

A DISCUSSION ON THE RESILIENCE OF COMMAND AND CONTROL REGULATION WITHIN REGULATORY BEHAVIOUR THEORIES

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Abstract

This paper provides the first insights into the factors that may drive the resilience of command and control regulation in modern policy making. We show how the forces of uncertainty and internal dynamics among customers, producers and regulators are the most dominant factors preventing the adoption of non-CAC regulations. Using case study evidence of internet regulation, we then integrate our analysis into the most prominent regulatory choice behavior theories and illustrate that regardless of the theory, these factors can help explain the dominance of command and control as a choice of regulation.

Keywords: Command and Control Regulation, Regulatory Choice Behavior Theories.

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1 Introduction

As the state began to divest itself from industries long held in public ownership, governments have sought new ways to manage public control. Regulation had long been a favourite interventionist tool used by policy makers, particularly in cases where private law instruments were deemed insufficient to address market failures. With the proliferation of new regulatory agencies designed to supervise these privatised firms, a complex, multifaceted and multilayered matrix of regulations started to emerge. As their influence increased, greater scrutiny has been placed on the methods they use to control behaviour. In the last few decades, governments have started developing, testing and costing new types of regulations, in response to the problems associated with the traditional method— which is commonly referred to as command and control (CAC). In tandem with these developments, a burgeoning literature has developed highlighting an array of arguments in favour of non-CAC regulations from market-based to self-regulation.

However, thirty years on, there is only anecdotal evidence to suggest that a shift towards alternate modes of regulation is actually occurring. Despite arguments that we are in transition towards a more pluralist conception of regulatory design, the OECD (2009) maintain that governments still remain

reluctant to seriously consider instruments other than command and control (CAC). Even in cases where regulators are controlling new areas (such as the internet) and where different market failures may exist, command and control is still omnipresent (OECD 2009). While the OECD has documented this phenomenon, as far as we are aware, nobody has tried to explain it either through theoretical or empirical research. To address this gap, this paper investigates the key factors which explain the stickiness of command and control and applies them to the three main competing theories of regulatory choice: public interest, regulatory capture and institutional. The paper maps the evolution of internet regulation as a means to illustrate how the forces of uncertainty and internal dynamics of producers, consumers and regulators within these three competing theories of regulatory choice can help explain the continuing dominance of command and control regulation in modern policy making.

The paper is structured as follows. In section 2 and 3, we review the literature associated with command and control regulation and alternate regulatory instruments, outlining their positive and negative attributes. In section 4, we discuss the resilience of command and control regulation within the three competing theories of regulatory behaviour integrating our theoretical reasoning with the evolution of internet regulation in the United States

(US). Finally, we finish by summarizing the main findings arising from earlier sections and the key conclusions arising from these findings.

2 Command and control regulation

Under command and control (CAC), the regulators fix standards on certain activities (the command) and uses legalisation to prohibit the behaviour of the regulated entities which do not conform to these standards (the control) (Moran 2003; Baldwin 1997; Black 2002). CAC is based on simple cause-effect relations — represented by a linear progression from policy formation to implementation. It creates a stable platform for regulatory participants due to dependability it creates for the regulator, in terms of operational parameters, and for the regulated entity, in terms of compliance obligations (Gunningham and Grabosky 1998). Its legitimacy is particularly strong in times of crisis where sentiment demands more perspective, intensive and legalistic rules (Scott 2004). Latin (1985) describes a number of other strengths to CAC, such as: reduced information and collection costs, greater accountability and legitimacy, enhanced accessibility of decisions to public scrutiny, reduced opportunities for regulatory capture in response to political behaviour, and the increased likelihood that regulations will withstand judicial review. In the German environment sector, the development and enforcement of detailed rules and standards — back by legal sanctions — has been credited with not only increasing the productivity of firms through technology and managerial improvements (Gunningham and Grabosky 1998) but with also establishing new markets for firms to exploit (Fisse and Braithwaite 1993). This is consistent with Porter's theory of competitive advantage; where he argues that stringent regulation can facilitate technology innovation in economies, as firms innovate to comply with regulations (Porter 1990).

