

ABSTRACT

Title of dissertation: PRINCIPALS, AGENTS, AND DISTANT MARKETS:
THE ROLE OF INFORMATION IN NON-STATE
MARKET-DRIVEN PUBLIC POLICY

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Although non-state market-driven (NSMD) policies are increasingly promoted as more efficient and effective alternatives to state-based regulation, there have been few comparative studies of the two approaches, and none that focus on their relative reliability as a means of policy delivery. To facilitate comparison of state and non-state policy systems, I develop a two-part comparative framework that highlights key structural features expected to produce slippage (i.e., a divergence of principals' expectations and agents' actions). The first integrates new insights about principal-agent theory with formal network analysis, emphasizing internal structural factors that can be expected to impact communication between policymakers those to whom they delegate implementation responsibilities (i.e., *structural complexity*). The second focuses on exogenous factors; namely the tendency for communication errors to increase as people are separated by culture and experience (i.e., *social distance*). I apply this framework to compare state forest laws and two NSMD systems currently operating in Chile. Since NSMD authority – and persistence as market alternatives – are predicated on informed

demand, I analyze media content throughout the global products chain, controlling for geography, culture, and epistemic community. I conclude that an important NSMD instrument (the chain-of-custody) weakens the reliability of such models as means of implementing public policy. Moreover, since the quality of communication about NSMD systems strongly declines with geographical distance, this suggests we may be replacing governmental systems of safeguarding public goods (however flawed) with alternatives that are likely to be less effective in the long run.

PRINCIPALS, AGENTS, AND DISTANT MARKETS: THE ROLE OF
INFORMATION IN NON-STATE MARKET-DRIVEN PUBLIC POLICY

by

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Dedication

To my family, who have shown me the importance of integrity, the value of hard work, and the necessity of joy, to the teachers who recognized and encouraged my passion for learning, and to my friends, who show me the virtues of compassion and humility everyday.

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List of Abbreviations

CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMPC	<i>Compañía Manufacturera de Papeles y Cartones</i> (Paper and Carton Manufacturing Company)
COC	Chain-of-custody
CODEFF	<i>Comité de Defensa de Flora y Fauna</i> (Committee for the Defense of Flora and Fauna)
CONAF	<i>Corporación Nacional Forestal</i>
CONAMA	<i>Corporación Nacional del Medio Ambiente</i> (National Environmental Corporation)
COPEC	<i>Compañía de Petroleos de Chile</i> (Chilean Petroleum Company)
COREMA	<i>Corporación Regional del Medio Ambiente</i> (Regional Environmental Corporation)
COREF	<i>Corporación de Reforestación</i> (Reforestation Corporation)
CORFO	<i>Corporación de Fomento de la Producción</i> (Chilean Development Corporation)
CORMA	<i>Corporación Nacional de la Madera</i> (Chilean Wood Corporation)
D.L.	<i>Decreto Ley</i> (Decree Law)
D.S.	<i>Decreto Supremo</i> (Supreme Decree)
EID	Environmental Impact Declaration
EIS	Environmental Impact Statement
ENGO	Environmental non-governmental organization
FAMASA	Forestal Monteágula SA
FMU	Forest Management Unit
FSC	Forest Stewardship Council

ICEFI	<i>Iniciativa Chilena de Certificación Forestal Independiente</i> (Chilean Initiative for Independent Forest Certification)
ILO	International Labor Organization (UN)
IMO	Institute for Marketecology
INDAP	(Institute of Agricultural Development)
INFOR	<i>Instituto Forestal</i> (Forestry Institute)
INN	<i>Instituto Nacional de Normalización</i> (National Standards Institute)
ISO	International Organization for Standardization
ITT	International Telephone and Telegraph Corporation
ITTA	International Tropical Timber Agreement
NEPA	National Environmental Policy Act
NGO	Non-governmental organization
NSMD	Non-state market-driven
PEFC	Programme for the Endorsement of Forest Certification (known as Pan-European Forest Certification before 2003)
PROCER	<i>Promotora de Certificación Forestal, Ltda</i> (Forest Certification Promoter, Ltd.)
QMI	Quality Management Institute
QUANGO	Quasi-autonomous non-governmental organization
RENACE	<i>Red Nacional de Accion Ecológica</i> (National Ecological Action Network)
SAG	<i>Servicio Agrícola y Ganadero</i> (Agriculture and Ranching Service)
SCS	Scientific Certification Systems
SFI	Sustainable Forest Initiative
SII	<i>Servicio de Impuestos Internos</i> (Internal Tax Service)
TFAP	Tropical Forestry Action Program
WWF	World Wildlife Fund

1 PRIVATE REGULATION AND PUBLIC GOODS

Forest certification programs have presented the world of policy analysis with one of the most provocative and startling institutional designs since governments the world over first began addressing the impacts of human activity on the natural environment.

Cashore et al., 2004, p 219

One of the pivotal implications of the globalization of trade is the spatial and informational distancing of production and consumption. ... The informational distancing, in turn, affects the ability of the consumer to make environmentally and socially informed consumption decisions.

Fuchs and Lorek 2002, p 16

In June 2001, I was privileged to witness a meeting of well-respected forestry experts, representing two private-sector efforts to establish guidelines for sustainable forest management in the United States. During that meeting I learned a great deal about forestry and the forest industry, but I was especially struck by one exchange, concerning verification of compliance with their respective standards. One group felt that such claims would only be considered legitimate if monitoring were performed by parties with no potential conflicts of interest in the outcome. The other felt such oversight questioned the moral integrity of forest owners and their businesses. The disagreement inspired great passion, and even threatened to derail the meeting. Ultimately both “agreed to disagree,” and calmly resumed comparing their substantive standards.

Several aspects of the experience led me to think deeper about the nature of public policymaking. First of all, the groups were able to discuss their substantive differences much more easily than the political elements of the respective systems. These differences could not easily be attributed to tangible interests, as both included forest owners, managers, executives and consultants. Moreover, both systems had been developed in

collaboration with environmental and social advocates. But perhaps more interesting was the fact that although their substantive purpose was to assure the provision of public goods (e.g., environmental quality), each was developed and implemented exclusively by private-sector actors.

As I soon learned, these non-state approaches to public policy were part of a growing trend across a range of industries (Haufler 2001; Cashore 2002). Expansion of global economic activity and trade over the past half-century has placed enormous pressures on natural resources and the environment, especially in the developing world (Linton 2003). These trends have been reinforced by changing norms about the “proper” role of state-based institutions, in particular, the neoliberal agenda of minimizing state intervention in national economic activity. Domestic and international regulatory regimes began shifting away from “command and control” instruments and started promoting voluntary, market-based regulatory systems (IISD 1996; Bernstein 2001; Potoski and Prakash 2002). By the late 1980s, civil society groups, frustrated with what they saw as a lack of progress in national and international policymaking, began to seek out commercial partners interested in developing independent regulatory approaches (Donovan 1996; Elliott 1999). One result was the emergence of forest certification – a non-state market-driven (NSMD) approach to governance – which derives policymaking authority not from the social contract that underlies state institutions, but from stakeholder involvement and market demand (Cashore 2002; Cashore, Auld, and Newsom 2004b). Such approaches have often been presented as solutions to policy “gridlock,” inefficient or inappropriate state-based policies, and otherwise inadequate or inappropriate responsiveness to public concerns (e.g., de Bruijn and Norberg-Bohm

2001; Albrecht 2002; Council of Economic Advisors 2003).

At least two critical (yet understudied) problems emerge from this process: regulatory responsibility is being devolved without knowing how these non-state implementation designs compare to state-based systems in as instruments of policy delivery; and market-based instruments have been applied with little understanding of how they might interact with global production and marketing systems. Political analysis of NSMD systems has largely been limited to policy formulation stages (e.g., Elliott 1999; Elliott and Schlaepfer 2001; Lindahl 2001), expected socioeconomic (e.g., Markopoulos 2001; Ozinga 2001; Cerda and Lira 2002) and environmental effects (e.g., Washburn and Block 2001; CCIF 2002), and general shifts in the foundations of policymaking legitimacy (e.g., Cashore et al. 2001; Cashore 2002). By comparison, my approach emphasizes structural challenges inherent in the way these systems – and the state policies they may displace or replace – are designed and implemented.

Inasmuch as NSMD systems mimic the regulatory functions of state-based institutions – especially when they directly or indirectly replace the state's traditional regulatory role – it is important that we understand how these new relations of authority and delegation differ. Moreover, since non-state policymaking has tended to produce competing models in so many sectors (including forest products), a generalizable approach must be agnostic as to the particular foundations (i.e., state or market institutions) of policymaking or implementation authority. Second, inasmuch as it is axiomatic that whether a given NSMD approach will succeed or fail to achieve policy objectives depends on its salience in targeted markets, it is critical to understand the limits to information diffusion. Whether strategic or accidental, variation in the

availability of relevant information across market contexts is likely to play an important role in the ongoing focus of NSMD policies, or even their ultimate survival, as alternative models of policy provision. Since such approaches have often been promoted as alternatives to state-based policies¹ (at least in a preemptive sense) (Sheppard 1999b; Arnold 2003), and since most focus on values traditionally defined as public goods, it is crucially important that we understand the ability of NSMDs to reliably achieve their stated purposes. Specifically, my goal in this dissertation is to estimate the capacity of alternative NSMD approaches to reliably achieve policy objectives (relative to state-based regulation), with a case study of Chilean forestry. Chile, as I describe further in Section 1.3, in many ways presents an ideal environment for NSMD development: a strong example of the neoliberal model, with limited state involvement in the economy and an emphasis on primary resource exports. At the same time, Chile has made efforts to modernize their environmental laws to account for negative externalities.

To accomplish this, I develop eight formal hypotheses, half of which facilitate comparison of state and non-state policy designs, and half of which focus on NSMD-relevant content in the Chilean media, as well as that of the country's principal forest products markets. First, I identify two minimal conditions for reliable oversight: formally defined delegation between principals and agents (*determinacy*), and the absence of clear conflicts-of-interest between such actors (*political breadth*). These conditions ensure that policies reflect the goals of policymakers, rather than those whose behavior the policies are intended to influence. All of the remaining hypotheses are based on one assumption –

¹ Errol Meidinger describes these non-state policy systems as “parallel regulation,” with the potential to “augment, displace, or conflict” with state-based regulation (2000, p 232).

that all communication is imperfect. We can expect such error to be compounded as instances of communication increase in number (*structural complexity*), and when participants are separated by culture and experience (*social distance*). Regardless of their institutional basis (i.e., state, non-state, or hybrid), it should be possible to compare regulatory systems according to constitutive and internal structural properties, as targeted by the first four hypotheses. And since NSMDs depend on market demand to succeed, *ceteris paribus*, any evidence that social distance degrades communication should lead us to question whether such systems are capable of performing functions traditionally sought via (territorially bound) state regulation.

I ultimately conclude that while the non-state policy systems considered here appear to offer dramatic improvements over state institutions in terms of internal structural complexity, such advantages are likely illusory, due to the necessity of maintaining label integrity throughout global market chains. Even if it were possible to easily resolve problems of *indeterminacy* and *sequential complexity*, my analysis shows that the availability of information about these particular NSMD systems is strongly influenced by geography (and to a lesser degree, culture). Regardless of whether it is the demand of end-consumers or intermediate firms which ultimately drive these systems, we should expect the scope and scale of global markets to make the task of connecting supply and demand more complicated than regulation at the national level. While it may be possible to combine the best of state and non-state regulatory approaches (e.g., by contracting monitoring to private firms and strengthening citizen oversight provisions), it seems that informed (and therefore reliable) market demand is principally a local phenomenon. Efforts to achieve sustainable resource use through ecolabeling are only

likely to succeed where it is possible to minimize or mitigate structural, geographic, and cultural distance between producers and consumers.

By identifying structural factors (both formal and informal) that can be expected to impact communication in both organizations and markets, I emphasize *passive* aspects of institutional and market failure whose effects can be expected, regardless of the intentions or capacities of those involved. In other words, even if we choose to avoid (momentarily, at least) the common assumption that actors are egocentric utility maximizers (and thus prone to divergent goals and deception), a structural approach should allow us to compare policy systems by their expected ability to function *as designed*. As such, these approaches can facilitate comparison across policy contexts (e.g., actors, policy goals). Even if it is possible for some actors to mitigate the effects of some structural factors, this would necessarily require resources that could serve other purposes (e.g., lower prices). While variations in the capabilities and resources of individual actors may affect the degree to which informational asymmetries are problematic in markets *or* regulatory institutions, such additional costs present a latent competitive disadvantage. Systems with more complex delegation relationships, and market-based systems that must connect spatially and culturally distant producers and consumers face greater challenges than those which do not. Thus, if NSMD systems are to be truly market-driven, such structural factors may ultimately be more relevant (in terms of the success of a given policy system) than actual public demand.

This project covers a lot of conceptual ground, and several overlapping literatures. Empirically, I focus on label-based forest certification as a strong test of the NSMD model, within the context of an export-oriented economy situated at some geographical

and cultural distance from its principal markets. This is perhaps most directly related to market environmentalism (e.g., Prakash 2000; Bernstein 2001; Prakash 2002), including questions of natural resource sustainability (e.g., Dovers 2001; Pirages and Cousins 2005) and sustainable consumption (e.g., Princen 1997, 1999; Fuchs and Lorek 2002; Kong et al. 2002). However, the lessons learned here should also inform us about market-related aspects of global environmental politics (e.g., Conca 2001; Sonnenfeld and Mol 2002; Conca 2005), and more generally contributes to the literature on international political economy (e.g., Strange 1985, 1996; Henderson et al. 2002).

However, since I have attempted to integrate insights from several disparate literatures, this project is also theoretically broad. Most generally, this work addresses issues of state-market relations (e.g., Coase 1988; Pigou 2002) and regulation (e.g., Mitnick 1982; Moe 1984, 1987). While that literature has traditionally treated the public and private spheres as separate and antagonistic, over the past decade there has been growing interest in the role of private actors in disciplining market actors (e.g., Cutler, Haufler, and Porter 1999; Haufler 2001), which has also been raised within more general discussions of “governance” (e.g., Taylor 1999; Dragani and Flynn 2001; Kooiman 2002; Bernstein and Cashore 2004).

In an attempt to address these empirical and theoretical questions, I have developed a framework that integrates insights from principal-agent theory (McCubbins and Schwartz 1984; Waterman and Meier 1998; Nielson and Tierney 2003) with those of elementary network analysis (e.g., Conway 2000; Kadushin 2004; Scott 2004). I use this framework to highlight the role of information in markets (e.g., Stiglitz 1988; Miller 1992; Cason and Gangadharan 2002), which can be understood to be conditioned both by

serial reproduction (e.g., Williamson 1967; Bartlett 1997) and social distance (e.g., Bogardus 1925; Dickson and MacLachlan 1990; Ethington 1995). All but the last of these clearly fall under the heading of “new institutionalism” (March and Olsen 1984; Moe 1984; Skocpol 1984, 1995), which has tended to focus on relatively narrow socio-political contexts. To understand how non-state market-driven policy systems function at the global level, we must modify our conceptions both of the relevant actors and of the limitations inherent in their interactions.

In the rest of this chapter, I briefly summarize the critical controversies surrounding NSMD approaches, showing how these are reflected in norms about what constitutes an “ideal” non-state, market-driven policy system. After describing the claims and rationale of the most prominent advocates for “private regulation,” I then discuss the principal characteristics of public goods, as well as the major theoretical perspectives on the causes of bureaucratic and market failure – especially *asymmetric information*. I also briefly review several structural theories about how asymmetric information can emerge from both formal and informal institutions (discussed in greater detail in Chapter 2), before explaining why Chilean forestry – including both state-based regulation and voluntary forest certification – present a strong test for the NSMD in general. Finally, I describe how the remaining chapters of this dissertation are organized.

1.1 Non-state market-driven policies

Whether following from globalizing or liberalizing trends, non-state policy efforts are increasingly common today (Haufler 2001; Potoski and Prakash 2002). To date, political research into non-state regulation has focused almost exclusively on establishing that the

phenomenon exists and is widespread and growing (Gunningham 1995; Caldwell 1998; Meidinger 2001a). It is now well-known that non-state regulation occurs – and has occurred for centuries – across a broad range of domains (Haufler 1998; Cutler, Haufler, and Porter 1999). From credit scoring to product safety and kosher food, the private sector has a long history of establishing and enforcing commercial standards (Yilmaz 1998). Yet private regulation of environmental and labor standards is a relatively new phenomenon (Bartley 2003), which only began to emerge at the global scale after the enormous expansion of global economic activity – including trade – began producing noticeable negative impacts on regional and global public goods, and words like “sustainability” became common to both public and private rhetoric. A watershed moment was the Brundtland Commission’s publication of Our Common Future (World Commission on Environment and Development 1987), which touched off broad public discourse on the role of economic actors in environmental and social sustainability (Bernstein 2001). Over the past two decades, a responsible public image – especially towards the environment – has come to be seen as critical to developing, maintaining, and expanding marketshare (Diamantopoulos et al. 2003). Producers are increasingly relying on product labeling to signal such commitment to consumers (Teisl and Roe 1998; GEN 2004).

Yet the growing role of economic actors and market forces in the protection of the environment remains a hotly contested issue. Concerns include: the trustworthiness of producer and retailer claims (e.g., Wynne 1994; TESI 2000); access to meaningful participation in private-sector policymaking processes (e.g., Counsell 1999; Bass et al. 2001); the appropriateness and effectiveness of substantive policy goals (Meridian

Institute 2001; Cerda and Lira 2002); the legitimacy of private-sector policymaking in general (e.g., Bernstein 2001; Cashore 2002; Bernstein and Cashore 2004); disparities of market access and market power (e.g., CGCAP 2002; Thornber 2003); and the ultimate reliability of the private sector as means of ensuring public goods (Counsell and Terje Lorass 2002; Meidinger 2002).

Such concerns have been central to the development of non-state policymaking norms. Though few issues have been fully resolved, several policy elements have come to be seen as *de facto* requirements for legitimate NSMD policies. First, such systems must support goals that are in demand by actors downstream from producers, who are rewarded when their product is preferred over others. Second, participation must be entirely voluntary, occurring without state coercive power. Third, authority to develop and implement such systems is grounded in stakeholder participation. Fourth, compliance with policy standards must be independently verified (Cashore 2002; Cashore, Auld, and Newsom 2003). Finally, to ensure that consumers are able to identify participating producers, product labeling and chain-of-custody systems have become standard instruments (RPPI 1996; Teisl and Roe 1998; Cason and Gangadharan 2002).

Proponents of NSMD approaches often claim these systems are more efficient than “command and control” state regulation (Campbell 1997; Teisl and Roe 1998; Russell and Clark 2003). This is said to follow from the ability of producers and consumers to choose between alternative means of achieving policy goals, rather than having them prescribed, which tends to “lock in” a single approach and ignore the potential of innovation (Council of Economic Advisors 2003). Many have claimed that this greater flexibility even means that NSMD policies are ultimately more effective than

state regulation. Combined with the normative appeal of the greater freedom offered by their voluntary nature, these advocates have even suggested that public regulation – from resource management, to food and drug safety, airline safety, financial ratings, and medical licensing – be replaced by private sector, market-driven approaches (Campbell 1997; Yilmaz 1998; Murphy and Bendell 1999; Schwarcz 2002b, a; Holcombe 2003). Lest we believe this represents only the radical fringe, even President Bush’s Council of Economic Advisors has promoted private regulation, albeit with somewhat more restraint² (2003). Similar dynamics can be observed in dialogue about forest certification. While few NGOs have gone so far as to promote such approaches as exclusive alternatives to state-based regulation, many have shifted resources from attempting to influence domestic and international policies, to actively participating in NSMD policymaking (Walter 2003; Cashore, Auld, and Newsom 2004b). At the very least, this suggests the potential for such policies to preempt state-based regulatory approaches. Before transferring public means of providing or ensuring public goods to the private sector (in whole or in part), it is critical that we understand the relative capacity of public and private policy systems to reliably achieve their stated goals. Neither market nor institutional failures are likely to be meaningfully resolved by good intentions alone.

1.2 Public and private goods in states and markets

Public goods are formally defined as commodities or services which are neither rival nor excludable, such that they cannot be diminished by use, nor can access to them be

² While suggesting that issues as sensitive as homeland security might rely (in part) on private regulation, the Council has also been careful to acknowledge some limits of private approaches, such as shallow markets.

restricted (Pearce 1992). The natural environment is generally considered a classic public good (Harris 2005), though the non-rival, non-excludable status of particular elements is often contingent on political and technological factors (Castle 1978). Thus, forests typically provide pure public goods (e.g., climate regulation, carbon fixation, biodiversity), and those of mixed public and private character (e.g., recreation, erosion protection), as well as fully private goods (e.g., wood, non-timber forest products) (Moran 2001; Stenger and Normandin 2003). Over the past two decades, it has been the more *public* values of forests that have most often been emphasized in international forestry dialogue (Humphreys 2004). When governments failed to establish a global convention on sustainable forestry in the late 1980s, NSMD approaches were created in an effort to internalize the cost of protecting such public goods into (private) marketed products (Dudley 1995; Elliott 1999). While using market forces as a means of ensuring public goods is not a new phenomenon, greater reliance on private sector actors does represent something of a departure from what we have come to consider traditional roles of both states and markets.

The idea that government has a role to play in addressing the balance of private and public costs is most often attributed to Arthur Pigou³, whose Economics of Welfare prescribed taxation as a means of both deterring and mediating negative externalities (reprinted in 2002). From this perspective, state institutions have the ability (and responsibility) to correct such externalities by using “Pigouvian taxes” to match private and public costs (Cropper and Oates 1992). While this alone may not justify all forms of

³ Lowery suggests the idea of a divergence of net benefits can be traced to another British economist, Henry Sidgwick (writing in 1883), but argues that Pigou should be credited with formulating this as a government responsibility (1998).

state intervention, it has been an important rationale for much government regulation during the latter half of the 20th century. As we might expect, this approach has been quite contentious, as well. Some economists have argued that it is often difficult to determine the source of externalities (Harris 2005); others have pointed to second-order distortions of regulation that can reduce efficiency and effectiveness (Cropper and Oates 1992). But the most persistent critique is based on the belief that it might be possible to balance public and private benefit through property rights alone. In 1960, Ronald Coase (reprinted in 1988) explained that while the problem of externalities might be resolved through taxation, in the absence of transaction costs, it could also be addressed by victims paying polluters to not pollute. It is the presence of significant transaction costs (produced by asymmetric information, among other things) and the necessity of maintaining clear property rights that justifies a role for government. While “victim pays” may not have the same normative appeal of the “polluter pays” principle, the two are equally efficient (Cropper and Oates 1992; Pearce 2002). Coase’s theorem (for which he was awarded a Nobel prize), has since become a cornerstone of arguments about *non-market* or *bureaucratic failure* (Boadway 1997; Lowery 1998).

Of course, transaction costs – especially those rooted in asymmetric information – are common to both bureaucracies and markets (Miller 1992; Milward 1998). Akerlof, Spence, and Stiglitz shared a Nobel for demonstrating how informational asymmetries can lead to inefficient markets (Stiglitz 2002), but Downs’ earlier *Law of Diminishing Control* also explained how administrative control is limited by informational costs,

which increase in-step with institutional scale⁴ (1966). When Williamson reinterpreted Downs' approach (1967), he made explicit the structural element of hierarchy, which he argued led to the "control-loss" problem, in which informational asymmetry places limits on the optimal size of any organization. Like Downs, he believed this phenomenon reflected Simon's concept of "bounded rationality" (1957). But to explain the importance of structure, he reintroduced Bartlett's work on *serial reproduction* (1932, reprinted in 1997), which revealed the effects of interpretation in human communication.

Williamson's hierarchies are "tree-like," in that each subordinate answers to only one boss (Evans 1975). For decades, this linear understanding – and asymmetric information – have been central to another major theory of delegation: principal-agent theory (e.g., Ross 1973; Stiglitz 1987; Strausz 1997). While political scientists such as Terry Moe explained that *separation of powers* systems were actually designed quite differently (1984), only recently have scholars begun to study such structural features rigorously (e.g., Lyne and Tierney 2002; Lyne, Nielson, and Tierney 2003; Nielson and Tierney 2003). Accordingly, the potential importance of more complicated structures (e.g., multiple principals) has not been fully explored. Similarly, few scholars have questioned the role that serial reproduction and bounded rationality might play in increasingly global markets (Dickson and MacLachlan 1990; Princen 1997, 1999). If we are, in fact, transitioning to a greater reliance on NSMD policy systems to provide public goods, we should understand how such structural factors might impact those systems, and accordingly, how successful we may expect them to be as mechanisms of institutional

⁴ Tullock had similarly argued that control is inversely proportional to bureaucratic scale (1965, reprinted in 1987).

control and feedback between producers and consumers.

1.3 Why this case study matters

For more than half a century, foresters have argued that forests had the potential to be renewed indefinitely, given wise management (Tidmarsh 1951). Though it has been claimed that forestry has the potential to ‘become the first industrial system⁵ that can meet the need for food, raw materials and energy within sustainable systems’ (Wergens 1995), concern about the state of the world’s forests has been growing since at least the 1970s. This followed from dramatic increases in the volume of global trade in forest products since the 1960s, and a growing awareness of threats to tropical forests in the developing world. Although initially most of this concern focused on the tropics, over the past two decades it turned towards temperate forests, as well (Elliott 1999). At the same time, the global nature of the forest products market, and institutional changes at the international level (e.g., trade agreements), have made forest companies less dependent on – and less constrained by – the policies of any single government (Palo, Uusivuori, and Mery 2001). In response, forestry was one of the earliest domains in which the newer non-state regulatory approaches were developed (Hoberg 1999); dozens now exist, ostensibly to provide incentives for producers to pursue more sustainable practices

⁵ Although it has often proven difficult to control access to forest resources (especially in developing regions where property rights are ill-defined) (Ljungman et al. 1999), other global-scale agro-industrial systems may face even greater challenges. An extreme example are pelagic (deep ocean) fisheries, such as tuna. While NSMD systems have been developed for some of these resources (e.g., Marine Stewardship Council, modeled on the FSC system), the combination of their non-territorial, migratory character and the utter absence of property rights in open ocean fisheries make their sustainable management much more challenging. The implications are that even “fully” non-state market-driven policies are therefore predicated on competent state (legal) institutions (Meidinger 2005), but also that where such institutions are weak, NSMD systems are also likely to be weaker.

(Viana et al. 1996). Such systems now account for hundreds of millions of acres of managed forests worldwide (UNECE/FAO 2001).

Though NSMD approaches have been developed for a range of industries, forestry is particularly interesting because of its relatively longer history, and the variety of approaches competing for support (WRI 1996; Bass et al. 1997; Elliott 1999). They include state, market and civil society actors as principles, agents and targets (Meidinger 2001b; Wenban Smith 2001). As market-driven systems, they derive rule-making authority not from state institutions, but from the voluntary participation of actors throughout the market chain – including end consumers (Cashore, Auld, and Newsom 2004b). Forest certification has generally led the NSMD approach in terms of both innovation and lessons learned (Viana et al. 1996); in fact, the FSC system has been called the “most advanced example of NSMD governance worldwide” (Cashore and Lawson 2003, p 6). What we learn from forest certification may therefore tell us a great deal about the feasibility of NSMD approaches that are being developed in other areas, such as coffee, agriculture, and fisheries (Cashore, Auld, and Newsom 2004b).

In many ways, Chile provides a nearly test-tube environment to study the political economy of natural resources. For more than three decades, the country has been a leading example of neo-liberal economic reforms (Tanzi and Schuknecht 1997), and its civil service has been renowned for its low level of corruption (Maggi and Kern 2000). Furthermore, Chile’s ability to achieve impressive economic success while emphasizing natural resource exports has been noticed by those in both the developed and developing worlds (Nef 1995; Sustainable Chile 2002a).

Chileans are also immensely proud of their country's natural beauty. Nearly a fifth of the country's territory is now classified as protected, one of the highest rates in the world (Meacham 1997). Though almost all of Chile's commercial wood is now produced on plantations (Husch 1982), as a major international producer of wood-based products, Chilean forestry has drawn a great deal of attention from civil society organizations, industrial interests, and academic and professional scientists, as well as politicians, state ministries, and international institutions (Kaimowitz 1996). This has led politicians to develop national approaches to environmental protection, even as they sought to expand forest exports. While Chile has hundreds of forest laws, two are considered especially relevant to commercial forestry today: Decree Law 701 and Law 19300 (Katz, del Fávoro, and Sierralta 1995; Arnold 2003). At the same time, the private sector has come to support forest certification as a means of providing more stringent standards and improving the competitiveness of Chilean products in international markets. This has resulted in two competing NSMD standards – the Forest Stewardship Council (FSC) and CertFor Chile – which have collectively certified more than half of Chile's commercial forest estate (CONAF 2004; CertFor 2006; FSC 2006a). Forestry and forest certification is commonly discussed in the national media, which suggests a broad popular awareness of both state and non-state approaches (Rametsteiner 2000; Spanish Newswire Services 2000; Serrano 2001; Gonzalez 2002; Ministerio de Agricultura 2002; Montalbetti 2002). Since certification systems with independent oversight and a label-based chain-of-custody are considered the “gold standard” of NSMD systems – characteristics shared by both non-state systems analyzed here – these provide a strong case for the non-state market-driven approach to public goods provision (Wartelle 2002;

Cashore, Auld, and Newsom 2004b). If they cannot be shown to be structurally equivalent to (or improvements upon) state regulation, we must question the general effectiveness of the NSMD model. Where this must be qualified by contextual factors (e.g., market structures, market strategies), we should similarly understand the limits of these systems as alternative means of ensuring public goods.

1.4 What remains

In the next chapter, I explain the foundations of the two-part framework I will use to compare state and non-state forestry regulation in Chile. The first is a generalizable formal network model of the delegatory and informational relationships which define the internal structure of any regulatory implementation system. The second is designed to identify the effects of three aspects of *social distance* (geography, culture, epistemic framing) on communication, especially at the global level. I develop four formal hypotheses for each (for a total of eight), which though focused on label-based certification (identified as the strongest NSMD policy design – see Wartelle 2002; Cashore et al. 2004), could easily be generalized to other state and non-state policy forms. After describing each, I finish by reviewing the overall logic of the comparison (see Figure 2.7), which poses the question: which policy design would we expect to produce the most reliable results? The limitations of state-based regulatory policy is well-known, but while calls for the increased use of non-state, market-driven policies are increasingly common, few have attempted to assess their relative capacity as means of policy delivery.

In Chapters 3, 4 and 5, I describe the political and economic reality of Chilean forestry. The first focuses on state forest policy, interpreting the two major state regulations (D.L. 701/19.561 and D.L. 19.300/D.S. 30) in terms of the formal network model described in Chapter 2. In the second half of the chapter, I identify and describe the major stakeholders and issues in Chilean forest politics, to provide greater depth and context for the structural framework, and to acknowledge the important role of agency and choice in policy outcomes. The first part of Chapter 4 is similar, but focuses on the two NSMD approaches active in Chilean forestry (FSC and CertFor). After interpreting both systems as formal networks, I address the first four formal hypotheses (see Table 2.1), and offer preliminary conclusions about the comparison of Chile's state forest policy with those NSMD policies.

Chapter 5 focuses on the role of social distance in communication about forest certification in publicly available media in Chile and the rest of the world – with special emphasis on its two principal export markets, the United States and Europe. After briefly reviewing content analysis as an analytical approach, I describe the specific technique and concepts that I used to assess message content throughout the global forest products market chain. I then present the results of the last four formal hypotheses (see Table 2.1), and go on to describe content patterns that help us to understand which market-driven systems are more likely to be successful in their own terms, and where.

In the conclusion (Chapter 6), I revisit all of these results and attempt to place them in context, focusing on the implications of the structural limitations I identify in Chapters 3-5, the possibility for agents to mitigate these factors, and what this suggests for the reliability of both state and NSMD policies in Chilean forestry. Given the

challenges associated with NSMD systems (both endogenous and exogenous), I then offer some tentative alternative explanations for their popularity for both civil society organizations and industry. After describing a number of directions I would like to extend this research, I close by benchmarking my framework in the political science and public policy literature, and suggesting how the lessons of Chilean forestry might inform a broader debate about “appropriate” roles for both public and private sector actors.

2 GOVERNANCE, STATES AND MARKETS

A common misconception is that government is the only source of regulation. In fact, trade associations and other private organizations also administer regulation. Private regulation may arise in response to the threat of government regulation or as a spontaneous private solution to a market imperfection. For example, private organizations are often effective at providing regulation to overcome informational problems through standard setting, certification, monitoring, brand approval, warranties, product evaluations, and arbitration.

Council of Economic Advisors 2003, p 145

We refer to these new institutions as ‘non-state market-driven’ governance systems because rule-making clout does not come from traditional Westphalian state-centered sovereign authority but rather from companies along the market’s supply chain, who make their own individual evaluations as to whether to comply to the rules and procedures of these private governance systems.

Cashore et al., 2004, p 4

Writing over a half century ago, Dahl and Lindblom described the proliferation of means for achieving public policy goals as “perhaps the greatest political revolution of our times” (1953, p 8). Such changes have only accelerated since. While non-state actors have long cooperated (or colluded) to pursue shared objectives, the emergence of the fully private formulation and implementation of social regulation (e.g., consumer or environmental protections) has emerged only in the past fifteen years or so (McNichol 1999). Such approaches are usually justified in terms of market forces, with proponents arguing their superiority to state-based regulation in both normative and functional terms (e.g., Yilmaz 1998; Murphy and Bendell 1999; Holcombe 2003). Again, the logic of these non-state, market-driven (NSMD) systems derives from a belief that a given public policy goal is demanded by consumers, who are in turn willing (and able) to “reward”

producers by preferring their product over others⁶. To ensure that consumers are appropriately informed, the suppliers of NSMD governance not only provide means of guaranteeing that compliance with the policy provisions has occurred (i.e., *certification*), but also a way to signal this fact to consumers (i.e., *product labeling*) (RPPI 1996; Teisl and Roe 1998). Yet while the underlying logic may be fairly simple, there is substantial variation in the institutional forms associated with individual NSMD systems (Garcia-Johnson, Gereffi, and Sasser 2000). Such diversity has made comparisons of alternative approaches (including state-based regulation) especially challenging.

Comparative policy studies are also hampered by the lack of a tractable framework, capable of describing subtle political differences (Schneider and Ingram 1997). It has long been argued that disaggregating policy systems according to their functional “parts” facilitates comparative analysis (Salamon 1981; Soltan 1993). In fact, describing policies in instrumental terms (the means by which policy goals are implemented) has been a common practice for over thirty years (Lowi 1972; Salamon 1981; Howlett 1991; Vedung 1998; Hoberg 2001). Unfortunately, these typologies often miss important subtleties – either they focus simply on the degree of “coerciveness” (e.g., Lowi 1972; Etzioni 1975), or they project policymakers’ *intentions* onto the means chosen to achieve policy aims (McDonnell and Elmore 1987). Rather than focusing on the perceptions of principals and targets, instrumental analyses would be better served by focusing on the actors and actions associated with various policy processes (Woodside 1986).

⁶ In fact, many label-based systems have been promoted (at least to producers) as if they would one day also provide a “price-premium” (i.e., higher sale price) to certified producers (Golan, Kuchler, and Mitchell 2000; FERN 2001; Bray, Sanchez, and Murphy 2002).

