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## What is regulation? An interdisciplinary concept analysis

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## **What is regulation? An interdisciplinary concept analysis**

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# What is regulation? An interdisciplinary concept analysis

*The concept of regulation is believed to suffer from a lack of shared understanding. Yet, the maturation of the field raises the question whether this conclusion is still valid. By taking a new methodological approach towards this question of conceptual consolidation, this study assesses how regulation is conceived in the most-cited articles in six social science disciplines. Four main conclusions are drawn. First, there is a remarkable absence of explicit definitions. Second, the scope of the concept is vast, which requires us to talk about regulation in rather abstract terms. Third, scholars largely agree that 'prototype regulation' is characterised by interventions which are intentional and direct – involving binding standard-setting, monitoring and sanctioning – and exercised by public-sector actors on the economic activities of private-sector actors. Fourth, while there is considerable variation in research concerns, this variation cannot be attributed to disciplinary differences. Instead, our findings support the portrayal of the field as interdisciplinary, including a shared conception of regulation.*

## 1. Introduction

The area of regulation has witnessed considerable maturation over the past decades. Since the 1970s, with the introduction of the 'economic theory of regulation' (Stigler 1971) and the rise of consumer, risk and environmental regulatory activity (Majone 1996, Ch. 3), it has developed into an international field of practice and research, expanding particularly in the 1980s and 1990s. Regulatory bodies have been established around the world, the language of regulation has become widespread in public and academic discourse, and the effectiveness of different modes and tools of regulation has come under scrutiny, particularly in the context of the financial crisis, environmental disasters and the safety of food and medicine. The field has also gone through a number of academic life stages: there has been increased specialisation in the disciplines in which regulation is studied, a growth in the number of research centres and fora for exchange, the creation of a journal devoted to the field, and the publication of a range of handbooks.

Yet, the question of what this has meant for the main concept in the field – regulation – is still on the table. Some have suggested that there is agreement to disagree. For instance, Baldwin and colleagues argue that there are three main conceptions: (1) regulation as “the promulgation of an authoritative set of

rules, accompanied by some mechanism [...] for monitoring and promoting compliance with these rules”, (2) regulation as “all the efforts of state agencies to steer the economy”, and (3) regulation as “all mechanisms of social control – including unintentional and non-state processes” (1998, pp. 3-4; cf. Jordana and Levi-Faur 2004, pp. 2-4; Baldwin et al. 2012, Ch. 1). The variation is attributed to differences in disciplinary concerns, with lawyers, political scientists and economists building mainly on the first two conceptions, while socio-legal scholars emphasise the third one (1998, p. 4; cf. Levi-Faur 2011, p. 3).

Yet, some definitions enjoy cross-disciplinary appeal. For instance, many authors rely on Selznick’s definition of regulation as “sustained and focused control exercised by a public agency over activities that are valued by the community” (1985, p. 383). Equally prominent is Black’s more detailed definition of regulation as “the sustained and focused attempt to alter the behaviour of others according to defined standards and purposes with the intention of producing a broadly identified outcome or outcomes, which may involve mechanisms of standard-setting, information-gathering and behaviour modification” (2002, p. 26; cf. Parker and Braithwaite 2005; Morgan and Yeung 2007; Lodge and Wegrich 2012).<sup>1</sup>

Our study addresses the question whether we can identify any agreement on the definition of regulation across different social science disciplines. Do we still find disciplinary preoccupations or does scholarship point to a state of cross-disciplinary conceptual consolidation? Our main findings suggest that there are shared conceptions of regulation across disciplines, with research interests which are not discipline-specific driving the variation in conceptions.

We employ a new methodological approach to concept analysis that focuses on the actual use of the regulation concept across different disciplines. We assess the conceptions held in the most-cited articles in social science disciplines in which the phenomenon is a central concern: business, economics, law, political science, public administration, and sociology. We focus on articles published in journals listed in the Web of Science Social Sciences Citation Index.<sup>2</sup> By analysing conceptions this way, we can draw conclusions on conceptual consolidation across disciplines and on the core elements of the concept.

What our approach has in common with conventional concept analysis is the assessment of influential definitions in the field, and the identification of key conceptual questions. Yet, whilst scholars normally use such assessment to position their own definition in the field, we draw on it to develop the analytical framework for our empirical analysis. For each conceptual question, we analyse empirically whether, and to what extent, there are commonalities in the answers provided by the articles we selected. This implies that if some definition is identified, it is done on the basis of a systematic analysis of the answers to the questions offered in the literature rather than by us.

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<sup>1</sup> At the time of writing, Google Scholar points out that Selznick’s chapter has been cited 258 times, while Black’s article has been cited 429 times (May 2015).

<sup>2</sup> The lists of articles per discipline are presented in Tables A-F in the Online Appendix. The articles – twenty per discipline – were selected in mid-2014. Section 3 offers more information on the data.

Though more systematic, our analysis is still affected by views of how concept analysis should be conducted. Conceptualisation involves trade-offs with serious implications for the conclusions we draw.<sup>3</sup> As Gerring (1999) sets out, there are various criteria for ‘good concepts’ which cannot all be satisfied at the same time. We do reflect on the broader features of the set of elements that we identify, but as we assess the way in which scholars use the concept, it is the maximisation of the criterion of familiarity that characterises our approach.

This study’s search for commonalities also reflects our realist view of concepts. Rather than adopting the nominalist view that definitions are completely arbitrary, we believe that concepts are closely related to the (social) phenomenon they refer to, and can be regarded as “theories about the fundamental constitutive elements of a phenomenon” (Goertz 2006, p. 5). Yet, as we can often think of a range of characteristics that are associated with a phenomenon, the question is what the ‘fundamental constitutive elements’ are. Goertz emphasises that they are those elements that are central to the hypotheses, explanations and causal mechanisms related to the phenomenon. As such, “[a] good concept draws distinctions that are important in the behavior of the object” (2006, p. 4). Following Connolly, we can add that the choice of fundamental elements depends on “the validity of claims central to the theory within which the concept moves” (1974, p. 21). Hence, conceptual disputes may reflect the existence of theoretical disputes.

Accordingly, if one accepts that there is a relationship between concepts and the phenomenon they refer to, our analysis provides new insights into the main features and implications of the social phenomenon of regulation; that is, insights into what we are most concerned with when it comes to real-world regulation. In addition, our analysis allows us to empirically assess the prevalent claim that there is no, and potentially cannot be any, agreement on the definition of regulation. Even if our analysis suggested that regulation is an ‘essentially contested concept’, such insight would contribute to “a marked raising of the level of quality of arguments in the disputes of the contestant parties” (Gallie 1956, p. 193; cf. Connolly 1974, pp. 40-41). Indeed, knowing how contested a concept is helps determine the amount of effort we need to put into defining and clarifying the concept.

Our study has some limitations. First, though we include publications since 1970, we can and do not explore developments in the use of the concept over time. Even if the use of the concept were different in the early period, we might not find this in our data as scholars may only still refer to those early

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<sup>3</sup> Scholars involved in concept analysis do not usually reflect on the way in which they deal with these trade-offs, and on the implications that this has.

articles whose use is in line with contemporary conceptions. Moreover, as we are interested in contemporary use, we have selected articles on the basis of the average number of citations per year rather than the total number of citations, thus erring on the side of more recent articles.<sup>4</sup>

Second, in contrast to other conceptual contributions (e.g., Black 2001; Coglianese and Lazer 2003; Gilad 2010; Levi-Faur 2011), we do not analyse dimensions and types of regulation. We are only interested in such dimensions and types to the extent that they are contested parts of the concept of regulation (see Section 2). Furthermore, we focus solely on regulation that is characterised by economic, legal, political and social relations. Therefore, we exclude work on intra-personal ‘emotion regulation’ which features in (social) psychology (see Gross 1998).

Third, our analysis focuses on English-language articles only. Not all languages have an equivalent term to ‘regulation’, though similar objects of regulation can be found across jurisdictions (and time). Whilst this may have been a concern in the past (see Black 2002, p. 2), the internationalisation and maturation of the field have enhanced the spread of the term to previously uncharted territories (for Germany, see Döhler and Wegrich 2010). Also, the increasing hegemony of English-language publications, and their importance for academic career progression, have led the ‘Anglo-Saxon approach’ to be more representative than it used to be.

Our study proceeds as follows. In the next section, we discuss the literature on the concept of regulation, identifying commonalities as well as areas of contestation. Section 3 introduces the details of our methodological approach and the data that we have collected. In Section 4, we analyse the data, setting out what commonalities and differences we have come across in the articles. In Section 5, we discuss the results with a view to identifying a shared conception. Finally, in Section 6, we reflect on the implications of the findings from the perspective of the regulation literature.

