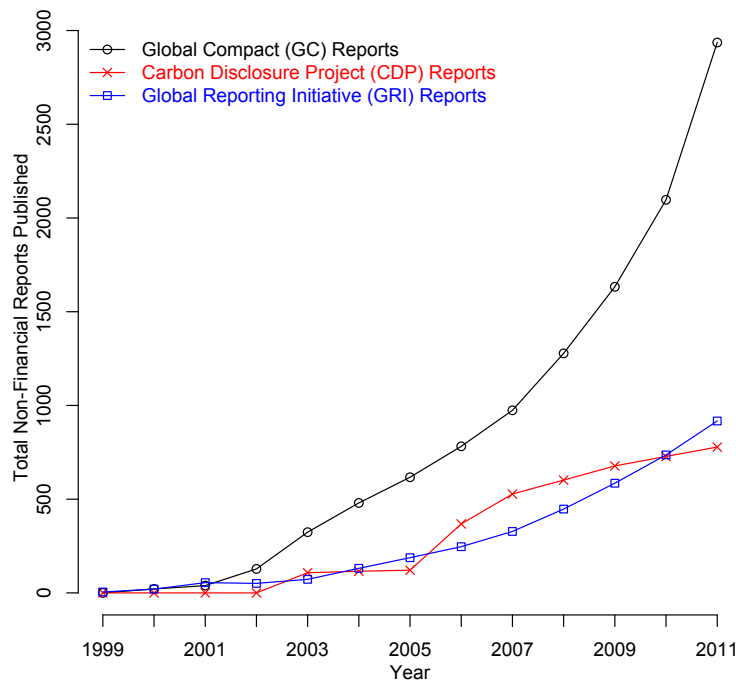


Figure 1: Total number of corporate non-financial reports published per year among the 14 EU countries under study: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and United Kingdom.

referred to as the de facto corporate non-financial reporting standard, the GRI Guidelines comprise a mixture of principles and Key Performance Indicators (KPIs) aimed to improve the content and quality of non-financial disclosure ([Levy, Szejnwald Brown and de Jong 2010](#)).

One of the key features of the GRI has been its large multi-stakeholder network of supporters. At present, the GRI maintains a global network of more than 600 organizational stakeholders—a vast array of companies, NGOs, government agencies, universities, and other organizations from over 60 countries—and more than 30,000 individual stakeholders from a variety of backgrounds. These stakeholders provide critical financial support, but they also contribute to the development of the guidelines through the GRI Stakeholder Council in Amsterdam. The GRI's global presence is further established through satellite offices (referred to as Focal Points) in Australia, Brazil, China, India, and the United States.

The GRI's position as the preeminent standard-setter for corporate non-financial reporting is the product of both the strategy employed by its founders and the support it receives from constituent organizations. In its early stages of development, the GRI's founders built support for their organization and its novel approach to disclosure by emphasizing the similarities between financial reporting and non-financial reporting. Use of this analogy helped to legitimize non-financial reporting, particularly among business interests, and ease the transition to a new normative perspective. As development of the organization and its mission progressed, however, this analogy became less useful and less relevant, as the dissimilarities between financial and non-financial reporting became more apparent ([Etzion and Ferraro 2010](#)). While the GRI has been careful to manage the pace of this process of institutionalization and thereby maintain the support it receives from its stakeholders, this practice has also produced criticism that the GRI's strategy reflects the interests of its “dominant constituencies,” that is, large firms, financial institutions, and international business management consultancies ([Brown, de Jong and Levy](#)

2009), and that it has thus failed to live up to its potential (Dingswerth and Eichinger 2010).

3.1.2 Carbon Disclosure Project

While the GRI provides a variety of helpful resources for companies looking to produce a non-financial report, whether or not investors and other stakeholders actually take the time to read such reports is another question. The Carbon Disclosure Project (CDP) attempts to bypass this problem by collecting information on corporate greenhouse gas emissions, energy use, and other activities related to climate change directly from companies and relaying this information to large institutional investors with whom it has partnered. Formed in London in 2000, CDP now collects corporate environmental performance data from more than 5,000 companies on behalf of more than 700 institutional investors, who together hold a total of US\$87 trillion in assets under management.

Rather than encouraging companies to produce a non-financial report, CDP collects corporate non-financial performance data via a long and detailed questionnaire. Although some firms complain about the resources required to answer the CDP questionnaire, many of them comply, if for no other reason than out of fear for the negative publicity that could result if they do not. While CDP has succeeded in achieving a high response rate, there is still concern that firms are not providing the kind of information investors actually need (Kolk, Levy and Pinkse 2008). Therefore, in addition to its data collection efforts, CDP also oversees the development of new reporting guidelines through its management of the Carbon Disclosure Standards Board (CDSB) and the development of its own Climate Change Reporting Framework.

3.1.3 UN Global Compact

The United Nations Global Compact (GC) is the single largest corporate responsibility initiative in the world. Firms that choose to join the GC must produce a letter signed by

their CEO that pledges support for the GC's ten basic principles of corporate responsibility (relating to labor, human rights, the environment, anti-corruption, and other issues). Members also must produce a report within two years of joining that details their progress in living up to this pledge. Although the reporting requirement is much less onerous than those used by GRI or CDP, the large number of GC members (currently more than 8,000 active business participants from more than 140 countries) make it an significant component of the corporate non-financial reporting landscape. In addition, the GC has also established a number of Local Networks to encourage firms to collaborate and learn from each other. More recently, the GC began a new program, Global Compact LEAD, which attempts to highlight the efforts of the best performing and most active firms. Still, the GC has been criticized as a relatively weak program with poor enforcement mechanisms ([Berliner and Prakash 2012](#)). As [Knudsen \(2011\)](#) illustrates, while most companies comply with the GC's reporting requirement, a sizable portion do not, including many smaller companies as well as companies from countries that lack well-functioning domestic governance institutions.