As competing NSMD systems have been developed over the past 10-15 years, the most common comparative strategy has been to contrast the substantive standards⁷ of each (e.g., mitigation or remediation requirements) (Meidinger 2002). While this approach appears to be preferred by program supporters (e.g., Cerda and Lira 2001; Meridian Institute 2001), it usually ignores the question of *effectiveness* – whether a given set of standards (or instrumental approach) is better able to achieve a common goal (e.g., improved environmental quality). In part, this is due to the relative youth of these approaches – for many years, any effects that could be observed were simply insufficient to support valid comparisons. However, in recent years, a few performance-based analyses have appeared (e.g., ERM 2003; GreenBiz.com 2004), a trend that could be expected to grow in step with the age of individual NSMD policy approaches.

Another common approach has been to consider more normative aspects⁸ (e.g., sources of authority, legitimacy, credibility), although these are more often generalized attempts to understand the nature of non-state policymaking rather than genuinely comparative studies. However, a few have attempted to more firmly ground their analyses empirically, mapping specific patterns of stakeholder participation and attitudes⁹. These studies appear to have been intended to either critique the “representativeness” of particular systems (e.g., Dragani and Flynn 2001), or to argue for

⁷ For example, see: Friedman 1999, CEPI 2000, Griffiths 2000, Bass et al. 2001, Cerda and Lira 2001, Meridian Institute 2001, Ozinga 2001, Washburn and Block 2001, Cashore, Auld, and Newsom 2004b, CEPI 2004, CPET 2004, or FERN 2004.

⁸ For instance, see Bass and Simula 1999, Meidinger 2000, Borregaard et al. 2002, Cashore 2002, and FERN 2004.

⁹ See: Costa and Ibanez 2000, Cadman 2001a, b, Simula et al. 2001, or Auld, Cashore, and Newsom 2003 for examples of such approaches.

the potential strength or weakness (Hansen, Forsyth, and Juslin 2000; Brennan and Johnson 2004) of various alternative approaches (or indeed, even of NSMD approaches in general).

While policy analysts, past and present, tend to focus on state-based processes, NSMD systems have also been compared according to their general institutional features¹⁰ (e.g., monitoring or accreditation provisions). Though certification systems are increasingly common, there are broad differences in the way these policies have been designed and implemented. For some, authority is retained solely by the firms themselves (*1st-parties*); for others, industrial associations take the lead (*2nd-parties*). A few derive their authority from more traditional sources, such as states and international regimes (*4th-parties*) (Garcia-Johnson, Gereffi, and Sasser 2000). However, as certification systems have competed for consumer support, there has been a general trend towards the use of independent, non-state agents (*3rd-parties*) to certify compliance (Centeno 1996; Garcia-Johnson, Sasser, and Gereffi 2001), though the importance of this feature has been hotly debated (Okubo 1999; SAF 1999). Moreover, there is still significant variation to other aspects of NSMD implementation systems, such as the accreditation of auditors, or stakeholder consultation (Cadman 2001a; Dragani and Flynn 2001).

Clearly, the rising importance of non-state and market-based policymaking requires that we reassess our theories and methodologies. The shift from state to non-state (or para-statal¹¹) institutions only adds to this challenge, since any general instrumental

¹⁰ For a broad sampling of such approaches, see: Bass and Simula 1999, SAF 1999, Markopoulos 2000, Rickenbach, Fletcher, and Hansen 2000, Cashore 2002, Auld, Cashore, and Newsom 2003, Bartley 2003, CPET 2004, or Metafore 2006.

¹¹ The past several decades has also seen dramatic growth in the variety of “quasi-autonomous non-

framework must remain agnostic as to the organization of power (Woodside 1986), allowing for the possibility of pluralist processes and the use of regulatory power wholly (or partially) outside of state institutions. Shifting focus to include NSMD policy systems thus has two major implications: the absence of a sovereign means that policies may be implemented by a broader range of actors than traditional, state-based regulation; and that to be successful as a policy alternative (i.e., persist), these systems must find ways to reliably connect consumers to producers. To understand the relative advantage of pursuing public policy goals through state institutions or NSMD approaches, we must consider the impact of both factors (Fiorino 2001).

Since policymaking authority in NSMD systems is rooted not in state institutions, but in the actions of producers and consumers throughout the supply chain (Cashore, Auld, and Newsom 2003), assessing the links between private-sector policymakers, their implementing “agents,” and their “constituents” (e.g., consumers) is also a critical task. In Western democratic systems, elections – the essential relationship between lawmaker and citizen – are formally institutionalized, along with the rights and obligations of each¹² (Held 1996). For market-driven systems, these connections are more ambiguous and open-ended, especially if markets are considered as a means of demanding and delivering public goods. While informed consumers may indeed reward producers who voluntarily

governmental” (QUANGO) institutions, which are increasingly chosen to implement public policies (Hood 1986). Occupying a grey zone between the public and the private, these hybrid organizations have a variety of origins – some have been devolved from the public sector, others are “private” agencies founded by the public sector. The purpose of this special legal status is to set them apart, in fiscal or authoritative terms, from state institutions (Bernstein and Cashore 2004). QUANGOs have become especially common in Commonwealth and other English diaspora countries (Koppell 2003).

¹² Of course, even within these institutions, there is a great diversity of form (e.g., majoritarian, consensual, participatory, republican) (Lijphart 1999).

adopt “more responsible” practices¹³ (Stisser 1994), the means of communicating such compliance to buyers is usually taken for granted, the natural result of maintaining label integrity throughout the supply chain (OECD 1997). While beliefs about democratic responsiveness often rely on similar assumptions, the greater territorial reach of global markets may present greater complications. Therefore, the degree to which assumptions about market chain communications are supported by observation will help to ground the debate over the effectiveness of global markets as sources of policymaking authority¹⁴.

In this chapter, I first offer brief overviews of the regulatory and principal-agent literatures, clarifying some concepts that have been under-theorized in the latter. I then develop two theoretical approaches to shed light on key aspects of state-based and NSMD governance: a formal network framework designed to emphasize structural relationships between actors tasked with policy implementation; and a “social distance” framework designed to determine whether geography, culture, or expertise affect the communication of NSMD-related information throughout global supply chains. These discussions are followed by an explanation of the comparative approaches I apply in Chapters 3, 4 (implementation networks) and 5 (social distance in markets).

¹³ Certification systems may emphasize one of two aspects of producer activities: management systems or actual performance. The first concerns a firm’s ability to monitor and document their employee actions (Bass and Simula 1999), while the second focuses on observed impacts (e.g., social or environmental) of a firm’s operations (FERN 2001). While certification systems that focus exclusively on management systems exist (e.g., ISO 14001), none of these include product labeling as a feature (Bass and Simula 1999), weakening our ability to honestly characterize them as “market-based.” However, since management system and performance approaches are complementary, most label-based certification schemes include elements of both (Bass et al. 2001; FERN 2001).

¹⁴ While entire libraries have been written on the challenges facing democratic systems, few scholars have focused on the efficacy of markets as a means of delivering public policy. Instead, most proponents of market-based approaches have simply assumed their greater effectiveness, based on relatively narrow

2.1 Regulatory institutions

If we are to understand the merits of “private regulation” (and NSMDs in particular) relative to state-based regulatory approaches, it is important to first establish what is meant by these terms. In one sense, to regulate is to “make regular,” to establish commonalities that facilitate commerce (Yilmaz 1998, p 1). Yet this definition is too narrow, limited to mere standardization – the range of activities commonly understood as regulatory is clearly much broader. Until the late 1980s, European scholars (and most economists) tended to define regulation as *any* state intervention in the economic sphere, or other means of social control (e.g., Doern and Wilks 1998). The looseness of these definitions betrays their political nature – a broad criticism of state institutions (Jordana and Levi-Faur 2004b).

Similarly, most American political scientists (and legal scholars) have traditionally seen regulatory power as the exclusive purview of state institutions. Theodore Lowi has described regulatory policies as rules “formulated by some governmental authority expressing an intention to influence the behavior of citizens, individually or collectively, by use of positive and negative sanctions” (Lowi 1985, p 70). Similarly, Evert Vedung has characterized regulation as “measures undertaken by governmental units to influence people by means of formulated rules and directives which mandate receivers to act in accordance” (Vedung 1998, p 31). Yet this “technical” definition is still too restrictive, as it limits our focus to state institutions alone (Haufler 2001).

efficiency analyses and normative beliefs.

Over the past two decades however, some scholars have come to agree that such approaches fail to account for the full range of “regulatory” actions and institutions, and have developed new definitions. These range from the very broad – “targeted rules” (Jordana and Levi-Faur 2004a) – to those in which regulation is defined as an authoritative relationship where “controlled persons or groups are obligated to act in the way stated by the controllers” (Vedung 1998, p 31). Clarifying this point, Lowi (1985) has emphasized that regulation focuses on observable conduct, where “questions of compliance and noncompliance must be involved” (p 73). In his 1980 classic on regulatory theory, Barry Mitnick offered a general definition: “Regulation is a process consisting of the intentional restriction of a subject's choice of activity, by an entity not directly party to or involved in that activity” (p 9). By remaining agnostic as to the institutional basis of such authority, such an understanding remains open to the possibility that non-state actors may promulgate and implement regulation. It also emphasizes the necessity for separation between regulator and regulatee, and allows us to determine what sort of acts are not regulatory in nature: unintentional acts; those which fail to restrict a subject’s choice¹⁵; and those performed by 1st-party actors (ibid.).

Though we might agree that any theory of regulation must be broad enough to include both state and non-state approaches, it is important to remember that the proponents of private regulation are more often concerned with reducing state intervention than in providing an equivalent service to the public. It has been claimed that private sector actors face greater incentives (than state agents) to provide high-quality

¹⁵ Non-regulatory actions include statements of mere sentiment, which may “express a desired end but embod(y) no rule” (Lowi 1985, p 70).

goods and services (Holcombe 2003), including the reduction of informational asymmetries and production externalities (Gerber and Teske 2000). Such (alleged) incentives are said to derive from the market, such that firms producing dangerous or harmful products would be driven out of business (Holcombe 2003). Of course, this cannot account for the enormous popularity of dangerous and harmful products, nor for the often-observed link between increased competition and cost externalization (Princen 1997).

Still, where sanctions are combined with enforceable contracts, private approaches may effectively contribute to broader social goals (Council of Economic Advisors 2003). But this fact alone does not make them regulatory, inasmuch as regulators, by definition, cannot be directly involved in the activity targeted by regulation. Indeed, so-called “self-regulation” often fails because such separation is not maintained (Mitnick 1980). This is the main reason why successful private systems often rely on third-parties – to maintain a distance between the regulators and the targets of such rules (Council of Economic Advisors 2003). Where such distance disappears, the potential for collusion and corruption arises (known in the regulatory literature as “capture”), and the agreement between policy goals and outcomes come into question (Bendor, Glazer, and Hammond 2001).

Civil society actors (i.e., NGOs) also often play important supporting roles for both public and private policy systems, pressuring economic actors directly (e.g., shareholder activism) or indirectly (e.g., market campaigns) to comply with broader social objectives (Bartley 2003). Yet unless such “monitoring” is internalized within policy implementation – unless there are explicit provisions for such oversight – the

effectiveness of such activism may be unreliable. This uncertainty should make us wary of such “ambivalent engagement” as a substitute for formal implementation systems, public or private. Therefore, when comparing regulatory systems, we may learn more by focusing less on the normative or substantive goals of each, or the informal support (or opposition) associated with them, than by considering the types of organizations formally participating in each, and the sorts of relationships between such organizations (Knott 1993).

2.2 Principals and agents, slippage and slack

Another fundamental way to consider regulation is as a relationship between a *principal* and an *agent* in which the latter is encouraged (through incentives and/or sanctions) to act to support the goals of the former (Mitnick 1980). Such relationships exist wherever demands of time, knowledge, or expertise lead individuals or organizations to designate others to act on their behalf, as when employers hire employees, legislatures assign implementation duties to executive agencies, or standards-setting bodies require that auditors verify compliance. The necessity for principals to delegate – to agents who possess information unavailable to those principals – is considered one of the fundamental dynamics in political life (Lowi 1985; Eisenhardt 1989). Regardless of whether these actors are associated with the public or private sector, the challenge is the same – principals attempt to move agents to act on their behalf (Ross 1973; Laffont 1994).

Though its oldest roots are in fiduciary theory¹⁶ (Munro 1999), Barry Mitnick has argued (1992) that principal-agent theory has three main strands: decision theory¹⁷ (e.g., Arya, Glover, and Sivaramakrishnan 1997), the economic theory of the firm (e.g., Laffont 1994), and organization theory (e.g., Miller 1992). Each has adopted the terms (and assumptions) of its parent discipline – but has also drawn liberally from other sources (e.g., moral hazard and adverse selection, borrowed from the insurance industry) (Knott 1993). In the early 1980s, Mitnick and Terry Moe published seminal works that brought these concepts into the mainstream of political science (see Mitnick 1980, 1982; Moe 1984). Mitnick, in particular, is credited for first interpreting regulatory theory in the language of principals and agents (Worsham 2003). Scholars of American politics were quickest to adopt these models, attempting to explain the relationships between legislators and bureaucracies (e.g., McCubbins 1985; Banks and Weingast 1992), or regulators and targeted firms (e.g., Baron 1995). In recent years, comparative politics and international relations researchers have also begun experimenting with principal-agent concepts (e.g., Pollack 1997; Cooley and Ron 2002; Lyne, Nielson, and Tierney 2003; Nielson and Tierney 2003).

With such diverse origins, defining what constitutes a “principal-agent theory” (aside from a shared terminology) can be problematic. Terry Moe has called it “less a unified neoclassical theory than a large family of diverse theories” sharing a few essential features: methodological individualism, an assumption of rational utility maximization,

¹⁶ The fiduciary relationship is typically one in which an agent (with greater knowledge and expertise) acts on behalf of an investor, the principal (Kay and Yates 1972).

¹⁷ However, Kim (1995) disputes this point, arguing that while both are concerned with choice under conditions of uncertainty, decision theory typically applies to challenges facing single actors, while

and preference for formal models¹⁸ (Moe 1984, p 741). By identifying such relationships between *those who rule* and *those who implement*, agency theorists have attempted to explain how authority and accountability have been institutionalized across a broad range of contexts (Eisenhardt 1989; Sinclair 1999). It is not terribly surprising, then, that the approach is controversial. Perhaps the strongest criticism is that despite its popularity, the “conceptual foundations of this approach remain unnecessarily weak” (Lyne and Tierney 2002, p 1). Indeed, a casual reading of the literature can be quite confusing – fundamental terms are often confused or ill-defined, and it can be difficult to validate what are often simplistic models against empirical experience (e.g., dyadic depictions of complex political landscapes) (e.g., Cook 1989; Gerber and Teske 2000). In the course of developing an alternative to such approaches, I will attempt to clarify the central terms of this literature, integrating them into a synthesis framework that I believe plays on the greatest strength of the principal-agent framework (i.e., formal modeling), while remaining neutral on the normative assumptions of many of its proponents (e.g., selfish utility maximization).

Clearly, the most fundamental feature of the principal-agent relationship is the act of delegation – without it, such a relationship cannot be said to exist (Lyne and Tierney 2002). Delegation is also an inevitable necessity, regardless of the nature (e.g., political, economic) or scale of a social system (Lowi 1985). It occurs because no individual can possess all the skills, knowledge, or time to directly realize all her goals (Bergman, Müller, and Strøm 2000). Wherever social organizations exist, we find delegation:

principal-agent theory usually focuses on strategic interactions between at least two actors.

¹⁸ In this sense, most principal-agent approaches could be considered part of the broader rational choice

employers hire workers, and both legislatures and private standard-setting bodies enact policies that must be implemented by others. The act of delegating introduces the element of *hierarchy* – the “asymmetric and incompletely defined authority of one actor to direct the activities of another within certain bounds” (Miller 1992, p 16). Such relationships are usually seen as contractual¹⁹ in nature, with obligations for both principals and agents (Jensen and Meckling 1976; Waterman, Rouse, and Wright 1998). By clarifying the responsibilities of both actors, contracts offer some guarantee that each benefits from the relationship (e.g., implemented policies, wages) (Richardson 1986). However, regardless of the degree of “mutuality,” principals retain authority, as they determine the procedural (and often substantive) elements of a given contract.

Although agents tasked with implementation remain subordinate (Schneider and Ingram 1997), this does not make them powerless. Responsibility is not the only thing delegated – often, agents are also given some measure of *discretion* (e.g., experts who interpret broad policies within local contexts). Though some theorists²⁰ conflate discretion and *slippage* (defined below), I argue that discretion is best understood as a form of distributed decisionmaking. The freedom allowed to agents by the institution(s) within which delegation takes place is known as *slack* – a structural factor that facilitates

tradition (Bendor, Glazer, and Hammond 2001).

¹⁹ Of course, such “contracts” are often more metaphorical than formal (e.g., the social contract). While the voluntariness of contracts in more rigidly hierarchical systems (e.g., autarchies) is debatable, the approach still provides some theoretical leverage – since all actors are resource-constrained, even dictators face tradeoffs between control and acceptable outcomes (Moe 1984).

²⁰ See especially Calvert, McCubbins, and Weingast (1989), who define discretion as an agent choosing self-serving policies that differ from what principals expected at the moment of delegation.

their ability to exercise discretion²¹ (Hawkins and Jacoby 2002). Though such latitude may often lead to outcomes unforeseen by principals, this does not automatically mean that their preferences have been subverted. In fact, many policies²² have been designed in this way in order to maximize an agent's ability to respond to local circumstances (Ayres and Braithwaite 1991).

Indeed, one of the main reasons that delegation is so important is that agents often possess information that is unavailable to principals (Stiglitz 1988). This is known as *information asymmetry*, another key concept in principal-agent theory (Waterman and Meier 1998). By contrast, *slippage* describes differences between the preferences of principals and the actions of agents, regardless of cause²³ (Hawkins and Jacoby 2002). Slippage may be caused by information asymmetry, but can also happen because principals and agents have different preferences²⁴ (known as *shirking*) (McCubbins 1985). Such *goal conflict* (also known as *divergent preferences*) is usually assumed to be an outgrowth of rational utility maximization²⁵. These three factors (delegation,

²¹ Slack is another concept that is often poorly theorized in the principal-agent literature. Most often, theorists use terms like slack and slippage interchangeably, generally ignoring the possibility that differences between agents' actions and principals' preferences could have *any* cause beyond an agent's motivations (e.g., Goldstein and Lenway 1989).

²² Indeed, that this characteristic lies at the heart of classical arguments for the superiority of markets over centralized decisionmaking systems (e.g., Hayek 1944).

²³ Both McCubbins (1985) and Goldstein and Lenway (1989) have argued for limiting the definition of slippage to problems induced by institutional design (e.g., decisionmaking instability). However, I feel it is more accurate to consider slippage as a general effect, caused by both institutional and personal (e.g., deception) factors.

²⁴ By contrast, Hawkins and Jacoby (2003) defined slippage as "pursuing different goals under cover" (i.e., deception), and shirking as "sleeping on the job," but offered no explanation why the latter should not be considered merely a form of deception (p 16).

²⁵ On the other hand, Waterman and Meier (1998) have persuasively argued that assumptions of goal conflict and asymmetric information should be treated as variables, rather than be merely assumed.

informational asymmetry, and goal conflict) form the core of the principal-agent framework, “the spark plugs that power the theory” (Waterman and Meier 1998, p 177).

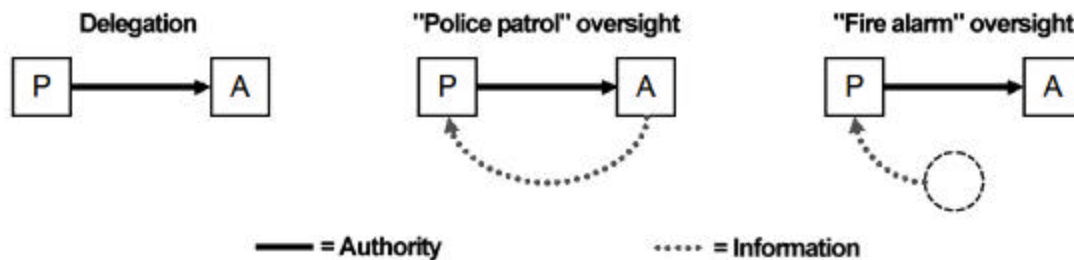
Since actor preferences are generally assumed in institutional theory²⁶, scholars tend to focus on identifying effective and efficient solutions to informational asymmetry, typically understood to have two forms: *adverse selection* and *moral hazard* (Knott 1993). The first results from an inability to observe the “information, beliefs, and values on which the decisions of others are based” (Moe 1984, p 754). In this sense, adverse selection is an informational asymmetry about agent preferences, as when employers hire without knowing their employees’ motivations. By contrast, moral hazard²⁷ results from an inability to observe an agent’s actual behavior (i.e., “when the cat’s away...”) (ibid.). Of course, these factors are likely to be strongly interrelated. Since either may lead to sub-optimal outcomes (i.e., slippage), principals have developed a variety of strategies to limit their impact. To minimize adverse selection, principals often “screen” agents to ensure they choose (e.g., enter contracts with) only those who share their policy preferences (Nielson and Tierney 2003). Remaining aware of agents’ actions throughout the life of a contract (or contract period) is a much more complicated problem. Since monitoring can be costly, principals usually face tradeoffs between the harm caused by slippage, and the expense of increased oversight (Eisenhardt 1989).

²⁶ Social science (and rational choice in particular) still lacks a positive theory of preference formation (Friedman and Hechter 1988; Hawkins and Jacoby 2003).

²⁷ In the insurance industry, moral hazard describes an incentive for greater risk-taking, based on the certainty of reimbursement (Knott 1993). The problem can be extended to the inability of consumers to directly observe the quality of certain goods (e.g., “credence” or “reputation” goods) prior to purchase (Cason and Gangadharan 2002). Since compensation occurs before quality is observed (if indeed, it can be observed at all), producer incentives are less than they would be conditions of perfect information (Caswell and Mojduszka 1996; Engel 2001).

Therefore, a central task of institutional design is developing monitoring systems capable of reducing informational asymmetries with minimal effort (Moe 1984). The simplest oversight model is the observation of agent behavior by the principals themselves (see Figure 2.1). Known as “police-patrol” oversight, such monitoring is “centralized²⁸, active, and direct” (McCubbins and Schwartz 1984, p 166). Since agents know that any deceptive behavior would likely be discovered, shirking is reduced; greater awareness of implementation processes in general is also likely to reduce other forms of slippage. However, while this method can be very effective, it is also the most costly (Pollack 1997).

Figure 2.1: Delegation and Oversight



The alternative is to rely on third-parties (e.g., stakeholders) to monitor and report on agents' actions (e.g., “whistleblower” or citizen-oversight provisions). This so-called “fire-alarm” oversight is less centralized and active than police-patrol monitoring (McCubbins and Schwartz 1984). Although agents face sanctions only if these third-parties report slippage to the principals (Moe 1987), McCubbins and Schwartz have argued that the distributed nature of fire-alarm oversight means that the level of

²⁸ Ogul and Rockman distinguish between *active* and *reactive* monitoring, arguing that “police-patrol” oversight may occur with (e.g., decentralized implementation) or without delegation. Their point is that oversight is *ongoing* in each instance – contrasted with “fire alarm” oversight, which they argue is decentralized and *reactive* (1990).

monitoring is greater than with more resource-constrained police-patrol models, and is therefore likely to be more effective (1984).

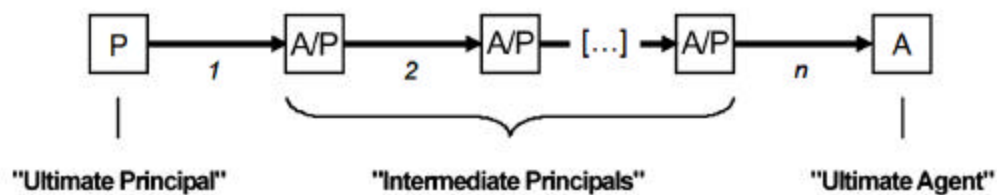
By acknowledging the importance of third-party participation in principal-agent models, we open the door to a more empirically grounded understanding of delegation and control (Nielson and Tierney 2003). While most principal-agent theories are based on simple dyads (Laffont 1994), hierarchies usually consist of many more actors, and often multiple chains of command (Evans 1975; Spaeth 1985). Scholars have long been aware of the potential for these longer *delegation chains* to produce slippage (e.g., O'Donnell 1952; Pressman and Wildavsky 1984); these ubiquitous organizational features (see Figure 2.2) can be found in political, economic, and military institutions throughout history. While coordinating multiple actors is a fundamental political challenge (Olson 1965; Downs 1997), the problem increases dramatically when collective action challenges must be resolved at each point in the chain. Yet even when all actors willingly cooperate, the potential for structural slippage persists. The cause can be found in the limits of communication – error can be expected to increase as the number of actors grows²⁹, as any child who has played the game *Telephone* knows³⁰. Even if we were to assume perfect goal agreement among actors, and even if principals take care to elicit the

²⁹ Social psychologist Frederic Bartlett called this dynamic “serial reproduction,” and attributed it to psycho-cultural factors, by which actors interpret communication in terms that are the most familiar to themselves (1997). Network theorist Barry Wellman has generalized this effect as what he calls “transfer” or “brokerage” costs (1988, p 42).

³⁰ This game is known by quite a few names (e.g., “Chinese Whispers,” “Post Office,” “Share the Secret”). Children sit in a circle, and one whispers a story in the ear of her neighbor, who whispers it to his neighbor and so on, until the story passes around the circle. The first and last stories never match (Krauss, Nake, and Grabowski 2001). There are surprisingly few scientific studies of this effect (e.g., Talland 1956; Bartlett 1997; Kashima 2000; Lyons and Kashima 2003), though it is very common to see the concept referenced as a potential weakness of communications (e.g., Rodenstein and Donath 2000; Macnamara 2004) and management systems (e.g., Baker et al. 2002; Barner-Rasmussen and Bor 2005).

“right” forms of information from agents, we may still find slippage between the preferences of the ultimate principal and the actions of the ultimate agent (i.e., policy target)³¹ (Baber, Houghton, and Cowton 1999; Goodin 2003). Of course, once we introduce more “realistic” assumptions about actors’ motives, problems of deception – and thus slippage – can only be expected to increase.

Figure 2.2: Delegation Chains



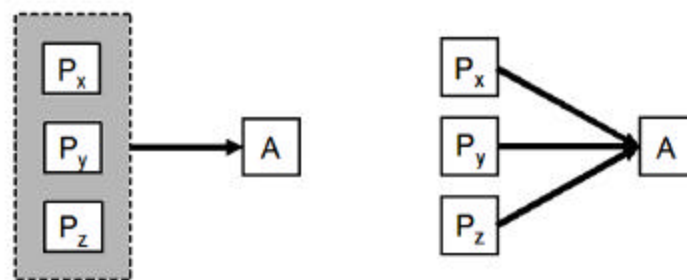
Such *sequential complexity* is not the only way that organizational forms can complicate matters. Recently, principal-agent theorists have begun to pay more attention to the problem of “common agency,” where principals (e.g., bureaucracies) face internal collective action problems, in addition to the issue of slippage. A single layer of delegation may include multiple principals (e.g., balance of powers systems³²), or principals may be “corporate” or collective entities (i.e., composed of more than one actor) (see Figure 2.3). *Collective principals* have resolved their internal collective action problems (and thus form a single contract with the agents to whom they delegate), but *multiple principals* produce multiple contracts (Lyne and Tierney 2002; Nielson and Tierney 2003). While most theorists now recognize the potential for principals to

³¹ Indeed, this dynamic is identical to the classic “control-loss” challenge, as originally defined by Williamson (1967), though his approach focuses on intra-firm dynamics.

³² This point is raised by Moe: “...in a separation of powers system, competitive multiple principal arrangements are actually built into the system by design” (1984, p 768).

compete for influence over agents (Cooley and Ron 2002; Worsham 2003), few have acknowledged the potential of such “parallel complexity” to produce slippage, even in the absence of power politics. As with delegation chains, we could also expect some degree of “noise” when multiple principals communicate “simultaneously” with agents. Even if multiple principals have identical preferences, information loss should still be expected across each contractual “link” (as with delegation chaining), due to variations in how (and what) each principal communicates to the agent (Krauss, Nake, and Grabowski 2001). Whether parallel or sequential complexity is more likely to generate error is a separate question – the point is that slippage can appear, even when preference alignment (across all actors) is assumed. If preferences diverge, the problem only worsens, making it difficult to know whether any observed “slippage” is indeed an instance of delegation failure, or simply the product of collective action failure between multiple principals (Lyne and Tierney 2002).

Figure 2.3: Collective and Multiple Principals



(adapted from Nielson and Tierney, 2003: 248)

2.3 Implementation networks

Thus, the principal-agent framework is clearly able to account for several potential sources of slippage, even when we relax assumptions about preference divergence³³ (Waterman and Meier 1998). By adopting more complex models of principal-agent relationships³⁴, we may come to better understand the structural origins of slippage, without needing to make normative claims about actor motivation (Lyne and Tierney 2002). Such complexity cannot be deduced from the perspective of methodological individualism (Friedman and Hechter 1988; Wellman 1988), nor can it be observed in simple dyadic models (Munro 1999). When our goal is to compare policy systems – especially where there is a diversity of institutional features – an empirically grounded, inductive approach is required (Skocpol 1984, 1995). While simple delegation systems (i.e., those with shorter chains of unitary actors) can be expected to face “restrictive” principal-agent challenges (e.g., adverse selection, moral hazard) (Lyne and Tierney 2002), more complex systems (i.e., those characterized by some combination of longer delegation chains *and* multiple principals) are still prone to slippage. This is because complexity produces additional limitations, due to information losses (i.e., noise), that can be expected to increase along with the number of agents in general (Nielson and Tierney 2003). Such limitations may be understood to operate sequentially (i.e., chains of delegation) or in parallel (i.e., multiple principals).

³³ In fact, such an assumption can be quite unrealistic – the existence of “iron triangles,” or collusion between regulators and regulated interests, is a common feature of large, dispersed bureaucracies (Laumann and Knoke 1987).

³⁴ For perspective, Bendor, Glazer, and Hammond have described principal-agent models with more than two actors as “excess baggage” (2001, p 236).

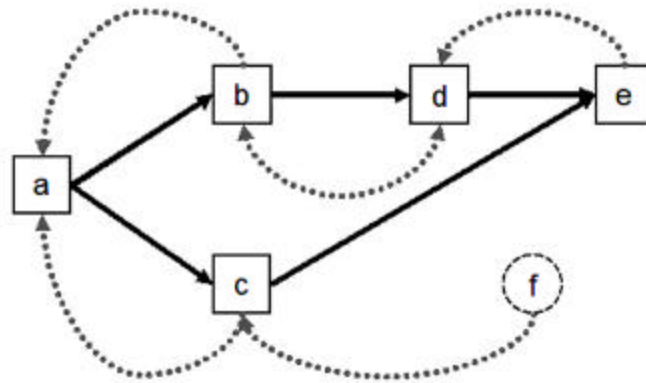
While modeling such complexity would be extremely difficult using conventional econometric approaches, it is a relatively easy task to map structural relationships using graph theory or social network methods³⁵ (Wasserman and Faust 1999; Scott 2004). Authority (or perhaps more accurately, delegation) can be understood as a directional relation between two actors, as can the information transfers mandated within a given policy system³⁶ (Wellman 1988). Consider for instance, the hypothetical delegation system represented in Figure 2.4. Since **a** is connected through delegation to other actors, but is not itself the “recipient” of any such relation, it can be considered the *ultimate principal*. Similarly, since **e** receives, but does not originate any delegation relations, it can be considered the *ultimate agent* or *target*³⁷ (Moe 1984). Actors **b**, **c**, and **d** are intermediate principals, serving dual roles as both the recipients and sources of delegation relationships. Since **f** is a source of information, but not party to any delegation relation, it represents an instance of fire-alarm oversight. Notice also that **a** delegates directly to two actors (**b** and **c**), producing two delegation chains of differing length (**abde** and **ace**).

³⁵ In Appendix Ia, I provide a detailed discussion of how I operationalize (e.g., data sources, units of measure) the implementation networks discussed in Chapters 3 and 4.

³⁶ This interpretation is somewhat problematic, since communication is also implicit in the act of delegation (i.e., the demands of the principal). Despite this, I believe this formulation is still capable of highlighting critical dynamics in implementation networks (see especially Chapters 4 and 6).

³⁷ Ironically, in graph theoretic terms these two positions are known as *root* and *leaf*, respectively (Black 1998).

Figure 2.4: Systemic Delegation



Until very recently, social network theory has been developed and applied almost exclusively by sociologists and mathematicians (Freeman 2004). While it is common for scholars of comparative politics and public policy to use the term “network” (e.g., van Waarden 1992; Bressers and O’Toole 1998; Cashore and Vertinsky 2000), as objects of study these are almost always³⁸ defined qualitatively, a metaphor for loosely organized coalitions. By explicitly identifying structural relations between actors, formal approaches as represented in Figure 2.4 facilitate greater transparency, and allow us to compare systems without *a priori* assumptions about agents’ propensity to deceive³⁹, or the relative merits of the specific substantive standards associated with alternative systems. In fact, variations in the structural characteristics of implementation systems may enable us to assess the relative likelihood of each achieving its stated aims. If NSMD systems are to be contrasted with state-based policies and one another, it seems critical

³⁸ Exceptions include “advocacy coalitions,” which have been identified empirically from stakeholder surveys (Sabatier and Jenkins-Smith 1993). Of course, such *affiliation networks* (Everton 2004) are of a fundamentally different nature than the implementation networks developed here.

³⁹ Indeed, principal-agent theory “can be coupled with any assumptions about human nature” (Petersen 1995, p 190) and show how delegation structures may still produce sub-optimal outcomes, as I show here.

that we consider any structural limitations inherent in the formal roles and obligations they have assigned to the agents tasked with implementing their policies.

2.3.1 Network hypotheses

The first (and most critical) hypothesis concerns the issue of *determinacy*. Policies that fail to clearly identify the roles and responsibilities of each implementing agent are unlikely to achieve their nominal objectives (Schneider 1987; Calvert, McCubbins, and Weingast 1989; Wood and Waterman 1991). While shared norms and goals may provide a basis for consensus and informal policies (Schneider and Ingram 1997; Sinclair 1999), voluntary actions become governance systems only through obligation. Such “commitment rules” guarantee that short-term self-interest does not exclude shared interests (Cutler, Haufler, and Porter 1999, p 368). Voluntary acts, while possibly contributing to policy effectiveness overall, cannot be said to be prescribed by a given policy. Since there can be no regulatory relationship without delegation (Mitnick 1980; Lyne and Tierney 2002), such roles must be describable in terms of principals and agents. Therefore, **for a policy to be expected to produce consistent and reliable outcomes, all implementation roles must be describable in principal-agent terms**⁴⁰.

In the introduction to this chapter, I used a common convention to distinguish agents or “parties” according to their economic or political relationship to the policy target. Analysts often identify actors as 1st-party (i.e., policy targets), 2nd-party (e.g., industrial associations or others directly affiliated with 1st-party actors). Those without

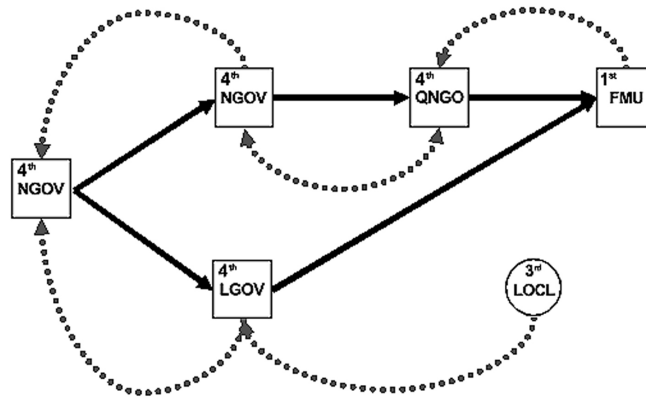
⁴⁰ Such roles are often stipulated within the relevant policy mandate or contracts, but some pre-existing relationships between actors are implicit (e.g., Executive branch hierarchies are not explained in each law passed by Congress).

such potential “conflicts of interest” are known as 3rd-parties. Finally, state sector actors are sometimes⁴¹ identified as 4th-parties (state actors) (Garcia-Johnson, Sasser, and Gereffi 2001). This “*n*th-party framework,” loosely grounded in the theory of common law, is widely known and used by both state and non-state policymakers (e.g., Cabarle and de Freitas 1995; Darby 1998; Bourke and Wijewardana 1999; Mater et al. 1999).