## **2. Searching for Platonic essences**

As noted, scholars have stated that the diversity of properties that are associated with regulation make it impossible to come to a single definition of the concept which we refer to as regulation. As Baldwin and colleagues put it, there are “a variety of definitions in usage which are not reducible to some

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<sup>4</sup> Indeed, a vast majority of the articles (61.5 percent) were published in the 2000s. Only 4.6 percent were published in the 1970s, 9.2 in the 1980s, 20.2 in the 1990s, and 4.6 between 2010 and mid-2014. Table G in the Online Appendix shows the numbers and percentages per decade. Had we looked at the total number of citations – thus erring on the side of older articles – we would have found 10.8 percent in the 1970s, 21.6 in the 1980s, 29.7 in the 1990s, 37.8 in the 2000s, and no articles after 2010.

Platonic essence or single concept” (1998, p. 2).<sup>5</sup> In addition, Black points out that the definition which is used often strongly depends on the problem that the author is interested in (2002, p. 13). As a consequence, Levi-Faur argues, “we should recognize the many meanings of regulation and devote our attention to understanding each others’ terms” (2011, p. 5).

Nonetheless, two main observations can be made. First, at an abstract level, authors agree that regulation is about intervention in the behaviour or activities of individual and/or corporate actors. As Mitnick puts it, “the central element of the class of behaviors that might be termed ‘regulation’ is an *interference* of some sort in the activity subject to regulation – it is to be governed, altered, controlled, guided, *regulated* in some way” (1980, p. 2; emphasis in original). Similarly, Moran indicates that “its core meaning is mechanical and immediately invokes the act of steering” (2003, p. 13). Mitnick adds that this implies that regulated activities are not to be replaced or banned; they are only to be regulated. This is reflected in Selznick’s definition, which refers to “activities that are valued by a community” and thus excludes most areas of criminal law enforcement (1985, p. 363; cf. Ogus 1994, p. 1; Baldwin et al. 1998, p. 3). In Mitnick’s view, “[t]here should be public recognition that the regulated activity is worthwhile in itself and therefore needs protection as well as control” (1985, p. 363). Hence, we find some agreement on regulation being about intervention in activities, and there are various attempts to establish boundaries around the realm of regulation. For Mitnick (1980) and Selznick (1985), this is largely about separating regulatory intervention from the realm of forbiddance.

Second, we can distinguish a number of core conceptual questions that have led to the main differences in definitions. We have identified the following key questions: (A) Is regulation by definition intentional or can it also be non-intentional? (B) Is regulation a distinct type of intervention, different from, for instance, taxation and subsidisation? (C) Can regulation be carried out by state as well as non-state actors? (D) Is regulation by definition targeted at economic activities or may other activities be subject to it too? (E) Do regulator and regulatee need to be separate actors? The remainder of this section looks at these five questions in more detail.

## **Intentionality**

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<sup>5</sup> Our analysis focuses on what regulation *is* rather than on what function it serves. The latter is sometimes referred to as the functionalist definition (Black 2002). Identifying what regulation *does* may be even more challenging: there have always been debates whether it serves public or private interests (Baldwin et al. 2012, Ch. 4) and whether it solely controls and corrects or also creates and constitutes (Shearing 1993).



Scholars have offered different answers to the question whether regulation is by definition intentional. While intentionality is an element of the first two conceptions distinguished by Baldwin and colleagues, the third conception – regulation as “all mechanisms of social control” (1998, p. 4) – explicitly includes non-intentionality.<sup>6</sup> Non-intentional regulation may be associated with the presence of norms, or the emergence of systems of accounting and population statistics that, in turn, restructure social relationships and, subsequently, non-targeted behaviour. Thus, “anything producing effects on behaviour is capable of being considered as regulatory” (idem). Separately, Majone argues that in the period up to the rise of the regulatory state in Europe, “European scholars tend[ed] to identify regulation with the whole realm of legislation, governance, and social control” (1994, p. 78).<sup>7</sup> In his view, “[s]uch a broad use of the term makes the study of regulation almost coextensive with the study of law, economics, political science, and sociology” (idem). These broad conceptions also include intervention by culture or social norms (see Hall et al. 1999). More generally, they are associated with studies dealing with ‘governmentality’. Here regulation involves all types of power-relations which require individuals to ‘auto-correct’ themselves in light of the dominant logic of governing (Dean 1999; Miller and Rose 2008; Power 2007).

Various authors have pointed to the limits of such broad conceptions. Advocating the inclusion of intentionality, Black suggests that including social norms and culture “provides no boundaries as to where regulation might end, and some other influencing factors take effect, and so provides very little analytical purchase” (2002, p. 11; p. 25). Others point out that the inclusion of non-intentional processes is not in line with common usage of the concept. Mitnick indicates that regulation refers only to those types of interference that are intentional. “Intuitively, regulation implies governed, guided, controlled interference – in the broadest sense, deliberate or intentional interference” (1980, p. 3). Finally, Selznick observes that “[t]here is a strong temptation to identify regulation with the whole realm of law, governance, and social control.” Yet, in the field of public policy and administration, he argues, regulation has a more specific meaning: it is about sustained and focused – and thus intentional – control (1985, p. 363).

### **Scope and distinctiveness of the intervention**

While regulation is viewed as a type of intervention, there is disagreement over what the scope of regulation is, with a particular focus on *direct* and *indirect* intervention. Authors often agree that regulation is about direct intervention, which can be defined as the introduction and/or implementation of

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<sup>6</sup> The adjective ‘non-intentional’ is employed to distinguish these accounts from those that emphasise unintended consequences that are due to side-effects of intended actions.

<sup>7</sup> Majone points out that this was different in the United States, where scholars had always attributed a more specific meaning to the concept of regulation, in line with the first conception identified by Baldwin and colleagues.

standards which directly apply to the target behaviour or characteristics of a specified population. There is less agreement on whether regulation also includes indirect intervention – that is, the introduction and/or implementation of standards which apply to the context in which the target behaviour or characteristics of a specified population are generated. This may include incentive-based tools such as taxation, subsidisation and the imposition of disclosure requirements. It may also include the whole range of measures which are aimed at stabilising capitalism – the focus of the French *régulation* literature (Boyer 2002).<sup>8</sup>

These narrow and broad conceptions are reflected in the distinction between regulation as “the promulgation of an authoritative set of rules” and as “all the efforts of state agencies to steer the economy” (Baldwin *et al.* 1998, p. 3). Whereas the former only includes direct intervention, the latter incorporates both direct and indirect forms of intervention. The authors indicate that if we use a broad conception, we can no longer view regulation as a distinctive form of governance (1998, p. 4). Yet, the advantage is that “a variety of tools are considered as possible alternatives to traditional ‘command and control’ type regulation [...] so that where rulemaking seems to be inappropriate as a means for achieving policy objectives, other tools may be used” (1998, p. 3). A broad conception can, for instance, be found in the work of Breyer, who distinguishes between “classical regulation” – which is of a command-and-control nature – and “alternatives to classical regulation”, which include less restrictive interventions such as taxation and the use of disclosure requirements (1982, Ch. 8). For Breyer, distinguishing between “‘regulatory’ action” and “the entire realm of governmental activity” is both difficult and subject to controversy (1982, p. 7).

Stigler (1971) and Mitnick (1980) also advance broad conceptions. Stigler uses the term regulation to refer to a range of policy instruments which can be used to affect business behaviour, including market entry control, price setting, taxes and tariffs (1971, pp. 3-6). Mitnick is primarily concerned with regulation as “the public administrative policing of a private activity with respect to a rule prescribed in the public interest” (1980, 7), but emphasises that “it is possible to distinguish both directive and incentive means, e.g., administrative standards vs. effluent charges or subsidies as means or regulation” (1980, p. 6).

According to Noll, however, such a broad conception makes scholars, government officials and business people uncomfortable (1980, p. 14). Emphasising the importance of conceptual familiarity, Noll conceives regulation as only one of the methods that governments use to control private-sector economic activities (1985, p. 9). As “regulation is not just what regulators do, it is also how they do it”, regulation is characterised by the role of

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<sup>8</sup> The conception of regulation in this literature is still broader, including both intentional and non-intentional processes.

administrative law and procedural rules (1980, pp. 16-17). Hence, regulation is a method of control where a government agency is assigned the task of “writing rules constraining certain kinds of private economic decisions, using a quasi-judicial administrative process to develop these rules” (1985, p. 9).