Many of these arguments have been hotly disputed and by the end of the 1960s governments started to question the suitability of the incumbent regime which was said to be collapsing under its own weight (Krier 1992). An array of cost-based arguments have been given against command and control, from its effect of increasing relative prices (Buchanan and Tullock 1975), creating market inefficiencies (Dales 1968), and depressing economic growth (Kneese and Bowers 1968). Specifically, many socio-legal scholars have shown that CAC leads to a proliferation of costly rules and over-regulation (Stewart 1988; Cox 2003) which damages innovation and growth in the economy (Bardach and Kagan 1982). This can be explained, in some part, by the high costs of gaining perfect information required to target rules and standards efficiently (Teubner 1987). CAC is also more resource intensive, as centralising the design, monitoring and

enforcement of rules requires significant operational and administrative budgets.

Notwithstanding, cost-based research, the literature associated with command and control will harbour up phrases such as old (Levi-Faur 2005), anachronistic (Stewart 1981; Sunstein 2000), costly (Morgan and Yeung 2007), inefficient (Sinclair 1997; Gunningham and Grabosky 1998), restrictive (Breyer 1979), coercive (Latin 1985), bureaucratic (Stewart 1981) and results in ossification due to its legalistic underpinnings (Cox 2003; Moran 2003). It is also been shown to be conducive to capture (Mitnick 1980; Stigler 1971; Hood 1994; Quirk 1983; Wilson 1984), particularly in the latter stages of Bernstein's regulatory life cycle (Baldwin and Cave 1999). Essentially it seems that CAC has come to represent all that can be wrong about regulation.

However, Baldwin, Scott and Hood (1998) note that many of the faults presented above are US centric and are reduced when command and control regulation operates in an enforcement regime which is more flexible, administrative based and less prosecutorial in nature (such as in the UK). Additionally, many of the problems associated with command and control, such as enforcement, are faced by all types of regulatory instruments (Ogus 1994), an issue we will investigate further in the next section.

3 Alternate regulatory instruments

Policy makers have sought new ways of reforming their regulatory frameworks. A seminal moment in this change in emphasis was in 1972, following the publication of a health and safety report by the British Committee on Safety and Health at Work. The report suggested that there were severe practical limits on the extent to which better standards of safety and health at work can be achieved through a "negative" command and control regime (Robens 1972, 12). The report stimulated the 1974 Health and Safety Act which shifted the emphasis away from using rules or inspections to achieve regulatory objectives towards adopting a collaborative approach to compliance in which employers, employees and trade unions were jointly responsible for ensuring a safe working environment (Aalders and Wilthagen 1997). The new partnership arrangement proved successful, in terms of reducing costs and regulatory burden and, most importantly, reducing accidents and injuries in the workplace.

Following, this and other reports, we have seen the development of a plethora of regulatory techniques designed to steer desired behaviour in means other than legal compulsion. The neo-liberal hegemony which took root following the stagflation of the 1970s support this change and resulted in pressure, not only to deregulate, but to experiment with other types of regulation. The main alternate regulatory instruments which have been developed

can be categorised loosely under four headings: market-based regulation, self-regulation, educational schemes, and laissez faire (OECD 2009).

Market-based instruments use economic or financial incentives to change the behaviour of regulated entities (Baldwin and Cave 1999). They are essentially a market-based derivative of CAC, as the supervisor controls regulatory outcomes through the manipulation of economic or financial, as opposed to legal means. Panayotou (1995) categorises economic instruments into seven broad categories: property rights, market creation, fiscal instruments, charge systems, financial instruments, liability instruments and performance bonds. They are seen as cost effective as they allow firms to find the most beneficial regulatory solution to their individual operations. They also reduce enforcement costs to the regulator as well as compliance costs to industry (Panayotou 1995). Economic instruments are particularly popular in the environment sector (Atkinson and Tietenbery 1991; OECD 2003) where they operate through changing relative prices or creating new trading opportunities (OECD 2009). While the enforcement of CAC is subject to legal uncertainties, breaching market-based rules in more obvious and generally results in the payment of specific sums, which should normatively reflect the marginal costs of the breaching the rules to firms within the industry and society in general (Ogus 1994).

Secondly, self-regulation involves a group of entities coming together to develop rules or codes to regulate their individual and collective behaviour (Baldwin, Scott, and Hood 1998; Page 1986). It generally takes the form of accreditation and industrial codes and can be voluntary or non-voluntary in nature (Baggott and Harrison 1995). It has been used as the primary controlling device in industries, such as financial services, the press, advertising and a host of professional occupations to varying degrees of success. As it is operated by the industry itself, it normally acquires a greater level of technical knowledge and expertise than other approaches, resulting in more fluid and responsive rules with less monitoring, enforcement and compliance costs (Ogus 1995). Regulated firms have also been observed to be more committed to comply with rules which they have helped to create in the first place (Ayres and Braithwaite 1992).