The initiatives described here—GRI, CDP, and GC—are certainly not the only ones firms look to when deciding whether or how to report on their non-financial performance. For example, the OECD Guidelines for Multinational Enterprises contain information on non-financial reporting, as does ISO 26000, a new corporate responsibility guidance established by the International Organization for Standardization. In addition, CDP is far from being the only organization to request non-financial data from firms via the use of a questionnaire—other prominent examples include the Dow Jones Sustainability Index (questionnaire sent from their partner organization, SAM) and the FTSE4Good indices (through their partner, EIRIS). Still, the GRI, CDP, and GC reporting standards remain among the most popular, making these organizations influential players in the development of corporate non-financial reporting rules and frameworks.

3.2 State Regulation in Europe

In its early development, a critical feature of corporate non-financial reporting, and of corporate social responsibility (CSR) more generally, was that it was something that firms did voluntarily. This attitude is reflected, for instance, in the European Commission's 2001 definition of CSR: "a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis" ([European Commission 2001](#)). However, project only ten years into the future, and we see that the European Commission has significantly revised its conception

Country	Year	Law/Regulation
Denmark	2008	Revision to Danish Financial Statements Act. Requires large companies and state-owned enterprises to disclose their CSR activities and use of environmental resources.
Finland	2011	Government Resolution on State Ownership Policy. Requires non-listed state-owned companies and state majority-owned companies to report their sustainability performances.
France	2001	New Economic Regulations (NRE), Article 116. Requires listed companies to disclose data on 40 labor and social criteria.
	2010	Grenelle II, Article 225. Requires listed companies and other large companies to produce a social and environmental report.
Germany	2011	German Sustainability Code. Requires companies to disclose data on Key Performance Indicators (27 KPIs of GRI or 19 of EF-FAS) complementary to twenty Code criteria.
Spain	2011	Spanish Sustainable Economy Law. Requires government-sponsored companies and state-owned businesses to file annual corporate governance reports and sustainability reports.
Sweden	2007	Guidelines for External Reporting by State-Owned Companies. Requires state-owned companies to produce an annual sustainability report in accordance with GRI guidelines.
United Kingdom	2006	British Companies Act. Requires listed companies to disclose information on environmental, workplace, social, and community matters that are material to their business.
European Union	2014	EC directive requires CSR disclosure in annual financial reporting of listed companies.

Table 1: State regulation of corporate non-financial reporting among the 14 EU countries under study. Source: www.hausercenter.org; www.reportingcsr.org; [United Nations Environment Programme et al. \(2013\)](#).

of what CSR is: “the responsibility of enterprises for their impacts on society” ([European Commission 2011](#)). So, what happened in the interim?

As mentioned, the demand for more information on corporate non-financial performance was followed almost immediately by a demand for rules and frameworks to harmonize reporting practices and to improve the content and quality of disclosures. Part of this demand was satisfied by private regulatory organizations, such as the GRI, CDP, and GC. Voluntary initiatives such as these, while very popular and extremely influential, also come with a significant drawback—namely, the large number of firms that decide not to participate. The roughly 6,000 firms worldwide that have produced a GRI-based report at one time or another, for example, represent only 7.5% of the approximately 80,000 multinational corporations in existence.

Recent legislative developments in Europe represent an attempt to solve the problem of non-compliance and, in the process, they illustrate an interesting trend pertaining to the phenomenon of corporate non-financial reporting: the movement from private regulation to public policy ([Maguire 2013](#)). At the national level, several European states—including Denmark, France, Sweden, and the United Kingdom—have begun to mandate non-financial reporting for certain types of companies (see [Table 1](#)). Although the precise requirements vary greatly from case to case, the implementation of mandatory reporting requirements seems to complement private regulatory standards by forcing companies who might not otherwise report to begin doing so. Still, the question remains—to what extent are these new state rules being driven by the development of private regulation?

4 Data and Network Structure

In the following sections I use firm-level data collected from the GRI, CDP, and GC to examine (1) how the rise of private business regulation impacts traditional forms of state regulation, and (2) how new public policy affects the development of existing private

regulatory schemes.

The analysis is based on a longitudinal data set that includes every publicly listed company with more than US\$50 million in total revenue from each of 14 European countries over the period, 1999-2011. The list of countries under study includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and United Kingdom. Firm-level economic data from Compustat was merged with corporate non-financial reporting data from the GRI, CDP, and GC. The resulting data set describes the participation patterns of many of the most high-profile companies in the group of countries (i.e. Western Europe) that is most likely to experience some form of state regulation in the area of corporate non-financial reporting.