Embedding this taxonomy within a network framework (see Figure 2.5) provides a richer picture of the relationships between principals and agents, and suggests additional sources of structural slippage. Where the *political breadth* between a principal and an agent is small – understood here as a dyad between 1st and 2nd-parties – we can expect the possibility of collusion to be greater. Indeed, this is one of the classic criticisms levied against 2nd-party certification systems (Taylor 1958). Accordingly, **for a policy to be expected to produce consistent and reliable outcomes, there can be no direct delegation between 1st and 2nd parties.**

⁴¹ While attention to 1st, 2nd, and 3rd party actors is commonplace in the literature, few have drawn attention to the role of 4th party actors in policy implementation. This is likely due to the habit of analyzing non-state and state-based policies in isolation, as if the two were fundamentally incommensurate. The work of Ronnie Garcia-Johnson, Erika Sasser and Gary Gereffi is the exception, though it has tended to be more normative than strictly comparative (see Garcia-Johnson, Gereffi, and Sasser 2000; Garcia-Johnson 2001; Garcia-Johnson, Sasser, and Gereffi 2001).

Figure 2.5: Delegation System with n^{th} Actors



Ceteris paribus, structural slippage is likely to increase with the number of delegation relationships (Lyne and Tierney 2002; Nielson and Tierney 2003). This phenomenon occurs regardless of the magnitude of goal conflict or informational asymmetry. As delegation chains grow longer (i.e., sequential complexity) or multiple principals delegate to the same agent (i.e., parallel complexity), informational constraints can only compound other factors (i.e., shirking). If two or more implementation systems share such characteristics, it is difficult to attribute differences in their performance to structurally induced slippage. Similarly, we might assume that variations in the structure of implementation networks allow us to rank alternative policies according to their likelihood to produce consistent and reliable outcomes.

Such structural properties are easily calculated from graphical representations of implementation networks. To determine the level of *sequential complexity*, we simply count the number of links in the longest path between any ultimate principal and ultimate agent⁴². Other paths may exist between the same actors, but our goal is to compare

⁴² Since hierarchies are *directed networks*, paths are defined by (and limited to) the directional flow of a given relation (Wasserman and Faust 1999). As described earlier, Figure 2.4 has two paths (i.e., delegation

policies in their entirety, instead of just single instruments within policies. Unless a given policy includes multiple, redundant instruments (a feature absent in the systems considered here), the longest path is the most relevant measure of sequential complexity. Thus, the maximum sequential complexity of Figure 2.4 is three (**abde**). *Ceteris paribus*, **a policy is as likely to produce consistent and reliable outcomes as a given alternative, if and only if its sequential complexity is no greater than that of the alternative system.**

Parallel complexity is similarly easy to determine. Since the most elemental unit of delegation is a dyad between principal and agent, wherever multiple principals produce multiple contracts with the same agent (i.e., agents receiving more than one delegation link), we simply sum the total number of additional delegation links received by such agents. Thus, Figure 2.4 demonstrates a parallel complexity of one (both **c** and **d** delegate to **e**). *Ceteris paribus*, **a policy is as likely to produce consistent and reliable outcomes as a given alternative, if and only if its parallel complexity is no greater than that of the other policy system.**

The structural features represented in Hypotheses 1-4 apply to any sort of regulatory (i.e., oversight) system – they matter regardless of the intentions or capacities of participants. While some actors may be able to mitigate some the constraints identified in Hypotheses 3 and 4, since this would require effort that could serve other purposes, we should be able to meaningfully “rank” implementation designs according to their degree of structural complexity. As such, this approach allows comparison of policy systems

chains), one of three links (**abde**) and another of two (**ace**). In graph theory, this metric is known as the *diameter* or *height* (Black 1998).

with different institutional bases, participants, or nominal goals. The remaining hypotheses focus on market-driven systems – in particular, on the availability of NSMD-relevant information in source and destination markets. Here, the comparison with state-based regulatory systems is implicit – since states are territorially bound, the effects of social distancing can be expected to be less, at least in comparison to NSMD systems designed to compete in global markets.

2.4 Information in global markets

[C]onsumer decisions based on incomplete information about the conditions of production are not likely to account for their long-term and environmental impacts, including both the use of the resource and the disposal of the end products. ... [P]roduction patterns that separate consumers from the consequences of their behavior are likely to weight consumption decisions toward narrowly self-interested consumption and away from long-term, intergenerational, and non-human concerns.”

Princen 1997, p 243

The literature on information in markets underscores the “role of reputations to improve efficiency” (Cason and Gangadharan 2002, p 114). Some hold that competitive markets are “an outstanding mechanism for conveying information and disciplining individual behavior” (Miller 1992). Others emphasize the importance of information transfers between market participants as a basis for efficient outcomes (Teisl and Roe 1998; Kennedy 2001). Indeed, this is the key reason why product labeling exists (Vedung 1998). However, “producer marks” alone are often insufficient means for convincing consumers of a product’s quality (INTA 2004). It is in this context that certification is often promoted – as a means of providing reliable information about quality and producer reputations (Miller 1992; Golan, Kuchler, and Mitchell 2000; Strausz 2003). Indeed, the

ultimate success (of failure) of any given NSMD system may depend on its ability to communicate relevant information to consumers (Teisl, Peavey, and O'Brien 2001). As market-driven systems, NSMDs are predicated on the informed consumer's ability to influence producers through their purchasing behavior (Cashore, Auld, and Newsom 2004b); accordingly, informed consumers are a necessary condition for functional market-driven systems (Teisl and Roe 1998; Teisl, Roe, and Levy 1999). This requires that consumers be exposed to information about one of two things: the firms themselves, or the labeling systems in which they participate.

Thus, factors that influence information quality and availability can also be expected to impact the effectiveness and ultimate success of NSMD systems (Teisl, Peavey, and O'Brien 2001). They may also present the greatest potential for global-scale, market-based public policy approaches to fail to work as hoped⁴³. If consumers possess incomplete information about market choices, they will be “unlikely to account for their long-term and environmental impacts” (Princen 1997, p 243). Uninformed consumers are unlikely to reward “good” producers any more often than “bad” ones, reducing the incentives for any producer to act responsibly. However, such information has to be readily available – most consumers are not likely to research every purchase decision (Dragani and Flynn 2001). Consider for instance, Figure 2.6. Which of these labels apply only to forest and wood-based products? Which ones are used by Chilean forest companies? What distinguishes the systems these labels represent?⁴⁴ It can be very, very

⁴³ Indeed, Espach has recently argued that market demand for ecolabeling is weakest for commodities (e.g., timber, wood pulp) (Espach 2005).

⁴⁴ Labels (a) Scandinavia's *Swan* and (f) Taiwan's *Greenmark* are general ecolabeling programs; all others are forest-related. Labels (b), (c), (d) and (i) are associated with Chilean forest products, however (b) is

difficult for even well-meaning consumers to remain well-informed about the range of available options (Teisl and Roe 2000).

Figure 2.6: Labels



Assume for a moment that we ignore the potential of sequential or parallel complexity to reduce the ability of a policy system to communicate relevant detail to consumers. While it seems quite reasonable to assume that “telephone” (i.e., person-to-person) communication approaches are quite prone to error at a global scale, we also need to allow for more open “broadcast” strategies (e.g., newspapers, journals). It may be possible to circumvent some limitations by “skipping ahead” – communicating relevant

merely a commercial logo (Forestal MININCO), as are (e) *Boise Cascade* and (g) *Weyerhaeuser*. Labels (d) *PEFC*, (i) *CertFor Chile*, and (h) *Sustainable Forestry Initiative* are industry-dominated NSMD

details to consumers through more broad-based strategies. Thus, consumers and other actors in the production chain may learn of alternative policy systems indirectly, as news of these systems is reported in the newspapers or journals they read in an attempt to be well-informed. Yet, while this strategy may sound plausible, there are reasons why we might suspect informational dynamics to be more complicated in reality. Although the role of media as shapers of public opinion is widely acknowledged (Bendix and Liebler 2003), less well-known is the impact of communications infrastructure on the media itself (Barnett and Choi 1995), as well as the effects of geographical and cultural distance (Princen 1997; Conca 2001; Bendix and Liebler 2003).

2.5 Social distancing and information

Since communication is conditioned by patterns of social interaction (Burt 1987), any factor that influences such interchange potentially complicates the spread of information. Such factors might include class, culture, language, differences of knowledge or norms, and geography (Sastry and Rao 1952; Muttagi 1975; Dickson and MacLachlan 1990). Together, these are often referred to as “social distance,” one of social science’s oldest and most durable concepts. In The Theory of Moral Sentiments (1759, published originally in 1759), Adam Smith emphasized the limits of sympathy (e.g., familial bonds) to argue for the merits of self-interest over governmental paternalism. Francis Edgeworth operationalized this idea in 1881, proposing that the utility of persons far removed from an individual – who is nonetheless concerned for their welfare – is fractionally less than that of those nearer, whose utility he also considers (cited in Collard 1975). During the

systems, while (c) *FSC* has broader stakeholder involvement.

same period, Georg Simmel was developing his theory of the “geometry of social life” (cited in Ethington 1995), which eventually led to Tarde’s formulation of class difference (1900), and Bogardus’ *Social Distance Scale* (perceived ethnic difference) (Bogardus 1925). Although the Bogardus scale has been criticized for being both too narrow and too general (Poole Jr 1927; Martin 1963; Payne 1976), variations on his approach persist (Dickson and MacLachlan 1990; Ethington 1995).

In the decades since the 1920s, researchers gradually expanded the formulation of social distance to include language, religion, culture, gender, age, economic status, educational achievement, occupation, power (e.g., Sastry and Rao 1952; Rummel 1975; Dickson and MacLachlan 1990; McPherson, Smith-Lovin, and Cook 2001). It is still broadly applied as an explanatory variable, from altruism (e.g., Fontaine 2000) to differential rates of technological change (Niab 2001), to social group formation (McPherson, Smith-Lovin, and Cook 2001). Today, this broad concept can be deconstructed into several subtypes: *hierarchical* (i.e., authority, delegation), *functional* (activities), *economic* (e.g., class, income), *cultural* (e.g., language, religion), and *relational* (e.g., participation, intimacy), among others (Black 2000). A notion of social distance is implicit in concerns about delegation relationships between 1st and 2nd party actors, as well as with the challenges of longer delegation chains⁴⁵. Despite the great diversity of these interpretations, at the heart of every social distance formulation is the idea that human beings find it easier to relate to some people over others, based on either

⁴⁵ The interesting thing is that social distance plays exactly opposite roles in each – while hierarchical distance is likely to reduce accountability and complicate communication within an policy system (Wellman 1988; Princen 1997), relational distance between principals and agents may deter the possibility of the regulatory capture (Mitnick 1982).

propinquity (physical proximity) or *homophily* (common characteristics) (McPherson, Smith-Lovin, and Cook 2001).

This also means that people will find it more difficult to relate to others when social distance (however understood) is greater. While scholars have generally relied on survey and interview methodologies to test this proposition (Ethington 1995), such effects have also been documented in media coverage (Bendix and Liebler 2003) and shopping behavior (Dickson and MacLachlan 1990). In general, research has shown strong relations between social distance and the information available to consumers (Johnstone 1995; Princen 1999). *Ceteris paribus*, as social distance increases, we can expect the availability and quality of origin-specific information to decline (Princen 1997). Therefore, a careful study of such effects may provide significant insight into the function of global markets (Dickson and MacLachlan 1990). Inasmuch as the essence of the NSMD paradigm is to connect producers and consumers, we should expect any observed effects to strongly condition their effectiveness as markets extend to the global scale.

2.5.1 Social distance hypotheses

For global-level NSMDs that attempt to function in large and disparate markets, news media serve as critical means of communicating such information, and thus of shaping attitudes and behavior (Bendix and Liebler 2003). Indeed, it is difficult to conceive of how a global-scale NSMD could work without leaving significant evidence of its activities in the mass media. Whether or not the NSMD model is a preferable or even realistic alternative to state-based regulation depends on the magnitude of such

asymmetries. If they can be demonstrated to be negligible, then NSMDs may indeed be an effective means of providing public goods. Therefore, our task is to identify any effects of the various forms of social distance on the communication of information about Chilean NSMDs and their stakeholders throughout the global market chain for forest products. Although I describe my approach to content analysis in detail in Chapter 5 and Appendix IIa, it is useful to provide a rough outline here, in order to make sense of the way I have laid out the hypotheses in this section.

How information is communicated can be understood in many ways. To avoid some of the problems associated with more subjective approaches, I chose the relatively simple (but consistent) thematic or “dictionary-based” method of content analysis, in which the researcher identifies the occurrence of words and phrases, organized by theoretically relevant categories. While this approach has been criticized as “linguistically unsophisticated,” it is still widely used today (Evans 2002), due to its reliability (i.e., consistency) and ability to be applied to indefinitely large text corpuses (Bernard and Ryan 1998). Using a combination of LexisNexis’ *Academic Universe*⁴⁶ and a manual survey of the Chilean print media, I was able to identify 1,899 articles that mention forest certification between the years 1993 and 2004. Ideally, to assess the relative incidence of a given concept across these texts, a researcher would first determine whether or not the terms associated with that idea were present in each text. To test whether social distance factors are correlated with the presence (or absence) of that concept, she would then regress these as independent variables against the target concept

⁴⁶ LexisNexis indexes over 5,600 newspapers, magazines, journals, newsletters, news wires, and news transcripts worldwide, including 77 in the Spanish language (2005).

(i.e., category), looking for statistical significance and directionality in the beta coefficient. However, for a variety of reasons, this option was unrealistic. Instead, I used the approach suggested by Tankard Jr., Hendrickson, and Lee (1994), in which the “Search Within Results” feature of *Academic Universe* to identify the number of articles within a given search that contain terms from the target category. Since *Academic Universe* allows users to search individual publications, I was able to control for location, language, and target audience. While this approach provides less statistical leverage (since data are aggregated by search level), it is much less costly to implement⁴⁷.

Thematic content analysis is based on three premises. First, that the amount of news coverage can influence public opinion, an assumption that has been repeatedly supported in media research (e.g., Graham and Dziuban 1996; Bengston and Fan 1999). Second, that the “amount” of issue coverage can be estimated from a lexical analysis – that is, by looking for specific terms in texts available within a given media environment – also a well-established research technique (Bernard and Ryan 1998; Bendix and Liebler 2003). Third, that the relevant issues, actors, and concepts have been accurately and sufficiently represented in the terms and categories used for the analysis. There is no simple response to this last challenge, as the appropriateness of any analytical approach is ultimately a subjective judgment, albeit one we might hope is well-informed. Accordingly, I describe the coding themes and methods used to populate those categories in detail in Chapter 5.

⁴⁷ To perform article-level coding, a researcher needs local copies of every article. While software tools can be written to facilitate the download process, I currently lack that skill.

Again, one of the simplest formulations of social distance is *geographical distance*. Media researchers and geographers have studied the effects of physical distance on news coverage for decades (e.g., Molotch and Lester 1974). This original interpretation of social distance assumes an indeterminate “social proximity,” in which people having shared experiences also tend to have similar attitudes, knowledge, and sympathies (Burt 1987; Akerlof 1997; Bendix and Liebler 2003). This means that the information available to neighbors of a given forest or farm is likely to be different than that of those far away. Since proximity presents the possibility of direct monitoring, producers are likely to be more concerned with the concerns of local stakeholders than distant consumers (Princen 1997). It also suggests that long supply chains – the sort we expect in global markets – may exhibit strong informational asymmetries between producers and consumers. Since state regulation is (by definition) a local phenomenon⁴⁸, national media coverage could be expected to establish a baseline of information available to individuals, as both citizens *and* consumers. In competitive markets, NSMDs must connect producers and consumers in order to persist – those operating at extra-national scales may face challenges beyond those of state-based regulatory systems. Therefore, *ceteris paribus*, **a given NSMD could be said to be at least as reliable as state-based regulation only if publicly available information about that system is as common in the media of critical export markets as in the producer country.** However, it is possible that the effects of distance may vary by “target audience,” such that the information available to foresters varies differently by location than that

⁴⁸ To the degree that the modern nation-state retains its territorial nature (Caporaso 1997). Though geographically expansive or culturally diverse countries (e.g., the United States, Indonesia) may exhibit distancing effects within their borders, this should still be less than what might be observed at global scales.

published for the general public. The *absence* of a geographical distancing effect will be proven only if the proportion of articles mentioning particular categories fail to decline (attenuate) across distance, across all media segments.

Calculating the actual physical distance of media sources from Chile is problematic⁴⁹, something which is discussed in detail in Chapter 5. For this reason, it is also useful to apply two- and three-step tests, resulting in two general geographical hypotheses; controlling for “target audience” (discussed below) produces seven separate tests. ***Ceteris paribus*, NSMD policy approaches will be at least as reliable as state-based regulation only if the proportion of published information about that system (identified as the presence of words or phrases the coding dictionary) is as common in critical export markets as in the producer country, across: all media segments combined; across forestry, manufacturing, and retail segments; and across general public sources.**

Also important is the possible impact of *cultural distance* on communication, which may be caused by “psychological proximity” (e.g., the ability to identify with others) (Carter and Mitofsky 1961), or more general cultural characteristics, such as language (Black 2000). These factors – especially language – have been found to be highly correlated with physical communications infrastructure (Barnett and Choi 1995). Though culture and language often correlate with geography (Akerlof 1997), the match is not exact, as both span borders (Barnett and Choi 1995), and multicultural, multilingual

⁴⁹ Briefly, while it is a relatively simple matter to control for media sources at the national level using *Academic Universe*, this is only a rough proxy for physical distance, and difficult to strictly rank. Thus, I’ve chosen to place the United States in the intermediate location between Chile and its other export markets for a three-step test, but also apply simpler two-step controls, aggregating the US with the rest of the world outside of Chile’s borders.

societies are found worldwide (especially in the United States and Europe). For markets, the effect is the same: producers and consumers may fail to understand one another⁵⁰, thus introducing another potential source of slippage. Given the dominance of Spanish in Chile, and English in the United States (plus the availability of media in both languages worldwide), we can establish a two-step test of the cultural-linguistic social distance hypothesis in Chapter 2: *ceteris paribus*, **a given NSMD could be said to be at least as reliable as state-based regulation only if the proportion of NSMD and other certification-relevant information does not decline (attenuate) from media written in the source country's dominant language, to sources written in the languages of its primary export destinations**. To control for geographic effects, this hypothesis can be tested two ways: with, and without including Chilean media sources.

Social distance effects originating in occupational and class differences have also been empirically observed (Laumann 1965). It is also common to similarly segment market chains (e.g., foresters, manufacturers, retailers, consumers) (Forsyth, Haley, and Kozak 1999). Such distinctions may be justified in terms of “functional distance” (i.e., occupation) (Black 2000), but they may also reflect shared norms about the relevance or appropriateness of information (i.e., *cognitive framing*), instilled through professional training and socialization (Shannon, Meidinger, and Clark 1996; Bendix and Liebler 2003). Since framing has been shown to affect perceptions and attitudes about outcomes and causes (e.g., Craig, Gadgil, and Koomey 2002), it has the potential to impact NSMD system effectiveness. Variations in content that can be isolated by market segment (e.g.,

⁵⁰ Tom Princen argues that “cultural distance provides opportunities for some producers to ignore or avoid or misrepresent certain information” (1997, p 245).

forestry, manufacturing and retail, general public) thus present another potentially important social distancing effect – which I refer to here as *epistemic distance*. Thus, **an NSMD could be said to be at least as reliable as state-based regulation only if NSMD-relevant content does not attenuate across specialized (e.g., professional journals) and general media (e.g., newspapers) segments.**

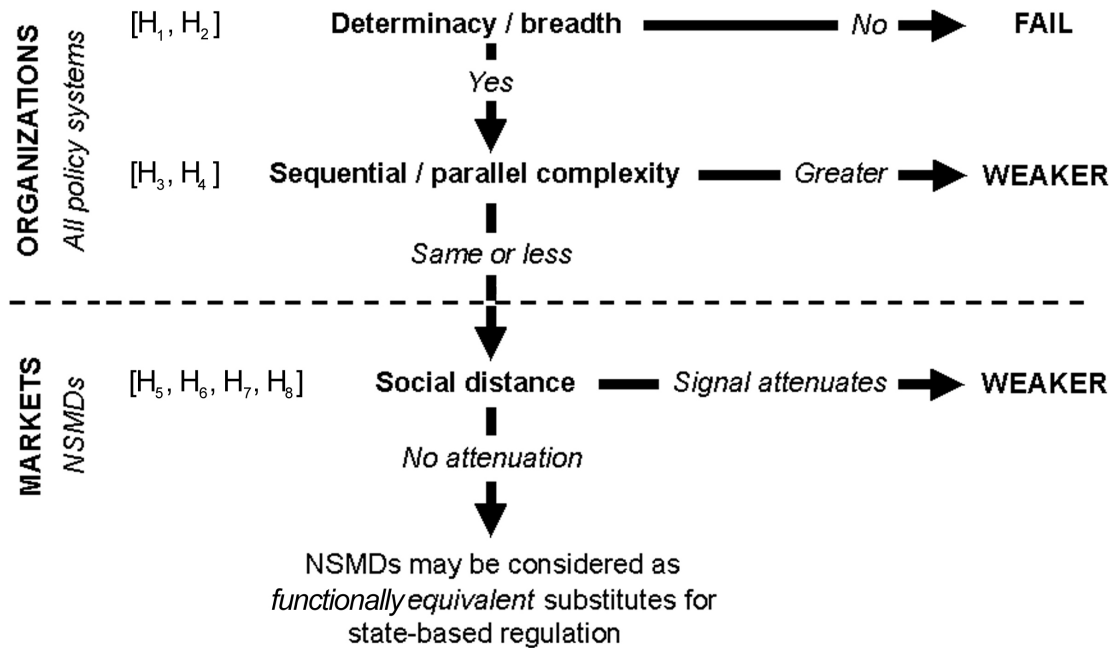
2.6 Summary

NSMD systems are increasingly proposed as alternatives to state-based regulation, with proponents claiming that such private regulatory approaches are more flexible, responsive or effective (e.g., Yilmaz 1998; Council of Economic Advisors 2003; Holcombe 2003). Yet despite the increasing popularity of these approaches, comparative analyses of state-based and market-based are scarce. This is partly due to preconceptions about the “essential incomparability” of such systems (Cheit 1990), but also because policy analysis lacks a tractable framework of sufficient complexity (Schneider and Ingram 1997).

In this chapter, I developed two methods to assess the functional capacity of NSMDs as alternatives to state-based regulation. The first, *formal implementation networks*, highlights structural features that can be expected to affect implementation systems, regardless of their institutional origins (see Figure 2.7). By definition, for an implementation design to be capable of producing reliable regulatory outcomes, it must have clear lines of delegation and responsibility (i.e., be describable in terms of principals and agents). Moreover, to avoid the most basic form of “regulatory capture,” there should be no instances of direct delegation between 1st-party and 2nd-party actors.

Implementation designs that do not satisfy these requirements cannot be considered reliable means of ensuring public goods.

Figure 2.7: Comparing State and Market-Driven Implementation Systems



Modeling complex implementation systems in formal network terms facilitates the identification of two structural features (sequential and parallel complexity) that can be expected to produce slippage (variance between principals' expectations and agents' actions), even when perfect goal agreement is assumed (e.g., in the absence of deceptive behavior). Again, since problems of informational asymmetry and slippage are generally understood to increase with goal divergence and deception, any potential structural problems would only be compounded by more "realistic" assumptions about actors' motives. The degree to which these features occur in state-based or NSMD systems should qualify our support for either approach. In other words, for an implementation

design to be considered functional equivalents (or improvements) to other approaches, it must satisfy each of the first four hypotheses detailed in this chapter (see Table 2.1).

Table 2.1: All Hypotheses

<i>Ceteris paribus</i> , implementation systems could be said to be <i>equivalent</i> (in terms of reliability):	
DELEGATION	
Determinacy	IFF: <u>ALL</u> implementation roles are describable as principal-agent relationships H₁
Breadth (n^{th} parties)	IFF: there is no direct delegation between 1 st and 2 nd - parties H₂
Sequential complexity (delegation chaining)	IF: a policy's sequential complexity is no greater than those of other alternatives H₃
Parallel complexity (multiple principals)	IF: a policy's parallel complexity is no greater than other alternatives H₄
<hr/>	
<i>Ceteris paribus</i> , an NSMD could be said to be <i>equivalent</i> or <i>better</i> than state-based regulation:	
SOCIAL DISTANCE	
Geographic (physical)	IF: certification-relevant information is <i>at least</i> as common in the media of critical export markets as in the producer country (three-step test) H₅
	IF: certification-relevant information is <i>at least</i> as common in media outside the producer country (two-step test) H₆
Language (cultural)	IF: The proportion of certification-relevant information is <i>at least</i> as common in media written in the dominant language of importing nations as in sources using the exporting country's dominant language. H₇
Epistemic (framing)	IF: The proportion of certification-relevant information is <i>at least</i> as common in general media (e.g., newspapers) as it is in specialized media (e.g., professional journals) H₈

The second method, *content analysis of social distancing effects*, focuses on the information available throughout the global market chain, with special emphasis on the United States as Chile's most important export market. Since the NSMD systems analyzed here are intended to function at the global level, evidence of social distancing effects should qualify our faith in the ability of these systems to connect consumers and producers in a meaningful way, at that scale.⁵¹ In other words, because they are *market-driven*, even if NSMDs are seen as functional equivalents (or improvements) to state-based policy, relevant information about those market-driven systems (or their participants) must also be readily available throughout the market chain (especially in critical markets), satisfying each of the last four hypotheses detailed in Table 2.1.

Of these eight hypotheses, all but the first two focus on the limits to the transfer of information, irrespective of actors' motives. The first four may be applied to both state-based and NSMD systems – regardless of their political foundations or substantive purpose – but the last four hypotheses are designed specifically to test some of the assumptions and claims of market-based systems (see Figure 2.7).

⁵¹ Again, social distance may also condition the effectiveness of state-based regulation, but since modern nation-states are territorially bound, we would expect the significance of such effects to be relatively less than when they play out in global markets. See Footnote 43, this chapter.

3 POLICY AND POLITICS IN CHILEAN FORESTRY

Great forests make these inaccessible areas like a tunnel through which our journey was secret and forbidden, with only the faintest signs to show us the way. There were no tracks and no paths, and I and my four companions, riding on horseback, pressed forward on our tortuous way, avoiding the obstacles set by huge trees, impassable rivers, immense cliffs and desolate expanses of snow ... Each of us made his way forward filled with this limitless solitude, with the green and white silence of trees and huge trailing plants and layers of soil laid down over centuries, among half-fallen tree trunks which suddenly appeared as fresh obstacles to bar our progress.

From the official translation of Pablo Neruda's acceptance speech
for the Nobel Prize in Literature, October 21, 1971.

Wood is Chile's new copper.

Joaquin Lavín 1988, p 60.

Chile is a land defined by extremes. Though more than 2,700 miles from north to south, it is less than 150 miles across at its widest point. Its borders include the world's driest desert and one of the world's few remaining temperate rainforests, nestled between the Andes mountains and the Pacific Ocean. It is the home of both Neruda and Pinochet, the first country in the world to elect a Marxist president, and the first Latin American nation to embrace a neoliberal political economy (Muñoz 1997). The evident success of such policies has led many both within and outside Chile to promote the country as a model for other nations to emulate (e.g., Tanzi and Schuknecht 1997; Mullin et al. 1999; Council of Economic Advisors 2003). It has been called the "economic tiger" of the Americas (Collins and Lear 1995, p 4), in no small part due to the dramatic expansion of the forest industry, one of Chile's fastest growing sectors (Nef 1995), and among the most dynamic in the world today today (O'Ryan and Fierro 2000; Cartwright 2002).

Yet Chile's growing importance in forest products markets is based not on vast natural forests, but on a conscious effort by the country's leaders to expand the plantation estate (Clapp 1995b). In 1930, the forest industry exported only 28,800 cubic meters (Wisecarver and Tardones 1989); by 2004, that had risen to more than 10,500,00 cubic meters, almost all of which came from plantation sources (INFOR 2004). Between 1974 and 2000, the value of Chilean forest exports grew more than seventeen-fold (Christian 1988; Quiroga 1996). Chile's forest industry is now one of the most dynamic and successful in the world – it was among the world's top ten net exporters in 1996 (Mery 1996), and is projected to lead the world as soon as 2010 (Timber and Wood Products 1998b). At more than US\$2 billion per year, Chile is Latin America's second-most important net exporter (behind Brazil) (Mery, Kengen, and Lujan 2001). Over the next two decades, the Chilean wood supply is projected to nearly double, from 21.7 million cubic meters (in 2001), to over 38 million cubic meters (CORFO 2001).

In this chapter, I present an overview of Chilean forestry, its political and regulatory context, as well as the major actors and issues associated with the sector. I begin by describing the dramatic political and economic changes that have remade Chilean politics in the past few decades, from the pre-Allende era to the reestablishment of democratic institutions. I then offer an overview of the major state regulations of Chilean forestry, and map the principal-agent dyads (i.e., roles and responsibilities of implementation) stipulated in those laws⁵². I then describe the 4th party (state) agencies and institutions tasked with implementation of state policy goals. To provide context for the conflicts and challenges that characterize Chilean forest politics, I also present

background information for key 1st party (forest management firms), 2nd party (industrial associations) and 3rd party (NGOs, expert services, general public) actors and organizations. I end the chapter with a brief overview of the major issues that have driven debate over forest management in Chile over the past few decades.

3.1 Shifting the role of the state

The Chilean approach to ensuring public goods – especially environment and natural resources – has undergone wide-ranging and dramatic changes over the past century. In the 1930s, the country's economic policies were generally protectionist and interventionist, a strategy which often worked against development of the forest industry (e.g., import barriers for harvest equipment) (Wisecarver and Tardones 1989; Collins and Lear 1995). This began to change in 1966, when President Frei declared that development of the forestry sector would be a state priority. Expanding the forest estate, he argued, would enable Chile to achieve a “prominent position” in international markets (Camus and Hajek 1998, p 2). Over the next few years, Chile created an official Reforestation Plan and a national corporation to implement it (COREF, founded in 1969), establishing a number of wood and pulp processing companies as well, including the original facilities of what is now Chile's largest forest products firm, Arauco (ibid.).

⁵² These will be compared to NSMD policies in Chapter 4.

In 1970, Salvador Allende was elected⁵³ in a tightly contested presidential race. Over the following three years, state intervention in the economy deepened (Wilson 1991). To centralize forest sector planning, Allende established the National Forest Corporation (CONAF) as a department within the Ministry of Agriculture (Mery 1996). In addition to assuming the functions of the Reforestation Corporation (started in 1969), CONAF began to absorb the responsibilities of other forestry and rural development institutions (Camus and Hajek 1998).

The 1973 military takeover changed everything – public policy was developed without democratic input, most Allende-era policies were suspended, unions were outlawed. State-based reforestation initiatives of the 1960s were replaced by D.L. 701 (detailed below), which used state funds and tax holidays to encourage the development of private forest plantations. From 1975 to 1979, the Central Bank offered loans to encourage tree planting by the private sector (Camus and Hajek 1998), even as the junta imposed reforms to limit the role of the government in the economy. These policies included the privatization of state-owned companies and many government services, reduced barriers to trade and foreign investment, and the effective destruction of organized labor (Collins and Lear 1995). Yet, as the Bank's lending program suggests, reformers were not blind to the significance of continued state involvement in a few key economic sectors (Kurtz 2001). State forest policy, in particular, was heavily influenced by political considerations (Gwynne 1993; Carrere and Lohmann 1996). Not only had the

⁵³ Allende was a candidate of the *Unidad Popular*, a reform coalition of Marxists and radical leftists. The election was nearly evenly split between Christian Democrats, the right-wing *Partido Nacional*, and the UP, with Allende slightly ahead. Following a failed attempt by right-wing extremists to kidnap Chile's highest ranking General (the blame was to be placed on leftists such as the UP), the Congress named Allende the victor (Loveman 1988).

major forestry companies been strong opponents of Allende, but Pinochet's economists also recognized that earlier state investments had created a comparative advantage that would allow Chile to play an increasingly important role in world forest products markets (Collins and Lear 1995). Once considered a "non-traditional" export, forest products soon became a key sector in the country's economy, jumping from 3.1 to 10 percent of all exports from 1973 to 1990 (Gwynne 1993). In addition to the incentives of D.L. 701 and other state policies (Maggi and Kern 2000), industry's bottom line (at least in the short-term) benefited from the junta's apparent disinterest in the environmental impacts of its development model (Muñoz 1997; Silva 1997b, c).

Given the results of the 1988 plebiscite⁵⁴, which showed strong residual support for the junta, the return to democratic elections required the cooperation of powerful interests. To ensure a successful transition, the Christian Democrats bargained with both the armed forces and business elites (Silva 1996). These powerful interests required assurances that an elected government would remain committed to the neo-liberal model as a way to sustain the country's high rate of economic growth (Silva 1994). To achieve credibility with these groups, the government agreed to always include business representatives in policymaking – though Chile's political parties are clearly aware of other social interests, such concerns have remained subordinate to those of business (Silva 2002).

⁵⁴ Even though a majority of Chileans voted for a return of democratic government, forty-three percent still supported the junta (Barton and Murray 2002). The plebiscite was widely perceived as a "bluff" by Pinochet, who was reportedly shocked that so many Chileans preferred the uncertainty of democracy (Silva 2002).

3.2 State forestry regulations

In ecological terms, Chile is an island, isolated by mountains, ocean, and the driest desert in the world, the Atacama. Since natural plant and animal migration is so challenging, the country has a very high incidence of endemic species (Wilcox 1996; Espinoza and Arqueros 2000). Prior to conquest, forests covered nearly a quarter of the country's surface area. Much was burned by the Spanish, in hopes of quelling resistance by indigenous groups (Neira, Verschure, and Revenga 2002); even more was cleared to grow wheat for export during the California Gold Rush (Kellison 1994). Pine and eucalyptus plantations were established in the 1890s to supply structural timbers for coal mines (Timber and Wood Products 1998a), but industrial-scale forestry did not begin until after the turn of the century (Hartwig 1991). Natural forests remained the dominant source for the forest industry until the mid-20th century, but today most Chilean wood originates from plantations (Clapp 1995a; Cartwright 2002). Fast growing exotic species (*pinus radiata*⁵⁵ and *eucalyptus*) have become the “backbone” of the Chilean forestry industry (Husch 1982), enabling the country to steadily increase forest product exports, even as it attempts to preserve natural forests. Nearly a fifth of Chile's territory is classified as protected⁵⁶ (IUCN 1996), one the highest proportions in the world (Corcuera, Sepúlveda, and Geisse 2002).

While the rugged beauty of Chile's natural environment has always been a point of national pride (Nef 1995), the country's regulatory climate emphasizes reduced state

⁵⁵ The most widely planted tree species in the world (Clapp 1995a), *p. radiata* is also known as the *Monterey* or *Insignis* pine (Krebs 1976).