Thirdly, educational measures are considered the lightest form of regulation and the most widely used alternative to command and control in OECD countries (OECD 2002). They seek to change the behaviour of individual agents or organisations through disseminating information. They address information asymmetries, allowing agents to make informed choices based on their risk profile and individual preferences (OECD 2002). A key function of educational instruments directed at firms can be to internalise awareness and responsibility into

corporate decision making (Gunningham and Grabosky 1998). Public information campaigns are also popular — such as with anti drink driving and anti-smoking campaigns — which attempt to educate the public on the effects of non-compliance. Also, the government through *exclamation and excoriation* (Morgan and Yeung 2007) may publish league tables showing performance of regulated entities in their compliance duties against their peers to shame them to improve their compliance record.

The final popular alternative to command and control is to not regulate at all (OECD 2002). For example, instead of regulating the prices charged by firms, the regulator can use other measures such as competitive bidding or franchise arrangements to achieve the same result (Noll 1989). It is worth noting that in proposing a regulatory regime for the British telecommunications industry following its privatisation in the early 1980s, Littlechild (1983, 9) characterised regulation as only “holding the fort” until the “cavalry of competition” arrived. A laissez approach recognises that regulation is not a panacea, nor a zero-sum game, and all types of regulation result in some form of costs to society.

On this basis, Gunningham and Grabosky (1998) argue that while non-CAC instruments have something to offer, they have substantial limitations and problems. In critically appraising market-based regulation, it can be difficult to harmonise across jurisdictions and is cumbersome to change once up and running. Self-regulation can be costly to governments, due to expense in approving self-regulatory codes and rules (Ogus 1995). It can also be socially undesirable because it may result in the acquisition of power by rent-seeking firms (Stigler 1971; Peltzman 1976), not accountable to the conventional constitutional channels (Shaked and Sutton 1981; Page 1986; Kay 1988; Ogus 1995). Information and educational measures may lack flexibility and proper monitoring provisions (OECD 2009). They may also fail to address information asymmetries, as research has shown that disclosing information contained in financial products does little to change customer’s behaviour as they are either unaware of it, do not understand it, or choose to disregard it (Morgan and Yeung 2007). Finally, numerous studies have demonstrated the problems which arise when the state abstains from interference with, or participation in, private industries. Wilson (1980); Feintuck (2004) Baldwin and Cave (1999) all suggest that adopting a laissez faire approach to regulation may result in market abuse by monopoly power, information asymmetries and negative externalities. Without government intervention, powerful firms can earn supra-competitive profits to the detriment of the public interest (Friedman and Kurnets 1945; Ogus 1995; Shilling and Sirmam 1988) by erecting barriers to restrict entry and support anti-competitive practices.

4 Uncertainty within Models of Regulatory Behaviour Theory: Case Study Internet Regulation

The flaws identified above cannot be the only reason explaining the proliferation of command and control, given CAC's own faults (see Section 2). As such, in a formal theoretical manner, the behaviour of regulators in adopting and/or modifying regulation is mainly seen to conform to three different strands of thought; the public interest hypothesis, regulatory capture and the institutional theories. The former suggests that regulators behaviour is shaped by a motivation to protect consumers from abuse of market power; regulatory capture theory postulates that the regulator will be more subservient to the needs and desires of firms within the regulated market; while institutional theories centre on the belief that organisational structure and arrangements, as well as social processes within firms, drive the regulatory agenda.

To fully understand the mechanics involved in the regulatory choice decision process, it is useful to examine the three competing theories in real life policy situations. In this paper, we have chosen the case study of internet regulation. We decided to examine the evolution of regulation in cyberspace as many forces of uncertainty and internal dynamics presented in the paper (i.e. type II errors, autopoiesis) rests, partially, on the assumption that CAC is the incumbent or at least historical regime. Therefore, as internet regulation is a relatively nascent area of regulatory focus — having developed outside the traditional regulatory structure — we should be able to control (to some degree) the forces of incumbency and get a better understanding of all the factors influencing regulatory choice. However, before we start looking at this in more detail, it is necessary to give a brief overview of the evolution of internet regulation.