Firms, private regulatory organizations (i.e. the GRI, CDP, and GC), and the relationships between them constitute *affiliation networks*. Affiliation networks are referred to as

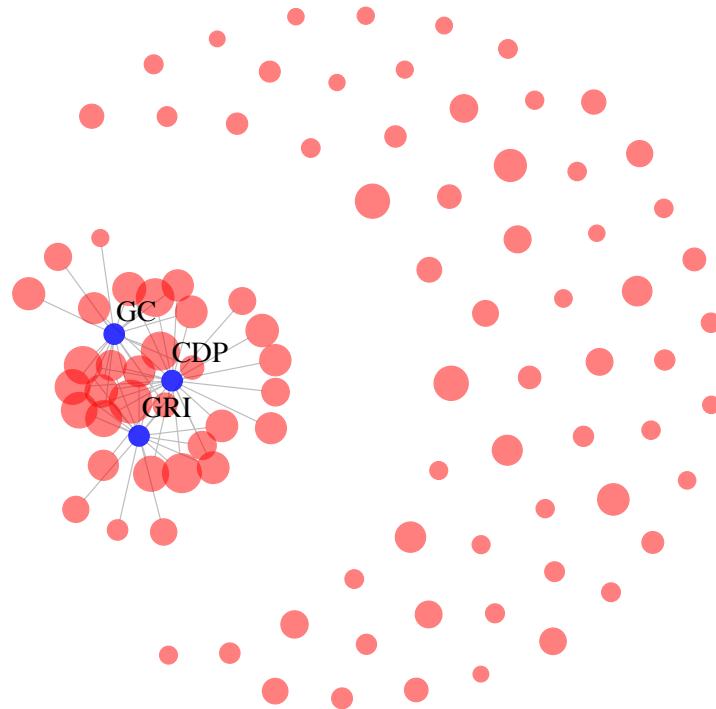


Figure 2: Visualization of a private regulatory network, Finland in 2011. Blue circles represent private regulatory organizations. Red circles represent firms (size is proportionate to log of total revenue).

bipartite or two-mode networks because they consist of two distinct sets of actors—in this case, firms and private regulators. In this type of network, only cross-mode interactions are allowed. Firms can form ties with private regulatory organizations but not with other firms (and likewise for private regulatory organizations). Ties in the network represent corporate participation in a private regulatory scheme: firms are affiliated with the GRI if they report based on the GRI guidelines; firms are affiliated with the CDP if they answer the CDP questionnaire; firms are affiliated with the GC if they fulfill the GC’s reporting requirement. This relation is dichotomous; either a firm is affiliated with a given private regulator or it is not. In the analysis, this relation is also considered undirected (in other words, the directionality of the relation, or who initiates the tie, is not of interest). The data set described above produces 182 separate networks—one for each country-year. Each network consists of an average of around 200 companies, the three private regulatory organizations, and the ties between them (see [Table 2](#)). In total, these networks include approximately 4,600 companies across 14 countries over the period, 1999-2011.

Statistic	Mean	Min	Max	St. Dev.
Number of firms	192.407	33	803	195.822
Number of private regulators	3	3	3	3
Ties	25.434	0	224	40.893
Total possible ties	577.220	99	2409	587.466
Bipartite density	0.044	0.000	0.233	0.048
Clustering (Robins and Alexander)	0.194	0.000	0.667	0.215
Clustering (Opsahl)	0.058	0.000	0.395	0.090

Table 2: Network properties.

[Figure 2](#) presents a visualization of the private regulatory network in Finland in 2011. The color of the circle represents its mode: blue circles are private regulatory organizations and red circles are firms. For each firm, the size of its circle is proportional to the natural logarithm of its total revenue. We see from this illustration that private regulators are pulling firms together into clusters. The affiliation networks created by each private regulatory organization overlap in the sense that some firms are affiliated with both the

GRI and GC, or both the GRI and CDP, and so on. Although the network contains a relatively large number of isolates—i.e. firms with no tie to a private regulator—these firms are included in the analysis because they *could* affiliate with one or more of the private regulators but choose not to. Overall, the tight clustering among firms that do have ties—a group that includes many of the largest companies in the country—indicates that the practice of corporate non-financial reporting has gained considerable acceptance in this case.¹

4.1 Development of Private Regulatory Networks

A common question network scientists ask after constructing a given network is, why do we observe this network? Keeping in mind that it is the relationships between pairs of actors (rather than the attributes of individual actors) that are of primary concern in network studies, what structures are most important in determining how the network forms and develops over time? Although traditionally network analysis has focused mostly on one-mode networks (i.e. networks with only one set of actors), in recent years researchers have begun developing additional tools for analyzing two-mode networks ([Borgatti and Everett 1997](#); [Faust et al. 2002](#)).

Basic structures in two-mode networks include two-stars, three-paths, and four-cycles ([Agneessens and Roose 2008](#)). A two-star is present when an actor from one mode is tied to two actors from another mode. In this case, there are firm two-stars, in which a given firm is tied to two different private regulators, and private regulator two-stars, in which a given private regulator is tied to two different firms. This kind of structure can be a source of *dependency* in the network. That is, whether firm *A* is tied to private regulator *X* may depend on whether *A* is also tied to private regulator *Y* (in the case of a firm two-star). Alternatively, whether firm *A* is tied to private regulator *X* may depend on whether

¹Networks produced in R using `network` ([Butts, Handcock and Hunter 2014](#)), `sna` ([Butts 2014](#)), and `igraph` ([Csardi and Nepusz 2006](#)).

firm B is tied to X (in the case of a private regulator two-star). These kinds of network structures produce isomorphic effects, with actors becoming more similar as they try to change (DiMaggio and Powell 1983; Galaskiewicz and Wasserman 1989). Three-paths occur when an actor from one mode is tied *indirectly* to an actor from another mode through its connection to another actor from that mode. For instance, a three-path occurs between firm A and private regulator Y if A is connected to private regulator X , who is connected to firm B , who is connected to Y (i.e. $A \rightarrow X \rightarrow B \rightarrow Y$). In the event that a tie forms between firm A and private regulator Y , the three-path is closed and become a four-cycle, which is the smallest possible cycle in a two-mode network.