This view of regulation as a distinct mode of governance can also be found in other influential contributions. For example, Lowi (1985) argues that regulation – or regulatory policy – refers to a specific type of policy intervention which differs from other types. Policies vary on two main dimensions: (1) the form of the intended impact – that is, whether policies work through individual conduct or the environment of conduct – and (2) the form of expressed intention – whether policies impose obligations or positions (primary rules) or confer powers or privileges (secondary rules) (1985, pp. 73-75).<sup>9</sup> Regulatory policy involves primary rules which work through individual conduct, “where identities and questions of compliance and noncompliance must be involved” (1985, p. 73). Although the implementation of such policy may lead to an environment which is conducive of certain conduct, this is “a behavioral hypothesis about the political or societal impact and has nothing to do with the definition of the legal rule itself” (idem). While rejecting Lowi’s suggestion that policy types can easily be separated, the more recent literature on ‘regulatory governance’ emphasises the difference between regulation and other modes of governance (Braithwaite 2000; Levi-Faur 2005), where regulation is about “steering the flow of events and behavior, as opposed to providing and distributing” (Braithwaite, Coglianese and Levi-Faur 2007, p. 3; cf. Braithwaite 2008). At the same time, for Levi-Faur (2013, p. 30), the *regulatory state*, “the application of informal and formal rule making, rule monitoring, rule enforcement”, has to be understood as one ‘morph’ that interacts with other ‘morphs’ characterising statehood, such as the redistributive welfare state (cf. Levi-Faur 2014). On the basis of this distinction, we may expect to find differences in terms of the political behaviour of regulatory agencies and other types of government agencies (see Dunleavy 1991, Ch. 7).

Narrow conceptions often characterise regulation as constituting of a legal mandate backed by the possibility of sanctions. Some authors have further specified the nature of this legal or official mandate. For Hood and colleagues (Hood et al. 1999, p. 8; Hood et al. 2004), regulation involves a ‘control system’ that requires the existence (and functioning) of three components, namely *standard-setting* (the statement of the desired state of the world), *information-gathering* (the tools used to detect how the actual state of the world differs from the desired one) and *behaviour-modification* (the tools used to align actual with desired states of the world).<sup>10</sup> These three components are also explicitly included in Black’s aforementioned definition (2002, p. 26), and in texts which build on that definition, including Parker and Braithwaite (2005, p. 120), Morgan and Young (2007, p. 3), and Lodge and Wegrich (2012, pp.

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<sup>9</sup> The first dimension is in line with our distinction between direct and indirect intervention, and Mitnick’s distinction between directive and incentive means.

<sup>10</sup> The use of the term ‘behaviour modification’ may be confusing as it defines both a process to achieve a desired outcome (see Hood et al. 1999) and the desired outcome itself. To enhance conceptual clarity, we use “sanctioning non-compliance or rewarding compliance” to refer to this component.

12-16). Similarly, Levi-Faur defines regulation as “*ex-ante* bureaucratic legalisation of prescriptive rules and the monitoring and enforcement of these rules by social, business, and political actors on other social, business, and political actors (2011, p. 6).

### **Nature of the regulator**

Scholars assessing the concept have also addressed the question whether or not regulation is solely carried out by state actors (see also Ogus 1994, pp. 257-61). This question is at the heart of discussions of whether self-regulation by industry can be regarded as a form of regulation. This question distinguishes the first two conceptions identified by Baldwin and colleagues from their third conception – that is, regulation as “all mechanisms of social control” (1998, p. 4) – which explicitly includes the possibility of self-regulation.<sup>11</sup> Some earlier studies associate regulation with state actors. For Noll (1980), for instance, regulation constitutes one of the tools that governments can use to control the economy. For Selznick (1985), regulation is exercised by “a public agency” (1985, p. 363). For Ogus, regulation is “a politico-economic concept [which] can best be understood by reference to different systems of economic organization and the legal forms which maintain them” (1994, p. 1). Regulation would normally refer to the legal means through which market deficiencies are corrected, thus having a directive and state-centred public law character (Ogus 1994, pp. 2-3).

Mitnick, finally, indicates that although his study mainly focuses on regulation by government, private actors may also regulate (1985, p. 14). Black also explicitly includes self-regulation and other forms of non-state regulation – for instance, transnational regulatory regimes such as the Forest Stewardship Council – arguing that “[i]f ‘regulation’ remains a concept tied inherently to the state, then in trying to analyse it, we will find contemporary forms of rule hard to understand, if indeed, we recognise them at all” (2002, p. 22).

### **Nature of the regulated activity**

Disagreement can also be found when it comes to the question which activities are subject to regulation. Little disagreement exists in terms of the nature of regulation – it is believed to involve economic, social and environmental regulation. Economic regulation traditionally involves aspects of competition and

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<sup>11</sup> The authors do not explicitly exclude self-regulation from the first conception. Though they only focus on interventions by the state, one may argue that the promulgation of an authoritative set of rules, and the monitoring and the promotion of compliance that accompanies such promulgation (Baldwin et al. 1998, p. 3), may be the responsibility of state as well as non-state actors.

utilities regulation (such as price-setting), but can be extended to product licensing and the inspection of business activities. Non-economic regulation may be defined as interventions that seek to reshape social relationships that are not directly characterised by an economic exchange relationship. The main debate centres on the question whether only private-sector activities, or even only economic activities, are subject to regulation. In his analysis, Noll (1980) only refers to the regulation of business activities and, in particular, the regulation of utilities. Mitnick focuses on “the policing of private activity” – that is, activities that may be economic or social in nature – but points out that regulation may also target intra-governmental activities (1980, p. 6). Selznick, in turn, argues that “most regulated enterprise is private, but nominally public agencies, such as colleges, hospitals, or utility companies, are also subject to regulation (1985, p. 364).

Elsewhere, the study of regulation has included both public and private activities. For example, Hood and colleagues have focused on the regulation of government by government (Hood et al. 1999; Hood et al. 2004; Wilson and Rachal 1977; Lodge and Hood 2010). These studies highlight that regulatory activity involves relationships ranging from traditional public regulation of private activities to private-private, public-public, and even private-public relationships (see Scott 2002).

### **Separation of regulator and regulatee**

Turning to the question whether regulator and regulatee need to be separate actors, Noll (1980) argues that it is not only the role of administrative law that distinguishes regulation from other policy instruments such as subsidisation and taxation, but also the separation between those who enforce the policy and those subject to it. Regulators are not a party to the transactions which they regulate, but act as referee of transactions between other parties, and have no direct budgetary stake in the outcome (1980, p. 16). Similarly, Mitnick includes “the requirement that the regulatory entity not be a direct party to or involved in the activity of the regulatee, or subject (1980, p. 7). For Majone (1997), one of the key characteristics of the regulatory state is the emergence of specialist regulatory organisations, separate not only from ministerial departments but also from the production of particular (public) services.

The organisational separation between regulators and regulatees is present in some definitions. For instance, the aforementioned definition by Levi-Faur refers to regulatees as “*other* social, business, and political actors” (2012, p. 6; italics added); thus, distinguishing them from the regulators. Organisational separation is also central in the study by Hood and Scott (2001, p. 5; cf. Hood et al. 1999, p. 8): separation requires one organisation to have a mandate to shape the behaviour of another organisation, with the former being unable to directly interfere in the appointments, resource allocation or

decision-making of the latter. However, later comparative work no longer emphasised this aspect, preferring the notions of 'oversight' and 'control' (Hood et al. 2004).

### **3. Data and method**

To identify how regulation is defined and used across social science disciplines, we assess the conceptions advanced in the most-cited articles in the fields of business, economics, law, political science, public administration and sociology.<sup>12</sup> If there is agreement on conceptual elements, this should be reflected in articles which the scholarly community most often uses, and in disciplines in which regulation is studied most extensively. Our interest is not in the articles themselves, but we assume that the articles reflect general levels of agreement and disagreement on the concept. Hence, our assumption is that the range of conceptions in the most often cited articles roughly represents the range of conceptions present in the overall literature on regulation.

Focusing on articles recognised by the Web of Science Social Sciences Citation Index may seem to come at the expense of assessing influential books and handbooks and, potentially, academic debates. However, the choice does not greatly affect the aim of this study. First, we are not interested in the actual influence of the selected articles; only in making an inventory of conceptions of regulation. The conceptions incorporated in the selected articles may be derived from other articles, but also from books and book chapters. Second, whilst books and chapters in edited volumes may invite more probing conceptual pieces than journal articles, such efforts should be expected to matter for, and be reflected in, the wider literature as represented in journal articles. Also, influential books on regulation are often accompanied by similarly influential articles by the same author(s), and the latter should be expected to use a similar definition of regulation.

Finally, the reliance on the Social Sciences Citation Index may be regarded as biased towards English-language journals that fulfil a specific set of criteria decided on by the owners. Thus, we may be missing particular national or disciplinary debates and journals. We cannot exclude this possibility, but as the index is an international leading one that enjoys widespread currency, we should expect to find traces of important disciplinary and national contributions in the journals in the index.

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<sup>12</sup> The Web of Science 'business' category also includes management journals.

We have used the Social Sciences Citation Index to identify the twenty most-cited articles in each discipline, as measured in mid-2014, and relying on the database's structure in terms of boundaries between disciplines and selection of journals. The choice of the six disciplines reflects the composition of the editorial board of the main journal in the field as well as the authorship of some interdisciplinary handbooks.<sup>13</sup> Criminology is not included separately as a discipline as it is interdisciplinary itself, with important contributions to regulation appearing also in leading socio-legal (law) and sociology journals (cf. Braithwaite, Coglianese and Levi-Faur 2007, p. 2). We selected articles published between 1970 and mid-2014. We took 1970 as a starting point for two reasons. First, regulation started becoming a more central tool of governance in the 1970s, with the rise of consumer, risk and environmental regulation (Majone 1996, Ch. 3). Indeed, Majone (1997, p. 1) refers to the late 1970s as the starting point of the emergence of the regulatory state in Europe. Second, the academic field experienced considerable change in the 1970s, with public choice scholars starting to focus on the topic. Nonetheless, these boundaries are of partial importance only as the articles that we take into consideration may build on work published before 1970.