4.1 Internet Regulation, from *laissez faire* to command and control

For the first few decades following its establishment, the internet was limited to the United States military establishment and while there were probably some rules attached to its operation, there was certainly no formalised regulations and neither was any needed. Following its commercialisation, and the development of private networks in the late 1970s and 1980s (Barry et al. 2009), the internet was fully privatized in 1990 (Weiser 2003). Since then it has developed in an environment largely free of regulation (Weiser 2009), with the regulator in the United States, the Federal Communications Commission (FCC), taking a benign approach to oversight. Contrary with its implicit responsibilities in the Communications Act of 1934, the FCC argued that data processes should not be subject to regulation

(Oxman 1999). It believes that the interests of the public where best served permitting computer services to develop in a free and competitive marketplace (Oxman 1999). In this environment, consumers and innovators do not need permission before they use the internet to create new technologies, establish businesses, connect with friends, or share their views. The FCC instigated a process of *unregulating* the industry (particularly in to network management) during the 1990s (Oxman 1999), buttressed by simple policy statements, such as in network management, where it outlined that practices must be “reasonable” (FCC 2009, 1).

While there is no explicit CAC or self-regulating regulatory code encompassing cyberspace, it is worth noting that the internet is subject to a particular type of regulation. According to Lessig's *locus classicus* book on internet regulation, the centrality of computer code in cyberspace produces a kind of architecture (Lessig 2000). Lessig suggests that this architecture represents a kind of law determining what people can and cannot do. Thus, large firms and government institutions are able to shape and control networks so that they can become as closed, secure and robust as required. Lessig (2000) believes that shaping the core functionality of the internet is a powerful tool in standard setting, information gathering and behaviour modification, and therefore can be described as a cybernetic approach to regulation (Morgan and Yeung 2007; Moran 2003). However, he is less clear how these processes occurs and what leads to the diffusion of one type of regulatory architecture over another (e.g. assembly based versus interpretative programming language).

This quasi-biological or evolutionary form of regulation was replaced in the late 2000s following a number of serious network management incidents which saw millions of customers blocked from accessing hundreds of sites across Canada and the US. As private networks replaced traditional ones, internet service providers had the power to restrict content that competed with their own online content and services. When they started to use this power and block or degrade disfavoured content and applications without disclosing their practices to consumers, various stakeholders called for regulation to ensure that the principle of net neutrality —where all information packets are treated equally by suppliers and there is no gatekeeper blocking lawful uses of the network — remained intact.

In October 2009, the FCC announced that in order to perverse a free internet in the future, it was beginning the process of drafting rules backed by legalisation which would codify and supplement existing internet openness principles (FCC 2009). This reflected the fact that private communication networks are now a critical part of the any country's economic and cultural infrastructure (Lemley and McGowan 1998). In December 2010, the FCC agreed

to adopt enforceable CAC rules that require all fixed line broadband suppliers, excluding mobile operators, to disclose network management practices, restrict broadband suppliers from blocking Internet content and applications, and bar fixed broadband providers from engaging in unreasonable discrimination in transmitting lawful network traffic.

The FCC's decision to regulate using this approach has sparked wide-spread criticism, with many suggesting that a command and control regime is not applicable to an industry such as cyberspace, which was built on a culture of cooperation and collaboration (Weiser 2009). However, it can't be surprising and can be explained separately by the three most prominent theories of regulatory behaviour choice: public interest, capture and institutional.

4.2 CAC resilience within a public interest behaviour model

Within public interest theory, the regulatory process begins with a necessity to address market failure (Posner 1974), with a normative goal of creating a *pareto efficient* allocation of resources (Arrow 1970; Shubik 1970). Instances of market failure can include anti-competitive behaviour, windfall profits, externalities, information asymmetries and moral hazard. Where market failure is accompanied by private law failure, there is a *prima facie* case for regulatory intervention to protect the public from undesirable market activity (Baldwin and Cave 1999). In our case study, the outcry from industry and the public for more robust regulation to prevent a reoccurrence of the 2007 network outage incident represents the rationale for the public interest regulator's intervention.