Structures such as three-paths and four-cycles are helpful when considering how actors are clustered in the network. For instance, in this example, these structures indicate whether it is more likely that firms will loosely cluster into distinct cliques—that is, between groups of firms and particular private regulators—or whether they instead tend to tightly cluster into one cohesive group. While clustering can be apparent in a network visualization (see Figure 2), more precise measures can be constructed based on network structures. Robins and Alexander (2004) propose a clustering measure equal to the ratio of three-paths and four-cycles:

$$\text{Clustering (Robins and Alexander)} = \frac{\text{Number of three-paths}}{\text{Number of four-cycles}} \quad (1)$$

The more three-paths that close into four-cycles, the higher score (representing tighter clustering). Opsahl (2013) proposes an alternative measure equal to ratio of four-paths and six-cycles. Note that a six-cycle is the largest possible cycle for this particular network (as there are only three actors in the second mode). The interpretation is the same: the higher the score, the tighter the clustering.

$$\text{Clustering (Opsahl)} = \frac{\text{Number of four-paths}}{\text{Number of six-cycles}} \quad (2)$$

Skvoretz and Faust (1999) argue that the prevalence of short paths between pairs of actors or pairs of events is indicative of system-level integration. Since in this case the network

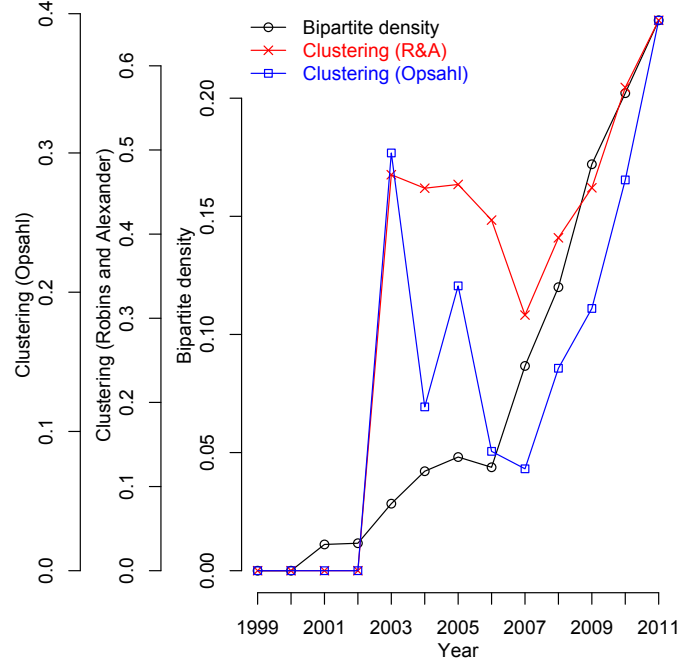


Figure 3: Change in network properties over time. Bipartite density, clustering (Robins and Alexander), and clustering (Opsahl) in Finland.

contains a large number of isolates (firms that cannot lie on a path of any length to another firm because they have no ties), I propose using the two clustering measures above plus bipartite density as substitute measures. Bipartite density is a basic measurement of two-mode networks, equal to the total number of ties in a network divided the number of total possible ties in the network (Latapy, Magnien and Vecchio 2008):

$$\text{Bipartite density} = \frac{\text{Number of ties in the network}}{\text{Number of first-mode actors} \times \text{Number of second-mode actors}} \quad (3)$$

Table 2 presents these network properties averaged over all countries and years (as a

separate network exists for each country and year in the data set). To show trends over time in a particular case, [Figure 3](#) illustrates the upward trend in both clustering and density in Finland in advance of new state regulation in 2011. The relationship between these network properties and the onset of state regulation will be explored in the next section.

5 Analysis I: Impact on Public Policy

The consolidation of private regulatory networks well in advance of new public policy suggests the possibility of a causal relationship between private and state regulation, at least in the case of corporate non-financial reporting. Is there a tipping point in the development of private regulatory networks that somehow leads to the creation of new public policy? Or is public policy simply the result of an institutional context that also produces private regulation?

5.1 Mechanisms

I hypothesize that greater clustering and density in private regulatory networks increases the likelihood of new state regulation in the case of corporate non-financial reporting. I argue further that these effects transcend political and institutional conditions. Well-developed private regulatory networks—that is, denser, and therefore more tightly clustered, networks—represent a signal of consensus to policymakers, ensuring that, while many companies may still not be reporting, those that do generally operate according to the same rules and frameworks.

While it has been argued that private regulation crowds out support for formal rules, such an argument overlooks the dynamics created by both the *strengths* and the *weaknesses* of voluntary standards. In this case, private regulators have succeeded in designing new rules and frameworks with a broad base of support among important societal actors,

including multilateral organizations, institutional investors, and large, high-profile companies. At the same time, private regulators have struggled greatly with implementation. Large numbers of companies still do not report, and there is considerable variation in the quality of reporting among those that do. Thus, in this case it is the middling status of private regulation that sets the stage for public policy: private regulation has become strong enough to gain legitimacy but not enough to succeed on its own.

In network terminology, the persistent presence of a large number of isolates in the network is important. If all companies are reporting (and the quality of reporting is adequate), one could argue that there is nothing left for public policy to achieve. The development of the private regulatory network is also important. If no companies are reporting based on private standards, policymakers may view state regulation as a potentially unpopular and therefore risky proposition. However, if a sizable portion of influential companies demonstrate, through their participation in private regulatory networks, consensus around a set of rules, policymakers are in a stronger position to extend those rules to other firms through binding regulation.