⁵⁶ Over 14 million hectares are protected, mostly in the southern Regions XI and XII, home to most of Chile's endemic species (Pauchard 2002).

involvement and reliance on private sector initiative (Silva 1997a; Ruthenberg 2001). In serving the common good, the government is expected to “ensure and promote the responsible management of ecosystems and natural resources ... with a long-range view” (Morales 2003b, p 23), yet efforts to regulate forest management have been severely limited by constitutional protections of private property (Arnold 2003, citing del Favero 1996). The government’s weak capacity for environmental protection is well documented (Bradbury 1993; Rojas 1994; Silva 1997b); Mery, Kengen and Lujan (2001) claim that Chile lacks “long-term, well-planned and structured” policies for the country’s forest resources.

If regulations to protect individual species and locales are included, Chile has hundreds of forest laws⁵⁷ (Gallardo 2000). However, only three are considered potentially relevant to commercial forestry: D.S. 4363 (established in 1931, known as the “Forest Law”); D.L. 701 (from 1974, reformed in 1998 as D.L. 19561); and Law 19300 (Chile’s version of NEPA, enacted in 1994) and associated bylaw D.S. 30 (Arnold 2003). Of these, D.L. 701 (and its latter modifications and reforms) is by far the most important⁵⁸ in terms of forest management practices (Silva 1997b; Fierro and O’Ryan 2001).

3.2.1 Ley de Bosques – D.S. 4363 (1931)

Chile’s first efforts to regulate forest management grew from President Alesandri’s hope that such resources might stimulate development in the remote south. In 1925, his

⁵⁷ Chilean law is hierarchical, with certain documents, laws and regulations having priority over others. In order of importance, these are: the *Constitución*; *Leyes Orgánicas* (Framework Laws); *Códigos* (Systemic Codes); *Leyes* (Laws); *Decretos Supremos* (Supreme Decrees); *Decretos Reglamentarios* (Regulatory Decrees); *Decretos Simples* (Simple Decrees); and *Resoluciones* (Resolutions) (CCAEC 1996).

government issued two laws: D.L. 656 and Decree 416 (Sandoval 2003b, a). D.L. 656, also known as the “Second General Forest Law,” was essentially a compilation of earlier rules for commercial forests, including reforestation requirements and tax exemptions (Hartwig 1991). Decree 416 established an auctioned permit system for logging in government forests (Republica de Chile 1925), but there is little evidence that this system was ever implemented⁵⁹. These laws were originally justified according to the economic importance of forestry, as well as its impact on agriculture (Sandoval 2003a). The provisions of D.L. 656 were later strengthened when it was incorporated into “The Forest Law” D.L. 4363 (Republica de Chile 1931), a law that is still legally extant, though rarely (if ever) enforced (Silva 1999).

In part, this is due to its preemption⁶⁰ by D.L. 701 (Republica de Chile 1976, Articles 2 and 5)⁶¹; but also partly because the law itself was designed for an era when publicly owned and managed forests were expected to play a significant role in the country’s forest industry. Apart from explicit penalties for clearing land through the use of fire⁶² (Article 17), the law is largely limited to restrictions on cutting trees in state-owned forests and plantations (Article 14), and a minor (apparently moribund) effort to

⁵⁸ Stakeholders repeatedly emphasized this point during my interviews in Chile.

⁵⁹ 1924-25 was an especially politically turbulent period in Chile. President Alessandri resigned under military pressure on September 9th 1924, eventually moving to exile in Italy. When another faction overthrew the Junta, Alessandri was asked to finish his term of office. He returned on March 20th, but the remainder of his presidency was absorbed with implementing a constitutional transition from a Parliamentary to a congressional system, with the intent of strengthening the Presidency at the cost of the traditional political parties (Collier and Sater 1996).

⁶⁰ The current text of the law is unclear as to when the law was amended, though it likely occurred in 1974.

⁶¹ All remaining legal references in this paragraph are to the text of D.S. 4363.

⁶² This practice is also regulated by D.S. 276 (Republica de Chile 1980).

establish municipal tree nurseries (Article 12). Concessions to harvest state commercial forests are to be granted by the state Agricultural Service (SAG) (Article 14). Monitoring and enforcement of this law in state forests is the duty of the *Carabineros*, the national police (Article 20). Since most state-owned forests are now managed under the National System of State-owned Wildlife Areas (Republica de Chile 1984), and so few commercial forests remain in the hands of the state (Morales 2003b), D.S. 4363 is effectively irrelevant to the commercial management of Chilean forests today.

3.2.2 D.L. 701 (1974) / D.L. 19561 (1998)

By far, the most significant state policy affecting Chile's forest sector is D.L. 701 and associated⁶³ laws, regulations, and amendments (Hartwig 1991). Designed primarily as an incentive system to expand the country's forest estate, D.L. 701 also established guidelines for the management of both native forests and plantations (Silva 1997b). Originally enacted on October 28th, 1974, one of D.L. 701's most immediate effects was to offer protection against land redistribution. Yet in the long run, the law's fiscal provisions were more significant – tax holidays and reimbursement for the costs of establishing and maintaining planted forests (Amacher et al. 1998). Although the law has never specified which species should be planted (Morales 2003b), economic concerns led most foresters to plant those which mature faster (Gwynne 1993; Silva 1997b). As a result, commercial forestry shifted almost exclusively to plantations of exotic species

⁶³ It is common practice in Chile to refer to subsequent reforms by the name of the original law. Thus, the 1998 reforms are still referred to as D.L. 701. However, this leads to a disconcerting grammatical shift – the early version of D.L. 701 is properly described in the past tense, but post-1998 reforms are clearly present-tense. To improve the readability of this section, I will refer to the reforms as D.L. 19561, although elsewhere I adopt the more common practice of referring to both laws jointly as D.L. 701.

(Husch 1982). Initially, the reimbursements covered 70 percent of costs; after 1982, these were increased to 90 percent, ostensibly to provide seasonal employment opportunities for rural workers (Sanfuentes 1987).

Although D.L. 701 was critical in making Chile's forest industry competitive at the international level, and reducing commercial pressures on the country's native forests⁶⁴, the law also had several (possibly) unintended consequences. The fact that decades usually pass between planting and harvest means that large-scale forestry is capital-intensive; since the law reimbursed landowners a full year after planting, well-capitalized (i.e., larger) companies tended to benefit much more than others (Mery 1996; Quiroga 1996). Rapid expansion of the forest estate made suitable land more scarce, leading to higher land prices and further consolidation (Wisecarver and Tardones 1989; Quiroga 1996). By 1988, one company (Forestal Arauco) owned nearly twenty percent of all land planted under D.L. 701 (Collins and Lear 1995). When the law expired in 1994, Chilean lawmakers began developing reforms to address many of these problems; the result was D.L. 19561, signed into law in 1998.

These 1998 reforms extended the subsidies through 2011, though these are now directed towards small and mid-scale landowners (Quiroga 1996). Properties that received funds under the earlier version of the law are not eligible for additional subsidies. Management activities eligible for reimbursement include: tree planting (at any scale) for the purpose of soil rehabilitation, to establish windbreaks, and otherwise control soil erosion; plantings by small-scale landowners on soils of any quality, for full- or mixed-forestry systems; and silvicultural management associated with such plantings

(e.g., pruning). Smallholders may have up to 90 percent of costs reimbursed for the first 15 hectares affected, and 75 percent of that remaining. Such payments are traunched, with a three year waiting period for the last 15 percent of costs, dependent on proof that the initial plantings have become established. All such reimbursements are made through the Ministry of Agriculture. The Institute of Agricultural Development (INDAP, a public organization directed by the Ministry of Agriculture) is to offer loans to enable smallholders to incur such management costs.

D.L. 19561 also exempts reforested land from taxes levied on agricultural lands for a period extending two years beyond the first harvest; to receive this designation, landowners must solicit CONAF, which has up to 60 days to deny such requests, and notify the Tax Service (SII) of its decision. Otherwise, the tax exempt status is automatically conferred, and applied by SII. Such “latent approval” processes are common to many of Chile’s post-Pinochet regulations (see below).

Table 3.1: D.L. 701 / 19561

* D.L. 701 / 19561	Source
A MINAGRI reimburses landowners for reforestation costs	Article 12
B INDAP offers loans to smallholders to cover management costs	Article 12
C Landowners solicit CONAF for tax exemption	Article 13
D CONAF may deny requests for tax exempt status	Article 13
E CONAF informs SII of decisions on exemption requests	Article 13
F SII exempts selected landowners from agricultural taxes	Article 25

⁶⁴ This point is extremely contentious, and is discussed further in the the closing section of this chapter.

* D.L. 701 / 19561		Source
D	CONAF assesses forest management plans prior to cutting	Articles 10, 21
G	Landowners may appeal CONAF decisions to local civil courts	Articles 5, 21
D	CONAF identifies soils “preferred for forestry”	Article 4
C	Landowners ask CONAF to declare lands “preferred for forestry”	Article 4
D	CONAF may revoke “preferred” status and all attending benefits	Article 13
D	Ignoring management plans may result in fines or seized harvests	Article 17
H	Local police may be required by CONAF to halt harvest activities	Article 21
C	CONAF must have landowner’s permission to enter private land	Articles 21, 22
I	CONAF may appeal to local courts	Article 24
I	CONAF informs local courts of infractions	Article 24
J	Local courts impose any fines or sanctions	Article 24
K	Carabineros inform local courts of infractions	Article 24

** Letters correspond to the arcs in the following graph (Figure 3.1)*

D.L. 19561 requires that a management plan be prepared by a licensed forester (for properties over 10 hectares) and approved by CONAF prior to cutting in either native forests or plantations established on lands identified as “preferred for forestry.” CONAF has the authority and responsibility to identify soils that are considered to be “preferred,” a status also used to determine planning requirements, reimbursement rates, and tax status. Anyone wishing to have their lands classified “preferred for forestry” sends a

formal request to CONAF, who then has sixty days⁶⁵ to respond – otherwise, the land is automatically given that preferred status. Similarly, CONAF has up to 120 days to comment on management plans, otherwise these are automatically approved. All benefits and obligations following from D.L. 701 are attached to the specific lands under management, and may be transferred with property titles.

Those cutting forests on land classified as “preferred for forestry” are required to reforest an area of at least equal size. On other soil types, landowners are only obligated to reforest if the trees cut are native species. Non-compliance with replanting requirements is punishable by double fines. Should CONAF reject a submitted request or plan within the specified period, those decisions may be appealed to local civil courts. CONAF has the authority to revoke such status in “exceptional” cases and with “proper justification.” In such cases, landowners are required to refund any monies which had been received based on the preferred status, including tax exemptions and interest on such payments, as determined by Chile’s national tax service. However, such changes in land use designations may also be appealed to local civil courts, according to the provisions in Article 5.

Anyone who cuts natural timber⁶⁶ not included in an approved management plan must submit a corrected plan (prepared by a licensed forester) to CONAF within sixty days. Such plans must include provisions for replanting to be completed within a two-year period. Landowners that “intentionally” fail to complete the details of a management

⁶⁵ This period may be extended up to 120 days, where difficult terrain or weather conditions prohibit an assessment (Article 4).

⁶⁶ With some limits based on soil type (i.e., preferred for forestry), tree plantations are not regulated as forests (Article 21).

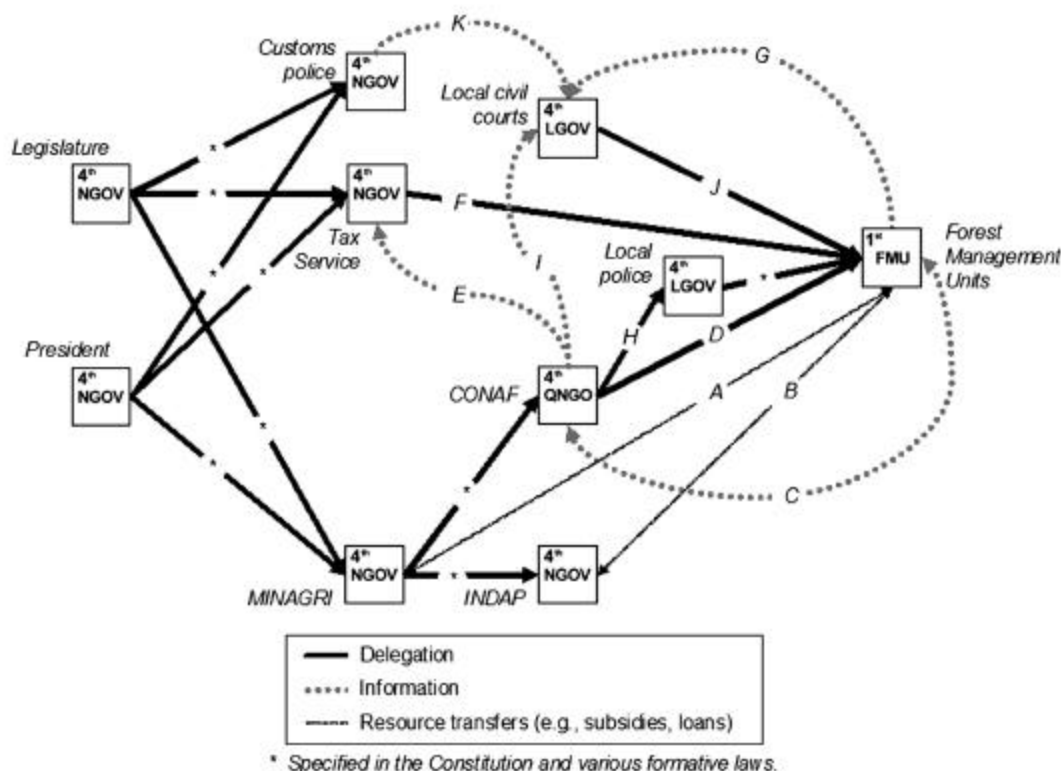
plan are to be fined, based on the area of land under the plan, severity of the failure⁶⁷, or value of the harvested products. Any products seized will be sold by CONAF, which may ask local police to halt harvest activities on the property, subject to prior review by a local judge within 48-hours.

Although some have argued that D.L. 701 extends enforcement power to CONAF (Fredes 2002), its personnel must ask permission before entering private property. If this is refused, CONAF may appeal to local judges. Enforcement of any sanctions and fines following from this law is the responsibility of local judicial tribunals, following formal notification of infractions by regional CONAF directors or Carabinero officers. Where mitigating circumstances⁶⁸ are evident (e.g., a first offense), penalties may be reduced or even waived. Where CONAF has already published technical or management studies for a particular forest type, small-scale landowners are exempted from the requirement to submit a forester-prepared management plan. Areas planted without state subsidies (i.e., all large-scale plantations after 1996) are treated as agricultural crops; no management plans will be required for these properties (Morales 2003b).

⁶⁷ However, the law does not specify how such discover would occur (CONAF does not have an ongoing monitoring role), nor whether such decisions could be appealed.

⁶⁸ Enforcement of D.L. 701 (indeed, *any* forestry laws) has been anemic, at best. A study of forest management violations between 1989 and 1993 showed charges were dropped in over 60 percent of cases (Lowy 1995).

Figure 3.1: D.L. 701 / 19561



3.2.3 *Ley de Bases* – D.L. 19300 (1994) / D.S. 30 (1997)

The success of the United States in pressuring Mexico to negotiate environmental side agreements before the 1993 passage of the North American Free Trade Agreement “sent a clear message to other Latin America nations” (Silva 1994). It was partly in response to such pressures that Chile’s Comprehensive Environmental Law 19300 was adopted the following year (LALBR 1997). Based loosely on the United States’ NEPA, the *Ley de Bases* (“Framework Law”) established a national environmental coordinating committee (CONAMA), and similar regional committees (COREMAs) in each of Chile’s thirteen

political jurisdictions (Republica de Chile 1997)⁶⁹. The authority to issue new regulations (e.g., industry-specific requirements) remains with the legislature and the ten constituent ministries⁷⁰ of the CONAMA directing council. As a framework law, D.L. 19300 was designed to address a broad range of environmental problems, making it somewhat difficult to interpret in isolation. D.S. 30 (Republica de Chile 1997) provides greater specificity on many such questions.

Most of D.L. 19300 builds on the principles of prevention, economic efficiency, and “polluter pays” (Silva 1996; O’Ryan and Fierro 2000). Although the law emphasizes pollution prevention and remediation, it also intends to safeguard the “quality and quantity” of renewable natural resources. Because the law consolidates permitting processes (known as the “single window”), it is said to streamline project development and implementation (Castillo 1994), though this point is sometimes disputed (Sheppard 1999b).

The central instruments of the Framework Law are environmental impact studies (EIS) or similar declarations (EIDs), conducted by the project proponents (or environmental consultants). The more stringent EIS is required of all projects expected to produce “significant impacts;” however, unless a coordinating committee fails an EID, the interpretation of which to submit (a study or declaration) is left to the project proponent⁷¹. As with D.L. 701, approval is automatic if coordinating councils do not

⁶⁹ Unless otherwise identified, all remaining legal references in this section are to the text of D.S. 19300.

⁷⁰ As stipulated in Article 71, these are the Ministries of the *Economy, Reconstruction and Development, Public Works, Agriculture, Public Assets, Health, Mining, Housing and Urban Development, Transport and Telecommunication, and Planning and Cooperation*.

⁷¹ This aspect of the law has been widely critiqued (Sheppard 1999b).

respond (or request an extension) within specified periods. Those submitting an indemnity against potential damages along with their proposals receive provisional approval.

Any commercial projects in native forests or on “fragile” soils are required to submit a study or declaration to the local COREMA⁷². Article 3.m of D.S. 30 defines these conditions further, based on size and location, and requires such projects to replant an area equal to that harvested. D.L. 19300 also requires firms to locally publish public summaries of their EIAs, which initiates a seventy day public comment period. COREMAs are required only to “ponder” any stakeholder input. While the Framework Law requires projects to submit baseline data, it only loosely suggests a monitoring role for the coordinating councils. Should illegal or malicious acts cause “environmental damages” to third-parties, these individuals may ask local (or national) officials⁷³ to issue warnings, levy fines, or even injunctions against the offending projects. Article 54 also allows specified individuals (project proponents, the state, and those *directly* harmed) to demand compensation – again suggesting an implicit monitoring role for such actors. Other stakeholders must ask local mayors to intervene on their behalf, who appear to have full discretion in such matters.

⁷² Projects expected to have large-scale (i.e., extra-regional) impacts are required to submit an EIS to the national coordinating committee (CONAMA). However, given that both forests and soils are highly localized phenomena, almost all foresters will deal only with their local COREMA.

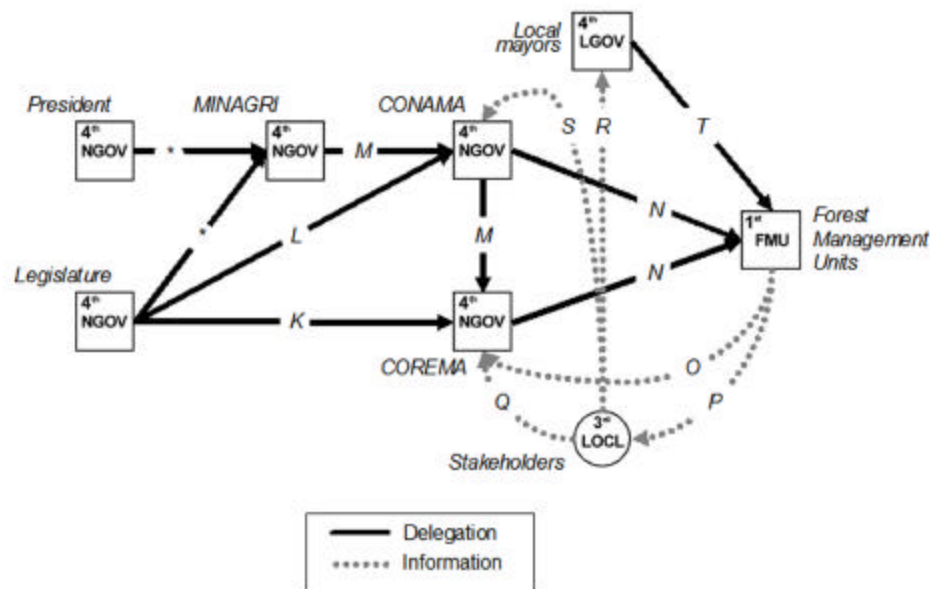
⁷³ This provision also allows local and national officials to act where the state itself is seen to be harmed, although it provides no explanation for how this might be established.

Table 3.2: D.L. 19300 / D.S. 30

* D.L. 19300 / D.S. 30	Source
L Legislature has authority to issue new regulations	Article 12
M CONAMA ministries have authority to issue new regulations	Article 12
N CONAMA or regional COREMAs assess EIS/EIDs	Article 18
O Landowners submit EIS/EID to local COREMA	Article 9
P Landowners must publish summary EIAs in local media	Article 27
Q Local stakeholders may submit comments on EIAs	Articles 28-29
R Third-parties ask local officials to warn or punish landowners	Article 54
S Third-parties ask national officials to warn or punish landowners	Articles 51, 56
T Local officials may warn or penalize landowners	Articles 51, 56
N National officials may warn or penalize landowners	Articles 51, 56

* Letters correspond to the arcs in the following graph (Figure 3.2)

Figure 3.2: D.L. 19300 / D.S. 30



* Specified in the Constitution and various formative laws.

While exotic trees planted on “non-fragile” soils are considered agricultural crops, and not subject to D.L. 19300 requirements (Morales 2003b), such projects may still be regulated by D.L. 701. Accordingly, the Framework Law is relatively insignificant to most of Chile’s forest estate⁷⁴. However, given that local FSC standards are being developed for native forests (described in the following chapter), the potential exists for D.L. 19300 to become more relevant in the future.

3.2.4 Other state regulations and international agreements

The public summaries of FSC and CertforChile certificates identify other environmental regulations of lesser significance to forest managers: D.S. 276 (1980) regulating the use of fire to clear land; D.S. 351 (1993) concerning the residues of such fires; D.S. 94 (1995) on the transport of forest products; D.L. 3557 (1981) general agricultural regulations; Ley 3133 (1996) prohibiting industrial waste dumping in waterways; D.S. 105 (1998) regulating the use of household pesticides; and Resolución 290 (2000) on agrochemical safety standards. These are generally narrowly focused laws, whose intent (at least as concerns forest management) has been subsumed within either D.L. 701 or the Framework Law. In addition, these public reports reference laws applied to a broad range of industries: Ley 16744 (1968) and D.S. 594 (2000) both concerning workplace health and safety; Ley 19253 (1993) on protection and development of indigenous communities; and Ley 18695 (1988) establishing the rights and obligations of local municipalities. Since these are not specific to forestry, they are unlikely to be displaced by NSMD

⁷⁴ This point was repeatedly emphasized and reaffirmed during my interviews with forest industry stakeholders.

developments.

Chile is a signatory to at least seventeen international environmental agreements (Neira, Verscheure, and Revenga 2002; CONAF 2005; CONAMA 2006), as well as several ILO (International Labor Organization) conventions (Cerdeira and Lira 2001). Most are not especially (e.g., the Convention on Desertification) or uniquely (e.g., the ILO Conventions) relevant to the country's forest industry. However, Chile has signed at least four agreements which are clearly related: the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the Convention on Biological Diversity (CBD); United Nations Framework Convention on Climate Change; and The Santiago Declaration (from the Montreal Process, described briefly below). Like many other countries, Chile has engaged these treaties to varying degrees. After ratifying CITES in 1975, Chile placed three tree species listed in the Convention's prohibited list (i.e., Appendix I): Alerce (*Fitzroya cupressoides*), Guaitecas cypress (*Pilgerodendron uviferum*), and Araucaria (*Araucaria araucana*) (Neira, Verscheure, and Revenga 2002). Although Chile ratified the CBD over a decade ago, it has not yet defined a national conservation strategy. The government has pursued a similar strategy towards the Framework Convention on Climate Change, which it signed in 1994, but for which it has yet to develop specific policies (ibid.).

The Santiago Declaration is a non-binding agreement that emerged from the Montreal Process, an ad-hoc process by non-European countries to develop criteria and indicators for the sustainable management of temperate and boreal forests (Crossley 1996). Signed in 1995, the Declaration includes a set of universal criteria and indicators, and the expectation that signatories adopt additional national standards under that

framework. Chile has yet to produce such standards (Neira, Verscheure, and Revenga 2002); although forest certification might be seen as a step in this direction, the stated intent of the signatories was to assess forest sustainability at the national level, rather than by individual management unit (Elliott 1999).

3.3 Stakeholders in Chilean forests and forestry

As environmental issues have gained saliency in Chilean society, politicians, state ministries, industry, scientists, citizen groups, environmental non-governmental organizations (ENGOS), and international institutions have all sought to influence how the country's environmental conditions are defined (Kaimowitz 1996). Observers and participants tend to identify the following actors in Chile's forest policy debates: government authorities, timber extraction and processing companies, industrial associations, NGOs, and other civil society groups (Maggi and Kern 2000; Verscheure 2002). The historical relationships between these varied groups, their principal concerns and the means of advancing those interests, as well as their public or private-sector nature will provide context necessary to understand the political and economic dynamics surround forest politics in Chile.

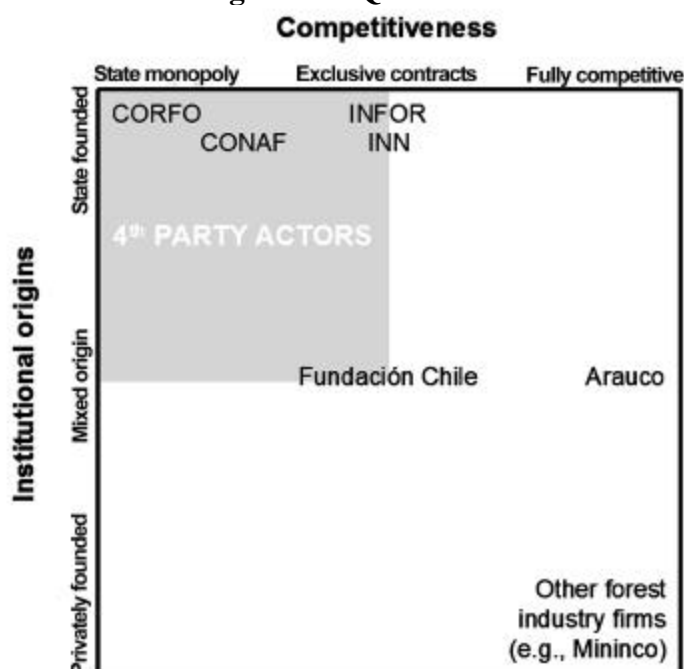
3.3.1 Fourth-parties: state institutions and quangos

Chile's public service is renowned for its efficiency and low levels of corruption (Maggi and Kern 2000). However, the legacy of over fifteen years of a neoliberal dictatorship has left the country's bureaucracy unable or unwilling to play a strong role in regulating the use of natural resources (Silva 1997b). Instead, the government's strategy has been to act

as convener, mediator, or to offer technical expertise and “moral support” to private sector efforts.

As part of Chile’s ongoing experiment in neoliberal reform, many government entities have been fully or partially privatized, even though some remain legally obliged to implement some aspect of government regulation or law. While assumptions about what is understood as the purview of the state become problematic in cross-national comparisons, the characterization of the variety of quasi-autonomous organizational (QUANGO) forms as “a zoo containing many animals” (Hood 1986, p 188) is especially apt in the Chilean political context. These organizations occupy an often complicated space between public and private sectors. Some state-founded organizations have moved sufficiently towards the private sector to be considered truly independent agents (e.g., Fundación Chile). Others, exclusively tasked with implementing state policies, or offering services demanded only by state institutions, are less easily understood as separate from the state. Despite such institutional diversity, all QUANGOs possess (albeit to varying degrees) relationships to the state that set them apart from purely commercial or civil society organizations (Koppell 2003). Often, this is expressed as a subtle form of authority or otherwise indirect means of achieving state interests (Macleavy and Gay 2005).

Figure 3.3: QUANGOs



Chile’s national forest service was established in 1970 as a department of the Ministry of Agriculture (Mery 1996), which is itself tasked with “promoting, guiding and coordinating forestry, livestock and agricultural activities in the country” (D.F.L. 294 1960, cited in Centro de Derecho Ambiental 2002, p 7). Under the Allende government, **CONAF**⁷⁵ was expected to assume the functions of the Reforestation Corporation (founded a year earlier), as well as other state-based forestry and rural development institutions (Camus and Hajek 1998). Following the coup, D.L. 701 established the agency’s regulatory powers, giving CONAF officials⁷⁶ the tasks of approving (or rejecting) management plans submitted under that law, and monitoring compliance with such plans and other provisions (i.e., reforestation requirements) of the law (Fredes

⁷⁵ CONAF’s full name is the *Corporación Nacional Forestal*.

⁷⁶ It is interesting to note that one of CONAF’s first directors under Pinochet was his then son-in-law, Ponce Lerou, who had only recently received a degree in forestry science. Lerou went on to head the

2002). Since the Pinochet government privatized the companies that CONAF had managed, the agency's role was changed to monitoring and enforcing the country's forest laws, coordinating and promoting the forest industry (Camus and Hajek 1998; Neira, Verscheure, and Revenga 2002). After the national park system (SNASPE) was formed under Law 18,362 (Republica de Chile 1984), CONAF was given management responsibility for that system.

There is some confusion as to CONAF's formal standing as a state institution (Olander 1999). Though the agency was given nominal QUANGO status in 1984 (Law 18,348), that law requires the government to first terminate its status as a private corporation, which has yet to occur. In the strictest legal sense, the agency is a private entity regulated by its own bylaws and Chile's Civil Code (Centro de Derecho Ambiental 2002), but is directed by the Ministry of Agriculture (Silva 1996; Neira, Verscheure, and Revenga 2002), and retains the obligations of a state agency, including the design, monitoring and enforcement of forestry regulations (Centro de Derecho Ambiental 2002). Under the 1984 law, it also operates under strict staffing and budget limits (Collins and Lear 1995). Given such constraints, it is easy to see why, despite its fairly broad responsibilities, it is not considered a powerful department (Silva 1997c; Clapp 1998).

CONAF's "dual mandate" (Clapp 1998, p 14) to promote both economic development and environmental preservation has been a persistent point of criticism of the agency's portfolio (Cartwright 2002). Many of the country's persistent forest problems have been blamed on this conflict, as well as the incongruity of its broad obligations and limited institutional and economic resources (Meller, O'Ryan, and

junta's privatization program, and was later accused of corruption (O'Brien and Rohter 2004).

Solimano 1996; Leslie 1997). CONAF's challenges of managing the national park system has been established (Olander 1999), as have its difficulty monitoring and enforcing forestry regulations (Clapp 1998). Anyone wanting to establish a new plantation or cut in native forests must submit a management plan for CONAF's approval, but a 1993 study revealed that fewer than a third of all registered management plans were carried out (Chile Forestal 1995). It has been estimated that in the Lakes Region, only one of five management plans were fully implemented (Chile Forestal 1995). CONAF professionals include committed conservationists as well as strong advocates for the forest industry. Some of its apparent inability to fully enact forest laws may be attributed to reluctance (Fredes 2002). It has been suggested that strengthening the agency's authority (e.g., giving forestry officials the same powers as the police) would be more effective than any other reform (CONAF manager Carlos Noton, interviewed in Leslie 1997).

The Chilean Development Corporation⁷⁷ (**CORFO**) was established under the Ministry of the Economy in 1939, tasked with deepening and diversifying the country's industrial development (Collins and Lear 1995). Though its capacities were initially limited to finance (e.g., credit, favorable interest and foreign exchange rates) and brokerage (e.g., guaranteeing markets for private investors), in the 1960s CORFO began investing directly in target sectors (including resource extraction⁷⁸) (Clapp 1995b).

Today, as the official state investment agency, CORFO remains an important player in Chile's forest industry, providing grants to research in academia and other

⁷⁷ The Spanish name is the *Corporación de Fomento de la Producción*.

⁷⁸ Celulosa Arauco and Forestal Arauco were both originally established as public-private partnerships in the late 1960s (CORFO assumed full ownership in 1972). In the years following the coup, both were purchased by COPEC (*Compañía de Petroleos de Chile*), part of the Angelini Group (Carrere and

public institutions (e.g., INFOR, described below), as well as private-sector projects (e.g., CertForChile) (van Hensbergen 2001; Centro de Derecho Ambiental 2002; Morales 2003b). Following D.F.L. 211 (1960) and later amendments, the Corporation has been managed by an administrative council headed by the Minister of the Economy (Republica de Chile 1960). CORFO has not received a direct budget appropriate since 1996, but is instead expected to raise funds through “performance contracts” with government ministries (for the provision of public goods, such as research), and goods and services contracts with private-sector agents (Mullin et al. 1999). The Corporation currently has an endowment of US\$3 billion, with assets of US\$3.2 billion (US\$1.5 billion from its remaining joint investments” (CORFO 2005).

In 1965, S.D. 1416 formally established the Forestry Institute⁷⁹ (**INFOR**) to serve the technical needs of Chile’s forest industry. The idea of such an entity had evolved from a 1961 project between the Chilean government, the Food and Agriculture Organization (FAO), and the United Nations Special Fund (INFOR 1997). INFOR’s mission is to “support public institutions and private economic agents of the forestry sector,” largely through technical assistance and research on the sustainable use of forest resources (Centro de Derecho Ambiental 2002, p 11). It is considered the authoritative source of analysis and statistical data (Cartwright 2002; Neira, Verscheure, and Revenga 2002). While the institute is formally constituted as a private corporation, and its Executive Council is independent of government (INFOR 2002), it depends heavily on grants from CORFO, giving that corporation substantial control over its activities

Lohmann 1996).

⁷⁹ In Spanish, it is known as the *Instituto Forestal*.

(Morales 2003b). Accordingly, INFOR may be better understood as a QUANGO than a fully private organization.

The National Standards Institute⁸⁰ (INN) was created to improve the quality of goods and services in the Chilean economy, by promulgating and overseeing technical standards, quality control, and accurate systems of weights and measures (INN-Chile 2003). Its predecessor, the Institute of Technical Research and Standardization (INDITECNOR) had been established in 1944 as a joint public-private non-profit corporation. By the early 1970s, it was funded almost entirely by CORFO, which founded INN in 1973. Until 1981, INN was funded entirely through CORFO, which remains a significant source of income for the institute⁸¹ (ibid.). While INN's directorate is nominally separate from the government, such financial dependency – and the government's exclusive reliance on the institute for many services – suggests that INN is not only likely to follow state policies closely, but also be perceived as a semi-authoritative body by most Chileans. As Chile's official delegate to the International Organization for Standardization (ISO), INN participated in the development of the ISO 14001 standards, and is responsible for translating those standards should be translated and applied in Chile (ibid.). As I show in Chapter 4, INN is also an important actor in the implementation of the non-state forest management standard, CertforChile.

Although **Fundación Chile**'s current institutional form means it is likely better understood as a private-sector 3rd-party expert service, its public-private origins lead me

⁸⁰ In Spanish, INN is known as the *Instituto Nacional de Normalización*.

⁸¹ According to INN's 2002 Annual Report, CORFO contracts amounted to 11 percent of the Institute's annual income. However, that report also states that over 50 percent of their income in that year followed from contracts with the Ministry of the Economy (which heads CORFO's Board of Directors). Taken

to discuss its institutional characteristics here, rather than grouping the Foundation with other consulting bodies and academic experts⁸². In 1974, Pinochet's Economic Minister approached the US-based International Telephone and Telegraph Corporation (ITT) with the idea of founding a research and development agency to increase the adoption of advanced technologies by Chilean companies (Fundación Chile 2002b). Nearly two years later, D.L. 1528 established Fundación Chile and its original bylaws, which tasked the institution with identifying new and emerging commercial possibilities, initiating and promoting businesses to exploit those opportunities, and otherwise providing technical assistance to Chilean businesses (Republica de Chile 1976). By 1999, Fundación Chile had started thirty-six such companies, six of which had generated more revenue than the total operating costs of the Foundation over its lifetime (Mullin et al. 1999). Although ITT continued to provide funds until 1986, the Fundación Chile has been able to cover operating costs from investments (including companies started by the Foundation), and the sale of technical services⁸³ (Cordua 1994).