Once the market failure has been identified and with the assumed public interest at stake, a number of steps are generally seen to occur (O'Sullivan and Kennedy 2007). Firstly, the regulator needs to determine the root cause of the failure, to ensure a lasting solution is brought forward (OECD 1992). This should involve analysing whether existing regulations contributed to the market failure and testing whether modifying these regulations—rather than introducing new ones—would be a most effective solution (OECD 2002). Next, the regulator needs to identify the range of alternative instruments that would be most effective in correcting the market failure (Gunningham and Grabosky 1998). In most cases, this involves CAC together with a number of other types of regulations, usually limited to variations of market-based, self-regulation and educational instruments (OECD 2009).

Following Presidential Executive Order 12291 in the United States (US) and all major regulations must be accessed using cost benefit analysis (CBA) as a means to ensure monetized benefits outweigh the costs of regulation. During the CBA the regulator quantitatively assesses each policy choice identified

in the previous process based on a number of pre-defined metrics such as efficiency, effectiveness, impact on industry and the wider economy and accountability. While CBA has many benefits, such as improving the rule-making process and encouraging experts to clarify their justifications for regulations, the mechanics involved are said to be biased towards CAC (Baldwin and Cave 1999). This stems from the uncertainty involved in anticipating the effects of alternate regulations. CBA requires alternate regulations to display tangible benefits against command and control—in terms of efficiency and effectiveness—which in certain circumstances this is very difficult to calculate and hard to prove (OECD 2009). Principally, regulators may lack sufficient knowledge of how alternate regulations interact with other elements in the regulatory system (OECD 2009). This bounded rationality perspective (March and Simon 1958; Simon 1957) is due to a shortage of empirical analysis and case study evidence on non-CAC instruments (OECD 2009, 2002), and insufficient time to design effective models to test their robustness (OECD 2009). In terms of our internet regulation case study, Weiser (2009) has highlighted that neither the FCC nor academia have developed non-traditional regulatory approaches applicable to network regulation, implying that it was more risky for regulators to adopt a non-CAC approach in light of this uncertainty.

Notwithstanding the CBA process, migrating to alternative forms of regulation poses significant risks compared with other regulatory methods, which will make policy makers think twice before adopting non-CAC regulations. A pluralist account of rise of risk in politics is influenced by the cultural theories, whereby policy making is highly charged with risk issues. As the regulator may lack significant knowledge of the alternative approaches there may be the interpretation that non-traditional forms of regulation—principally in relation to self-regulatory regimes—are more conducive to type II errors. Type II errors, also known as false negatives; occur when the regulator fails to regulate behaviour that turns out to be harmful. Conversely, type I errors, occur where the authority regulates behaviour which turns about to be harmless. For the regulator, type II errors are considered more damaging than errors of first kind (OECD 2002). Type II errors have negative effects on the nature and availability of products and services provided in the market, driving up costs for customers and even discouraging some firms from entering markets. For example, various opaque parts of the financial system (i.e. dark pools, certain commodity trading platforms) which were previously free from government oversight, are now currently the focus of intense regulatory scrutiny, as they have been partially blamed for the development of the recent international financial crisis (Pozsar et al. 2010; Financial Stability Board 2011; EC 2010).

Additionally, many government's (e.g. UK, Ireland, and Germany) have reorganised their entire regulatory structures and have jettisoned failed alternative regulatory modes, such as principles-based regulation (a form of management-based regulation), in the face of intensive criticism from the public.

Essentially, CAC reduces type II errors because it is precautionary in nature and tends to result in over-regulation, as the inflexibility of legally backed rules and the difficulties of gathering perfect information mean that regulators tend to adopt more broad-brush solutions to problems when designing rules (Bardach and Kagan 1982). While this can damage efficiency and increase the probability of type I errors it does reduce type II errors (Baldwin and Cave 1999). In our internet case study, the FCC would had to weigh the benefits of adopting rigid legalistic and enforceable rules to limit the probability of network management incidents in the US against the option of adopting more responsive and collaborative rules, which while reducing costs to producers and consumers, would raise the probability of network management failure in comparison to the first option.