We selected articles with 'regulat\*' in their title. Our sample therefore includes articles with titles containing words such as 'regulation' and 'regulatory'. Partially, this choice was pragmatic, as Web of Science does not facilitate the search of abstracts or keywords. At the same time, we shall, again, stress we are interested in conceptions of regulation rather than in the articles themselves. We expect dominant conceptions to show up in our sample, even if some individual important journals, books and book chapters are left out.

We selected the twenty articles with the highest scores in terms of average number of citations per year since publication. The alternative would have been to look at the total number of citations. This option would have strongly biased our selection towards older articles which have had more years to gather citations. As we are interested in the question whether the maturation of the field has resulted in some conceptual consolidation, we prefer to err on the side of newness. In Tables A-F in the Appendix, we list the articles per discipline. As some journals are multi-disciplinary, there is some overlap in articles, resulting in a total of 109 rather than 120 articles.<sup>14</sup>

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<sup>13</sup> For instance, of the 31 authors contributing to *The Oxford Handbook of Regulation*, 11 have their highest degree in law, eight in economics, seven in politics, two in sociology, and one in management (the two remaining degrees are in science and technology). Of the 58 contributors to the *Handbook on the Politics of Regulation*, 24 have their highest degree in politics, 10 in public policy/administration, nine in law, eight in economics, and three in sociology (the remaining four degrees are in communications, statistics and urban planning). Most authors work in the field of their degree, though some (economists) work in business schools.

<sup>14</sup> The articles are published in *Journal of Environmental Economics and Management* (business and economics), *Journal of Law & Economics* (economics and law), *Journal of Law & Society* and *Law & Society Review* (law and sociology), *Politics & Society* (political science and sociology), *Policy Studies Review* (political science and public administration), and *Regulation & Governance* (law, political science and public administration). The extent of the overlap, and thus to extent to which regulation scholars publish in multidisciplinary journals, may itself reflect the interdisciplinarity of the field.

In the analysis, we assess whether explicit definitions are put forward, and whether any boundaries of the realm of regulation are mentioned. Moreover, we assess whether and how the articles position themselves on the key conceptual dimensions distinguished in Section 2. For each dimension, we established a number of more specific items – in the form of questions – which we applied to all 109 articles. Table 1 introduces these questions, with the key words in italics. Each item has three answer categories: an explicit ‘no’, a category for ‘not explicitly included or excluded’ or ‘maybe’, and an explicit ‘yes’. Some items – for instance, the two items on the intentionality – are closely related. Yet, if they are not mutually exclusive, they are included as two separate items. For example, regulation may be associated with economic activities, non-economic activities, or both. We independently assessed every article on all of these items, and compared our coding. In the few cases where we had drawn different conclusions, we discussed our coding, agreed on the category, and specified the coding rules we used in such a way that they ensured clarity and consistency.

**Table 1** Conceptual dimensions and questions

Dimension	Questions
A. Intentionality	<ul style="list-style-type: none"> <li>– Is regulation considered an <i>intentional</i> process?</li> <li>– Is it considered a <i>non-intentional</i> process?</li> </ul>
B. Scope and distinctiveness	<ul style="list-style-type: none"> <li>– Does regulation refer to <i>direct intervention</i>?</li> <li>– If direct intervention is included, does regulation explicitly refer to <i>standard-setting</i>?</li> <li>– If direct intervention is included, does regulation explicitly refer to <i>monitoring</i> activities?</li> <li>– If direct intervention is included, does regulation explicitly refer to <i>sanctioning</i> non-compliance (or rewarding compliance)?</li> <li>– Does regulation refer to <i>indirect intervention</i>?</li> </ul>
C. Nature of regulator	<ul style="list-style-type: none"> <li>– Is regulation associated with <i>public-sector regulators</i>?</li> <li>– Is it associated with <i>private-sector regulators</i>?</li> </ul>



	– Is it associated with <i>binding</i> standards?
	– Is it associated with <i>non-binding</i> standards?
D. Nature of regulated activity	– Is regulation associated with <i>private-sector regulatee</i> ?
	– Is it associated with <i>public-sector regulatees</i> ?
	– Is regulation associated with <i>economic</i> activities?
	– Is it associated with non-economic activities?
E. Separation regulator-regulatee	– Do the regulator and regulatee need to be <i>separate</i> actors?

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#### 4. Analysis

Assessing the conceptions put forward in the 109 articles, we discovered that not all authors are concerned with regulation in a context of economic, legal, organisational, political and/or social relations. Eight of the articles – all published in business journals – focus on regulation as an intra-personal process (i.e., ‘emotion regulation’). Most conceive regulation as a process of steering one’s behaviour in directions compatible with one’s desired goals, building on regulatory focus theory (e.g., Higgins 1997). We excluded these eight articles, including the remaining 101 articles.<sup>15</sup>

In terms of findings, scholars use the term regulation both to refer to a type of intervention and as a synonym for rule or standard.<sup>16</sup> Our analysis focuses only on authors’ conceptions of regulation as an intervention. There are very few intervention items that are explicitly excluded; only non-intentional processes are not normally included. This contrasts with the identification of a conception of regulation as “all mechanisms of social control” (Baldwin et al. 1998, p. 4). There are also a large number of items which articles hardly reflect on, and which, therefore, may or may not be part of the concept. This is reflected in the percentages under ‘maybe’ and in the explicitness index (see below). Explicit definitions are uncommon; only 14 percent include a definition. This has implications for the way we assessed the conceptions: in most cases, we have had to infer the conception from the referents of

<sup>15</sup> The educational background of the authors is rather diverse. The first authors of the 101 articles have a PhD or their highest degree in economics (28), politics (23), law (14), sociology (12), business/management (6), psychology (5), public policy/administration (4), geography (3), statistics (2), social science (1), city and regional planning (1), energy and resources (1), and embryology (1).

<sup>16</sup> The full references to articles in the analysis can be found in Tables A-F in the Online Appendix rather than in the list of references.

the concept mentioned in the article rather than from a definition. Consequently, we often had to conclude that an item was neither excluded nor included. Interestingly, there is, with some exceptions, a fair amount of agreement, even though this may be ‘agreement’ on neither excluding nor including the item. Finally, when further probing, hardly any article reflected on boundary issues such as the distinction between regulation and criminal justice that Selznick and Mitnick made.

Table 2 presents the conceptual dimensions and the percentage of articles in which items are excluded (‘no’), neither excluded nor included (‘maybe’), or included (‘yes’). There are two additional measures. First, to address the explicitness-of-articles question, we have created an explicitness index which measures the proportion of articles which either include (‘yes’) or exclude (‘no’) the item. Second, to give insight into the degree of agreement among authors, we present agreement scores. The index is constructed to assess the level of agreement on the conceptual items. Based on an index by Hix and colleagues (2005, p. 215) developed in the context of voting in the European Parliament, we measure agreement on the conceptual items on a scale from 0 to 1, with 0 referring to complete disagreement and 1 to full agreement.<sup>17</sup>

**Table 2** Statistics per conceptual item

Dimension and item	No (%)	Maybe (%)	Yes (%)	Explicit	Agreement
<i>A. Intentionality</i>					
Intentional process	0	0	100	1	1
Non-intentional process	92	0	8	1	0.88
<i>B. Scope of the intervention</i>					
Direct intervention	0	0	100	1	1
Standard-setting	3	21	76	0.79	0.64
Monitoring	2	40	58	0.60	0.38

<sup>17</sup> The agreement index is calculated as follows:  $AI_i = (\max\{N_i, M_i, Y_i\} - \frac{1}{2}[(N_i + M_i + Y_i) - \max\{N_i, M_i, Y_i\}]) / (N_i + M_i + Y_i)$ , where  $N_i$  refers to the number of times an item  $i$  is excluded,  $M_i$  to the number of times it is neither included nor excluded, and  $Y_i$  to the number of times it is included (cf. Hix et al. 2005, p. 215).

Sanctioning	2	38	60	0.62	0.41
Indirect intervention	4	55	41	0.45	0.33
<i>C. Nature of the regulator</i>					
Public regulator	0	4	96	0.96	0.94
Private regulator	0	65	35	0.35	0.48
Binding standards	0	2	98	0.98	0.97
Non-binding standards	0	59	41	0.41	0.39
<i>D. Nature of the regulated activity</i>					
Private regulatee	0	0	100	1	1
Public regulatee	0	91	9	0.09	0.87
Economic activities	0	2	98	0.98	0.97
Non-economic activities	0	73	27	0.27	0.60
<i>E. Separation regulator-regulatee</i>					
Separation	1	98	1	0.02	0.97

*NB* The total number of articles whose conception of regulation we analysed is 101.