3.3.2 First parties: forest management firms

As a major source of export revenue (US\$2.37 billion in 2000), Chile's forest industry enjoys enormous economic power (Christian 1988). Over the past three decades, this has translated to significant political power, as the leading companies have consistently found

together, government revenues accounted for over 60 percent of INN's budget in 2002 (INN-Chile 2003).

⁸² In fact, most of those I interviewed in Chile described the Foundation in semi-authoritative terms, generally emphasizing its semi-public origins and the Foundation's strong relationship with Chile's political elite.

⁸³ A unpublished proportion of which are contracts with government ministries.

common cause with the country's conservative political parties and ruling elite (Silva 1997b; Fundación Terram 1999). Indeed, for all their success at producing rapid and substantial economic growth, many of the forest policies of the Pinochet regime have been criticized as serving to consolidate that industry, serving Chile's wealthy before the needs of the majority of landowners (Clapp 1995b; Quiroga 1996). As discussed earlier, D.L. 701 subsidies (US\$131 million through 1993) tended to benefit large companies (Mery 1996; Quiroga 1996). Since the rapid rate of reforestation and aforestation⁸⁴ also made suitable land scarce, subsidies also tended to increase land prices, deepening industry consolidation (Wisecarver and Tardones 1989). Today, over half the country's tree plantation estate is owned by just two corporations, Forestal Arauco and Forestal Mininco (Cerdeira et al. 2002).

D.L. 701 subsidies and privatization of state-owned enterprises enabled the largest grupos⁸⁵ to acquire enormous plantation and forest estates, as well as the industrial infrastructure (e.g., pulp, paper and timber mills) to create gigantic, vertically integrated forest conglomerates (Carrere and Lohmann 1996; Cartwright 1998). Consolidation and the capital-intensive nature of contemporary Chilean forestry means that the industry provides relatively few jobs, given the income generated by the sector (Mery, Kengen, and Lujan 2001). In 1999, INFOR estimated that only 57,000 people were directly employed in forestry (including transportation and other services) (Lignum 2001d). The majority of Chile's forest exports are either unprocessed or semi-processed goods (e.g.,

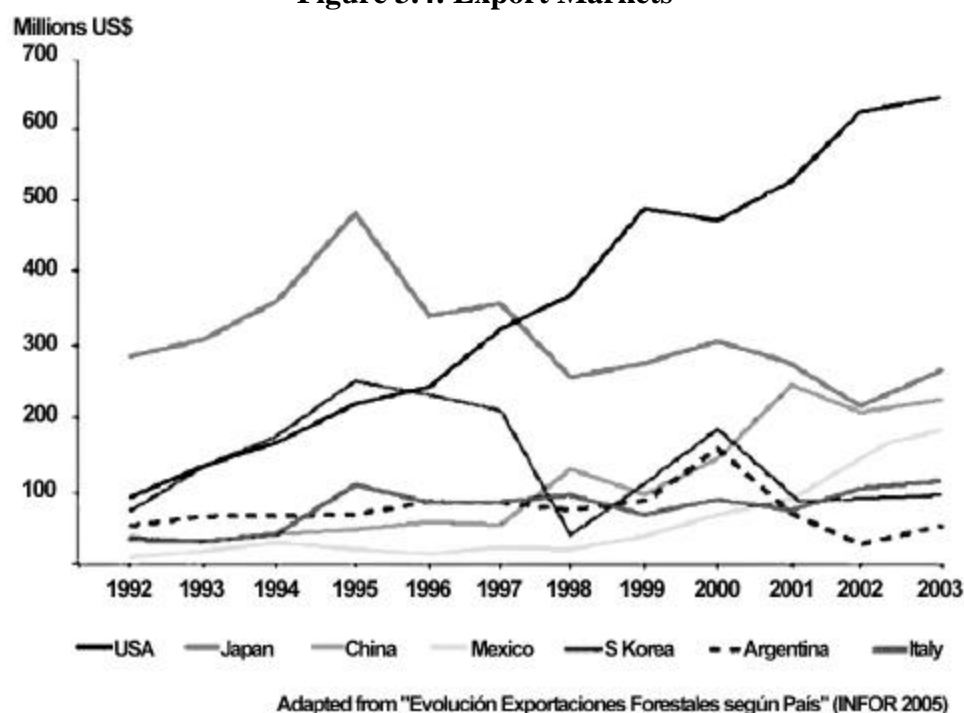
⁸⁴ Aforestation is the practice of establishing trees in areas which were not previously forested.

⁸⁵ Chile's wealthy elite have been described as a "small, tight-knit group with interlocking interests and holdings, with alliances cemented by marriages" (Clapp 1995b), p 282). Known as "grupos," these families dominate the Chilean economy (Monckeberg 2001).

pulp, chips, lumber) (Carrere and Lohmann 1996); since these have little added value, most of these are low-skill, low-wage jobs (Mery, Kengen, and Lujan 2001).

Despite the explosive growth of the sector, domestic forest product markets remain inconsequential (Mery 1996). Since the collapse of Chile's Asian markets in 1998 (Becker and Rohrer 2002), the United States has become the industry's largest market (US\$622 million), a trend facilitated by their 2002 trade agreement (see Figure 3.4). This amounts to thirty-seven percent of all Chilean forest products exports (Lignum 2003c). Pulp and paper are the largest subsector within the industry (Morales 2003b), but trends suggest that the industry is beginning to invest in more value-added production (Lignum 2002e). Since the major markets for these higher-priced products are in North America and Europe (which tend to demand greater environmental safeguards), incentives to demonstrate environmental sustainability (i.e., certification) are increasing, as well (Otero and Maluenda 1998; Lignum 2001a). Over the past fifteen years, the largest forestry companies have attempted to project a "green" public image at home and abroad, emphasizing concern for the environment, even as they have worked tirelessly to increase their political leverage and minimize state regulatory requirements (Silva 1997b).

Figure 3.4: Export Markets



“**Arauco**” is the common nickname of the group of industrial, forestry and commercial companies owned by Celulosa Arauco y Constitución SA, which is itself owned by the Chilean conglomerate Grupo Angelini (Carrere and Lohmann 1996). Celulosa Arauco was founded by the state development corporation (CORFO) with a sixty percent share⁸⁶ in 1967; similar investments established Celulosa Constitución (Clapp 1995b) and Forestal Arauco (a subsidiary of Celulosa Arauco) two years later (Arauco 2003). CORFO acquired the remaining shares in 1972, but the companies were purchased by the conglomerate Compañía de Petroleos de Chile⁸⁷ (COPEC) in the first wave of privatizations following the coup (Carrere and Lohmann 1996). The companies were formally merged in 1979 (Arauco 2003).

⁸⁶ The private investor was US-based Parsons & Whittemore (Carrere and Lohmann 1996).

⁸⁷ Established as a state oil company in 1934, COPEC later formed the core business of grupo Angelini,

Although Arauco owned only 64,000 hectares in 1976 (Carrere and Lohmann 1996), today the company is Chile's largest forest landowner (over 630 thousand hectares) (Arauco 2003). In 2001, the conglomerate's gross sales were US\$1,139 million (US\$140 million net) (Celulosa Arauco y Constitución SA 2001). Arauco is actively developing new markets; in the last decade, it established subsidiaries in both the United States and Europe (Arauco 2001). Given the generally high environmental concern of these consumers (Otero and Maluenda 1998), Arauco has also worked hard to cultivate a "green" image, acquiring ISO 14.001 certification in 2001, and contributing significant resources (both financial and technical) to the development of the CertforChile forest management standard (Arauco 2001).

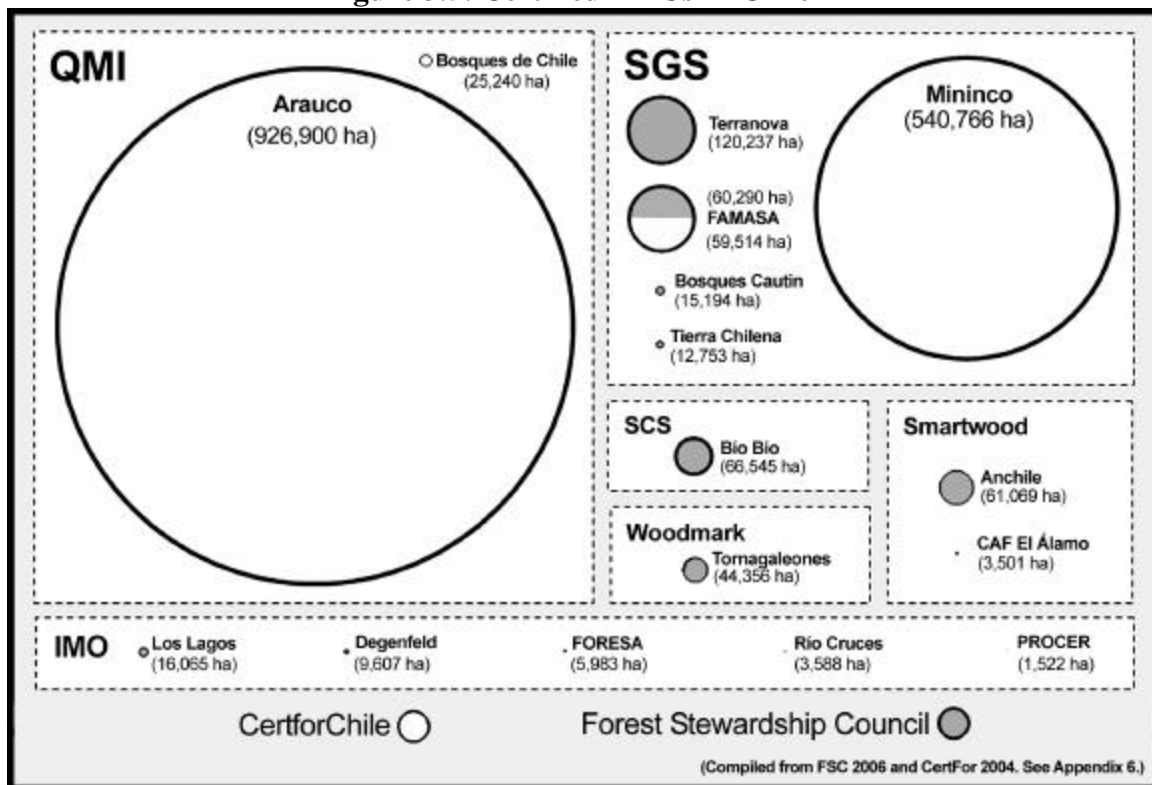
Chile's second-largest forest products conglomerate, CMPC⁸⁸, was established in 1920 (CMPC 2005b). Its current holdings include **Forestal Mininco**, which manages a forest estate of more than 420 thousand hectares (mostly radiata and eucalyptus plantations). In 2003, CMPC's gross sales were US\$846 million, though Mininco reported a loss of US\$460 thousand that same year (CMPC 2005a) Forestal Mininco 2003). Mininco has been keenly interested in protecting and expanding its foreign markets, opening a US office in 2003 (Lignum 2003c). They have also been one of the most active private firms in Chile's certification efforts, working closely with Fundación Chile staff throughout CertFor's development.

Chile's largest conglomerate (Clapp 1995b; Carrere and Lohmann 1996).

⁸⁸ CMPC's full name is *Compañía Manufacturera de Papeles y Cartones*.

As of December 2005, seventeen⁸⁹ other Chilean forest firms have been certified to FSC, CertFor or both standards (see Figure 3.5). Forestal Monteáguila SA (**FAMASA**) is the only Chilean forest company certified under both systems; it also manages the largest FSC-certified property. Another important certified firm is **Terranova**, which manufactures doors and moldings, selling directly to retailers (earning US\$296 million in 2002) (Business Wire 2004). Over 2,036,000 hectares are now certified in Chile, amounting to over 13 percent of the total forest estate (and at least 60 percent of the more economically important plantation estate) (CertFor 2004; FSC 2006; CONAF 2006).

Figure 3.5: Certified FMUs in Chile⁹⁰



⁸⁹ Both Forestal Celco and Forestal Valdivia SA are managed by Bosques Arauco SA (Arauco 2003).

⁹⁰ This graphic excludes FMUs with less than 1,000 hectares certified to either system. See Appendix VI for a complete listing of FSC and CertFor-certified firms in Chile.

3.3.3 *Second parties: industrial associations, manufacturing, retail*

Founded in 1955, the Chilean Wood Corporation⁹¹ (**CORMA**) is the principal industrial association of forest owners. Its mission is to represent its members' interests and promote the development of the country's forest industry (CORMA 2005). It serves as the industry's principal liaison to government, and given the enormous economic importance of the sector, wields "considerable" political power (Neira, Verscheure, and Revenga 2002).

As I describe in the next chapter, the principal means of connecting producers and consumers in NSMD systems is the so-called "chain-of-custody," which is essentially a monitored tracking system to ensure that only materials produced under the standards of a given system bear its label. Without the chain-of-custody, forest products consumers would have no guarantee that the products they purchase originate from well-managed forests (Kant 2001; Archer, Kozak, and Balsillie 2005). As of January 2006, FSC and CertFor websites list thirty-five chain-of-custody companies in Chile (see Appendix VI), though others⁹² also operate in Chile (e.g., Anderson Windows, Tembec) (El Mercurio 2003; Herbert 2003). Currently, there are nine CertFor-certified chain-of-custody companies; almost half produce higher-value goods through some form of manufacturing, but a majority focus on low value-added products (e.g., lumber, roundwood⁹³, wood chips and pulp) (see Figure 3.6). This difference is important for at

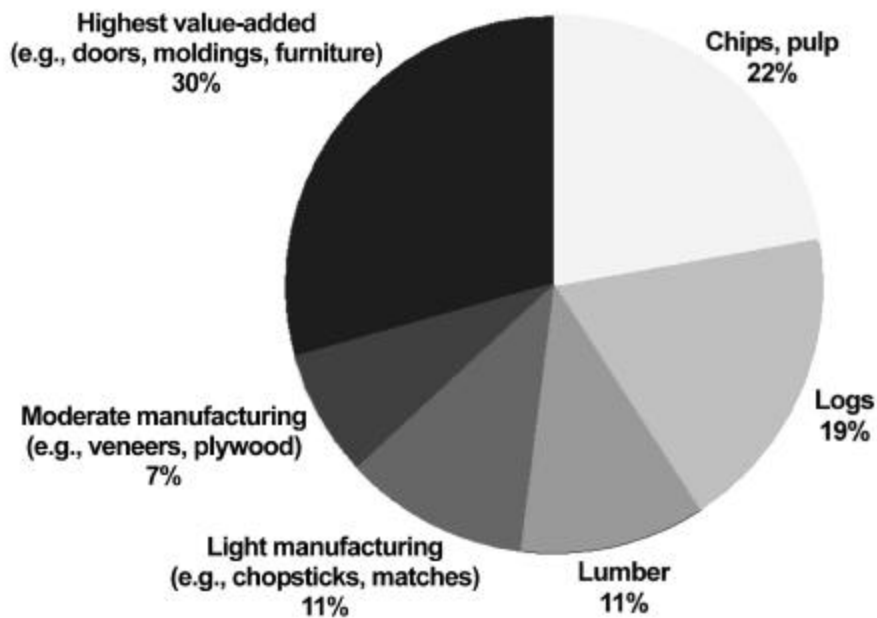
⁹¹ In Spanish, CORMA's full name is the *Corporación Nacional de la Madera*.

⁹² Identifying all such companies working in a given country is exceptionally difficult, since both systems identify certificate holders only by the national standards under which they were originally audited, and many of the most active chain-of-custody companies operate in multiple countries.

⁹³ *Roundwood* is the forest industry term for raw logs, while *lumber* has been milled (Dykstra and Heinrich

least two reasons: first, since producers are more likely to sell higher-valued goods directly to consumers or retailers, the chains-of-custody for such products are likely to be somewhat shorter. Second, if we assume that auditing costs are similar regardless of the goods produced, it is easier to internalize such costs in higher-value goods, since the same increase would be a smaller proportion of the sale price. With this in mind, it is also interesting to note that only one of CertFor-certified company produces high value-added goods (PROMOSA) (see Appendix VI).

Figure 3.6: Value-added by Chile's Chain-of-custody Companies



(Compiled from FSC 2006 and CertFor 2004. See Appendix 6.)

3.3.4 Third parties: civil society groups, expert services

Despite claims that “there are few NGOs in Chile” (Morales 2003b, p 9), Chile has a vibrant environmental movement that dates back to the 1960s (though most organizations were founded within the last two decades). Though the movement as a whole represents a range of interests, it is generally not perceived as especially radical (Rojas 1994). During military rule, environmental groups were a safe way for citizens to challenge government policies, since protecting Chile’s environment was seen as essentially patriotic and not a direct threat to the regime (ibid.). Such groups have been an important means of communicating civil society’s concerns (Neira, Verscheure, and Revenga 2002), and improving government responsiveness to perceived environmental problems (Price 1994). Chilean ENGOs are concerned with a range of forest issues, from protecting and conserving rare species and ecosystems, to improving the management of commercial forests. To achieve these goals, they pursue a variety of strategies, from public education campaigns and capacity building for small-scale landowners, to implementing and monitoring state-based and non-state forest policies (Neira, Verscheure, and Revenga 2002).

Chile’s oldest environmental organization, founded in 1968, is the Committee for the Defense of Flora and Fauna⁹⁴ (CODEFF 2005). As its name implies, **CODEFF** is principally concerned with problems that emerge from the exploitation of Chile’s natural resources. Through decades of original research, policy advocacy, and public awareness campaigns, the group has become one of Chile’s most important ENGOs (Silva 1996; Camus and Hajek 1998). Combining respected scientific expertise with political

moderation, CODEFF has been particularly effective in pursuing its agenda, even during the years of military rule (Clapp 1998). CODEFF has taken a leading role in the development of local FSC standards, initiating and serving as convener for those processes (Verscheure 2002).

The National Ecological Action Network⁹⁵ (**RENACE**) was created following a 1988 meeting of Chilean anti-nuclear and human rights NGOs in Mar del Plata, Argentina. As an umbrella organization for 140 ENGOs based throughout Chile (the smallest of which may have only 2-3 members), the Network provides a means of sharing information and resources, as well as coordination (RENACE 2003). Since its member organizations are both dispersed and diverse, the Network is more difficult to characterize (in terms of goals and strategies) than a single, unified organization. In the past, RENACE has been singled out for criticism by the native forest industry, and has been somewhat less successful than other ENGOs in influencing state policy (Clapp 1998).

Defenders of the Chilean Forest⁹⁶ was founded in 1993 by biologist Adriana Hoffman (former Director of CONAMA) and several other famous Chileans⁹⁷ (Clapp 1998). Its mission is to educate the public about Chile's native forests, to mobilize support to protect the country's old-growth forests, end the export of wood chips from

⁹⁴ The Spanish translation is the *Comité de Defensa de Flora y Fauna*.

⁹⁵ In Spanish, RENACE stands for the *Red Nacional de Accion Ecológica*.

⁹⁶ Translated, this becomes the *Defensores del Bosque Chileno*.

⁹⁷ Other founders include outgoing Chilean President Ricardo Lagos, and many famous writers and artists.

natural forests, and to restore Chile's secondary forests⁹⁸ (Brownie 2002). A highly active and high-profile organization, Defensores catalogues and analyzes examples of "best practices" of sustainable management in secondary forests, value-added strategies for the products of native forests, and runs a training program and technical support network for the owners of small-scale native forests (ibid.).

While international environmental groups have actively sought to influence Chile's environmental agenda since the return to democracy, relatively few have established local offices (e.g., Greenpeace). Others have supported local organizations by focusing international attention on environmental problems within Chile, sometimes in tandem with local groups. Those known to have an interest in Chilean NSMD policies are Greenpeace-Chile, Global Forestry Watch, the World Wildlife Fund and ForestEthics. Although these groups have been less significant players in the development of NSMD systems in Chile, ForestEthics' market campaign⁹⁹ in 2002 was a direct effort to promote awareness of the FSC system in both Chile and the United States.

Chile also has a thriving market for "environmental services" firms, which are often hired to help companies reduce their environmental impacts and otherwise fulfill regulatory requirements (Maggi and Kern 2000). As I explain in the following chapter,

⁹⁸ "Secondary forests" are those which re-grow (or are re-established) after "old growth" forests are destroyed (through harvest or natural disturbance) (Neira, Verscheure, and Revenga 2002).

⁹⁹ In late July, 2002 ForestEthics announced a campaign to promote FSC certification in Chile (El Diario 2002); it was immediately attacked as a boycott on all Chilean producers by CORMA (MINAGRI 2002). Three months later, ForestEthics purchased a full-page ad in the *New York Times* (with a picture of a suburban home amid a Chilean "clearcut") to encourage consumers to purchase only wood with the FSC label (ForestEthics 2002a, b). The ad appeared only in the paper's Eastern edition (González 2002; La Nación 2002a), but since Chile was in the final stages of negotiating a free trade agreement with the United States, the Chilean government and CORMA were especially sensitive to its possible impact (Nixon 2004b).

this is especially true for the growing use of NSMD policy systems, for which expert services are expected to perform critical tasks (EPA 1998). There are currently six firms in Chile that are FSC or CertFor-accredited to certify forest management or chain-of-custody firms: QMI, SGS, SmartWood, SCS, Woodmark, and IMO. **QMI** (Quality Management Institute), has certified the most forestland of any auditor in Chile (an area more than twice the size of Rhode Island) (CertFor 2006), and is also a major certifier for industry-designed certification standards in Canada and the United States (FERN 2001). **SGS QUALIFOR**¹⁰⁰ has certified over 15 million hectares and 190 forestry operations worldwide, and more than 1,000 chain-of-custody certificates in sixty-plus countries (SGS QUALIFOR 2006). Worldwide, SGS QUALIFOR has certified more land than any other auditing service (Thornber 1999); in Chile it is second only to QMI. It is also the only company in Chile accredited by both FSC and CertFor Chile.

SmartWood (founded in 1989 by the *Rainforest Alliance*) developed the world's first sustainable forestry certification scheme, and was instrumental in establishing the FSC in 1993 (Cashore, Auld, and Newsom 2004b). Based in Vermont, it is now the leading non-profit certifier, with the highest number of certificates issued worldwide (Thornber 1999; Rainforest Alliance 2006). California-based Scientific Certification Systems (**SCS**) also developed its own forest certification program in the early 90s (the *SCS Forest Conservation Program*), and was soon accredited as an FSC-certifier (SCS 2006). In 2004, SCS again began to provide its own “non-aligned” forest management certification (*SCS Independent*), intended as an alternative to other “potentially

¹⁰⁰ Incorporated in South Africa, SGS began as the French grain inspection service *Société Générale de Surveillance* (SGS 2006).

polarizing” certification systems (SCS 2006). SCS has currently certified only one forest company in Chile, the subsidiary of a company it had previously certified in New Zealand (SCS 2003; FSC 2006a). **Woodmark** is the forest management and chain-of-custody certifier of the UK Soil Association, an NGO founded in 1946 around the issues of environmental and human health as they relate to farming practices (Soil Association 2005). Accredited by the FSC in 1994, Woodmark is managed by EcoSylva Ltd., a UK-based international environmental consultancy that specializes in sustainable forestry (Soil Association 2003). Finally, the Switzerland-based **IMO** (Institute for Marketecology), with a twenty-year history of certifying organic agriculture at the international level (IMO 2005), has certified the largest number of forest management units of all certifiers working in Chile (FSC 2006b).

3.4 Major issues in Chilean forestry

Like many societies in the developing world, concern for environmental issues in Chile is a relatively recent phenomenon; most of this awareness has developed around issues directly affecting the majority of Chilean citizens, such as air and water pollution. Forestry issues have often been the topic of national debate¹⁰¹, but some in the forest industry have claimed that many citizens believe environmental damage is “exaggerated, or claimed to be self-corrective, either by market forces or by natural processes over time” (Caldwell 1997). In fact, industry support for forest certification has been self-

¹⁰¹ In 1997, the *Televisión Nacional* network (TVN) broadcast the very popular *Oro Verde* (“Green Gold”), a soap opera about a conflict between a fictional logging company (portrayed as greedy and insensitive to Chile’s natural beauty) and a small band of environmentalists. The show helped raise TVN’s ratings to nearly double that of its nearest competitors (La Tercera 1997).

described as a response to the “environmental sensibilities” of Chileans who want to see the country on a par with developed countries (Guillermo Geisse, quoted in Lignum 2001c, p 41).

There are a number of historical and ongoing fault lines dividing those most concerned with Chile’s forests and forest industry. Among the oldest of these is the question of balancing native forests and expansion of the tree plantation estate. By law, natural forests cannot be cut without a CONAF-approved management plan (Brownie 2002), but in reality few native forests are managed this well (Cloues 1990; Timber and Wood Products 1998). Reforestation has long been framed in terms of soil conservation (e.g., recovering “exhausted” agricultural soils) (Sandoval 2003b), but the practice of establishing monocultural plantations has led even forest industry supporters to raise concerns about the risk of disease outbreaks (Morales 2003b). While many environmentalists are concerned with lower biodiversity in these plantations, more often disputes center on the dominance of exotic species (e.g., pine, eucalyptus) in replanting efforts (Altieri and Rojas 1998; Flynn 2002), or perhaps most often, the decline of native forests (and the associated biodiversity) throughout Chile (Corcuera, Sepúlveda, and Geisse 2002; Neira, Verscheure, and Revenga 2002).

From the late 1980s through the mid-1990s, most concern about native forest protection focused on the exploding wood chip industry, which grew more than 150 percent each year between 1989 and 1995 (Canihuante 1997). The industry’s expansion was facilitated by a 1985 law (Nº 18.480), which offered a ten-percent subsidy for “non-traditional” exports (Republica de Chile 1985; Lowy 1995). Most wood chips were exported to supply Japan’s papermaking industry; since plantation species do not produce

high-quality paper (both pine and eucalyptus are softwoods), the industry was overwhelmingly supplied by hardwoods (i.e., native forests) (Crawford 1990). Since commercial use of native forests requires an approved management plan, applications for these grew more than fifteen-fold over the same period, far outstripping CONAF's limited monitoring and enforcement capacity (Collins and Lear 1995). To cover the mushrooming enforcement costs, in 1990 CONAF began levying a US\$1 per ton tax on sawmills (ibid.).

Although concern about the effects of such explosive growth has been critiqued by the forest industry as an example of European and American “imperialism,” (Guillermo Güell, president of CORMA, quoted in Crawford 1990), by 1994, concerns about long-term sustainability led the World Bank to fund an environmental audit by the Chilean Central Bank (Fundación Terram 1999). The study found that “given the primitive methods of forest management still common in Chile – wholesale cutting and burning, without reforestation – there might be no trees left worth felling within 25-30 years” (Economist 1996). The study was strongly attacked by both the government and the forest industry (Woods 2001), but a second study (this time by the French State Forestry Agency) largely confirmed the initial report (Economist 1996). It was not until a national forest inventory was completed in 1997 that the industry was able to directly counter claims that native forests were in dangerous decline¹⁰² (O’Ryan and Fierro 2000; Ministerio de Agricultura 2002).

¹⁰² Though this comprehensive survey appears to have been rigorously conducted, many Chilean environmentalists discount the results, arguing that “improvements” are merely an artifact of changes to the definition of what constitutes a “viable” native forest (interviews with author).

All of this controversy over the management of Chile's native forests has led to considerable interest in state regulation of native forests. However, disagreement about what this should entail (with ENGOs favoring strict rules, and forest industry interests typically resisting such efforts) has made it impossible for legislators to pass such a law. Alternative proposals for a "Native Forest Law" emerged periodically throughout the 1990s, but the passion and political power on both sides of the debate kept each from being passed and signed into law (Clapp 1998). Concerns about the distributional and equity effects of such a law (native forests are important resources for Chile's rural poor and are culturally significant to the country's indigenous communities) have complicated this process even further. It is in part in reaction to this impasse that forest certification was embraced by both ENGO and industry interests in Chile (discussed in Section 4.1 of the following chapter).

While issues of land ownership are more systemic in nature (and thus not limited to forestry), they have often been exacerbated by Chile's forest policies, as well as by the attitudes and actions of forest industry actors. The most dramatic of these (in terms of area) is the extreme concentration of reforested lands: *half* of all tree plantations are owned by just two companies, Arauco and Mininco (Carrere and Lohmann 1996; Arnold 2003). Such concentration has been justified as a necessary means of ensuring consistent supplies (Collins and Lear 1995), but it is also a contentious byproduct of D.L. 701. Just three companies received more than half of all subsidies (Cloues 1990); Arauco alone owns nearly twenty percent of the land planted under D.L. 701 (Collins and Lear 1995). By comparison, fewer than five percent of smallholders (those owning less than 50 hectares) were able to benefit from the subsidies. Large tree planters have also been

accused of pressuring smallholders to sell their land, restricting right-of-ways and employment opportunities (Quiroga 1996). Concentration of forest lands has thus made rural Chileans dependent on these large companies, even though the increased exports have not been matched by a growth in forest industry jobs. The military government's animosity to organized labor effectively destroyed forestry unions; today, most forest labor is part-time, or contracted to third-parties (Collins and Lear 1995).

Again, Chile has a problematic history with its indigenous peoples. Today, about three percent of Chileans (approximately 900,000) have native heritage (mostly Araucanian or Mapuche), and as is true throughout the hemisphere, indigenous people suffer from widespread discrimination and poverty (Silva 2002). Those who continue to live in or near their ancestral lands have had ongoing – and sometimes violent – conflicts with forestry companies and non-indigenous smallholders over tenure claims (Mery 1996; Neira, Verscheure, and Revenga 2002). While the Pinochet's government's emphasis on private property rights and free markets directly conflicted with Mapuche cultural values, democratic governments have since implemented policies that attempt to redress indigenous grievances, including purchasing ancestral lands from forest companies (Silva 2002) and protecting species of particular cultural significance (Clapp 1998).

Having laid out the political and economic context of Chilean forestry and state-based forest regulation, I now turn to the emergence of two alternative NSMD forest policy models in Chile. After relating the origins of forest certification at the international level, I will offer detailed descriptions of the accreditation, auditing and certification procedures of both FSC and CertFor, interpreting both systems as formal networks of

delegation and information, as I have done in this chapter. I then formally contrast both state and NSMD policy designs in Chilean forestry, and offer preliminary suggestions about what these results might mean in terms of the expected reliability of each as a means of policy delivery.

4 FOREST CERTIFICATION IN CHILE

[I]n this moment we face the possibility of leaving behind decades of degradation of our forests, and the related environmental and social conflicts. What is more interesting is that this will not be due to the force of one institution or person, but to the effort of all actors linked to the forest sector, articulated around a tool that permits economic activity, while protecting the environment in a context of social justice and efficient production.

Hernán Verscheure, CODEFF Forest Program Director,
ICEFI Working Group Coordinator,
from Verscheure 2002, p 8

We are anticipating a requirement that will soon appear across all external markets for forest products. ... Certification is also a response to the environmental sensibilities of those Chileans who have pushed to become equals to developed nations.

Guillermo Geisse, Director of CIPMA,
President of the CertFor Superior Council,
quoted in Lignum 2001, p 41

In the mid-1970s, concern about the state of the world's forests (especially in the tropics, but temperate and boreal forests, as well) began to spur activism on a global scale. Governments and international organizations responded to these pressures by attempting to draft agreements on the trade of forest resources, and emphasizing "sustainable" development assistance to tropical countries (Murphy and Bendell 1999). In 1983, the first ever international commodity agreement to include conservation measures – the International Tropical Timber Agreement (ITTA) – was signed at the UN Conference on Tropical Timber (Sizer 1994).

Non-state actors were active in these processes as well. In 1985, the World Resources Institute joined FAO, UNDP, and the World Bank in establishing the Tropical Forestry Action Program (TFAP), an effort to coordinate funding for the development of

National Forestry Action Plans (Rice, Sugai, and Bowles 1999). It is widely believed that the poor record of the ITTA and TFAP – as well as the failure to reach a binding global forest treaty at the 1992 Earth Summit – were the driving factors behind the rise of active NGO and industrial involvement in the development of market-based alternatives to such international agreements (Dudley 1995; Elliott 1999).

In 1988¹⁰³, Friends of the Earth UK published the *Good Wood Guide* to promote “environmentally or socially sensitive” forest products (Donovan 1996). Unfortunately, the organization had no way of guaranteeing that suppliers were following sustainable practices. Then, British craftsman Hubert Kwisthout set upon the idea of independently certifying forest companies to rigorous standards (Cashore, Auld, and Newsom 2004b). Kwisthout promoted his idea to environmental NGOs, who in 1989 (along with the British government) asked the ITTO to study the plausibility of labeling tropical woods (Elliott 1999), and established a certification working group with the retail giant B&Q¹⁰⁴ (Jones 2001). In 1990, the Rainforest Alliance’s SmartWood program issued the world’s first forest management certificate, to a company in Indonesia (Donovan 1996). A year later, Home Depot began selling SmartWood-certified non-timber forest products (Eisen 1996).

In the spring of 1991, the idea of a *Forest Stewardship Council* (FSC) was proposed at a meeting of wood consumers, traders, environmentalists, and human rights organizations in California. An organizational charter was written within a month, and by

¹⁰³ A detailed timeline of the development of forest certification (with special emphasis on Chile) can be found in Appendix III.

¹⁰⁴ B&Q is one of Britain’s largest retail chains, akin to Home Depot in the United States (Thomson 2005).

July, a first draft of the FSC's Principles and Criteria was finished (FSC 2003). The following spring, an interim board was elected in Washington, DC and began organizing a founding assembly (Elliott and Donovan 1996), which convened in Toronto in the first days of October, 1993. Over 130 participants from 25 countries attended, electing a Board of Directors that was tasked with developing rules and procedures for the organization, and pursuing extensive stakeholder consultations (Upton and Bass 1996). After a Secretariat was established in Oaxaca the following August, the membership approved the FSC's original statutes¹⁰⁵, principles and criteria (FSC 2003).

Although NGOs have always been key players in FSC's development, forest products companies have also been important. The FSC is a membership organization, with a three-chamber governance structure (environmental, social, and economic), each of which is further divided into northern and southern hemisphere groupings. The system follows an essentially corporatist model¹⁰⁶, with each sub-section and chamber having equal voting shares, regardless of the number of members in each (FSC 2002a). Thus, the relatively fewer forest company members from the global south have the same voting power as northern companies, as well as environmental or social chamber members from either hemisphere (FSC 2002b).

As the first global-scale NSMD governance system, the FSC has led the movement for stakeholder-based standards, with compliance verified by third-party assessors (Counsell 1999). As a label-based system, the FSC system was designed to

¹⁰⁵ FSC's implementation system is detailed later in this chapter.

¹⁰⁶ Marina Ottaway, who appears to be the first person to make this observation, argues that institutionalized cooperation between industry and civil society organizations threatens to weaken the best capabilities of each (Ottaway 2001).

achieve market premiums¹⁰⁷ for compliant forestry firms; label integrity is guaranteed through a “chain of custody,” where both harvester and processor firms are certified to system standards (FSC 1999c). These three features – stakeholder involvement, third-party monitoring, and “forest-to-store” tracking – have come to be seen as cornerstones of any trusted NSMD system (Frostbauer and Parker 1996; Archer, Kozak, and Balsillie 2005).