5.2 Model

To examine the impact of private regulation on public policy in this case, I conduct a time-series cross-sectional (TSCS) analysis of 14 EU countries over the period, 1999-2011. The dependent variable is a binary measurement of state regulation based on the information presented in [Table 1](#). This variable takes on the value 1 in years in which some form of mandatory corporate non-financial reporting regulation exists; otherwise it is equal to 0.

The main problem with binary dependent variables in TSCS studies is the possibility of temporal dependence—i.e. the value of the outcome in one time period being some function of the value of the outcome at other periods. This is particularly true in this case, as countries that implement regulation in a given year will almost certainly have that reg-

ulation in place the following year as well.² To address this issue, this paper employs the group duration model from [Beck, Katz and Tucker \(1998\)](#). With this approach, the data are treated similarly to how they would be in an event history analysis, which models the amount of time that transpires before an event. Although the parameters of this model are estimated using logistic regression (in this case, rare event logistic regression), several additional variables are included to control for the effect of temporally dependent observations. This includes a variable equal to the number of years between the beginning of the period under study (in this case, 1999) and the first occurrence of the event (i.e. the implementation of new public policy), plus a “natural cubic spline” with three knots, which is used to trace the path of duration dependence in the period preceding an event.

5.3 Hypotheses

As mentioned, the key independent variable of interest is the development of the private regulatory network in each country-year, represented by bipartite density and clustering statistics (including both Robins and Alexander’s and Opsahl’s measurements). These variables are used to test the central hypothesis of this paper:

Hypothesis 1. *Countries with denser and/or more tightly clustered private regulatory networks are more likely to implement mandatory corporate non-financial reporting regulation.*

The development of private regulatory networks is not the only factor at play, of course (for more information on the variables to follow, see [Data Appendix](#)). Policymakers often legislate based on ideological considerations, and thus it may be that state regulation in this case is associated with left- or right-wing governments ([Gilardi 2010](#)). Since corporate non-financial reporting is often associated with neoliberalism, I would expect state regulation to be more likely in right party governments.

²Results from a likelihood ratio test of this model and an ordinary logit model show duration dependence.

Hypothesis 2. *Countries lead by center-right governing parties are more likely to implement mandatory corporate non-financial reporting regulation.*

Policymakers may also decide whether or not to adopt a new institution based on its complementarity with existing institutions (Hall and Soskice 2001). In the vast ‘varieties of capitalism’ literature scholars often contrast liberal market economies (LMEs), which rely heavily on market forms of coordination, with coordinated market economies (CMEs), which favor non-market forms of coordination (Kang and Moon 2012; Kinderman 2012; Matten and Moon 2008). Again, due to the association between corporate non-financial reporting and neoliberalism, I expect that state regulation would be less likely in countries with a higher degree of wage coordination.

Hypothesis 3. *Countries with prominent non-market forms of coordination (such as wage coordination) are less likely to implement mandatory corporate non-financial reporting regulation.*

Similarly, policymakers may decide whether or not to adopt new regulation in this case based on policy legacies (Hall 1993). I expect that state regulation is therefore more likely in countries that already have successful environmental policies.

Hypothesis 4. *Countries with a history of successful environmental regulation are more likely to implement mandatory corporate non-financial reporting regulation.*

Of course, policymakers also face institutional obstacles, such as veto points, that prevent policy change of any kind. Therefore, I expect that state regulation is more likely in countries with fewer political constraints.

Hypothesis 5. *Countries with fewer political constraints are more likely implement mandatory corporate non-financial reporting regulation.*

As the countries in the data set vary greatly according to size, population is added as an additional variable. Similarly, social spending (as a percent of GDP) is also included to

Statistic	Mean	Min	Max	St. Dev.
Reporting legislation	0.159	0	1	0.367
Bipartite density	0.044	0.000	0.233	0.048
Clustering (Robins and Alexander)	0.194	0.000	0.667	0.215
Clustering (Opsahl)	0.058	0.000	0.395	0.090
Environmental performance	62.925	51.648	69.593	4.859
Political constraints	0.767	0.340	0.894	0.102
Wage coordination	3.346	1	5	1.125
Left governing party	0.648	0	1	0.479
Social spending/GDP	24.610	13.400	32.390	4.005
Population	27.728	3.755	82.534	26.504

Table 3: Summary statistics.

capture the relative size of the state and its commitment to active social policy. Summary statistics for all variables include can be found in [Table 3](#).

5.4 Results

[Table 4](#) presents results from four rare event logistic regression models ([Imai, King and Lau 2014](#)), testing the hypotheses presented above. As predicted, the results support the key hypothesis put forward in this paper: the development of private regulatory networks increases the likelihood of new state regulation. All three network statistics have a positive, statistically significant, and substantive effect on the outcome under study. The magnitude of the effect of bipartite density (based on Model 1) is illustrated in [Figure 4](#). This figure plots the predicted probability of new public policy as the bipartite density of the private regulatory network increases. As expected, state regulation is extremely unlikely when the network density is low; however, as the density of the network increases, the probability of new public policy rises dramatically. Of course, the relationship is far from deterministic. As indicated by the wide 95% confidence bands surrounding the predictions, particularly for higher levels of density, further development of the private regulatory network does not guarantee that new public policy is on the way. Instead, private regulation appears to be a necessary but not sufficient condition for new public