For each item where the agreement score is lower than 0.90, we assess whether the ‘disagreement’ can be attributed to disciplinary differences. Starting with intentionality, the table indicates that regulation is conceived as an intentional process in all 101 articles. Moreover, as emphasised before, only 8 articles (8 percent) include non-intentionality. Six of these build on the French *régulation* literature, including three articles by Jessop. Here we should also keep in mind that “the French term *régulation* is [not to be] confused with ‘regulation’ (*réglementation* in French)” (Boyer 2002, p. 1). The remaining two

articles focus on the social regulation of feelings (James) and the regulation of medicine, where regulation may be driven by professional (non-intentional) norms (Waring). Seven of the articles are published in sociology; one in political science.

When it comes to the scope and distinctiveness of the intervention, every article regards regulation as a form of direct intervention. Indirect intervention, in contrast, is only included in 41 percent of the articles, while another 55 percent leave open that option. In economics, law and sociology, indirect intervention is more often included than in the other disciplines, with this category constituting the median. To assess how substantial these differences are, we have used the non-parametric Kruskal-Wallis H test, assuming that there is an order to the categories 'no', 'maybe', and 'yes'.<sup>18</sup> The test shows that there are, indeed, significant differences between the disciplines on the indirect intervention item ( $\chi^2(5) = 12.20, p = 0.03$ ).<sup>19</sup> Yet, when comparing the pairs of fields, the Dunn's test indicates that the only significant differences at the 5 percent level are those between political science, on the one hand, and economics, law and sociology, on the other hand: in political science, indirect intervention is significantly less often included than in the three other fields.

Many scholars also point out what components are involved in direct intervention. As Table 2 demonstrates, standard-setting is most often explicitly mentioned (76 percent), followed by sanctioning (60 percent) and monitoring (58 percent). All three components are mentioned in 53 percent of the articles (not reported). A Kruskal-Wallis H test, which assesses all three categories, points out that there are no significant differences between the disciplines ( $\chi^2(5) = 5.02, p = 0.41$ ). The only differences that are significant are on standard-setting ( $\chi^2(5) = 14.29, p = 0.01$ ). Here the Dunn's test indicates that in sociology, standard-setting is significantly less often mentioned than in law, political science and public administration. In business, the component is significantly less often mentioned than in law and public administration.<sup>20</sup>

Turning to the nature of the regulator, Table 2 demonstrates that regulation is widely conceived as the responsibility of public-sector bodies which enforce binding standards. Yet, private-sector regulators and non-binding standards are not excluded; they are just less often referred to. More specifically, private-sector bodies are mentioned as regulators in 35 percent of the articles, with the remaining articles neither including nor excluding them. Non-binding standards are included in 41 percent of the articles, with the remaining articles, again, not expressing an opinion.

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<sup>18</sup> As some articles are included in more than one field, the total number of cases in the analyses of the variation across fields is higher than the 101 included in the analysis for Table 2.

<sup>19</sup> The default correction factor is applied to deal with the large number of tied ranks on the items.

<sup>20</sup> Figure A in the Online Appendix gives more insight into the variation across the fields, indicating that the three components are most often mentioned together in public administration (75 percent) and business (67 percent).

There are some significant differences between the fields, both on private regulators ( $\chi^2(5) = 23.33, p = 0.00$ ) and non-binding standards ( $\chi^2(5) = 16.62, p = 0.01$ ). Private-sector bodies, the Dunn's test points out, are significantly more often incorporated in sociology than in all other disciplines (80 percent for sociology). In public administration, the bodies are least often included (15 percent); significantly less often than in business, political science and sociology. In economics, private regulators are significantly less often included than in business and sociology. Similar patterns can be found for non-binding standards, which are (also) most often included in sociology (80 percent) and business (67 percent). In these fields, they are significantly more often included than in other fields.

As regards the nature of the regulated activity, there is full agreement on private-sector actors and economic activities being the object of regulation. Public-sector regulatees and non-economic activities are not excluded, but scholars tend not to focus on them: 91 percent neither include nor exclude public-sector regulatees; 73 percent do not address the inclusion of non-economic activities. There are no significant differences between the disciplines here.

Finally, the authors are almost exclusively silent on whether regulator and regulatee need to be separate actors (98 per cent). One article explicitly includes the possibility of regulator and regulatee being the same actor: Ashford and Tsui focus on the self-regulatory activities of managers in performance environments. Also, one article adheres to the separation between regulator and regulatee: Kagan, Thornton and Gunningham use the term "self-regulation" to refer to regulation at the industry level, but exclude internal control and self-auditing by organisations.

## 5. Discussion

What can we now say about the concept? As noted, most articles in our sample did not explicitly define regulation. Our study has therefore relied on a process of careful reading, coding and comparing. Though there are many 'maybe' answers, some features stand out. First, regulation is seen as an intentional form of intervention by public-sector actors in economic activities. Private-sector regulators and non-economic activities feature less prominently, but still attract attention. Far less attention is paid to public regulatees; hardly any attention is attributed to whether regulation requires organisational separation of regulator and regulatee. Finally, no major disciplinary differences are observed in the way regulation is conceptualised.

Depending on how much importance we wish to attribute to the main concerns of the articles we assessed, we can distinguish two types of definitions that cut across disciplines – an *essence-based* and a *pattern-based* definition of regulation. These definitions are not meant to resolve debates once and for

all, but they give insight into the conceptualisation of regulation in the literature. First, an essence-based definition aims to capture the minimal essence of the concept. It is a classical definition in the sense that it includes – and solely includes – those elements without which regulation loses its identity; that is, those elements that need to be present for a phenomenon to qualify as regulation (Collier and Mahon Jr. 1993). In our study, it excludes those elements which scholars have explicitly excluded from regulation, while incorporating those where the balance is towards inclusion. Accordingly, regulation can be defined as *the intentional intervention in the activities of a target population*. The intervention which this definition refers to can be direct and/or indirect, the activities can be economic and/or non-economic, the regulator may be a public- or private-sector actor, and the regulatee may equally be a public- or private-sector actor.

This definition allows us to distinguish between instances of regulation and instances which do not fall into that category – primarily, instances of non-intentional intervention and instances where no intervention is involved. However, the minimal definition leads to a rather broad conception of regulation which makes it hard to distinguish it from the concept of policy. The latter has, for instance, been defined as ‘intentional action by actors who are most interested in achieving policy outcomes’ (Scharpf 1997, p. 36). Defined broadly, regulation may seem to be little more than a substitute for policy. Similarly, regulation may resemble the concept of governance: the essence-based definition does not allow us to regard regulation – and regulatory governance – as a subcategory of governance (see Braithwaite, Coglianese and Levi-Faur 2007). We should perhaps not be surprised to find that a classical definition is characterised by a high level of abstraction: if the literature has an interest in a wide range of manifestations of a phenomenon called regulation, there can only be agreement on a limited set of constitutive conceptual elements. As Sartori (1970) emphasises, increases in the number of referents and decreases in the number of elements go hand in hand.

Accepting that regulation has a wide range of referents is not to say that all referents are equally prominent. Our pattern-based definition is not less inclusive than the essence-based one, but it gives insight into the manifestations which regulation scholars are mainly concerned with, and which we consider more central to the concept. Attributing more importance to the variation in emphasis of studies, regulation can be defined as *the intentional intervention in the activities of a target population, where the intervention is typically direct – involving binding standard-setting, monitoring and sanctioning – and exercised by public-sector actors on the economic activities of private-sector actors*.

The pattern-based definition requires thinking of regulation as a radial category, where “the overall meaning of a category is anchored in a ‘central subcategory’, which corresponds to the ‘best’ case, or prototype, of the category” (Collier and Mahon Jr. 1993, p. 848). The ‘prototype’ of regulation is, therefore, characterised by all traits included in the definition – intentional and direct intervention involving binding standard-setting, monitoring and sanctioning, public-sector regulators, and economic activities of private sector regulatees. The non-central subcategories share defining elements – the

intentional intervention in the activities of a target population – as well as additional elements with the central subcategory. For instance, they may include all elements, except that the target population is actually a public-sector actor. Hence, viewing regulation as a radial category leaves open the possibility of indirect intervention, private-sector regulators, public-sector regulatees, non-binding standards and non-economic activities, but it emphasises that these manifestations are less central in the literature. It also makes clear that ‘prototype regulation’ may be one specific type of policy or governance: typically, regulation does not refer to tools of governance such as taxation, subsidisation and imposing disclosure requirements. Moving from a classical to a radial category does come at the cost of parsimony: the pattern-based definition is obviously more cumbersome.