Since 1993, a number of alternative NSMD approaches have been developed to influence the management of temperate forests. These include the *Canadian Standards Association* and *Sustainable Forest Initiative* (SFI), as well as the Europe’s *Programme for the Endorsement of Forest Certification*¹⁰⁸ (PEFC), each founded by forest industry interests as alternatives to the FSC system (Simula et al. 2001; Anderson and Hansen 2003). Though most have been country-level responses (and thus less relevant to Chilean producers), the PEFC was established as an international alternative (Gulbrandsen 2004). Designed as a “mutual-recognition” framework, the PEFC allows for national-level variations on its general standards, and offers a common label to those certified under recognized member systems (PEFC 2005).

In the rest of this chapter, I describe the early history of forest certification in Chile, and the establishment of working groups for the FSC and the Chilean industry’s alternative system, CertFor. As with the major state-based forestry regulations of the previous chapter, I provide detailed overviews of both NSMD policies, and map the

¹⁰⁷ However, higher prices and larger markets are *goals*, not institutional features (CCIF 2002).

¹⁰⁸ Until the PEFC expanded its membership to non-European producers in 2003, it was known as *Pan-European Forest Certification* (Gulbrandsen 2004).

principal-agent relationships stipulated in the implementation designs of both these systems. Having established formal models of the relevant state and non-state systems currently operating in Chile, I then address the four structural hypotheses proposed in Chapter 2: *determinacy*, *political breadth*, and both *sequential* and *parallel complexity*. After revisiting one critical instrumental element of both NSMD systems (the chain-of-custody), I offer preliminary conclusions about the expected impact of these structural variables on the ability of each policy design to produce reliable outcomes.

4.1 The emergence of forest certification in Chile

Chilean forestry has drawn the attention of local and international civil society organizations, industrial interests, academic and professional scientists, as well as politicians, state ministries, and international institutions (Kaimowitz 1996). Chile's export-oriented economic strategy, in the context of growing environmental concern in destination markets (principally Europe and North-America) has meant that producers have begun to seek means of demonstrating their commitment to sustainable management in ways that can be communicated to those distant consumers (Lignum 2001f; CertFor 2002b). Because of Chile's high profile in policymaking circles, these efforts have the potential to affect areas far beyond the country's physical boundaries; both developed and developing nations are carefully watching the Chilean experience (Nef 1995; Maggi and Kern 2000).

Certification was first mentioned in Chilean public media in April 1994, just over six months after FSC's founding. Initially, interest primarily focused on state-based certification of forest management (Estrategia 1994b, a), though that summer ProChile

and the German Development Institute held a seminar on sustainable forestry and ecolabeling (Lagos T 1994). Both INFOR and Fundación Chile are said to have been interested in the topic as early as 1996 (Elliott and Donovan 1996), but I have found no other evidence suggesting certification-related activity in Chile during the following three years.

In June of 1997, CONAF and INFOR formed the *Working Group for Sustainable Forest Management*, which included CORMA, CONAMA, and the Foreign Relations Ministry. After extensive debate, NGOs such as Defensores del Bosque Chileno, CODEFF, Agrupación de Ingenieros Forestales por el Bosque Nativo (Association of Foresters for the Native Forest), and CIFAG (the Chilean Forester Association) were later asked to participate (Otero and Maluenda 1998; Schlegel and Echeverria 2001b). Funded by a European Community grant (Cerde and Lira 2001), the group sought consensus about “the meaning of sustainable forest management in the Chilean context” (Arnold 2003, p 323). While this group was not explicitly focused on certification or market-based solutions, lessons learned from this process later informed the development of CertFor’s standards (CertFor 2001b).

That November, the Director of SmartWood was invited to Chile to present a seminar on certification and the sustainable management of native forests (Chile Forestal 1997, 1998). Within six months, CODEFF had organized a Working Group to develop national FSC standards (FSC 1999b). Known as the *Iniciativa Chilena de Certificación Forestal Independiente* (ICEFI), the founders included more than thirty Chilean NGOs, institutions and businesses (Otero and Maluenda 1998; Schlegel and Echeverria 2001a).

Initially, Chilean industrial leaders resisted the idea of forest certification, believing that any demand for certified products was limited to a few environmental groups, an insignificant consumer block (Gayoso 2002). However, after Home Depot established Chilean offices and declared a “no old-growth timber” policy in 1999 (Bond 1999; Miranda 2002b), industry’s position softened. Certification (in the general sense) came to be seen as a means of protecting or expanding Chilean marketshare in North American and European markets¹⁰⁹ (Lignum 2001c; CertFor 2002d). By late 1999, the forest industry was publicly promoting the idea of certification (Estrategia 2000; El Sur de Concepción 2002). Perhaps not coincidentally, Chile and the United States entered bilateral trade talks the following month (USTR 2002).

The Chilean industry’s solution – following the lead of their counterparts in Northern countries – was to develop and promote an alternative program, to compete directly with the FSC. In the first days of 2001, the CertFor Working Group was officially formed (CertFor 2001b). There are currently two NSMD approaches competing for “marketshare” within the Chilean forest industry: FSC and CertFor Chile (each described in detail below). The relative merits of these programs is an issue of great contention in the Chilean forestry industry, and is regularly discussed within the popular media (Montalbetti 2002; Sustainable Chile 2002b). It has been claimed – similar to what had occurred with the failure to reach international agreements – that both emerged as alternatives to persistent impasses in state-based policy processes. Rather than face a

¹⁰⁹ Again, the United States is Chile’s largest single market, thirty-seven percent (US\$622 million) of the country’s forest exports (Lignum 2003c).

perpetual stalemate in public fora¹¹⁰, it was agreed that forestry “should be regulated by private agreements between resource owners and social interest groups, without additional legal restrictions of property rights” (Arnold 2003, p 323, citing interviews with Fernando Raga and Hernán Verscheure)¹¹¹. Today, Chile is among the world’s leading countries, in terms of the proportion of productive forests under some form of certification (Raga 2002b), with more than 13 percent of all forests (and at least 60 percent of tree plantations) certified under either the FSC or CertFor systems (CertFor 2004; FSC 2006; CONAF 2006).

4.2 ICEFI: the Chilean FSC Working Group

The FSC system was developed at the global level, but it is also designed to allow for standards developed by local stakeholders¹¹² (Nilson 2001). These “working groups” must reflect FSC’s approach to governance (with separate social, economic and environmental chambers), and be democratic, transparent and open to all interested stakeholders (FSC 1998). The directorate of Chile’s FSC Working Group thus includes representatives of forestry companies, unions, academics, and a number of NGOs¹¹³, elected for two-year terms (Verscheure 2002; Lignum 2003b). The ICEFI directorate is responsible for overseeing the process of developing local standards, ensuring these

¹¹⁰ See the discussion on recurring efforts to develop and enact a Native Forest Law, in Section 3.8 of the preceding chapter.

¹¹¹ Raga is the Development Manager for Forestal Mininco and Vice President of CORMA, both of which have been strong supporters of the CertFor process.

¹¹² Until local standards are approved, FSC allows certifiers to apply pre-approved “interim” standards, based on local ecological and social contexts (FSC 1998, Part 3.2 Sec. 2.2.3).

¹¹³ See Appendix V for a full listing of the ICEFI directorate members.

comply with FSC's Principles and Criteria, and serving as the main liaison with the FSC secretariat, which reserves final authority to recognize local standards (FSC 1998).

In Chile, the task of developing local FSC forest management standards has been divided into two technical committees: one focused on plantation management, and another on native forests (a third is concerned with public outreach and communications) (FSC 1999b). These committees began work in September of 1999 (Voces del Bosque 2002), a year after the Working Group was elected, and six months after the group had voted to apply to FSC for recognition as a national initiative (FSC 1999b). The technical committees developed draft standards, which were then subject to public review, field tests, and a vote by the full ICEFI membership, prior to being presented to the FSC secretariat for recognition (Lignum 2003b). The democratic nature of the process can be contentious¹¹⁴ and quite time consuming – ICEFI opened the draft standards for public review in May of 2004, but only recently finished the second period of public consultation, over four years after the process began (ICEFI 2005). Similarly, ICEFI was only officially recognized as a national initiative at FSC's 10th anniversary, held in Bonn in September 2004 (ICEFI 2004a).

Fortunately, FSC also permits forests to be certified under pre-approved “interim” standards until local standards are approved (FSC 1998). SGS issued Chile's first FSC certificate to Forestal Monteáguala (FAMASA) on January 5, 2001 (SGS QUALIFOR 2000). As of May 2005, over fifteen Chilean FMUs had been FSC-certified, for a total of

¹¹⁴ The Chilean environmental community has not uniformly supported the local standards. Disputes center on whether plantations should be called forests, how spontaneous regrowth of native trees should be accounted for within plantation management systems, and the fact that even-aged management (i.e., clear-cutting) is being discussed as an acceptable management technique within the Working Group. This last issue has led Defensores del Bosque Chileno to resign from the plantation standards committee, though not

423,553 hectares (FSC 2006a).

4.2.1 The FSC System

FSC implementation has three basic components: certifier accreditation; forest management unit (FMU) certification; and chain-of-custody (COC) certification. The accreditation and FMU certification systems are each designed to guarantee that forest managers follow FSC Standards, through monitoring by licensed third-party auditors (Crossley 1996). In this section, I describe and graph the authority and informational relationships between principals and agents for each sub-system in turn.

The FSC accreditation process (see Table 4.1 and Figure 4.1) begins when a firm wishing to become an FSC certifier applies to the secretariat. FSC representatives first visit the offices of the applicant firm to assess their management systems and consult with stakeholders, after which the evaluation team leader prepares a preliminary audit report. This is reviewed by FSC executives, who identify any non-conformities with FSC policy and develop measures for verifying compliance.

Once such requirements are satisfied, the applicant and FSC assessors visit a number of firms already FMU- and COC-certified, to perform audits and determine whether the applicant complies with all policies and procedures. Afterward, the leader of the FSC assessor team then writes a report on the issues raised during the field test, which is again reviewed by an FSC Regional Coordinator.

from ICEFI itself (WRM 2002).

Table 4.1: FSC Accreditation

*	FSC Certifier Accreditation	Source ¹¹⁵
A	Applicant contacts Secretariat about becoming FSC-accredited.	Sec. 1.1
B	FSC representatives visit applicant's offices to assess management systems.	Sec. 3.5
C	FSC representatives meet with local stakeholders.	Sec. 3.6
	Evaluation team leader drafts summary, reviewed by FSC executives ¹¹⁶ .	Secs. 3.8 and 3.9
B	Applicant and FSC audit at least one FSC-certified firm	Secs. 3.17 and 4
	FSC team leader reports on issues raised during field tests, reviewed by an FSC Regional Coordinator.	Secs. 4.15 and 4.16
A	FSC Regional Coordinator drafts accreditation report, reviewed by applicant.	Secs. 5.3, 5.4 and 5.5
D	Public summary is prepared by FSC Secretariat (required content is described in Section 6.3).	Sec. 5.9
	Public summary submitted to FSC Board, which may require additional actions or approve accreditation of the applicant.	Secs. 5.10, 5.11 and 7.2
	Ongoing compliance with FSC policies is verified by annual audits by FSC assessors of certification firms and at least one FMU/COC-certified firm.	Part 2.4, Sec. 4.1

* Letters correspond to the arcs in Figure 4.1

¹¹⁵ Unless otherwise noted, all references here are from Part 2.2 of the FSC Accreditation Manual (FSC 1999a).

¹¹⁶ While such actions could be interpreted in PA terms, the level of resolution in this analysis is the individual organization (e.g., firms or ENGOs). See Appendix II for details of how PA dynamics are operationalized here.

After discussing the results of the field test with the FSC Executive Director, the Regional Coordinator prepares a draft accreditation report that summarizes the findings of the assessment process to-date, and describes any pre-conditions for assessment. This is then reviewed by the applicant firm. A public summary of this report is then prepared by the FSC Secretariat, which is then submitted to the FSC Board, who have the authority to request additional information, or approve accreditation of the applicant. Continued compliance with FSC policies is verified by annual audits (performed by FSC assessors) of the certification firms and at least one of their certified FMUs or COC firms.

When a forest company (FMU) wants to become certified (see Table 4.2 and Figure 4.1), they apply directly to an accredited certification body (e.g., SmartWood, SCS), who is required to send them information about FSC certification procedures, fees, access rights, and confidentiality agreements, as well as the rights and obligations of certificate holders (i.e., the FMU itself). Applicants must then send the certifier an overview of the firm's forests, descriptions of the management system, type and quantity of harvested products, and a summary of the available human and technical resources. In addition, they sign a contract obligating them to comply with evaluation requirements, including monitoring, public consultation, and publication of audit summaries.

Table 4.2: FSC FMU Certification

*	FSC Forest Management Certification	Source ¹¹⁷
E	FMU applies to certifier, who sends information about FSC certification procedures, rights and obligations of certificate holders, audit contracts.	Sec. 3.22
F	Applicant signs contract obligating them to comply with all evaluation requirements.	Sec. 4.2.3
E	Applicant sends certifier information about firm's forests, management system, etc.	Sec. 4.2.2
E	Certifier informs applicant about scope of evaluation and standards applied.	Sec. 6.2
G/H	Certifier identifies and consults with local stakeholders.	Sec. 7.2
F	Certifier may make an initial "scoping" visit to applicant FMU.	Sec. 7.3.2
F	Certifier team visits applicant FMU to audit both office and field elements.	Part 1, Sec. 2.5
	Certifier team prepares a preliminary audit report.	Sec. 10.1.2
E	Before a decision is made, reports are assessed by applicant and two qualified reviewers <i>not</i> from assessment team.	Sec. 11.2
F	Reports, peer reviews, and stakeholder comments are reviewed by certification firm's management, which has final approval authority.	Sec. 12.2
I	If an assessment is approved, certifier prepares a public summary (required content is described in Part 3.3).	Sec. 13.2
	Certified FMUs are audited annually to verify compliance with FSC Standards and with any certification conditions.	Sec. 15.2

* Letters correspond to the arcs in Figure 4.1

¹¹⁷ Unless otherwise noted, all references are from Part 3.2 of the FSC Accreditation Manual (FSC 1999a).

Certification firms must ensure that both auditors and the applicant FMU are fully informed about the scope of the evaluation, the standards which will be applied, and similar preparatory information. Local stakeholders identified during the initial “scoping” visit (including government and civil associations) are to be contacted a month before the certification audit itself, and given sufficient information (e.g., FSC standards) to be able to contribute to the assessment.

During the field assessment, certifiers are required to maintain systematic procedures for all aspects of the audit: preventing conflicts-of-interest; stakeholder identification and consultation; indicators against which compliance with the standard is assessed; scoring methodology (for partial compliance); and more. Following the audit (which may last several days), the lead auditor prepares a final audit report, which must be reviewed by the applicant *and* two qualified experts (who may work for the certification firm, but cannot have been part of the assessment team).

All reports, peer reviews, and stakeholder comments are then assessed again by the certification firm’s management, which has final approval authority. If conditional approval is given, the applicant must sign a binding agreement to comply with the conditions before their certification is approved. Once an assessment is approved, a public summary report must be prepared by the certifier. Those FMUs which have functional systems for identifying and tracking harvested products (e.g., round logs) are eligible for a joint FMU-COC certificate. Those without such systems are only eligible for an FMU certificate; their products cannot be FSC-labeled, nor be part of an FSC chain-of-custody). When an FMU-COC certificate is issued, certifiers must also inform

the applicant of FSC's label use requirements¹¹⁸. Certified FMUs must be monitored annually to verify compliance with FSC Standards and with any certification conditions; certificates are valid for five years, after which the FMU must undergo another full audit.

Manufacturers who wish to be COC-certified with the FSC (see Table 4.3 and Figure 4.1) also contact certification firms directly, who are required to send them detailed information about COC certification procedures, detailed contractual information (e.g., fee, access, and confidentiality agreements), and the rights and obligations of certificate holders. In turn, applicants send certifiers descriptions of their products and suppliers, storage, transportation, and record-keeping systems, and manufacturing processes. They also sign a contract obligating them to comply with evaluation requirements, including monitoring and publication of audit summaries.

Table 4.3: FSC COC Certification

*	FSC Chain-of-custody Certification	Source ¹¹⁹
J	Firm contacts certifier about interest in COC certification	Sec. 3.22
J	Certifier sends information about COC procedures, rights and obligations of certificate holders, and contract information.	Sec. 3.22
J	Applicant returns information about products and suppliers, storage, transportation, and record-keeping systems, and manufacturing processes.	Sec. 4.2.2
K	Applicants sign contract obligating them to comply with all evaluation requirements.	Sec. 4.2.3
J	Certifiers inform applicants about scope of evaluation.	Sec. 6.2
K	Certifiers visit the applicant firm and perform a COC audit.	Part 1, Sec. 2.5

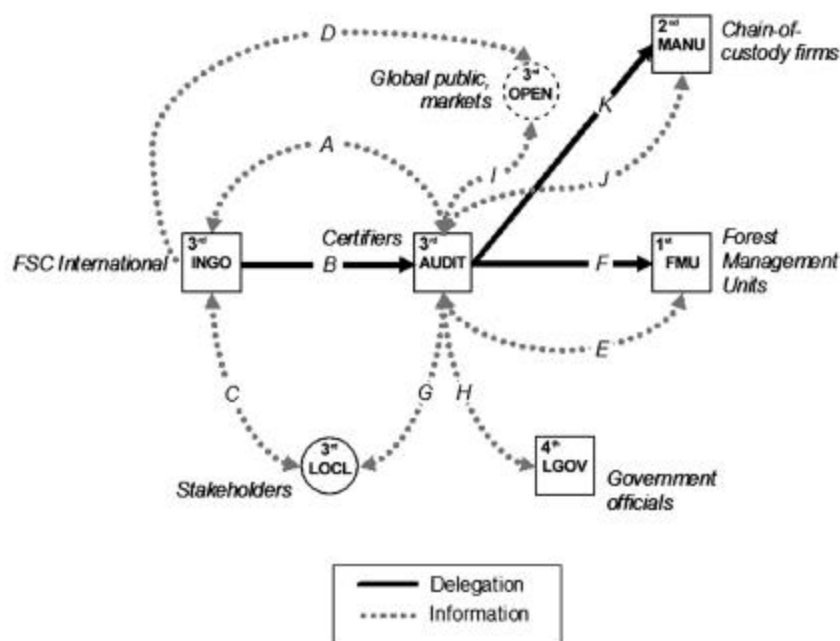
¹¹⁸ These are found in FSC On-product Labelling Requirements (FSC 2004b).

¹¹⁹ Unless otherwise noted, all references are from Part 3.4 of the FSC Accreditation Manual (FSC 1999a).

* FSC Chain-of-custody Certification	Source ¹¹⁹
Auditor prepares final audit report (required content described in Part 3.5).	Sec. 8.2
K Final audit report reviewed by individual or group chosen by certifying body (specified in Part 3.1, Section 5), which has final approval authority.	Sec. 9.2
I If assessment is approved, certifier prepares public summary (required content described in Part 3.5).	Sec. 9.2
J Certifier informs COC certificate holder of FSC label policies.	Sec. 10.2
COC firms audited annually to verify compliance with FSC Standards and any certification conditions.	Sec. 15.2

* Letters correspond to the arcs in Figure 4.1

Figure 4.1: FSC-Chile



As with the FMU audits, during a COC assessment, certifiers are required to maintain systematic procedures for all aspects of the audit, including: review of record

keeping systems; assessing the risk of “co-mingling” certified and non-certified materials; evaluating labeling processes; and more. After the audit, the lead auditor prepares a final audit report, which must be reviewed by the certification firm’s management, which has final approval authority. If conditional approval is given, the applicant must sign a binding agreement to comply with the conditions before the certification can be issued. After an assessment is approved, a public summary report must be prepared by the certifier, who also informs the applicant of FSC’s label use requirements, including the requirement that the COC registration code appear whenever the FSC label is used. Like FMU certificate holders, COC firms must be audited annually to verify compliance with COC Standards and with any certification conditions.

4.3 CertForChile (CertFor)

CertFor is the newest NSMD alternative available to Chilean forestry firms (van Hensbergen 2001), designed to be “more in line with the reality of forestry (in Chile)” (Miranda 2002b, p 42). Once industry began to seriously consider the environmental concerns of its destination markets (it was estimated that market losses could reach US\$122 million), they began searching for solutions that could give them an alternative to FSC processes (CORFO 2001; Schlegel and Echeverria 2001b). A product of governmental, industrial, academic, and NGO interests, CertFor is designed as a private, voluntary system, subordinate to Chile’s state-based regulation, including relevant international treaties¹²⁰ to which the country is a signatory (CertFor 2004a).

¹²⁰ This includes the non-binding *Montreal Process* indicators (CertFor 2001a).

Based partly on the PEFC and SFI systems, CertFor was designed as an alternative to FSC certification (Schlegel and Echeverria 2001b). Though its governance structure differs significantly, CertFor also emphasizes environmental, social, and economic values in its approach (CertFor 2001a; Cerda 2003). The standard “aspires to perfect the way in which plantations¹²¹ are managed” (Miranda 2002a, p 42), but most of all, CertFor’s founders wanted to create a locally controlled standard that would be internationally recognized, and thus serve to protect Chile’s markets in North America and Europe (Lignum 2001; CertFor 2003).

Over the latter half of 2000¹²², Fundación Chile, INFOR, CORMA, and CORFO¹²³ worked to form a working group to define national standards for plantation management, based on the standard developed by a similar 1999-2000 INFOR project, as well as consultation with national and international experts (CertFor 2001b; Lignum 2001b). The project was officially launched on January 5, 2001, organized into four hierarchical units: a *Superior Council*, the project’s highest authority; a *Technical Committee*, tasked with reviewing draft standards; *Working Groups*, responsible for developing draft standards and processes; and a *Secretariat*, charged with daily management duties (held by Fundación Chile during CertFor’s development phase). Both the Superior Council and Technical Committee include industrial and government

¹²¹ This standard was developed and approved within a 14 month window main objective was to “develop an internationally recognized national SFM standard for radiata pine and Eucalyptus spp. plantations, for natural lenga (*Nothofagus pumilio*) forests and second growth native forests” (CertFor 200, p 14).]

¹²² Though not publicly identified as such until April, CertFor had been in development for at least a half-year, with CORFO funding approved the September before, and the project’s Superior and Technical Councils chosen in October and December, respectively (Morales 2003a).

¹²³ The CertFor project was funded by CORFO (75 percent), forest companies (24 percent) and Fundación Chile (1 percent) (Cerda and Lira 2001).

representatives, as well as leading academics (CORFO 2001), elected¹²⁴ by CertFor members (CertFor 2003).

By the end of January, 2001 the Superior Council had approved CertFor's Principles and held the project's first organizational meeting. Over the following six weeks, the Working Group developed standards to address each Principle, which were then revised by consultants to ensure compliance with international standards and processes (CertFor 2001b). By late March, the first draft standard was submitted to the Technical Committee (van Hensbergen 2001). After field tests were completed (Dubé et al. 2004), the CertFor standard was publicly announced and opened for public comment in September, including a consultative workshop attended by a large number of NGOs, experts, and government representatives (Ambiente y Desarrollo 2001; Lignum 2001a). Following a second comment period in January, the Superior Council approved the final standard, just over a year after the project had begun¹²⁵ (Dubé et al. 2004).

Until CertFor signed an accreditation agreement with INN in July of 2004 (see below), the Superior Council assumed the authority to license certifiers. Following a field audits in early October 2002, IMO certified Promotora de Certificación Forestal, Ltda (PROCER) on January 21, 2003 (CertFor 2006). As of January of 2006, six FMUs had

¹²⁴ *A caveat:* I have found only a single reference that suggests this is the case. Given that both the Superior Council and Technical Committee were formed before the group's first organizational meeting (and that membership on those bodies remained unchanged afterwards), I suspect this is a creative interpretation of the term "to elect."

¹²⁵ By comparison, development of a CertFor native forest standard has taken much longer. In 2002, it was announced that Fundación Chile, INFOR and CORMA would work to develop a national management standard for native forests (Fundación Chile 2002a). The draft was undergoing closed evaluation in 2004 (CertFor 2003), but has yet to be publicly announced.

been certified to the CertFor standard¹²⁶, for a total of 1,552,420 hectares¹²⁷ (ibid.).

4.3.1 The CertFor System

Like the FSC, CertFor also implements its system through three basic processes, though these differ somewhat: auditor accreditation; certifier accreditation; and FMU and COC certification, both of which share the same procedural design (see below). To ensure that auditors are competent and follow CertFor Standards, both individual auditors and certification firms are accredited. As with the FSC, FMUs wishing to label their products must apply for joint FMU-COC certification (CertFor 2004a), although unlike the FSC, these processes – though not the standards applied – are identical. In this section, I describe and graph the authority and informational relationships between principals and agents for each of these systems.

The CertFor auditor accreditation process (Table 4.4, Figure 4.2) begins when an applicant completes a five-day Auditor Training, held periodically by CertFor personnel. Those wishing to become Lead Auditors must also have international experience with ISO 14001 or another standards-based certification system. To be accredited, a person then sends an application to the CertFor Executive Director, who reviews their qualifications and experience. If minimum requirements are met, the Executive Director then forwards the application to the CertFor Superior Council for approval. If the CertFor Superior Council approves, the auditor's name is placed on CertFor's list of accredited auditors, which is sent to accredited certification firms.

¹²⁶ Three of which are owned by the Arauco Group.

Table 4.4: CertFor Auditor Accreditation

*	CertFor Auditor Accreditation	Source ¹²⁸
L	Applicant auditor completes five-day CertFor Auditor Training.	Sec. 8.2.3
L	Applicant informs CertFor of interest in being CertFor-accredited	Sec. 8.1
L	CertFor Executive Director sends application form to applicant.	Sec. 8.1
	The application is reviewed by CertFor Executive Director.	Sec. 8.2
	If minimum requirements are met, CertFor's Executive Director sends application to CertFor Superior Council for approval.	Sec. 8.2.5
M	If Superior Council approves, auditor's name is placed on CertFor's list of accredited auditors, sent to accredited certification firms.	Sec. 8.4.1

** Letters correspond to the arcs in Figure 4.2*

Rather than handle certifier accreditation directly, CertFor has contracted this task¹²⁹ to INN. The process begins (Table 4.5, Figure 4.2) when the applicant firm contacts INN about their interest in becoming CertFor-accredited. Once a completed application packet and initial document review is received, INN's Accreditation Division sends an Audit Plan to the applicant firm. INN auditors then perform a field assessment of the applicant firm, applying a number of ISO standards (CertFor 2004a). After INN auditors observe the applicant firm performing a CertFor certification field assessment,

¹²⁷ This is nearly 6,000 square miles – an area larger than the state of Connecticut.

¹²⁸ Unless otherwise noted, all references in this section are from *Procedimiento para la Acreditación de Auditores* (CertFor 2003c).

¹²⁹ Until the INN contract was negotiated, CertFor certifier accreditation directly (CertFor 2003c).

the lead auditor writes an Audit Report identifying any non-compliance, which is then discussed with applicant firm. The INN Evaluation Committee reviews Audit Report and specifies any corrective actions. Once no corrective actions remain, the INN Accreditation Division sends a report to the INN Accreditation Committee, which sends an accreditation contract to applicant firm. To ensure that certifiers are complying with all INN and CertFor policies, INN assessors monitor the accredited firms annually.

Forest owners and manufacturers who wish to be certified under the CertFor system first contact an INN-accredited certification firm (currently, QMI or SGS). COC certification is required for anyone intending to use the CertFor logo, with the exception of FMUs that market directly to end consumers (CertFor 2004b). Only joint FMU-COC CertFor certificates have been issued to date, and since the process is virtually identical for COC certification, I will describe the process for these joint certifications.

Table 4.5: CertFor Certifier Accreditation

*	CertFor Certifier Accreditation	Source ¹³⁰
N	INN is contracted by CertFor to accredit certifying bodies	(CertFor 2002a)
O	Applicant contacts INN about becoming accredited as CertFor auditors.	Sec. 5.1
O	Applicant returns application packet to INN, pays document review fee.	Sec. 5.2
O	If application packet is complete, INN Accreditation Division sends an Audit Plan to applicant.	Sec. 5.3.3

¹³⁰ Unless otherwise noted, all references in this section are from *Reglamento para la Acreditación de Organismos de Evaluación de la Conformidad* (INN-Chile 2004).

* CertFor Certifier Accreditation		Source ¹³⁰
O ¹³¹	INN auditors perform field assessment of applicant, applying ISO 19011 criteria: <i>Guidelines for Quality and Environmental Management Systems Auditing</i> .	Sec. 5.4.3
O	INN auditors observes applicant performing a CertFor certification field assessment.	Sec. 5.6
O	Lead INN auditor discusses Audit Report with applicant, identifying any non-compliances.	Sec. 5.4.6
	INN Evaluation Committee reviews Audit Report and specifies any corrective actions.	Sec. 5.5
	Once no corrective actions remain, INN Accreditation Division sends report to INN Accreditation Committee.	Sec. 5.7.1
O	INN sends accreditation contract to applicant firm.	Sec. 5.8.2
P	Contract obligates applicant to all accreditation provisions.	Sec. 5.8.2
	INN assessors monitor accredited firms annually.	Sec. 5.9

* Letters correspond to the arcs in Figure 4.2

Once a forest company has sent an application (Table 46, Figure 4.2) and a description of its management system and resources to a certifier, the certification firm sends the applicant a Pre-Assessment proposal and contract, which obligates the applicant firm to Pre-Assessment processes (e.g., access rights, associated fees). Along with the signed contract, the applicant returns a list of stakeholders to the certification firm, which is cross-checked during the Pre-Assessment visit to the FMU. Afterward, the Lead Auditor drafts a Pre-Assessment Report, identifying the challenges the FMU would likely

¹³¹ Unlike other processes of the NSMDs described here, INN does not appear to require applicants to sign binding contracts prior to field assessments (though it does require payment before any action on its part). Prior to such obligation (e.g., the accreditation contract), INN assessments appear to be mere information sharing, with either party capable of ending the assessment process at any time (Sec. 5.4.8).

encounter during a full assessment, and sends a copy to the applicant for review.

Should the applicant chooses to continue, they sign a contract obligating them to Main Assessment provisions. The certifier then begins stakeholder consultation at least thirty days before the Main Assessment field audit. Following the Main Assessment, the Lead auditor drafts the Main Assessment Report, which is again reviewed by the applicant. Then the Main Assessment report and Public Consultation reports are submitted to a Peer Review panel of three experts, one of whom must be non-Chilean. If report passes Peer Review, all reports are then sent to the CertFor Superior Council, which holds the ultimate authority to issue certificates.

If the applicant is seeking either a joint FMU-COC or a simple COC certificate, and the Superior Council approves their assessment report, they are asked to sign a contract that obligates them to CertFor's Logo Use provisions. Once the certifier issues a certificate, they then delete any confidential information (previously identified as such by the applicant) from the Main Assessment Report, and make that edited report available upon request to stakeholders. To ensure that the certificate holder is complying with CertFor standards and implementing any required Corrective Actions, certificate holders are monitored annually. CertFor certificates are valid for up to five years, after which a new Main Assessment is required (CertFor 2004a).

Table 4.6: CertFor FMU and COC Certification

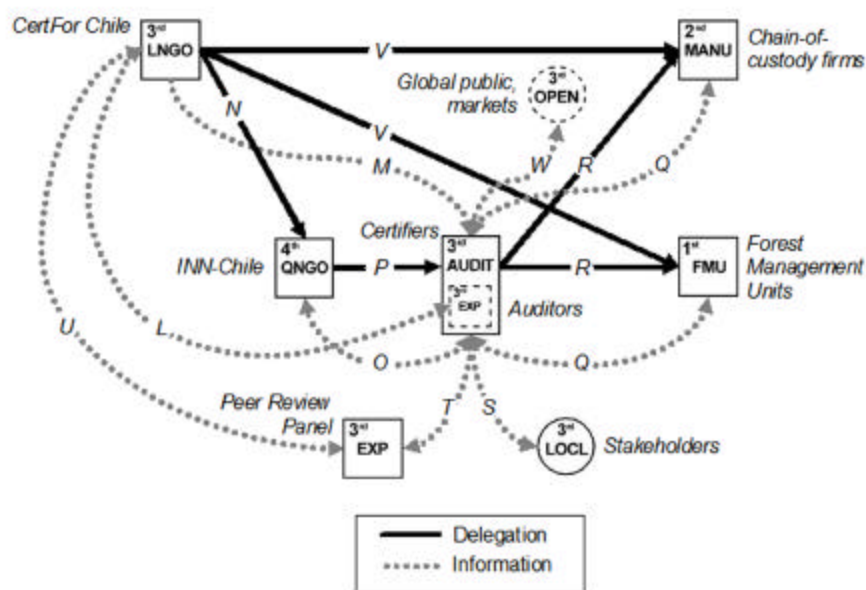
*	CertFor Forest Management and COC Certification	Source ¹³²
Q	Applicant contacts INN-accredited certification firm about interest in CertFor certification.	CertFor 2004, p 16
Q	Applicant returns application, including basic description of applicant's management system and resources.	CertFor 2004, p 16
Q	Certification firm sends applicant Pre-Assessment proposal and contract.	Pr. 4.5.1 Sec. 8.1
R	Applicant returns signed contract, obligating them to Pre-Assessment provisions.	Pr. 4.5.1 Sec. 8.1
Q	Applicants sends a list of stakeholders to certification firm.	Pr. 4.7 Sec. 8.1
R	Certification team visits applicant firm and performs a Pre-Assessment, cross-checks stakeholder list for comprehensiveness.	Pr. 4.5.1 Sec. 8.6; Pr. 4.7 Sec. 8.2.1
Q	Lead auditor sends Pre-Assessment Report to the applicant for review.	Pr. 4.5.1 Sec. 8.7, 8.8 and 8.9
R	Applicant signs contract obligating them to Main Assessment provisions.	Pr. 4.5.2 Sec. 8.1
S	Certifier contacts stakeholders and begins consultation process at least thirty days before Main Assessment.	Pr. 4.5.2 Sec. 8.5; Pr. 4.7 Sec. 8.2.2
R	Audit team visits applicant and performs Main Assessment.	Pr. 4.5.2 Sec. 8.7
P	Lead auditor prepares draft Main Assessment Report, reviewed by applicant.	Pr. 4.5.2 Sec. 8.7.7 and 8.9
T	Main Assessment report and Public Consultation reports are submitted to Peer Review.	Pr. 4.5.2 Sec. 8.10; Pr. 4.3.2; Pr. 4.7

¹³² References to "Pr. 4.5.1" are from *Procedimiento para la ejecución de la visita de pre-auditoria* (CertFor 2003e); to "Pr. 4.7" are from *Procedimiento para la Realización del Proceso Consulta Pública* (CertFor 2003g); to "Pr. 4.5.2" are from *Procedimiento para la ejecución de la visita de auditoria de certificación* (CertFor 2003d); to "Pr. 4.3.2" are from *Procedimiento de Revisión por Pares* (CertFor 2003b); to "Pr. 4.3.3" are from *Procedimiento de Decisión de Certificación de Transición* (CertFor 2003a); to "Pr. 4.4" are from *Procedimiento para la Emisión de Certificados* (CertFor 2003f); and to "Pr. 5.1.1" are from *Proforma Form Pre-evaluating Report* (CertFor 2003h).