	Corporate Non-Financial Reporting Legislation			
	Model 1	Model 2	Model 3	Model 4
Bipartite density	29.132** (13.460)			
Clustering (Robins and Alexander)		5.914** (2.656)		
Clustering (Opsahl)			11.610** (5.773)	
Environmental performance	0.263 (0.231)	0.224 (0.168)	0.197 (0.154)	0.200 (0.134)
Political constraints	25.216 (20.253)	25.348* (15.077)	17.988 (12.620)	13.422 (10.788)
Wage coordination	−0.967 (0.666)	−1.168** (0.589)	−1.015** (0.513)	−1.045** (0.513)
Left governing party	−1.614 (1.048)	−1.406 (0.866)	−1.327* (0.798)	−1.450** (0.701)
Social spending/GDP	−0.011 (0.183)	0.027 (0.142)	0.078 (0.136)	0.145 (0.137)
Population	−0.014 (0.029)	−0.033 (0.024)	−0.024 (0.022)	−0.023 (0.022)
Duration	−0.480 (1.395)	−1.158 (1.229)	−1.406 (1.183)	−1.912* (1.144)
Spline(1)	−0.059 (0.265)	−0.126 (0.239)	−0.164 (0.232)	−0.213 (0.228)
Spline(2)	0.035 (0.134)	0.061 (0.120)	0.063 (0.118)	0.070 (0.118)
Spline(3)	−0.023 (0.081)	−0.040 (0.072)	−0.028 (0.071)	−0.029 (0.072)
Constant	−33.898 (25.686)	−30.572* (18.320)	−24.584 (15.875)	−22.227* (13.193)
N	182	182	182	182
Countries	14	14	14	14
Years	1999-2011	1999-2011	1999-2011	1999-2011
Log Likelihood	−20.951	−26.378	−27.829	−31.916
AIC	65.902	76.755	79.658	85.832

***p < .01; **p < .05; *p < .1

Table 4: Rare event logistic regression results. Standard errors clustered by country in parentheses.

policy in this case.

Interestingly, once temporal dependencies are taken into account, the model does not lend much support to hypotheses about political or institutional factors. For example, while the likelihood of new state regulation is shown to depend in some cases on the ideology of the governing party (center-right governments are more likely to implement new policy), the positive effect of past environmental performance does not reach the level of statistical significance. Similarly, although greater degrees of non-market coordination in the institutional arrangement raises the likelihood of state intervention, higher social spending does not appear to have much of an effect. Surprisingly, the impact of greater political constraints is shown to be positive and, in Model 2, statistically significant. Perhaps this reflects the benefits that private regulation brings to such policymakers, in terms of political support and cost savings.

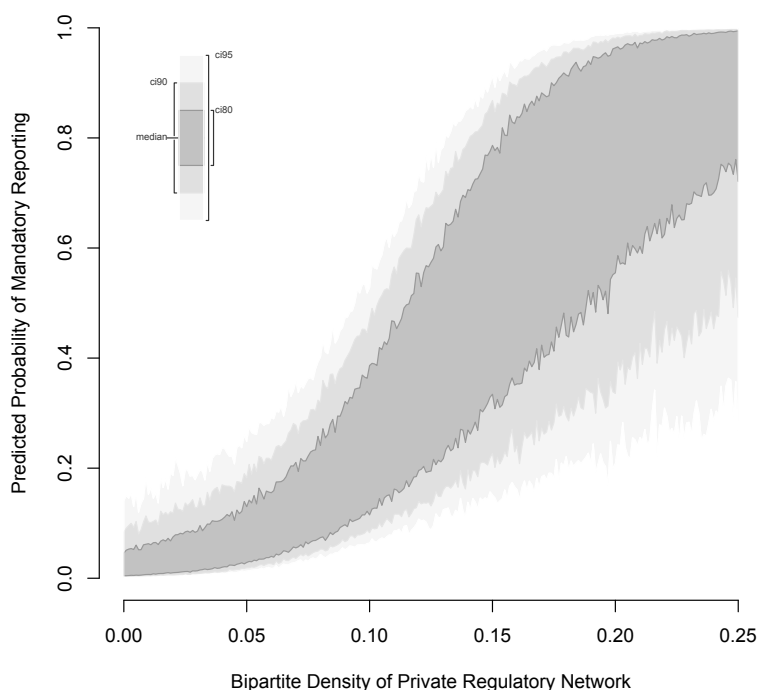


Figure 4: Effect of private regulatory network (bipartite) density on the likelihood of mandatory reporting legislation.

6 Analysis II: Feedback from Public Policy

In cases where private regulation has lead to the development of new public policy, what effect has this had on existing private regulatory networks?

6.1 Regression Discontinuity

In this section, I use a regression discontinuity (RD) design to examine the feedback effects of new public policy in Denmark and France. RD designs seek to mimic experimental research designs by assigning observations to pre- and post-treatment groups via a cutoff or threshold of an observed variable. Here, I compare the bipartite density of each private regulatory network before and after the implementation of new public policy. Time before new public policy is used as the assignment variable, with the cutoff being one year *after* the adoption of new public policy.³ Thus, network densities in the years leading up to

	Bipartite Density of Private Regulatory Network	
	Denmark	France
Time before public policy	0.008*** (0.001)	0.002 (0.004)
Public policy	0.073*** (0.012)	0.011 (0.009)
Time x Public policy	−0.004 (0.007)	0.010** (0.004)
Constant	0.076*** (0.007)	0.006 (0.008)
N	13	13
R-squared	0.976	0.988
Adj. R-squared	0.967	0.983
Residual Std. Error (df = 9)	0.010	0.005
F Statistic (df = 3; 9)	120.077***	237.911***

***p < .01; **p < .05; *p < .1

Table 5: Discontinuity in linear models using ordinary least squares (OLS) estimation.