Going back to previous concept analyses, both the essence-based and pattern-based definitions are more inclusive than ‘legal mandate backed by sanctions’. The definitions are more inclusive than the one forward by Selznick (1985, p. 363) in that they incorporate both public- and private-sector regulators and regulatees. In addition, the pattern-based definition gives more insight into what form of “sustained and focused control” scholars are mainly interested in; namely, binding standard-setting, monitoring and sanctioning. The pattern-based definition resembles the definition by Black, which (implicitly) incorporates a pattern-based element: regulation “*may involve mechanisms of standard-setting, information-gathering and behaviour modification*” (2002, p. 26; italics added).

Although our analysis emphasises the enormous scope of the concept, it does not identify clear disciplinary differences: the patterns of interest are cross-cutting. This is not to say that the variation in conceptions cannot be attributed to variation in research questions: there is such variation, with some concerns and conceptions being more central than others. However, this variation is not clearly associated with specific disciplines. Indeed, ‘prototype regulation’ is typical in all six disciplines, suggesting that regulation is an interdisciplinary field divided by different research questions.

One final issue arises from our analysis. There are some conceptual questions which the literature is silent on. This is particularly the case for the question of separation – that is, whether regulator and regulatee need to be organisationally separate. Troublingly, this may reflect a lack of interest in the topic. Alternatively, it may reflect the real-world problems associated with using organisational separation as a criterion. For instance, would having separate regulatory and regulated units within an organisation fulfil the condition, or would there need to be full-fledged organisational separation?

## 6. Conclusion

Our study offers four contributions regarding questions about the state of regulation-related research in the contemporary stage of increased maturity. First, explicit definitions of regulation are scarce, which has led the literature to be largely silent on some conceptual questions. Second, the scope of the concept is vast given the wide range of manifestations which are referred to as regulation. The level of abstraction of a definition is, therefore, necessarily high. Third, a shared conception can be identified: regulation is about intentional intervention in the activities of a target population. Even though the conception is abstract, this does not imply that the field is conceptually confused. Moreover, some types are more prominent in the literature than others: 'prototype regulation' is about interventions which are intentional and direct – involving binding standard-setting, monitoring and sanctioning – and which are exercised by public-sector actors on the economic activities of private-sector actors. Fourth, the variation in research concerns that we found in the literature can hardly be attributed to disciplinary differences. Hence, we may argue that characterising the field of regulation as interdisciplinary is warranted: the field is characterised by multiple research interests that cut-across social science disciplines. All in all, our analysis does *not* support the portrayal of the contemporary field of regulation as one that lacks a shared understanding. Instead, it is a field with a broad but shared conception of regulation and with different but largely interdisciplinary research agendas, ranging from those on state authority-based bureaucratic activities to those on non-state-based transnational ones.

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## Online Appendix

**Table A List of articles in business**

<b>No</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title</b>	<b>Journal</b>	<b>Total citations</b>	<b>Citation average</b>
1.	Andrew A. King and Michael J. Lenox	2000	Industry self-regulation without sanctions: The chemical industry's Responsible Care Program	<i>Academy of Management Journal</i>	406	27.07
2.	Jennifer L. Aaker and Angela Y. Lee	2001	'I' seek pleasures and 'we' avoid pains: The role of self-regulatory goals in information processing and persuasion	<i>Journal of Consumer Research</i>	297	21.21
3.	Kathleen D. Vohs and Ronald J. Faber	2007	Spent resources: Self-regulatory resource availability affects impulse buying	<i>Journal of Consumer Research</i>	157	19.62
4.	Gazi M. Alam	2009	Can governance and regulatory control ensure private higher education as business or public goods in Bangladesh?	<i>African Journal of Business Management</i>	101	16.83
5.	Alicia A. Grandey, David N. Dickter and Hock-Peng Sin	2004	The customer is not always right: Customer aggression and emotion regulation of service employees	<i>Journal of Organizational Behavior</i>	157	14.27
6.	Petra Christmann and Glen Taylor	2001	Globalization and the environment: Determinants of firm self-regulation in China	<i>Journal of International Business Studies</i>	192	13.71
7.	Ronit Kark and Dina van Dijk	2007	Motivation to lead, motivation to follow: The role of the self-regulatory focus in leadership processes	<i>Academy of Management Review</i>	109	13.62
8.	Wilma RQ Anton, George Deltas and Madhu Khanna	2004	Incentives for environmental self-regulation and implications for environmental performance	<i>Journal of Environmental Economics and Management</i>	147	13.36

9.	Shameek Konar and Mark A. Cohen	1997	Information as regulation: The effect of community right to know laws on toxic emissions	<i>Journal of Environmental Economics and Management</i>	199	11.06
10	E. Tory Higgins	2002	How self-regulation creates distinct values: The case of promotion and prevention decision making	<i>Journal of Consumer Psychology</i>	128	9.85
11	David A. Schkade and John W. Payne	1994	How people respond to contingent valuation questions: A verbal protocol analysis of willingness to pay for an environmental regulation	<i>Journal of Environmental Economics and Management</i>	201	9.57
12	André van Stel, David J. Storey and A. Roy Thurik	2007	The effect of business regulations on nascent and young business entrepreneurship	<i>Small Business Economics</i>	74	9.25
13	Tamar Avnet and E. Tory Higgins	2006	How regulatory fit affects value in consumer choices and opinions	<i>Journal of Marketing Research</i>	83	9.22
14	Susan J. Ashford and Anne S. Tsui	1991	Self-regulation for managerial effectiveness: The role of active feedback seeking	<i>Academy of Management Journal</i>	218	9.08
15	Alan M. Rugman and Alain Verbeke	1998	Corporate strategies and environmental regulations: An organizing framework	<i>Strategic Management Journal</i>	151	8.88
16	Petra Christmann and Glen Taylor	2006	Firm self-regulation through international certifiable standards: determinants of symbolic versus substantive implementation	<i>Journal of International Business Studies</i>	79	8.78
17	Angela Y. Lee, Punam A. Keller and Brian Sternthal	2010	Value from regulatory construal fit: The persuasive impact of fit between consumer goals and message concreteness	<i>Journal of Consumer Research</i>	41	8.20
18	Seema Arora and Timothy N. Cason	1995	An experiment in voluntary environmental regulation: Participation in EPA's 33/50 Program	<i>Journal of Environmental Economics and Management</i>	159	7.95
19	Tom R. Tyler and	2005	Can businesses effectively regulate	<i>Academy of</i>	79	7.90

.	Steven L. Blader		employee conduct? The antecedents of rule following in work settings	<i>Management Journal</i>		
20	Russell E. Johnson, Chu-Hsiang (Daisy) Chang and Liu-Qin Yang	2010	Commitment and motivation at work: The relevance of employee identity and regulatory focus	<i>Academy of Management Review</i>	38	7.60

**Table B List of articles in economics**

<b>No</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title</b>	<b>Journal</b>	<b>Total citations</b>	<b>Citation average</b>
1.	George J. Stigler	1971	The theory of economic regulation	<i>Bell Journal of Economics and Management Science</i>	2189	49.75
2.	Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer	2002	The regulation of entry	<i>Quarterly Journal of Economics</i>	549	42.23
3.	Sam Peltzman	1976	Toward a more general theory of regulation	<i>Journal of Law &amp; Economics</i>	1571	40.28
4.	Juan C. Botero, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer	2004	The regulation of labor	<i>Quarterly Journal of Economics</i>	352	32.00
5.	Luc Laeven and Ross Levine	2009	Bank governance, regulation and risk taking	<i>Journal of Financial Economics</i>	145	24.17
6.	Louis S. Matza, Andrine R. Swensen, Emuella M. Flood, Kristina Secnik and Nancy Kline Leidy	2004	Assessment of health-related quality of life in children: A review of conceptual, methodological, and regulatory issues	<i>Value in Health</i>	190	17.27
7.	David P. Baron and Roger B. Myerson	1982	Regulating a monopolist with unknown costs	<i>Econometrica</i>	565	17.12
8.	Barry R. Weingast and Mark J. Moran	1983	Bureaucratic discretion or congressional control? Regulatory policymaking by the Federal Trade Commission	<i>Journal of Political Economy</i>	522	16.31
9.	Timothy Besley and	2004	Can labor regulation hinder economic	<i>Quarterly Journal of</i>	178	16.18