4.3 CAC resilience within a regulator capture behaviour model

The adoption of CAC by the FCC can also be explained using the capture theory, which was first articulated by Stigler (1971). The most basic assumptions surrounding this model are firstly, regulation is subject to strong political control and secondly regulatory decisions are then made to maximise the expected voting majority of politicians. Peltzman (1976) formalises this basic notion within a price entry framework by positing a majority generating objective function for legislators that is dependent on the utility of two economic groups within society, namely producers and consumers. This objective is presented as $M = (M[p, \pi])$ where p is the price consumers face and π is firm profits. It is assumed that the politician's majority is negatively related to higher prices as this entails lower consumer surplus and fewer votes from this group, but higher profits are positively related to this majority as producers can vote, but also they can gather together groups of voters and/or contribute funds to help political campaigns. The model predicts that unlike public interest theory above, regulation will entail less than full consumer protection within the market. It also entails less than 100% producer protection as the majority objective equilibrium will be reached somewhere in between the two. If we assume that this equilibrium is reached by a regulator within a CAC type regulation model the uncertainty involved for both consumers and firms in moving to an alternate regulatory model may deter legislators from making this change. As there is uncertainty with regard to consumers, politicians may be fearful, as in the public

interest theory, that in alternating regulation from CAC they adversely affect consumers in such a way that they move away from their majority equilibrium. However, as a result of possible regulatory capture, there may also uncertainty for firms in varying regulation type as moving from the incumbent regime may create ambiguity for firms who worry about the extra transactions costs and compliance requirements associated with a movement away from CAC (OECD 2002). This may drive the firms to put pressure upon the legislators to avoid modifying regulation and as the specific outcome of varying regulatory type is largely unknown to the politician, they may stick with the incumbent format to avoid the risk of disturbing their majority objective. Regulatory changes are felt most acutely in business which are characterised by high levels of investment and sunk costs, like the energy sector, which is now seeing the construction of financial instruments that hedge against regulatory change (Irvine 2009).

In terms of our internet regulation case study, the movement toward command and control helped preserve the *steady state*, shielding the incumbent regime. Content providers lobbied hard in the US to main the existing principles of internet openness and laissez faire regulations. Moreover, the new command and control rules will act a barrier to entry for competitors and help formalise the previously quasi-biological regulatory code that was already operating implicitly.

4.4 CAC resilience within institutional theory

In terms of the internet case study, the FCC uses a CAC regime when regulating other communication industries, like the cable companies (Hazlett 2001), and given the dominance of routines in regulatory choices according to the institutional theories, using command and control rules for regulating the internet seemed a logical decision.

Institutional theory is built on the premise that the internal dynamics within regulating authorities shape regulation. According to this theory, regulation is guided by organisational routine and procedures punctuated by occasional crises (Hancher and Moran 1989). Therefore, the choice of policy instruments is influenced more by habit, history and institutional culture rather than pure rational choice maximisation, notions of public interest or competitive bargaining between different competing interests (OECD 2009; Baldwin and Cave 1999). Institutional theory is heavily influenced by the naturalist perspective, which suggests that there is a dominance of routines in policy decision making (Black 1997). Also, the idea that institutions have discretion to influence the regulatory agenda has been demonstrated empirically since the 1970s (Mitnick 1980; Hood 1994; Stigler 1971). As such, regulatory institutions are seen as bounded systems that display tendencies towards self-

closure that are so persuasive that it is impossible to exogenously direct control over these institutions. Therefore, as command and control is the prevailing hegemony in policy making, and systems and standards have been built over time, it is natural that regulators will tend to favour it above other types of regulation (OECD 2009). Even if the regulator decides to pursue alternatives to CAC, the regulator (is our case the FCC) would require the acquisition of new skills and expertise, and in some cases, institutional strengthening. For example, when the UK Financial Services Authority's shifted to management-based regulation in the early 2000s, the regulator indicated that the whole process was complex, highly demanding and costly (FSA 2007).

Also, those who stress autopoiesis as a dominant force in regulation maintain that the internal discourse within professionals (Hood, Rothstein, and Baldwin 2001) will tend to reproduce itself according to its own norms when faced with policy decisions (Brans and Rossbach 1997). As such, regulatory institutions are seen as bounded systems that display tendencies towards self-closure that are so persuasive that it is impossible to exogenously direct control over these institutions (Teubner and Febrajo 1992). Autopoiesis tends to be most acute in recondite or inward-looking professions which have their own type of language and self-referential spaces (Teubner 1984), such as in law or medicine. (Hood, Rothstein, and Baldwin 2001). Given the concentration of lawyers in the offices of regulators, like the FCC, the conventional regulatory decision process is effectively conditioned to interact with legally-backed regulations, aka command and control. Unsurprising, the legal system, favours the use of binding commands rather than economic incentives through autopoiesis conditioning (Baldwin and Cave 1999). Moreover, pan-international organisations (such as the EU) also place considerable emphasis on law and hierarchical control in its policy making process (Wilks 1996). Baldwin and Cave (1999) suggest that Federal regulations are properly implemented, States must produce laws which have legally binding effect" resulting in a natural bias towards CAC. This can also be explained, in part, through the related theories of cybernetics (Teubner 1984) which characterise closed social systems, such as law, as black boxes. These black boxes are said to be mutually inaccessible to each other and can explain why policy makers tend to favour legally backed rules, such as CAC, against economic instruments, when designing regulatory.