³This is an example of a “sharp” (as opposed to “fuzzy”) RD design because the level of treatment rises from 0 to 1 exactly at the cutoff point (Nichols 2007).

public policy form the pre-treatment group of observations, while network densities in the years following constitute the post-treatment group.

To compare the results, a simple linear model is estimated using ordinary least squares (OLS) estimation. The dependent variable, bipartite network density, is regressed against the continuous assignment variable (i.e. years before public policy), a treatment variable (equal to 0 if the observation is in the pre-treatment group and 1 if it is in the post-treatment group), and their interaction. [Table 5](#) shows the results of each model (for Denmark and France), which are explained in detail below (both graphically and in the text).

6.2 Denmark

As we see in [Table 5](#), the effect of the treatment variable (i.e. public policy) is substantive and statistically significant ($\beta = 0.073; p < 0.01$), indicating that the treatment results in a change in the intercept of the regression line (i.e. the implementation of public policy leads to an immediate increase in the density of the private regulatory network). The interaction effect, which refers to the slope of the regression line, is relatively weak and not significant (i.e. the implementation of public policy did not change the growth rate of the network). These results appear more intuitively in [Figure 5](#). Here we see two regression lines, that of the pre-treatment group and the post-treatment groups. While the slopes of these lines are more or or less equivalent, the post-treatment regression line has a higher intercept. The difference in intercepts in this case represents a positive treatment effect.

6.3 France

[Table 5](#) shows different results for France. In this case, the treatment effect is much smaller and not statistically significant. The interaction effect, however, is larger than in Denmark

and statistically significant ($\beta = 0.010; p < 0.05$). Thus, while the implementation of public policy did not lead to an immediate increase in network density, it did cause the private regulatory network to grow at a higher rate over the following years. Again, these results appear in more intuitive fashion in Figure 5, where we see a clear increase in the slope of the regression line from the pre-treatment group to post-treatment group.

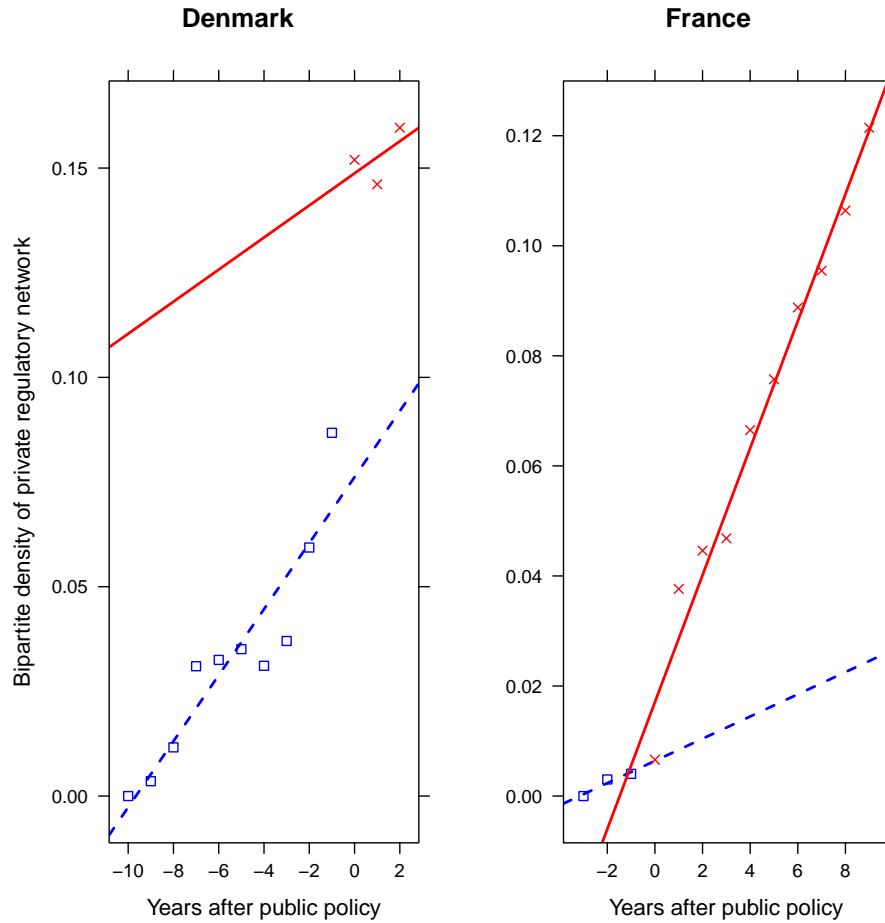


Figure 5: Regression lines for pre- and post-treatment groups. The change in intercepts indicates a treatment effect (i.e. Denmark); the change in slopes indicates an interaction effect (i.e. France).

7 Discussion and Conclusion

Overall, these results indicate that emerging forms of private business regulation *do not* represent a clear threat to traditional forms of state regulation. In fact, rather than crowd-

ing out support for public policy, private regulators appear to be gathering it. In the case of corporate non-financial reporting, most policymakers appeared either uninterested in corporate non-financial reporting or unwilling to intervene prior to the development of private regulatory networks. Only by bringing together a large network of companies were organizations like the GRI, GC, and CDP able to put the issue of corporate non-financial reporting on the legislative agenda.