	Robin Burgess		performance? Evidence from India	<i>Economics</i>		
10	Olivier Blanchard and Francesco Giavazzi	2003	Macroeconomic effects of regulation and deregulation in goods and labor markets	<i>Quarterly Journal of Economics</i>	182	15.17
11	Leora Klapper, Luc Laeven and Raghuram Rajan	2006	Entry regulation as a barrier to entrepreneurship	<i>Journal of Financial Economics</i>	133	14.78
12	Richard A. Posner	1974	Theories of economic regulation	<i>Bell Journal of Economics</i>	603	14.71
13	Thomas F. Hellmann, Kevin C. Murdock and Joseph E. Stiglitz	2000	Liberalization, moral hazard in banking, and prudential regulation: Are capital requirements enough?	<i>American Economic Review</i>	217	14.47
14	Jean-Jacques Laffont and Jean Tirole	1986	Using cost observation to regulate firms	<i>Journal of Political Economy</i>	377	13.00
15	Wilma RQ Anton, George Deltas and Madhu Khanna	2004	Incentives for environmental self-regulation and implications for environmental performance	<i>Journal of Environmental Economics and Management</i>	143	13.00
16	Richard A. Posner	1975	Social costs of monopoly and regulation	<i>Journal of Political Economy</i>	482	12.05
17	Sam Peltzman	1975	Effects of automobile safety regulation	<i>Journal of Political Economy</i>	459	11.48
18	John W. Maxwell, Thomas P. Lyon and Steven C. Hackett	2000	Self-regulation and social welfare: The political economy of corporate environmentalism	<i>Journal of Law &amp; Economics</i>	172	11.47
19	Shameek Konar and Mark A. Cohen	1997	Information as regulation: The effect of community right to know laws on toxic emissions	<i>Journal of Environmental Economics and Management</i>	198	11.00
20	Asli Demirgüç-Kunt, Luc Laeven and Ross Levine	2004	Regulations, market structure, institutions, and the cost of financial intermediation	<i>Journal of Money Credit and Banking</i>	110	10.00





**Table C List of articles in law**

<b>No</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title</b>	<b>Journal</b>	<b>Total citations</b>	<b>Citation average</b>
1.	Sam Peltzman	1976	Toward a more general theory of regulation	<i>Journal of Law &amp; Economics</i>	1571	40.28
2.	Colin Camerer, Samuel Issacharoff, George Loewenstein, Ted O'Donoghue and Matthew Rabin	2003	Regulation for conservatives: Behavioral economics and the case for asymmetric paternalism	<i>University of Pennsylvania Law Review</i>	230	19.17
3.	Julia Black	2008	Constructing and contesting legitimacy and accountability in polycentric regulatory regimes	<i>Regulation &amp; Governance</i>	100	14.29
4.	Lucian A. Bebchuk and Holger Spamann	2010	Regulating bankers' pay	<i>Georgetown Law Journal</i>	69	13.80
5.	Richard L. Revesz	1992	Rehabilitating interstate competition: Rethinking the "race to the bottom" rationale for federal environmental regulation	<i>New York University Law Review</i>	266	11.57
6.	John W. Maxwell, Thomas P. Lyon, and Steven C. Hackett	2000	Self-regulation and social welfare: The political economy of corporate environmentalism	<i>Journal of Law &amp; Economics</i>	172	11.47
7.	Brian Levy and Pablo T. Spiller	1994	The institutional foundations of regulatory commitment: A comparative analysis of telecommunications regulation.	<i>Journal of Law, Economics, &amp; Organization</i>	200	9.52
8.	Nicholas Bagley and Richard L. Revesz	2006	Centralized oversight of the regulatory state	<i>Columbia Law Review</i>	85	9.44
9.	Cary Coglianese and David Lazer	2003	Management-based regulation: Prescribing private management to achieve public goals	<i>Law &amp; Society Review</i>	111	9.25
10	Thomas J. Miles and	2006	Do judges make regulatory policy? An	<i>University of Chicago</i>	79	8.78

.	Cass R. Sunstein		empirical investigation of Chevron	<i>Law Review</i>		
11	Charles R. Lawrence III	1990	If the hollers let him go: Regulating racist speech on campus	<i>Duke Law Journal</i>	208	8.32
12	Robert Baldwin and Julia Black	2008	Really responsive regulation	<i>Modern Law Review</i>	58	8.29
13	Edward L. Glaeser, Joseph Gyourko and Raven Saks	2005	Why is Manhattan so expensive? Regulation and the rise in housing prices	<i>Journal of Law &amp; Economics</i>	82	8.20
14	Robert A. Kagan, Dorothy Thornton and Neil Gunningham	2003	Explaining corporate environmental performance: How does regulation matter?	<i>Law &amp; Society Review</i>	84	7.00
15	Jody Freeman and Jim Rossi	2012	Agency coordination in shared regulatory space	<i>Harvard Law Review</i>	21	7.00
16	Colin Scott	2000	Accountability in the regulatory state	<i>Journal of Law and Society</i>	100	6.67
17	Robert G. Bone	2009	Twombly, pleading rules, and the regulation of court access	<i>Iowa Law Review</i>	39	6.50
18	Fred S. McChesney	1987	Rent extraction and rent creation in the economic theory of regulation	<i>Journal of Legal Studies</i>	181	6.46
19	Eugene M. Lewit, Douglas Coate and Michael Grossman	1981	The effects of government regulation on teenage smoking	<i>Journal of Law &amp; Economics</i>	206	6.06
20	G. William Schwert	1981	Using financial data to measure effects of regulation	<i>Journal of Law &amp; Economics</i>	198	5.82

**Table D List of articles in political science**

<b>No</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title</b>	<b>Journal</b>	<b>Total citations</b>	<b>Citation average</b>
1.	Dennis Quinn	1997	The correlates of change in international financial regulation	<i>American Political Science Review</i>	331	18.39
2.	David Levi-Faur	2005	The global diffusion of regulatory capitalism	<i>Annals of the American Academy of Political and Social Science</i>	179	17.90
3.	Julia Black	2008	Constructing and contesting legitimacy and accountability in polycentric regulatory regimes	<i>Regulation &amp; Governance</i>	100	14.29
4.	Matthew Potoski and Aseem Prakash	2005	Green clubs and voluntary governance: ISO 14001 and firms' regulatory compliance	<i>American Journal of Political Science</i>	121	12.10
5.	Dara O'Rourke	2003	Outsourcing regulation: Analyzing nongovernmental systems of labor standards and monitoring	<i>Policy Studies Journal</i>	143	11.92
6.	Tim Bartley	2003	Certifying forests and factories: States, social movements, and the rise of private regulation in the apparel and forest products fields	<i>Politics &amp; Society</i>	108	9.00
7.	Christoph Knill and Dirk Lehmkuhl	2002	The national impact of European Union regulatory policy: Three Europeanization mechanisms	<i>European Journal of Political Research</i>	115	8.85
8.	Christopher Z. Mooney and Mei-Hsien Lee	1995	Legislative morality in the American states: The case of pre-Roe abortion regulation reform	<i>American Journal of Political Science</i>	163	8.15
9.	Terry M. Moe	1985	Control and feedback in economic regulation: The case of the NLRB	<i>American Political Science Review</i>	234	7.80
10	Fabrizio Gilardi	2005	The institutional foundations of regulatory capitalism: The diffusion of independent regulatory agencies in	<i>Annals of the American Academy of Political and Social</i>	76	7.60

			western Europe	<i>Science</i>		
11	David Vogel	2003	The hare and the tortoise revisited: The new politics of consumer and environmental regulation in Europe	<i>British Journal of Political Science</i>	87	7.25
12	James A. Caporaso	1996	The European Union and forms of state: Westphalian, regulatory or post-modern?	<i>Journal of Common Market Studies</i>	133	7.00
13	Bob Jessop	1997	Capitalism and its future: Remarks on regulation, government and governance	<i>Review of International Political Economy</i>	119	6.61
14	Giandomenico Majone	2000	The credibility crisis of community regulation	<i>Journal of Common Market Studies</i>	89	5.93
15	Daniel P. Carpenter	2004	Protection without capture: Product approval by a politically responsive, learning regulator	<i>American Political Science Review</i>	61	5.55
16	Mark Thatcher and David Coen	2008	Reshaping European regulatory space: An evolutionary analysis	<i>West European Politics</i>	36	5.14
17	Mark Thatcher	2002	Delegation to independent regulatory agencies: Pressures, functions and contextual mediation	<i>West European Politics</i>	64	4.92
18	Jacint Jordana and David Levi-Faur	2005	The diffusion of regulatory capitalism in Latin America: Sectoral and national channels in the making of a new order	<i>Annals of the American Academy of Political and Social Science</i>	47	4.70
19	Mathew D. McCubbins	1985	The Legislative Design of Regulatory Structure	<i>American Journal of Political Science</i>	136	4.53
20	John T. Scholz and Feng H. Wei	1986	Regulatory Enforcement in a Federalist System	<i>American Political Science Review</i>	129	4.45