*	CertFor Forest Management and COC Certification	Source ¹³²
U	If report passes Peer Review, all reports are sent to CertFor Superior Council	Pr. 4.5.2 Sec. 8.11
V	CertFor Superior Council has ultimate authority to issue certificates.	Pr. 4.3.3 Sec. 8.3
V	Applicant signs Logo Use contract, obligating them to Logo Use provisions.	Pr. 4.4 Sec. 8.5; Pr. 4.14
P	Certification firm issues CertFor Certificate to applicant	Pr. 4.4 Sec. 8.5
	Certification firm deletes information previously identified as confidential by applicant from Main Assessment Report.	Pr. 5.1.1 Sec. 12
W	Certification firm is to make edited Main Assessment Report available upon request.	Pr. 4.7 Sec. 8.6.1
	Certifiers perform annual audits to verify certificate holder is complying with (or exceeding) CertFor Standards, and implementing any required Corrective Actions.	CertFor 2004, p 17

* Letters correspond to the arcs in Figure 4.2

Figure 4.2: CertFor



4.4 Comparing implementation structures

Having established the rules, roles, and responsibilities of both public (Chapter 3) and private forest policy in Chile (this chapter), we are now ready to compare structural aspects of these implementation designs. In Chapter 2, I defined (see Figure 2.7) two minimal conditions for a policy to be considered regulatory: clear lines of delegation (i.e., *determinacy*) (Schneider 1987; Calvert, McCubbins, and Weingast 1989), and separation between principals and agents (i.e., *political breadth*) (Mitnick 1980). If we (momentarily, at least) ignore issues such as the relative capacity and self-interested behavior of actors participating in these systems, we can also compare structural features expected to produce slippage, understood as *sequential* (O'Donnell 1952; Pressman and Wildavsky 1984) and *parallel complexity* (Lyne and Tierney 2002; Nielson and Tierney 2003). To the degree that implementation designs differ along these dimensions, we may assume they vary in their structural capacity to achieve their stated aims – in other words, they may be ranked according to their reliability as means of policy implementation. Such differences can be expected to matter, regardless of whether such systems are based in state or non-state institutions, whatever their nominal goals or the strictness (or laxity) of their substantive standards.

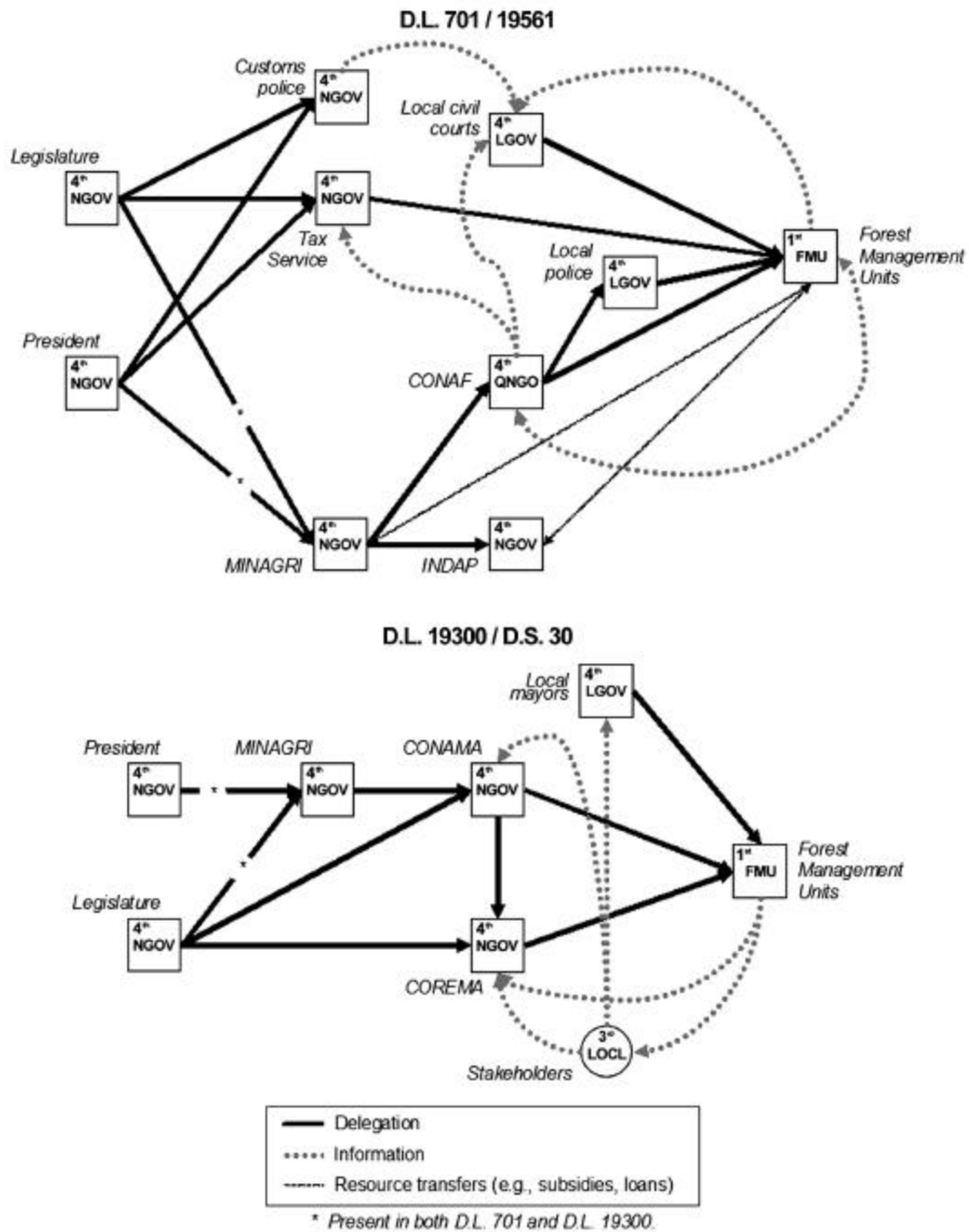
In the sections below, I compare these structural aspects of each of the four policies graphed in Chapters 3 and 4 (D.S. 701/19561, D.L. 19300/D.S. 30, reproduced in Figure 4.3, as well as FSC and CertFor), and conclude with a discussion of an often-overlooked feature of NSMD implementation, the chain-of-custody. I revisit these results in the concluding chapter, placing them in the richer qualitative context, and noting their significance in light of the results of the social distancing tests of Chapter 5.

At the most fundamental level, reliable policies (regulatory or otherwise) must clearly identify the roles and responsibilities of those tasked with implementation (Schneider 1987; Wood and Waterman 1991). These “commitment rules” assure other actors that the short-term self-interest of implementing agents will not negatively impact their shared goals (Cutler, Haufler, and Porter 1999). In more basic terms, the clear assignment of responsibilities is critical to reliable implementation (Mitnick 1980; Lyne and Tierney 2002). Therefore, for a policy to produce consistent and reliable outcomes, all implementation roles must be formally defined – they must be *determinate*.

Since each of the policy systems under consideration here (see Figures 4.1, 4.2 and 4.3) can be graphed¹³³, it appears this fundamental aspect of policy reliability has been met by all systems. While there is arguably some question as to whether some organizations should be considered as 3rd or 4th-party institutions (e.g., Fundación Chile), this does not affect the determinacy of the policy design itself, as the relationships between all institutions have been formally defined. Thus, each of the systems considered here appear to meet the minimal condition of determinacy.

¹³³ Of course, the level of analysis dictates the level of detail. Though each of these policies prescribes several *intra*-firm processes (e.g., internal review requirements), I did not graph such features, since the focus on *delegation* led me to choose institution-institution (i.e., firm-firm) dyads as the relevant level of observation (see Appendix II).

Figure 4.3: Chilean State Regulation



If delegation can be understood as a “distance” between principal and agent, then the same idea can be extended to relationships between *types* of actors. Since the interests of 1st and 2nd-parties are interdependent *by definition*, reliable implementation cannot be based on direct delegation between such actors (Taylor 1958). This is especially true of

policies that are regulatory in nature – those designed to restrict a subject’s choice of activity (Mitnick 1980). In other words, for a policy to be expected to produce consistent and reliable outcomes, there can be no direct delegation between 1st and 2nd-parties – it must exhibit this minimal *political breadth*. As we can also see from the delegation graphs (Figures 4.1, 4.2, and 4.3), no such delegation relationships are found in any of the policies considered here. Thus, each of these systems appears to exhibit sufficient political breadth.

Regardless of whether goal conflict is assumed or not, slippage is likely to increase with the number of delegation relationships in a delegation system (O'Donnell 1952; Pressman and Wildavsky 1984). As in the children’s game *Telephone*, as chains grow longer (i.e., *sequential complexity*), the likelihood of slippage increases (Pressman and Wildavsky 1984). Since this constraint can only be expected to compound other factors, it does not matter whether goal conflict actually exists – *ceteris paribus*, a policy is likely to be as reliable as other alternatives, only if its sequential complexity is no greater than that of the alternative systems. In the implementation networks in Figures 4.1, 4.2, and 4.3, the maximal sequential complexity is the number of links in the longest (directed) path between principals and agents.

As we see in Table 4.7, Chile’s state forestry regulation appears to exhibit the greatest sequential complexity. For D.L. 701/19561, this path leads from either the legislature or president, through the Ministry of Agriculture, to CONAF, local police, and finally the policy targets, individual forest management units (FMUs). For D.L. 19300 / D.S. 30, the longest path follows from the legislature through the Ministry of Agriculture, to CONAMA, the regional COREMAs, and on to individual FMUs (see Figure 4.3).

Although links between the legislature, the president, and the Ministry of Agriculture are shared by both policies, the level of sequential complexity is not changed when both policies are considered together.

Table 4.7: Structural Complexity

Policy	Figure	Sequential	Parallel
D.L. 701 / 19561	4.3	4	6
D.L. 19300 / D.S. 30	4.3	4	5
All state forestry regulations		4	11
Forest Stewardship Council	4.1	2	0
CertFor Chile	4.2	3	2

Of Chile's two NSMD systems, CertFor exhibits slightly greater sequential complexity, as found in the paths from the CertFor Secretariat to INN, certification firms, to either FMUs or chain-of-custody (COC) firms (see Figure 4.2). Although the CertFor Secretariat links directly to both policy target types (sequential complexity = 1), since the system requires the participation of both INN and certification firms, to ignore these actors would be to ignore key features of that policy's design. In addition to exhibiting the lowest apparent sequential complexity, the FSC system appears to have the fewest delegation relationships overall, from the FSC Secretariat, to certification firms, to either FMUs or COC firms.

Slippage can also be expected to emerge when contracts are established between multiple principals and a single agent (i.e., *parallel complexity*), whether or not goal conflict is assumed (Lyne and Tierney 2002; Nielson and Tierney 2003). As with

sequential complexity, we can expect ‘hoise’ (e.g., differences in how policy goals are communicated) when multiple principals communicate “simultaneously” with agents. Thus, even where multiple principals share preferences, some information loss may be expected at each contractual link. *Ceteris paribus*, a policy is as likely to produce reliable outcomes as alternatives, only if its parallel complexity is no greater than that of other policy systems. In the implementation networks of Figures 4.1, 4.2, and 4.3, parallel complexity is determined by identifying all “recipients” of more than one delegation relationship, and summing the total number of additional incoming links for those agents.

As Table 4.7 also shows, parallel complexity appears to vary much more than sequential complexity. Again we find state regulation of forestry to show the greatest complexity. D.L. 701/19561 arguably includes a greater variety of instrumental approaches (e.g., subsidies, loans, tax holidays, direct monitoring) than any of the other systems, which may be reflected in its marginally greater parallel complexity. It is also the oldest policy considered here, and thus may have more “institutional legacies” to contend with¹³⁴. While there is little difference in the number of multiple principal relationships found in each of the two state policies, they each exhibit dramatically more parallel complexity than either NSMD approach, even when each is considered in isolation. Such differences are even starker when both state regulations are combined, as parallel complexity is cumulative¹³⁵ across policy systems (unlike sequential complexity).

¹³⁴ Since some policies develop within rich institutional contexts, certain tasks may fall under the purview of multiple, pre-existing institutions. It is also possible that such diversity may emerge over time, as new features are assigned, or as existing institutions vie for control over political or other resources associated with policy implementation (see North 1990).

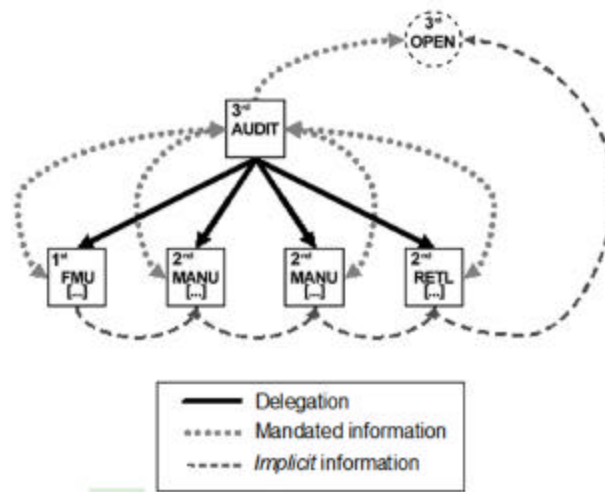
¹³⁵ Since relationships between the legislature, the president, and the Ministry of Agriculture are shared by both policies, we need only account from them once.

Of the two NSMD systems, CertFor also appears to exhibit slightly more parallel complexity, though the direct relationships between the CertFor Secretariat and its policy targets may actually be designed to reduce any slippage caused by the serial complexity of that system. While the temporal sequence of relationships between principals and agents in the CertFor system may serve to minimize the impact of such complexity (the only link between the Secretariat and policy targets is the final decision to grant a certificate), such multiple-principal relationships are completely absent in the FSC system.

4.5 The weakest link: sequential complexity and information

Thus far, the non-state approaches in Chile appear to be clear improvements over state forest policies in structural terms – both NSMD systems seem to exhibit lower sequential and parallel complexity. If we were to judge the relative merits of state and non-state approaches based on this evidence, we could reasonably conclude that the latter are more likely to be capable of producing reliable outcomes. However, there are good reasons to believe that such conclusions might be premature. As market-driven labeling systems, both FSC and CertFor include a chain-of-custody instrument, designed to assure both consumers and producers that only products from certified forests bear their labels (CertFor 2004b; FSC 2004b). While the minimal features of these instruments were graphed in Figures 4.1 and 4.2 (as described by the policy documents of each system), chain-of-custody systems for commodities are likely to be much more complex in practice (Dickson 2001).

Figure 4.4: Chain-of-Custody Mechanisms



Consider how the chain-of-custody is expected to function: reliable connections between producers and consumers require every processor, manufacturer, wholesaler and retailer that purchases certified materials to be certified (see Figure 4.4). The requirements for chain-of-custody firms are generally simpler (e.g., auditable material-streams), but without a COC certificate, firms cannot sell their products as certified (Egestad 2001; Borregaard et al. 2002). In structural terms, this means that although delegation chains between Secretariats, certifiers, and applicant firms remain relatively short, the informational chains may in fact be quite long – an alternative source of *sequential complexity* that has generally been ignored. Since participation in non-state systems is voluntary, the magnitude of such complexity will vary according to the economic strategies of the participants. The *voluntariness* of non-state policy introduces a degree of *indeterminacy* to any NSMD system, a factor that appears to be especially problematic for chain-of-custody instruments. Maintaining the chain requires each actor to enter contracts with certified suppliers *and* purchasers – each of which must have also

entered contracts with the same certification system¹³⁶. **In policy systems where participation is voluntary, and global commodity markets where production chains may in fact be quite long, chains-of-custody are likely to be both indeterminate and sequentially complex.** Moreover, such instruments would appear to substantially increase transaction costs over either market processes or state-based regulatory approaches alone. If the effectiveness (or persistence) of NSMD systems depends on maintaining auditable linkages between producers and consumers, such structural factors may in fact nullify any improvements that such approaches may offer over state-based implementation.

Thus far, I have established that the challenge of producing cooperation among increasing numbers of participants need not be based solely on self-interested behavior (e.g., Olson 1965), but may occur simply because no act of communication is ever perfect, regardless of participants' motives. However, we can predict this process to be even more difficult as participants' direct knowledge of one another declines (Akerlof 1970). Indeed, this is exactly the problem which certification is intended to address (Cason and Gangadharan 2002; Strausz 2003). There is no reason why we should not expect policy systems which span significant distances (however the term is defined) to be vulnerable to the same sort of informational limits. As Thomas Princen has observed, "...as geographic and cultural distance increase, disparities in information, especially ecological information, increase" (Princen 1997, p 245). State regulatory processes may be geographically constrained, but in today's world market-based systems are often

¹³⁶ Although some certification systems have signed "mutual recognition" pacts (e.g., PEFC and CertFor), supporters of other forest certification approaches (e.g., FSC) have strongly resisted this approach.

implemented at regional and global scales. If it is true that informed consumers are a critical necessary condition for functional market-based systems (Teisl and Roe 1998, 2000), factors that limit communication may ultimately limit policy success. It is this question that I turn to in the next chapter.

5 SLIPPAGE, DISTANCE, AND INFORMATION

[FSC's] communications strategies within the country will consider different levels, from professionals in private businesses and public services, to the general public. ... To maintain a level of public awareness, it will be key to maintain regular communication, through newspaper articles and other media reports.

Otero 1998, p 2

[T]ransactions are problematic when an agent's actions cannot be observed and when asymmetries in information and differences in incentives between the principal and the agent are prevalent.

Princen 1997, p 247

The literature on asymmetric information in markets has underscored the “role of reputations to improve efficiency” (Cason and Gangadharan 2002, p 114), and certification itself is seen as a means of providing reliable information about actor reputations (Miller 1992; Golan, Kuchler, and Mitchell 2000; Strausz 2003). Indeed, the ultimate success (or failure) of any given NSMD system may depend on its ability to communicate relevant information to consumers (Teisl, Peavey, and O'Brien 2001). As market-based systems, NSMDs are predicated on the informed consumer's ability to influence producers through their purchasing behavior (Cashore, Auld, and Newsom 2004a), but this requires that consumers are exposed to information about one of two things: the firms themselves, or the labeling systems in which they participate.

Ignoring (for the moment, at least) the potential for person-to-person communication¹³⁷ (e.g., chain-of-custody systems) to produce error at larger scales,

¹³⁷ While the potential certainly exists for informational asymmetries to exist between the principals and agents who are formally (contractually) engaged in these systems, I will not discuss them here, for two reasons. First, the structural conditions which can be expected to give rise to such problems (i.e., multiple principals and lengthier delegation chains) have already been discussed and shown to be roughly

“broadcast” strategies (e.g., newspapers, journals) may circumvent the limitations of sequential complexity by “skipping ahead” – communicating relevant details directly to those further along (Rodenstein and Donath 2000). Thus, actors throughout the product chain may learn of NSMD systems indirectly, from reports or press releases published in newspapers or journals. However, even as cultural factors have been shown to compound error in sequentially complex communications systems (Kashima 2000; Barner-Rasmussen and Bor 2005), we should expect limits to the efficacy of broadcast strategies, as well. In particular, global-scale systems could be expected to experience problems of geographical, cultural, or epistemic distance (Princen 1997; Conca 2001; Bendix and Liebler 2003).

In this chapter, I develop and apply an empirical test of the certification-related content in publicly available communication about forest certification. If informed consumers are a necessary condition for functional market-based systems (Teisl and Roe 1998; Teisl, Roe, and Levy 1999), consumers who lack information about market choices will be unlikely to reward “good” producers any more often than “bad” ones, reducing incentives for any producer to act responsibly (Princen 1997). Since NSMD systems are predicated on effective communication between producers and consumers, factors that influence information quality can also be expected to impact the effectiveness and ultimate success of NSMD systems.

For global markets, such as those which exist for forest products, the physical distance between producers and consumers is likely to have a profound effect on

commensurate across these NSMD systems (though *ceteris paribus*, state regulation is less likely to be vulnerable to slippage, due to chain-of-custody instruments). Second, deception could be expected to afflict both state-based and NSMD systems, and I am not qualified to make definitive judgments about actor

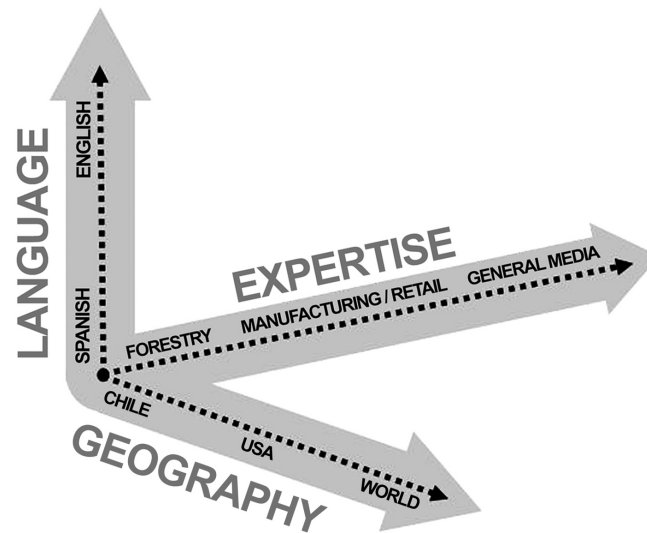
consumer knowledge (Princen 1997). But geographical scale is only one factor which influences the spread of new knowledge; as I argued in the second half of Chapter 2, other factors (e.g., language, epistemic framing) may also be important (Sastry and Rao 1952; Muttagi 1975; Dickson and MacLachlan 1990). Known collectively as “social distance,” we can reasonably expect these factors to influence communication between producers, certifiers, and buyers. Indeed, a broad understanding of social distance (including geographical separation) may provide significant insight into the function of global markets (Dickson and MacLachlan 1990). *Ceteris paribus*, as distance increases, we can expect both the availability and quality of origin-specific information to decline (Princen 1997). Again, when markets fail to provide feedback (especially in a positive sense) to producers, market-based policy approaches cannot be expected to succeed as a means of providing or ensuring public goods (Princen 1997, 1999), or even survive as market competitors (Teisl, Roe, and Levy 1999; Teisl, Peavey, and O’Brien 2001).

Geographers and media researchers have long studied the potential for physical distance to influence news coverage (e.g., Molotch and Lester 1974). For global-level NSMDs that attempt to function in large and disparate markets, news media serve as a critical means of communicating such information, and thus shaping attitudes and behavior (Bendix and Liebler 2003). Indeed, it is difficult to conceive of how a global-scale NSMD could work without leaving significant evidence of its activities in the mass media. By tracking coverage of forest certification generally, as well as the specific stakeholders engaged in developing, implementing, and promoting NSMD systems, it should be possible to measure and assess the information available throughout the market

claims in this issue area.

chain. By separating sources by geography, language and professional audience (see Figure 5.1), we can draw inferences about actors' awareness of the issues in each media segment, and thus measure the relative impact (if any) of each social distance factor considered here. For the purposes of this comparison, I make quite optimistic assumptions about information quality, ignoring issues of accuracy by presuming (for the moment, at least) that *any* news facilitates “informed” consumption.

Figure 5.1: Social Distance Dimensions



The remainder of this chapter is structured as follows: I begin with a discussion of content analysis as a method¹³⁸, then explain how I identified the specific terms and categories used in this analysis (as well as the justification for excluding other terms). I then describe the technique used to identify variations in content across media segments

¹³⁸ To preserve readability, I offer a detailed explanation of the techniques applied in this chapter in Appendix II. That discussion includes: a comparison of manual and computer methods; the exact means by which I identified and controlled sources; description of the process and limitations of translating the coding sheet into Spanish; the technique used to reduce “false positives” in the article pool; and calculating the validity rate of the computer-based method. Additional source material (e.g., sources used by year and media segment, as well as their availability throughout the period of study, etc.) is also included in the

(i.e., dimensions of social distance), and to establish when cross-segment comparisons are statistically valid. Before describing the results of that analysis, I briefly revisit the social distance framework which I detailed in Chapter 2, emphasizing the relevance of each factor to Chile's forest products industry and the NSMDs competing in that market. Following a discussion of the hypotheses test results, I compare the relative availability of information on each NSMD and its stakeholders, as well as several unanticipated patterns which emerge from the analysis, and discuss how these might impact our interpretation of the other results.

5.1 Analyzing message content

The analysis of text (broadly conceived) is the foundation of traditional social science research (Roberts 1997). As a principal means of communication, text provides a record from which theories can be developed, and against which they can be tested (Bernard and Ryan 1998). Over the past century and more¹³⁹, scholars have developed a broad range of techniques to systematically analyze lexical or grammatical patterns, or even the semantic meaning of texts, and to track such content across time and space (Danielson and Lasorsa 1997). Fifty years ago, the communications researcher Bernard Berelson established the seminal definition of content analysis: "a research technique for the objective, systematic, and quantitative description of the manifest content of communication" (Berelson 1971, p 6). While others have posed more nuanced definitions (e.g., Krippendorff's: "a research technique for making replicative and valid inferences from data to their context," 1980),

Appendix.

¹³⁹ In the late 19th century, researchers often compared the "column inches" of newspaper coverage of

the emphasis has always been on *systematic* means to describe content, test hypotheses, or otherwise compare messages to experience (Wimmer and Dominick 2000).

The variety of methods is impressive; building from what is essentially a comparison of text strings (e.g., full or partial words, sentences, paragraphs, pages and documents), it is possible to identify lexical, grammatical, semantic and/or conceptual features (Bernard and Ryan 1998). An early lexical analysis technique was *concordance*, by which all unique words within a document (or corpus) are tallied, along with their rates of incidence (Krippendorff 1980). Based on inferred relationships between word occurrence and document content or authorship, researchers can map semantic differences and author characteristics, even to the point of being able to identify gender (Corney et al. 2002; Koppel, Argamon, and Rachel Shimoni 2002). In other words, once researchers develop systematic rules for sorting words and phrases into categories (semantic or otherwise), it is possible to statistically compare the degree to which texts represent such concepts (Rosenberg, Schnurr, and Oxman 1990; Riffe, Lacy, and Fico 1998). This “thematic or dictionary-based” approach has been used by researchers since the early 1960s; though the technique has been criticized as “linguistically unsophisticated,” it is still considered to be appropriate for many research questions (Evans 2002). Virtually all dictionary-based analysis is now performed with computers (Züll and Landmann 2004); this makes the process “entirely reliable,” but does not guarantee the validity of the inferences between the occurrence of particular text strings and larger theoretical concepts (Bernard and Ryan 1998, p 616-17).

various issues (Bernard and Ryan 1998).

To understand how information about certification and Chilean NSMDs and stakeholders is communicated throughout the global forest products market chain¹⁴⁰, I identified 197 certification-relevant articles from Chilean media, and 1,899 more¹⁴¹ from LexisNexis' *Academic Universe*. LexisNexis' database not only includes a very large number of geographically disparate sources¹⁴² (Bendix and Liebler 2003), but other features of *Academic Universe* enable me to control for factors such as the location, language and target market of each publication. It is regularly used by media scholars as a source of content (e.g., Bengston and Fan 1999; Bendix and Liebler 2003; Boykoff and Boykoff 2004; Koenig and MacMillan 2004), as it offers easy access to an enormous variety of media outlets (Tankard Jr, Hendrickson, and Lee 1994). However, I have gone one step further, using features of *Academic Universe* as analytical tools – a technique suggested by Tankard Jr. et al., in 1994 (p 6). Briefly, the procedure is as follows: first, I identified terms that could be combined to identify articles on the general topic of forest products certification within each publication (which LexisNexis separates by scale, location and language). I identified approximately¹⁴³ 225 publications (including 29 in

¹⁴⁰ I chose this simple quantitative method over more qualitative approaches because I did not want to be in the business of interpreting the “character” of news coverage. This technique (despite its clear limitations) enables me to interpret the results with more confidence. At any rate, any distinctions between the qualitative and quantitative aspects of this research should not be overdrawn – many of the articles used in this chapter's analysis have informed the more explicitly qualitative approach of the earlier chapters. Moreover, the technique used here is still based on qualitatively defined categories.

¹⁴¹ This included every article that addressed forest certification and at least one of the NSMD systems in this study between March 1st 1991 (the first such article) and July 21st 2004 (the last date I gathered such data), with an estimated false-positive (i.e., non-relevant articles) rate of 12.2 percent. See Appendix II for details.

¹⁴² LexisNexis currently indexes more than 5,600 newspapers, magazines, journals, newsletters, news wires, and news transcripts worldwide, including 77 in the Spanish language (2005).

¹⁴³ This figure includes a number of false-positives (articles not genuinely related to the certification of forest products), estimated to occur in the overall article pool at the rate of 12.2 percent. See Appendix II

Spanish) that mention at least one of the NSMD systems active in Chile. After developing parallel coding dictionaries in English and Spanish (discussed in the following section), I used the “Search Within Results” feature of *Academic Universe* to identify the number of articles within each general search containing terms from each dictionary category. Again, by rigorously controlling the source publications, I was able to separate them by location¹⁴⁴ and target audience. Once I completed all searches¹⁴⁵, I then combined sources according to their social distance “location,” and calculated the proportion at which each category was mentioned within each. Articles published in Chile (few of which were available in electronic format) were hand-coded and aggregated in a similar manner.

There are three essential premises upon which this analysis is based. First, that the amount of news coverage can influence public opinion, an assumption that has been repeatedly supported in media research (e.g., Graham and Dziuban 1996; Bengston and Fan 1999; Bendix and Liebler 2003). Second, that the “amount” of issue coverage can be derived from lexical analysis – that is, by looking for specific terms across all articles available within a given media environment – also a well-established research technique (Bernard and Ryan 1998; Bendix and Liebler 2003). Third, that the relevant issues, actors, and concepts have been accurately and sufficiently represented in the terms and

for details.

¹⁴⁴ Clearly, not all publications are equal. For example, although I have treated The New York Times as a US paper, it is read worldwide – and by many more people than the majority of the other US papers used in this analysis (e.g., regional papers, journals).

¹⁴⁵ There were 129 pool-generating searches (based on the way LexisNexis organizes its sources and the incidence of relevant articles), each of which was again searched against 27 categories (3,483 actual searches in total).

categories used for the analysis. There is no simple response to this last challenge, as the appropriateness of any analytical approach is ultimately a subjective judgment, albeit one we might hope is well-informed.

5.2 Coding for content

Clearly, the most critical element of this approach is the development of a valid coding dictionary. This is generally understood to be a labor-intensive exercise (Züll and Landmann 2004), as researchers must identify not only the set of theoretically relevant concepts – and the strings that uniquely represent them – but also repeatedly test these against the text corpus (Bengston and Fan 1999). The process is iterative, with researchers working back and forth between category formulation and search results, until the dictionary is seen¹⁴⁶ to represent valid relationships in the data (Bernard and Ryan 1998). Text strings that are ambiguous, or could refer to concepts not central to the study, are eliminated during this phase (Bengston and Fan 1999).

Given the centrality of the FSC and CertForChile systems to this project, an obvious starting point are the Principles which each promotes as their central substantive goals (CertFor 2002c; FSC 2004c). Beginning with English-language versions of each program's Statement of Principles (see Appendix IV), I used WordStat¹⁴⁷ software to generate a concordance of the unique words and phrases occurring in these documents¹⁴⁸.

¹⁴⁶ Despite the quantitative nature of the statistical analysis, it is of course, predicated on qualitative distinctions.

¹⁴⁷ This program is part of a text analysis software suite distributed by Provalis Research (www.simstat.com).

¹⁴⁸ Excluding function words, FSC and CertFor *Principles* contain 190 unique words, of which 49 are

I then manually sorted the strings from this list into four conceptual categories, ignoring terms with neutral or ambivalent meanings (e.g., benefits, impacts, sustainable). I then entered the resulting thirty-nine words (and one phrase) into WordStat's *Dictionary Builder* to check for synonyms and related terms¹⁴⁹, from which I also selected terms based on their clear relevance to one of the four categories. This process added eleven additional terms, with some overlap between terms (e.g., plural forms).

Since these terms were to be used in a semi-automated content analysis, it was important to reduce redundant variation¹⁵⁰. Since the LexisNexis search engine supports wildcards¹⁵¹, it is possible to search for all word variations which share a common root¹⁵². The technique for reducing words in this manner is known as “stemming” or “suffix stripping” (Stephen 1999, p 5). After defining a subset of stemmed words, I again eliminated terms that were either too narrow or too general to likely be useful in an analysis of a broad range of media sources (e.g., land, soil, wellbeing). This left twenty terms to identify the type of substantive issues (environmental, social, economic) discussed across the various media streams.

common to both.

¹⁴⁹ WordStat's *Dictionary Builder* enables users to generate synonyms, antonyms, “similar terms,” hypernyms (“...it a type of,” also known as a *coordinate term*), hyponyms (“types of ...”), holonyms (“...is a part of,” also known as *membership*), meronyms (“parts of ...”), attributes, and otherwise “related terms.” Of these, only the synonym and “related term” categories suggested terms which were both appropriate and unambiguous.

¹⁵⁰ This is principally an issue of tractability, as all searches were entered by hand.

¹⁵¹ These are symbols used to find word or phrase variations, based on a specific (“*”) or unlimited (“!”) number of characters within a text string.

¹⁵² Such that a search on “market!” will produce *market*, *markets*, *marketing*, *marketed*, or *marketable*.

Because of the importance of monitoring and certification to NSMD stakeholders, I included two categories intended to reflect these more procedural aspects of implementation. The first (PROCESS1) includes variations on the terms *certify*, *monitor*, *enforce*, *accountable*, and *custody* (also derived from FSC and CertForChile Principles). Another category (PROCESS2) tracks whether and where the “*n*th actor” terminology¹⁵³ (described in Chapter 2) occurred in media coverage of forest certification.

As I argued in Chapter 1, since NSMDs are increasingly proposed as alternatives to the state-based provision of public goods, it is critical to understand how this might impact values traditionally associated with the state. Moreover, if we are concerned with liberal democratic values, the most important of these are concepts such as *participation*, *representation*, and *delegation*. Accordingly, I have included variations on these terms in a third implementation-related category (PROCESS3), and also established separate categories for each of the following concepts: *stakeholder*, *public*, *private*, *government*, and *regulation*.

Since Chile is both the milieu of this case study and the point of origin for any forest products that might make their way from certified Chilean producers to foreign consumers, I included a separate category for the terms *Chile* and *Chilean*, as well as another for variations on the term *boycott*, to see how news of the 2002 ForestEthics campaign was communicated through the global distribution chains. To determine the visibility of the each NSMD approach, I created separate categories for each system, as well as for the stakeholders who have participated in their development, drawn from

¹⁵³ As I explain in Appendix II, this terminology does not have a ready analog in the Spanish language. Although phrases such as “*partes independientes*” are sometimes used to refer to 3rd parties, the convention is not consistent. Instead, such concepts appear to be largely ignored in Spanish language media.

program materials and local media articles (a technique used by Miller and Stebenne 1992 and Miller and Pavlik 1993 to track political campaigns). Finally, to estimate awareness of the producers themselves, I established separate categories for the forest management units (FMUs) participating in the FSC, CertForChile and ISO 140001 systems, as well for those FMUs that have been certified under multiple programs (i.e., FSC/ISO, CFC/ISO, FSC/CFC/ISO). Though ISO 14001 has no explicit mechanism for connecting producers with consumers throughout market chains, the system has been promoted in Chilean media as a reflection on producers' environmental concerns (Araya 2002; Lignum 2002b). Therefore, I included ISO-relevant content to see how such issues were communicated outside of the country. The final (English language) coding categories are shown in Table 5.1 (Spanish language coding may be found in Appendix IIb).