Moving from the macro- back to the micro-level, these findings also echo the efforts of scholars like [Scherer and Palazzo \(2011\)](#) to sketch out a new political role for business. Whether they intend to or not, companies impact the development of public policy through their decision of whether or not (or to what extent) to participate in private regulatory networks. While many companies view their participation (or lack thereof) as a response to the demands of key stakeholder groups—including investors, employees, and business partners—they would do well to view it also as a signal to policymakers about what should and should not be regulated.

Finally, the results also indicate new possibilities for collaboration between public and private regulators. While private regulation can set the stage for new public policy, the implementation of new formal rules can also serve to strengthen existing private regulatory networks and ratchet up existing standards. Though this may be a two-stage process, it can also be part of a cycle that leads back to more public policy (as we see in France, in 2001 and 2010).

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Data Appendix

Environmental Performance Index: The Environmental Performance Index (EPI) is a composite index that measures how well countries succeed in reducing environmental stresses on human health and promoting ecosystem vitality and sound natural resource management. Based on 22 variables: access to sanitation; agricultural subsidies; critical habitat protection; child mortality; CO₂ emissions per capita; CO₂ emissions per GDP; CO₂ emissions per electricity generation; forest cover change; forest growing stock; forest loss; fish stocks overexploited; indoor air pollution; marine protection; biome protection; particulate matter; pesticide regulation; renewable electricity; SO₂ emissions per capita; SO₂ emissions per GDP; coastal shelf fishing pressure; access to drinking water (<http://epi.yale.edu>). The EPI is a joint project between the Yale Center for Environmental Law and Policy and the Center for International Earth Science Information Network at Columbia University. Data from Quality of Government (QoG) data set (December 23, 2013).

Political constraints: Political Constraints Index V. This index measures the feasibility of policy change, i.e. the extent to which a change in the preferences of any one political actor may lead to a change in government policy. The index is composed from the following information: the number of independent branches of government with veto power over policy change, counting the executive and the presence of an effective lower and upper house in the legislature (more branches leading to more constraint); the extent of party alignment across branches of government, measured as the extent to which the same party or coalition of parties control each branch (decreasing the level of constraint); the extent of preference heterogeneity within each legislative branch, measured as legislative fractionalization in the relevant house (increasing constraint for aligned executives, decreasing it for opposed executives); and veto points in the judiciary and sub-federal entities. The index scores are derived from a simple spatial model and theoretically ranges from 0 to 1, with higher scores indicating more political constraint and thus less feasibility of policy change. Henisz (2000) uses this index to measure the impact on cross-national growth rates of a governments ability to provide credible commitment (see Henisz, W.J. 2000. "The Institutional Environment for Economic Growth." *Economics and Politics*. 12(1): 1-31). Data from Quality of Government (QoG) data set (December 23, 2013).

Wage coordination: Coordination of wage setting. 5 = a) centralized bargaining by peak association(s), with or without government involvement, and/or government imposition of wage schedule/freeze, with peace obligation (example: Sweden prior to 1980); b) informal centralisation of industry-level bargaining by a powerful and monopolistic union confederation (example Austria prior to 1983; c) extensive, regularized pattern setting and highly synchronized bargaining coupled with coordination of bargaining by influential large firms (Japan prior to 1998). 4 = a) centralized bargaining by peak associations with or without government involvement, and/or government imposition of wage schedule/freeze, without peace obligation (example: Ireland 1987-2009); b) informal (intra-associational and/or inter-associational) centralisation of industry and firm

level bargaining by peak associations (both sides) (example Spain 2002-8; c) extensive, regularized pattern setting coupled with high degree of union concentration (example: Germany most years). 3 = a) informal (intra-associational and/or inter-associational) centralisation of industry and firm level bargaining by peak associations (one side, or only some unions) with or without government participation (Italy since 2000); b) industry-level bargaining with irregular and uncertain pattern setting and only moderate union concentration (example: Denmark 1981-86); c) government arbitration or intervention (example: U.K 1966-8, 1972-4). 2 = mixed industry and firm-level bargaining, with no or little pattern bargaining and relatively weak elements of government coordination through the setting of basic pay rates (statutory minimum wage) or wage indexation (example France most years). 1 = fragmented wage bargaining, confined largely to individual firms or plants (example U.K. since 1980). Data from Jelle Vissers Data Base on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts, 1960-2011 (ICTWSS), Version 4.0, April 2013, Amsterdam Institute for Advanced Labour Studies, University of Amsterdam.

Left governing party: Dummy variable based on Duane Swanks variable leftgs [0 if leftgs = 0; 1 if leftgs > 0]: Left governing party seats as a percent of all legislative seats. Sources: Browne, Keesings, and EJPR Political Data Handbook (for governing parties), and (for seats) Mackie and Rose, International Almanac of Electoral History (1991); Mackie and Rose updates in EJPR Political Data Handbook (selected years). Data from Duane Swank, (2013). *Comparative Political Parties Dataset: Electoral Legislative, and Government Strength of Political Parties by Ideological Group in 21 Capitalist Democracies, 1950-2011*. Electronic Database, Department of Political Science, Marquette University.

Social spending/GDP: Public social expenditure (% of GDP). Data from OECD (extracted April 12, 2014).

Population: Total population [note: transformed into population in millions]. [World Bank Development Indicators 2013](#). Data from Quality of Government (QoG) data set (December 23, 2013).