**Table E List of articles in public administration**

<b>N o</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title</b>	<b>Journal</b>	<b>Total citations</b>	<b>Citation average</b>
1.	Julia Black	2008	Constructing and contesting legitimacy and accountability in polycentric regulatory regimes	<i>Regulation &amp; Governance</i>	100	14.29
2.	Dara O'Rourke	2003	Outsourcing regulation: Analyzing nongovernmental systems of labor standards and monitoring	<i>Policy Studies Journal</i>	143	11.92
3.	Jens Ludwig and Dave E. Marcotte	2005	Anti-depressants, suicide, and drug regulation	<i>Journal of Policy Analysis and Management</i>	74	7.40
4.	Burkard Eberlein and Edgar Grande	2005	Beyond delegation: Transnational regulatory regimes and the EU regulatory state	<i>Journal of European Public Policy</i>	74	7.40
5.	Fabrizio Gilardi	2002	Policy credibility and delegation to independent regulatory agencies: A comparative empirical analysis	<i>Journal of European Public Policy</i>	93	7.15
6.	Claudio M. Radaelli	2005	Diffusion without convergence: How political context shapes the adoption of regulatory impact assessment	<i>Journal of European Public Policy</i>	68	6.80
7.	David Weil, Archon Fung, Mary Graham and Elena Fagotto	2006	The effectiveness of regulatory disclosure policies	<i>Journal of Policy Analysis and Management</i>	55	6.11
8.	Søren C. Winter and Peter J. May	2001	Motivation for compliance with environmental regulations	<i>Journal of Policy Analysis and Management</i>	84	6.00
9.	Claudio M. Radaelli	2009	Measuring policy learning: Regulatory impact assessment in Europe	<i>Journal of European Public Policy</i>	29	4.83
10	Kerstin Jacobsson	2004	Soft regulation and the subtle transformation of states: The case of EU employment policy	<i>Journal of European Social Policy</i>	53	4.82

11	Claudio M. Radaelli	2007	Whither better regulation for the Lisbon agenda?	<i>Journal of European Public Policy</i>	38	4.75
12	Giandomenico Majone	1997	The new European agencies: Regulation by information	<i>Journal of European Public Policy</i>	81	4.50
13	Charles Davis	2012	The politics of fracking: Regulating natural gas drilling practices in Colorado and Texas	<i>Review of Policy Research</i>	13	4.33
14	Kanishka Jayasuriya	2001	Globalization and the changing architecture of the state: The regulatory state and the politics of negative co-ordination	<i>Journal of European Public Policy</i>	60	4.29
15	Renaud Dehousse	1997	Regulation by networks in the European Community: The role of European agencies	<i>Journal of European Public Policy</i>	75	4.17
16	Robert Falkner	2007	The political economy of 'normative power' Europe: EU environmental leadership in international biotechnology regulation	<i>Journal of European Public Policy</i>	33	4.12
17	Winston Harrington, Richard D. Morgenstern and Peter Nelson	2000	On the accuracy of regulatory cost estimates	<i>Journal of Policy Analysis and Management</i>	60	4.00
18	Mark Thatcher	2002	Regulation after delegation: Independent regulatory agencies in Europe	<i>Journal of European Public Policy</i>	52	4.00
19	Peter J. May	2007	Regulatory regimes and accountability	<i>Regulation &amp; Governance</i>	32	4.00
20	Vibeke L. Nielsen and Christine Parker	2009	Testing responsive regulation in regulatory enforcement	<i>Regulation &amp; Governance</i>	22	3.67

**Table F List of articles in sociology**

<b>No</b>	<b>Author(s)</b>	<b>Year</b>	<b>Title</b>	<b>Journal</b>	<b>Total citations</b>	<b>Citation average</b>
1.	Lauren B. Edelman, Christopher Uggen, and Howard S. Erlanger	1999	The endogeneity of legal regulation: Grievance procedures as rational myth	<i>American Journal of Sociology</i>	191	11.94
2.	Cary Coglianese and David Lazer	2003	Management-based regulation: Prescribing private management to achieve public goals	<i>Law &amp; Society Review</i>	111	9.25
3.	Henry Rothstein, Michael Huber and George Gaskell	2006	A theory of risk colonization: The spiralling regulatory logics of societal and institutional risk	<i>Economy and Society</i>	83	9.22
4.	Tim Bartley	2003	Certifying forests and factories: States, social movements, and the rise of private regulation in the apparel and forest products fields	<i>Politics &amp; Society</i>	108	9.00
5.	Nicky James	1989	Emotional labour: Skill and work in the social regulation of feelings	<i>Sociological Review</i>	224	8.62
6.	Laura T. Reynolds, Douglas Murray and Andrew Heller	2007	Regulating sustainability in the coffee sector: A comparative analysis of third-party environmental and social certification initiatives	<i>Agriculture and Human Values</i>	65	8.12
7.	Bob Jessop	1995	The regulation approach, governance and post-Fordism: alternative perspectives on economic and political change?	<i>Economy and Society</i>	152	7.60
8.	Bob Jessop	1990	Regulation theories in retrospect and prospect	<i>Economy and Society</i>	188	7.52
9.	Robert A. Kagan, Neil Gunningham and Dorothy Thornton	2003	Explaining corporate environmental performance: How does regulation matter?	<i>Law &amp; Society Review</i>	84	7.00

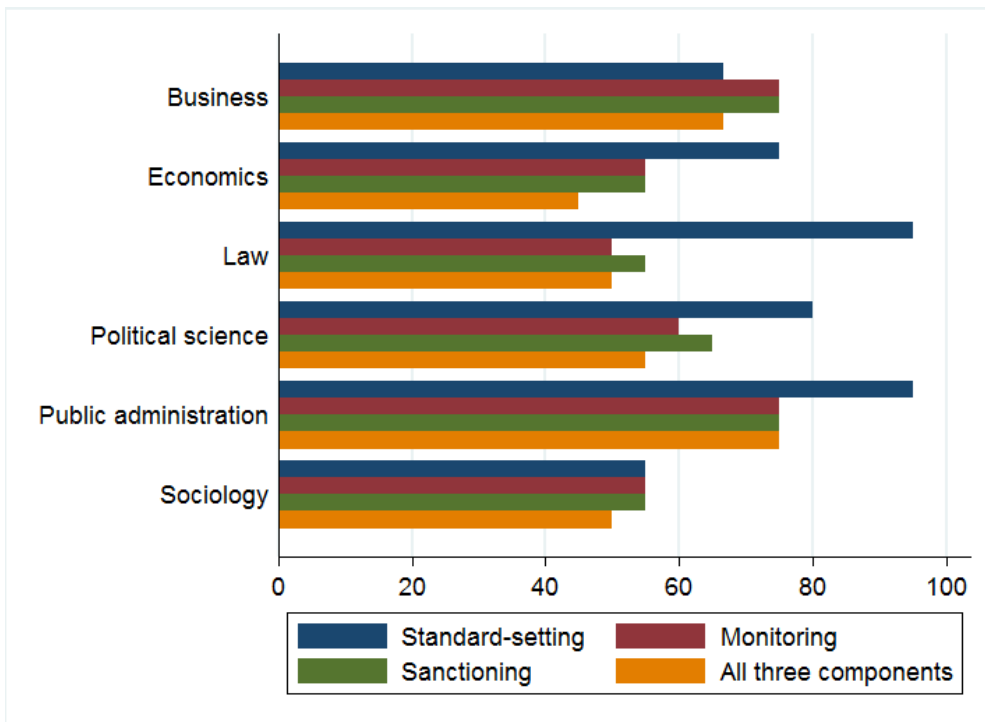


10	Colin Scott	2000	Accountability in the regulatory state	<i>Journal of Law and Society</i>	100	6.67
11	Terry Marsden	1999	Rural Futures: The consumption countryside and its regulation	<i>Sociologia Ruralis</i>	98	6.12
12	Adam Tickell and Jamie A. Peck	1995	Social regulation after Fordism: Regulation theory, neo-liberalism and the global-local nexus	<i>Economy and Society</i>	111	5.55
13	Christine Parker	2006	The compliance trap: The moral message in responsive regulatory enforcement	<i>Law &amp; Society Review</i>	41	4.56
14	Joe Painter and Mark Goodwin	1995	Local governance and concrete research: Investigating the uneven development of regulation	<i>Economy and Society</i>	91	4.55
15	Colin Scott	2002	Private regulation of the public sector: A neglected facet of contemporary governance	<i>Journal of Law and Society</i>	58	4.46
16	Ronin Shamir	2004	Between self-regulation and the Alien Tort Claims Act: On the contested concept of corporate social responsibility	<i>Law &amp; Society Review</i>	47	4.27
17	Justin Waring	2007	Adaptive regulation or governmentality: Patient safety and the changing regulation of medicine	<i>Sociology of Health &amp; Illness</i>	33	4.12
18	Monder Ram, Paul Edwards, Mark Gilman and James Arrowsmith	2001	The dynamics of informality: Employment relations in small firms and the effects of regulatory change	<i>Work Employment and Society</i>	57	4.07
19	Kristina Murphy	2005	Regulating more effectively: The relationship between procedural justice, legitimacy, and tax non-compliance	<i>Journal of Law and Society</i>	38	3.80
20	Malcolm Potts	1997	Sex and the birth rate: Human biology, demographic change, and access to fertility-regulation methods	<i>Population and Development Review</i>	66	3.67



**Table G Articles per decade**

Half decade	Number	Percentage
1970-1979	5	4.59
1980-1989	10	9.17
1990-1999	22	20.18
2000-2009	67	61.47
2010-mid-2014	5	4.59
<b>Total</b>	<b>109</b>	<b>100</b>



**Figure A Percentage of articles including the three activity components**