A further strand of the literature on institutional theories suggests that the internal dynamics within firms can result in power struggle and the desire to expand their range of influence; as such the regulating entity gets captured by its employees. Under such conditions, employees are seen as self-interested agents and their interactions in the regulatory system are designed to maximise their own

budgets as a means to increase their own personal utility (Niskanen 1971; Baldwin and Cave 1999). As such employees will try and, in terms of wages and prestige, and therefore will favour a centralistic regime, such as CAC, according to Niskanen's theory of bureaucracy (Niskanen 1971). CAC is also favourable for those who argue that rational civil servants will not seek to maximise their departmental budget *per se* but rather seek to shape public policy to maximise their own personal utility (March, Smith, and Richards 2000), given the discretionary power that CAC affords to employees at regulators to act in ways which are not consistent with their legislative mandate (McCubbins, Noll, and Weingast 1989). Shleifer and Vishny (1998) refer to this as the *grabbing hand* of the regulator to enhance individual interests, rather than using its *helping hand* to address issues of market failure vis-à-vis the public interest. Command and control is conducive to a *grabbing hand* philosophy as power is concentrated in the hand of a few actors in the policy making process. Under alternate regulatory techniques, knowledge is often split amongst multiple actors and consistent with Foucauldian notions of power, the fragmentation of knowledge dilutes the power of any one individual to shape regulatory outcomes (Black 2001).

In the internet case study, CAC expanded the FCC's own realm of influence and give managers leeway to seek budgetary and resource increases for their departments. For fiscal year 2012, despite widespread budgetary cuts elsewhere, the FCC is seeking a 5.47% increase in its budget from last year, citing important work on internet regulation and the implementation of the national broadband to enhance US competitiveness.

5 Conclusions

Against the backdrop of the internet regulation, the paper has demonstrated how the forces of uncertainty and internal dynamic among producers, consumers and regulators can help explain the resilience of command and control regulation in modern policy making. Firstly, a public choice regulator will tend to favour CAC due to the lack of significant knowledge of the alternative instruments and their interactions with the various elements in the regulatory system. Secondly, regulators who have been captured by firms will tend to favour the incumbent or a centralistic regime (i.e. CAC), given concerns about extra costs associated with alternate regulations. Finally, our analysis within the institutional theories highlights a natural predisposition towards the incumbent or the centralistic regime, as the choice of regulation is typically influenced more by habit or personal utility rather than pure rational choice maximisation. In situations where no regulation exists, autopoiesis theory seems to support the propagation of legalistic rules, such as CAC, given

the prevalence of legal professionals at the offices of regulators.

Given the costs associated with regulation, the factors we have presented above require further empirical and theoretical research in the future to test their robustness. We believe practitioners should start moving towards a more pluralistic conception of regulatory design. Decisions about regulations should not be binary, i.e. a discrete policy decision between strict command and control regulation versus pure self-regulation. Regulators should exploit the strengths of individual regulations while compensating for their weaknesses by the use of additional and complementary instruments tailored to address specific policy goals. Moreover, for regulation to be effective, whatever its kind, it needs to be born from a range of institutional actors, who can effectively shape behaviour in society. The notion that regulation is artificially restricted to governments and industry only reinforces an out-dated and simplistic analysis of modern policy making.

Command and control regulation has a role to play in the optimal regulatory mix, regardless of what the literature postulates, its resilience is testament to this. The practice of annexing regulation to law has many benefits, especially in environments where there is an independent judiciary, strong enforcement practices and a reputation for impartiality. So long as people trust and respect the rule of law, command and control regulation will remain important, in some shape or form.

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