Table 5.1: English-language Search Terms

Terms derived from FSC and CertFor Principles:	
ECONOMICS	market! or efficien! or product! or profit! or servic!
ENVIRONMENT	biodivers! or biolog! or conserv! or ecolog! or ecosyste! or environmen! or natur!
SOCIAL	commun! or equit! or fair! or indigenous or neighbor! or safety or soci! or worker!
PROCEDURAL 1	accountab! or certif! or custody or delegate or enforce! or monitor!
PROCEDURAL 2	“first party” or “second party” or “third party” or “1 st party” or “2 nd party” or “3 rd party”
PROCEDURAL 3	participa! or represent! or delegate!
Additional categories:	
CHILE	Chile or Chilean
BOYCOTT	boycot!
SHAREHOLDER	shareholder!
STAKEHOLDER	stakeholder!
GOVERNMENT	government!
GOVERNANCE	governance
REGULATION	regulat!
PUBLIC	public
PRIVATE	privat!
FSC	FSC or “Forest Stewardship Council”
ICEFI	ICEFI or “Iniciativa Chilena de Certificación Forestal Independente”

Additional categories (continued)	
ICEFI Stakeholders	“Agrupación de Ingenieros Forestales por el Bosque Nativo” or AIFBN or “Comité Nacional Pro Defensa de la Fauna y Flora” or CODEFF or “Departamento de Acción Social” or DAS or “Federación Nacional de Sindicatos de CONAF” or FENASIC or “Red Nacional de Acción Ecológica” or RENACE
ICEFI / FSC FMUs	“Rio Cruces” or “Bosques Cautin” or Anchile or “Los Lagos” or “Tierra Chilena” or “Forestales Regionales” or “CAF El Alamo” or Procer or “Sociedad Agrícola y Forestal Degenfeld”
CERTFOR (CFC)	CertFor
CFC Stakeholders	“Fundación Chile”
CFC FMUs	CELCO or “Forestal Valdivia”
PEFC	PEFC or “Pan European Forest Certification” or “the Endorsement of Forest Certification”
“ISO 14!” (ISO)	“ISO 14!” or “International Organization for Standardization”
ISO FMUs	Licancel or Quilpolemu or “Cementos Bío Bío” or “Bosques SA”
ISO Stakeholders	“Instituto Nacional de Normalización”
FSC/ISO FMUs	“Bío Bío” or Tornagaleones or Millalemu or Terranova
CFC/ISO FMUs	MININCO or “Bosques de Chile” or Arauco
CFC/FSC/ISO FMUs	“Forestal y Agrícola Monteágula” or FAMASA

5.3 Mapping social distance

Although Chile’s domestic demand has been described as “generally inconsequential” (Mery 1996), forest products constitute more than fifteen percent of the country’s exports (second only to copper) (Wilcox 1996). In fact, Chile is one of the ten largest producers worldwide, with exports valued over US\$2 billion in the year 2000 (Mery, Kengen, and Lujan 2001); the United States is its largest single market (Lignum 2002b), currently

consuming thirty-seven percent (US\$622 million) of all forest exports (Lignum 2003c, p 23). This relationship is of clear strategic importance to Chilean producers, as evidenced by the American subsidiaries that have been established by each Chile's largest forest companies (i.e., Arauco, Mininco, and Terranova) in recent years (Arauco 2003; Lignum 2003c; Terranova 2003). As I emphasized in earlier chapters, supporters of both FSC and CertForChile are acutely sensitive to any issue that might affect Chilean competitiveness in American markets (Otero and Maluenda 1998; Moura 2002).

Recall the hypothesis for the effect of geographical distance from Chapter 2: *ceteris paribus*, a given NSMD could be said to be at least as reliable as state-based regulation only if publicly available information about that system is as common in the media of critical export markets as in the producer country. Given the central importance of American demand for Chilean forest products, a strict interpretation of this hypothesis would be to apply a three-step test, comparing the content of media in Chile to the US, and then to the rest of the world. The absence of such an effect is proven if the proportion of articles mentioning particular categories fail to decline (attenuate) across distance (see H_5 , in Table 5.2). Yet such an approach is not completely satisfactory – despite the important of US markets, that relationship is only partially (and inconsistently) related to geographic distance. Ideally, we would like to be able to control for the actual physical distance of each media source from Chile. This would be exceptionally difficult in practice, as would controlling for variations in the scale and distribution of readership across media outlets. A more general test is therefore to simply compare the content of Chilean national media to that which originated outside the country (see H_6 , in Table 5.2).

Table 5.2: Informational Hypotheses

<i>Ceteris paribus</i> , an NSMD could be said to be <i>equivalent</i> or <i>better</i> than state-based regulation:		
Geographic (physical)	IF: certification-relevant information is <i>at least</i> as common in the media of critical export markets as in the producer country (three-step test)	H ₅
	IF: certification-relevant information is <i>at least</i> as common in media outside the producer country (two-step test)	H ₆
Language (cultural)	IF: The proportion of certification-relevant information is <i>at least</i> as common in media written in the dominant language of importing nations as in media using the exporting country's dominant language.	H ₇
Epistemic (framing)	IF: The proportion of certification-relevant information is <i>at least</i> as common in general media (e.g., newspapers) as it is in specialized media (e.g., professional journals)	H ₈

If social distance does indeed impact communication patterns along at least one of these dimensions, it would also be useful to know whether such effects vary across other media segments. For example, it may be that geographical distance may not have as strong an effect in forestry or professional (e.g., manufacturing) journals as in the popular press, given the critical importance of international trade to those commercial industries. Therefore, in addition to a general test of each hypothesis (e.g., geographical effects across all industry and general media), where the data permits (see Appendix IId), I will test other dimensions of social distance in isolation.

To the degree that information exchange is “contingent on the way in which social structure brings people together” (Burt 1987, p 1288), any factor known to separate people (e.g., language, culture, class) could be expected to produce discontinuities of communication (Barnett and Choi 1995). Though culture and language are often

correlated with geography (Akerlof 1997), the match is not exact – both span borders (Barnett and Choi 1995), and multicultural, multilingual societies are found worldwide (especially in the United States and Europe). Given the dominance of Spanish in Chile, and English in the United States (plus the availability of media in both languages worldwide), we can establish a two-step test of the cultural-linguistic social distance hypothesis in Chapter 2: an NSMD could be said to be equivalent (or “better”) than state-based regulation if (and only if) the amount of NSMD and other certification-relevant information does not decline (attenuate) from Spanish to English-language media (see H_7 , in Table 5.2).

Communication is also known to be influenced by norms about what information is important or appropriate (Craig, Gadgil, and Koomey 2002). Such cognitive “frames” are often shared by expert communities that often emerge from both socialization and professional training (Shannon, Meidinger, and Clark 1996; Bendix and Liebler 2003). In fact, social distance effects have been observed between occupations (Laumann 1965). Since it is common to speak of forest products markets in terms of producer, professional and general consumer segments (Forsyth, Haley, and Kozak 1999), we might apply this relationship directly to the expert-framing hypothesis from Chapter 2: an NSMD could be said to be equivalent (or “better”) than state-based regulation if (and only if) NSMD-relevant content does not attenuate across specialized (e.g., professional journals) and general media (e.g., newspapers) segments (see H_8 , in Table 5.2).

5.4 Identifying variations

This analysis compares the content of all articles that address forest certification issues, as published by sources that vary by their geography, language, and target audiences. Because Chilean sources were hand-coded, content in these sources was identified at the level of individual articles. However, since it was not feasible to analyze articles acquired through LexisNexis individually, content ratios were identified only in aggregate terms (e.g., all articles published by major American papers in 2002). Thus, although the computer-based method used here determines whether individual articles contains specific search strings, applied to multiple articles, it reports summary results of all articles within the group.

Terminology: To improve readability, I adopt several conventions to refer to the various theoretical and empirical elements of the following discussion.

The word “*context*” refers to specific media environments (e.g., CHILE.SPANISH.FORESTRY journals).

The words “*ratio*” and “*signal*” refer to the proportion of content within specific media contexts.

The word “*segment*” is somewhat more general, referring to contexts across a single social distance factor (e.g., INDUSTRY media in CHILE, the US, or the WORLD).

Both elements – contexts and segments – are formatted in SMALL CAPS to distinguish them from more general usage of such terms (e.g., “despite Chilean forest company fears, BOYCOTT was rarely mentioned in FORESTRY sources outside of CHILE”).

Similarly, to identify *specific content* apart from more casual use of such terms, content categories are capitalized and underlined (e.g., CHILE).

See Appendix II for a detailed discussion of the methodology used in this chapter.

Partly for this reason, and partly to adjust for enormous variability in the number of articles each source published, hypotheses are tested comparing the *proportions of content* within each media segment (see inset, below). Whether two proportions are seen as statistically different is based on the “z-score” (calculated as the difference of two proportions, divided by their standard errors¹⁵⁴), with significance identified at three thresholds: five percent ($z = 1.695$), one percent ($z = 2.575$), and one-tenth of one percent ($z = 3.08$) (Kennedy 1998). Since my purpose here is to discover whether content attenuates as it “moves away” from the origin, I do not need statistical significance in the opposite direction to support the null – the absence of significant directionality also suggests that attenuation is not present.

5.4.1 *Geography and distance*

Evidence to support the strictest interpretation of geographical distancing (H_5) was quite weak. When no other social distance factors (e.g., expertise) are controlled for, there are no proportions of any category that were both statistically distinct and uniformly directional (see Table 5.3). However, considering the results of a looser interpretation of geographical separation (H_6 , below), the most likely explanation for this failure is that this dimension of social distance was poorly specified. Accounting for the 12.2 percent sampling error in NON-CHILEAN sources (see Appendix II for details), attenuation was

$$z = \frac{\pi_a - \pi_b}{\sqrt{\frac{(\pi_a - \pi_a^2)}{n_a} + \frac{(\pi_b - \pi_b^2)}{n_b}}}$$

¹⁵⁴ The formal equation: , in which p = proportional values, and n = the number of articles from which each proportion is calculated.

supported only for the SOCIAL category within the INDUSTRY media segment¹⁵⁵. Otherwise, statistically significant directionality (sloping downward *or* upward) was not evident. There were several instances in which content signals were *not* statistically distinct across all three contexts – lending support to the null hypothesis, that geographical distance was not a factor for these categories. However, as I discuss in Section 5.5, we must be careful when interpreting results where the proportions are essentially negligible (i.e., below 5 percent). Overall, this strictest interpretation of signal attenuation based on geographic variation was not borne out.

¹⁵⁵ There is also possible signal decay for ISO in GENERAL media (at the 0.05% level), but this is in question, as the difference between the ISO signal in US and the rest of the WORLD (excluding CHILE) media falls within the sampling error range. In general, I will avoid discussing any evidence that is qualified in this way.

Figure 5.3: Summary of H₅ Significance Tests

H ₅ : All media segments	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$
CHILE	0.853***	-0.026
CertFor	0.382***	0.007
CFC STK	0.289***	0.000
CFC	0.241***	0.003
ICEFI STK	0.240***	-0.003
PEFC	0.237***	0.048
PROCESS 3	0.194***	-0.053
FSC/ISO	0.156***	0.000
CFC/ISO	0.144***	-0.001
BOYCOTT	0.130***	-0.012
FSC/ISO/CFC	0.126***	0.000 [†]
ENVIRONMENT	0.114***	0.008

H ₅ : Industry	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$
CHILE	0.741***	0.010
ISO	0.567***	-0.031***
PROCESS 3	0.518***	0.113
SOCIAL	0.372***	0.200*
REGULATION	0.331***	-0.021
PRIVATE	0.305**	0.067
ICEFI STK	0.267***	0.000
CFC STK	0.267***	0.000
PEFC	0.241**	-0.174***
ENVIRONMENT	0.205***	0.056
GOVERNMENT	0.197	0.297***
ISO STK	0.167*	0.000

H ₅ : General media	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$
CHILE	0.895***	-0.040***
ISO	0.257***	0.009*
ICEFI STK	0.323***	-0.004**
BOYCOTT	0.223***	-0.022*
CFC STK	0.218***	0.000
FSC/ISO	0.207***	-0.001
CFC	0.182***	0.003
CFC/ISO	0.174***	-0.002
PEFC	0.169***	-0.058***
FSC/ISO/CFC	0.137***	0.000
ENVIRONMENT	0.132***	-0.021
PROCESS 1	0.074*	-0.012

Figure 5.3: Summary of H₅ Significance Tests (continued)

H₅: All media segments	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$	H₅: Industry	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$	H₅: General media	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$
ISO STK	0.069*** [†]	0.000	PUBLIC	0.154	0.267***	ICEFI	0.073*** [†]	0.000
ICEFI	0.061*** [†]	0.000	CFC	0.100* [†]	0.000	PROCESS 3	0.057	-0.073*
PROCESS 1	0.058	-0.027	FSC/ISO/CFC	0.100* [†]	0.000	ISO FMUs	0.048* [†]	0.000
ISO FMUs	0.053*** [†]	0.000	<i>ISO FMUs</i>	<i>0.067[†]</i>	<i>0.000</i>	FSC FMUs	0.037	0.002
GOVERNMENT	0.033	-0.076	<i>FSC/ISO</i>	<i>0.067[†]</i>	<i>0.000</i>	GOVERNMENT	0.035	-0.139***
STAKEHOLD	0.027	-0.013	<i>CFC/ISO</i>	<i>0.067[†]</i>	<i>0.000</i>	<i>ISO STK</i>	<i>0.016[†]</i>	<i>0.000</i>
FSC FMUs	0.026	0.002	<i>ICEFI</i>	<i>0.033[†]</i>	<i>0.000</i>	<i>CFC FMUs</i>	<i>0.008[†]</i>	<i>0.000</i>
<i>CFC FMUs</i>	<i>0.008[†]</i>	<i>0.000</i>	STAKEHOLD	0.023	0.031	<i>STAKEHOLD</i>	<i>-0.028**</i>	<i>-0.016</i>
REGULATION	-0.002	0.025	BOYCOTT	0.015	0.036	PUBLIC	-0.071	0.184***
PUBLIC	0.003	0.201***	<i>FSC FMUs</i>	<i>0.000[†]</i>	<i>0.000</i>	<i>ECONOMICS</i>	<i>-0.103*</i>	<i>-0.005</i>
SOCIAL	-0.035	0.052*	<i>CFC FMUs</i>	<i>0.000[†]</i>	<i>0.000</i>	PROCESS 2	-0.134***	0.073***
PRIVATE	-0.035	0.041	PROCESS 1	-0.005	0.087	REGULATION	-0.135***	0.019

[†] Since no articles were found to mention these concepts outside of Chile, these values are unaffected by sampling error.

Figure 5.3: Summary of H₅ Significance Tests (continued)

H₅: All media segments	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$	H₅: Industry	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$	H₅: General media	$p_{CH} - p_{US} = 0$	$p_{US} - p_{WD} = 0$
<i>ECONOMICS</i>	-0.036	-0.007	ECONOMICS	-0.023	0.000	PRIVATE	-0.151***	0.046*
PROCESS 2	-0.130***	0.086***	PROCESS 2	-0.146*	0.133*	<i>SOCIAL</i>	-0.198***	-0.018
FSC	-0.342***	0.040***	FSC	-0.433***	0.169***	FSC	-0.260***	0.042***

* = P = 0.05 ** = P = 0.01 *** = P = 0.001 = Within sampling error range

However, once geographical conditions are relaxed (i.e., simply comparing CHILE to all NON-CHILEAN media), we observe dramatically different results (see Table 5.4). When all expertise segments are combined, signal attenuation is statistically observed for over half (52 percent) of all content categories; the effect is even stronger for FORESTRY media (63 percent). Even the media segment with the least evidence of decline (GENERAL) revealed statistically measurable reductions across more than 44 percent of the categories.

Not surprisingly, terms referencing CHILE itself showed the strongest attenuation (83 percent) across all categories, but ISO and CFC_STK (CertForChile stakeholders) also decreased significantly (39 and 29 percent, respectively). Apart from INDUSTRY media, local-level Chilean content (e.g., NSMD participants and stakeholders) tended to drop off when certification was discussed outside the country (or was rarely discussed even within Chilean media). Similar results are observed for the tendency for references to participatory language (PROCESS3) to decrease (most significantly in INDUSTRY media, at 59 percent), though this was not the case for GENERAL media. In fact, this category was evident in more than one-third of all GENERAL media articles in both CHILE and NON-CHILEAN media (34 percent for each).

It is interesting to observe that terms in the ENVIRONMENT category also tended to decline along this dimension (though this was only statistically demonstrated for FORESTRY and INDUSTRY sources). However, even where these concepts were least salient (NON-CHILE.ENGLISH.FORESTRY), they were addressed in nearly three out of every four articles. Thus, even if signal attenuation can be clearly demonstrated, we must be careful when interpreting results.

Given the central role the Forest Stewardship Council has played throughout the history of forest certification, it is not surprising to see strong evidence that the FSC has been discussed more frequently – across all media segments – outside of Chile. The FSC clearly benefits (in terms of public awareness) from its global profile and centrality to the development of forest certification overall. Other NSMD categories are strongly impacted by geographical distance, with attenuation evident for twelve of fifteen such categories (80 percent), a majority of which (60 percent) were never observed in the NON-CHILE media.

Overall, the data suggest that physical distance has very important impacts on the communication of certification-relevant knowledge. This is especially true of locale-specific information (e.g., the CFC labeling system), but also appears to operate on more general concepts, as well (e.g., PROCESS3, PUBLIC). This effect, and its significance for competitive, global-scale NSMD systems, will be discussed further in the following chapter.

Figure 5.4: Summary of H₆ Significance Tests

H ₆ : All Media segments	$p_{CH} - p_{US+WD} = 0$	H ₆ : Forestry	$p_{CH} - p_{WD} = 0$	H ₆ : Industry	$p_{CH} - p_{US+WD} = 0$	H ₆ : General media	$p_{CH} - p_{US+WD} = 0$
CHILE	0.833***	CHILE	0.836***	CHILE	0.747***	CHILE	0.866***
ISO	0.387***	ISO	0.500***	PROCESS 3	0.588***	ICEFI STK	0.319***
CFC STK	0.289***	CFC STK	0.391***	ISO	0.547***	ISO	0.264***
CFC	0.243***	CFC	0.370***	SOCIAL	0.497***	CFC STK	0.218***
ICEFI STK	0.237***	PEFC	0.326***	GOVERNMENT	0.383***	BOYCOTT	0.207***
PEFC	0.199***	SOCIAL	0.320***	PRIVATE	0.347***	FSC/ISO	0.206***
PUBLIC	0.162***	PUBLIC	0.262***	PUBLIC	0.321***	CFC	0.185***
FSC/ISO	0.156***	PROCESS 3	0.243***	REGULATION	0.318***	CFC/ISO	0.173***
PROCESS 3	0.152***	ENVIRONMENT	0.146***	ICEFI STK	0.267***	FSC/ISO/CFC	0.137***
CFC/ISO	0.143***	REGULATION	0.136**	CFC STK	0.267***	PEFC	0.126***
FSC/ISO/CFC	0.126***	CFC/ISO	0.130***	ENVIRONMENT	0.240***	ENVIRONMENT	0.117***
ENVIRONMENT	0.120***	ICEFI STK	0.120*** [†]	ISO STK	0.167*	ICEFI	0.073*** [†]
BOYCOTT	0.120***	FSC/ISO	0.120*** [†]	PEFC	0.132	PUBLIC	0.067


Figure 5.4: Summary of H₆ Significance Tests (continued)

H ₆ : All Media segments	$p_{CH} - p_{US+WD} = 0$	H ₆ : Forestry	$p_{CH} - p_{WD} = 0$	H ₆ : Industry	$p_{CH} - p_{US+WD} = 0$	H ₆ : General media	$p_{CH} - p_{US+WD} = 0$
ISO STK	0.069*** [†]	FSC/ISO/CFC	0.120*** [†]	CFC	0.100* [†]	PROCESS 1	0.065*
ICEFI	0.061*** [†]	ISO STK	0.109*** [†]	FSC/ISO/CFC	0.100* [†]	ISO FMUs	0.048* [†]
ISO FMUs	0.053*** [†]	ICEFI	0.054* [†]	ISO FMUs	0.067 [†]	FSC FMUs	0.039*
FSC FMUs	0.027*	ISO FMUs	0.054* [†]	FSC/ISO	0.067 [†]	ISO STK	0.016 [†]
PROCESS 1	0.037	STAKEHOLD	0.076*	CFC/ISO	0.067 [†]	CFC FMUs	0.008 [†]
REGULATION	0.018	PRIVATE	0.069	PROCESS 1	0.049	PROCESS 3	0.002
STAKEHOLD	0.017	BOYCOTT	0.043	STAKEHOLD	0.042	STAKEHOLD	-0.040***
CFC FMUs	0.008 [†]	FSC FMUs	0.022 [†]	BOYCOTT	0.038	GOVERNMENT	-0.069
SOCIAL	0.006	ECONOMICS	0.012	ICEFI	0.033	PROCESS 2	-0.080***
PRIVATE	-0.002	CFC FMUs	0.011 [†]	FSC FMUs	0.000	ECONOMICS	-0.107**
GOVERNMENT	-0.027	PROCESS 2	-0.015	CFC FMUs	0.000	PRIVATE	-0.117***
ECONOMICS	-0.042	GOVERNMENT	-0.024	ECONOMICS	-0.023	REGULATION	-0.121***

[†] Since no articles were found to mention these concepts outside of Chile, these values are unaffected by sampling error.

Figure 5.4: Summary of H₆ Significance Tests (continued)

H ₆ : All Media segments	$p_{CH} - p_{US+WD} = 0$	H ₆ : Forestry	$p_{CH} - p_{WD} = 0$	H ₆ : Industry	$p_{CH} - p_{US+WD} = 0$	H ₆ : General media	$p_{CH} - p_{US+WD} = 0$
PROCESS 2	-0.062***	PROCESS 1	-0.052	PROCESS 2	-0.063	SOCIAL	-0.211***
FSC	-0.311***	FSC	-0.421***	FSC	-0.328***	FSC	-0.229***

* = P = 0.05 ** = P = 0.01 *** = P = 0.001  = Within sampling error range

5.4.2 Language, culture and distance

The language in which a source is written is a crude means of capturing less “concrete” cultural factors, considering the general correlation of language with geography (as well as the strong results of the previous hypothesis). Yet though it is likely impossible to completely separate language from geography, the substantial number of SPANISH sources outside of CHILE permit us to test potential effects both with and without a strong geographical influence.

Though it is not surprising that terms relating to CHILE show clear attenuation from SPANISH to ENGLISH across both groupings (see Table 5.5), the magnitude of this decline is substantially smaller than any of those observed in the tests of Hypothesis 6. More interesting is the stronger attenuation of PEFC-related content when CHILE sources are excluded; despite the importance that CertForChile supporters have placed on affiliation with the PEFC program, it seems unlikely that CFC-certified exporters are primarily interested in Spanish-speaking consumers.

Many of the instances in which the null is supported are also substantively interesting, especially those dealing with conceptual categories, as these may be more indicative of cultural or linguistic differences. For instance, although the categories STAKEHOLDER and PROCESS2 are more common in ENGLISH media, there are no direct analogues for these terms in the Spanish language. Yet the same cannot be said of terms such as PUBLIC, which were discussed at comparable levels in both languages when CHILE media were included, but which was not discussed at all in NON-CHILE.SPANISH media. Similarly (though not surprisingly, considering the results of Hypothesis 6), the absence of attenuation for messages about local stakeholders and

FMUs must be qualified by the fact that many of these terms are simply not discussed at all outside of CHILE. In general, the evidence here suggests that linguistic or cultural factors do influence the communication of certification-relevant knowledge, albeit the effect cuts both ways, and appears weaker than that observed for physical distance.

5.4.3 Epistemic communities and distance

As in Hypothesis 5, this test compares content signals across three segments, requiring attenuation across both of those more “distant” to invalidate the null. And, as was generally true in that earlier test, this did not occur. However, for media outside of CHILE (i.e., US and WORLD), the lack of evident attenuation for many categories (see Table 5.6) must be interpreted in light of the fact that many of these terms are not discussed at all. Thus, while the data may not support this particular operationalization of professional community-as-distance, it nevertheless underscores the significance of geography to the communication of certification-relevant information.

Figure 5.5: Summary of H₇ Significance Tests

H₇: with Chilean sources	$P_{SP} - P_{EN} = 0$	H₇: World sources	$P_{SP} - P_{EN} = 0$
CHILE	0.562***	PEFC	0.256***
PEFC	0.235***	PROCESS 1	0.177***
ISO	0.227***	PROCESS 3	0.158***
CFC STK	0.172***	CHILE	0.135***
PROCESS 3	0.164***	SOCIAL	0.094*
ICEFI STK	0.152***	ENVIRONMENT	0.051*
CFC	0.150***	? CFC/ISO	0.032*
ENVIRONMENT	0.105***	ECONOMICS	0.032
FSC/ISO	0.103***	? ICEFI STK	0.026*[†]
CFC/ISO	0.098***	REGULATION	0.025
PROCESS 1	0.090***	FSC/ISO	0.018
FSC/ISO/CFC	0.076***	FSC FMUs	0.006[†]
BOYCOTT	0.074***	CFC	0.000[†]
SOCIAL	0.070*	CFC FMUs	0.000[†]
ISO STK	0.040***	CFC STK	0.000[†]

Figure 5.5: Summary of H₇ Significance Tests (continued)

H₇: with Chilean sources	$p_{SP} - p_{EN} = 0$	H₇: World sources	$p_{SP} - p_{EN} = 0$
ICEFI	0.032***	<i>FSC/ISO/CFC</i>	0.000 [†]
ISO FMUs	0.030***	<i>ICEFI</i>	0.000 [†]
FSC FMUs	0.020**	<i>ISO</i>	0.000 [†]
<i>CFC FMUs</i>	0.005 [†]	<i>ISO FMUs</i>	0.000 [†]
REGULATION	0.010	<i>ISO STK</i>	0.000 [†]
<i>GOVERNMENT</i>	-0.015	<i>BOYCOTT</i>	-0.021
<i>ECONOMICS</i>	-0.022	<i>STAKEHOLD</i>	-0.045***
<i>PRIVATE</i>	-0.028	<i>PRIVATE</i>	-0.049
<i>STAKEHOLD</i>	-0.016	<i>GOVERNMENT</i>	-0.067
<i>PUBLIC</i>	-0.041	<i>PROCESS 2</i>	-0.083***
<i>PROCESS 2</i>	-0.078***	<i>FSC</i>	-0.102***
<i>FSC</i>	-0.233***	<i>PUBLIC</i>	-0.279***

* = P = 0.05	** = P = 0.01	*** = P = 0.001	= Within sampling error range
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[†] Since no English media articles were found to mention these concepts, this value is unaffected by sampling error.

Figure 5.6: Summary of H₈ Significance Tests

H ₈ : All regions	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$	H ₈ : Chile	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$	H ₈ : United States	$p_{IN} - p_{GN} = 0$	H ₈ : Non- Chilean regions	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$
PROC 1	0.082*	0.000	CFC	0.270***	-0.085	GOVT	0.116	GOVT	0.179***	- 0.320***
FSC	0.063*	-0.105***	CFC STK	0.125	0.049	PUBLIC	0.095	FSC	0.145**	-0.105*
CFC	0.058***	0.005	CHILE	0.081	-0.145*	ECONS	0.078	PROC 3	0.142**	- 0.185***
PRIVATE	0.053	-0.047	CFC/ISO	0.064	-0.111*	PROC 1	0.059	PRIVATE	0.141***	- 0.149***
CFC STK	0.025	0.040*	PEFC	0.059	0.097	STKHLD	0.048	PROC 1	0.137**	-0.041
PROC 3	0.021	0.007	FSC/ISO	0.053	-0.143**	PROC 2	0.037	SOCIAL	0.092	- 0.374***
CFC/ISO	0.013	-0.005	STKHLD	0.030	0.100* [†]	PEFC	0.026[†]	BOYCOTT	0.018	-0.041*
FSC/ISO	0.011	-0.007	FSC FMUs	0.022[†]	- 0.040***	FSC	0.022**	STKHLD	0.008	0.002
CHILE	0.007	0.064*	ICEFI	0.021	-0.039	BOYCOTT	0.016	FSC/ISO	0.000[†]	-0.004
BOYCOTT	0.005	-0.032*	FSCISOCFC	0.020	-0.037	CHILE	0.010	ICEFI STK	0.000[†]	-0.004

Figure 5.6: Summary of H₈ Significance Tests (continued)

H ₈ : All regions	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$	H ₈ : Chile	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$	H ₈ : United States	$p_{IN} - p_{GN} = 0$	H ₈ : Non- Chilean regions	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$
<i>FSC FMUs</i>	<i>0.005</i> [†]	<i>-0.005</i>	CFC FMUs	0.011 [†]	-0.008	PROC 3	0.000	<i>CFC</i>	<i>0.000</i> [†]	<i>0.000</i> [†]
STKHL	0.004	0.030	BOYCOTT	0.009	-0.191***	<i>CFC FMUs</i>	<i>0.000</i> [†]	<i>CFC FMUs</i>	<i>0.000</i> [†]	<i>0.000</i> [†]
ICEFI	0.004	0.001	PROC 1	0.003	-0.020	<i>CFC STK</i>	<i>0.000</i> [†]	<i>CFC STK</i>	<i>0.000</i> [†]	<i>0.000</i> [†]
FSCISOCFC	0.004	0.010	ECONS	-0.009	0.158**	<i>FSCISOCFC</i>	<i>0.000</i> [†]	<i>FSCISOCFC</i>	<i>0.000</i> [†]	<i>0.000</i> [†]
<i>CFC FMUs</i>	<i>0.002</i> [†]	<i>-0.001</i>	PROC 2	-0.012	0.025	<i>ICEFI</i>	<i>0.000</i> [†]	<i>ICEFI</i>	<i>0.000</i> [†]	<i>0.000</i> [†]
ISO FMUs	-0.003	0.011	ISO FMUs	-0.012	0.018	<i>ICEFI STK</i>	<i>0.000</i> [†]	<i>ISO FMUs</i>	<i>0.000</i> [†]	<i>0.000</i> [†]
ISO STK	-0.014	0.036*	<i>FSC</i>	<i>-0.012</i>	<i>0.151</i> ***	<i>ISO FMUs</i>	<i>0.000</i> [†]	<i>ISO STK</i>	<i>0.000</i> [†]	<i>0.000</i> [†]
<i>GOVT</i>	<i>-0.024</i>	<i>-0.082</i> *	ISO STK	-0.058	0.151*	<i>ISO STK</i>	<i>0.000</i> [†]	<i>FSC FMUs</i>	<i>0.000</i> [†]	<i>-0.001</i>
<i>SOCIAL</i>	<i>-0.025</i>	<i>-0.164</i> ***	ISO	-0.067	0.301***	<i>FSC FMUs</i>	<i>-0.003</i>	<i>CFC/ISO</i>	<i>0.000</i> [†]	<i>-0.005</i>
ISO	-0.033	0.116***	ENVIRO	-0.120***	0.048***	<i>CFC</i>	<i>-0.003</i>	<i>CHILE</i>	<i>-0.003</i>	<i>-0.040</i> **
ICEFI STK	-0.034	0.028	<i>ICEFI STK</i>	<i>-0.147</i>	<i>-0.056</i>	<i>FSC/ISO</i>	<i>-0.003</i>	<i>ENVIRO</i>	<i>-0.004</i>	<i>-0.102</i> *

[†] Since no articles were found to mention these concepts outside of Chile, these values are unaffected by sampling error.

Figure 5.6: Summary of H₈ Significance Tests (continued)

H ₈ : All regions	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$	H ₈ : Chile	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$	H ₈ : United States	$p_{IN} - p_{GN} = 0$	H ₈ : Non- Chilean regions	$p_{FO} - p_{IN} = 0$	$p_{IN} - p_{GN} = 0$
ECONS	-0.036	0.079***	SOCIAL	-0.159*	0.414***	<i>CFC/ISO</i>	-0.003	<i>PROC 2</i>	-0.010	-0.023
<i>ENVIRO</i>	-0.047	-0.032	PRIVATE	-0.162	0.328***	<i>ISO</i>	-0.009*	<i>REGN</i>	-0.020	-0.025
REGN	-0.054	0.044	REGN	-0.194*	0.401***	<i>ENVIRO</i>	-0.025	ISO	-0.031	0.031
PROC 2	-0.049*	0.002	PUBLIC	-0.199*	0.320***	<i>REGN</i>	-0.065	PUBLIC	-0.041	0.013
PEFC	-0.093**	0.110***	PROC 3	-0.246**	0.461***	<i>PRIVATE</i>	-0.128*	ECONS	-0.044	0.073*
PUBLIC	-0.155***	0.133***	GOVT	- 0.340***	0.278***	<i>SOCIAL</i>	-0.156*	PEFC	- 0.200***	0.142**

* = P = 0.05 ** = P = 0.01 *** = P = 0.001 = Within sampling error range

5.5 Comparing messages

It is also important to look at these results not merely as relative proportions, but in terms of the actual rates at which content has been discussed across the various media segments. When we look at the data in this way, a few important patterns emerge. First, it is clear that the FSC is not only the overwhelmingly most-mentioned NSMD system, but that its central organizing principles (as evidenced by the organization's three-chamber rulemaking structure) have also dominated discourse about forest products certification. FSC is the only NSMD category which appears in more than half of the source articles across all contexts (though CHILE is also dominant across all media segments within CHILE). The next most commonly mentioned NSMD-specific term is PEFC, which is found fairly often in the Chilean media, with nearly one of three (FORESTRY), one of four (INDUSTRY), and one of every seven (GENERAL media) articles containing the term. Again, this Europe-based labeling system accepted CertFor as a member in the October 2004. Yet in the United States, PEFC was mentioned in fewer than one in thirty INDUSTRY articles, and not at all in GENERAL media sources. Expanding the scope to all NON-CHILE media, INDUSTRY sources were the most likely to mention PEFC (one of five) and GENERAL media sources barely mentioned the program (one of twenty articles). Strangely, PEFC was not mentioned at all by the FORESTRY sources included in the analysis, even though these were all European in origin.

Overall, mention of CHILE and local-level stakeholders and NSMD systems (i.e., CertForChile) was a rare occurrence outside of the country (see Table 5.7). Out of more than 1,500 articles, CHILE was found in only 38 cases (less than three percent); mention of stakeholders was rarer still, with the most prevalent, FSC/ISO (Forestales Bío Bío,

Millalemu, Terranova, or Tornagaleones), appearing only twice. Outside of the country, the CertFor system was explicitly mentioned only once (see below). The majority of stakeholder categories were simply absent in these media segments. CHILE was also mentioned in the context of forest certification in one other NON-CHILE.ENGLISH.FORESTRY source, though only to draw brief attention to a variety of other countries taking up the PEFC. The article's real focus was on the establishment of a UK branch of that system (Forestry & British Timber 2003, p 9).

While FSC's high profile may be attributed to its early and consistent leadership on this issue, the evidence strongly suggests that competitors have a great deal of ground to cover before they could hope to achieve similar salience. In general, the only terms (aside from the FSC) consistently mentioned across all media were essentially conceptual in nature. Again, while these results may not be surprising, they do require us to strongly qualify our expectations of the competitiveness of non-FSC NSMDs in global markets.

Finally, for a full picture of the available information, it is useful to understand NSMD-related content on an article-by-article basis. Again, articles directly mentioning CHILE as a source for certified wood are exceptionally rare. Possibly the most important event was the ForestEthics campaign to promote Chilean FSC-certified suppliers in (González 2002). The "high-profile" campaign was launched with a full-page advertisement in the New York Times on September 13, 2002 (ForestEthics 2002b). However, despite generating a tempest within Chile itself, neither the ad nor the campaign appear to have registered much media interest in United States. While several sources reported on the agreement signed fourteen months later between CMPC-Minanco,

Table 5.7 Actual Rates of Content Across Non-Chilean Articles

Rate	ENGLISH language	<i>n</i> = 1548	Rate	SPANISH language	<i>n</i> = 154
= 0.50	FSC	1484	PROCESS 1	150	
	ECONOMICS	1327	ENVIRONMENT	136	
	PROCESS 1	1282	ECONOMICS	135	
	ENVIRONMENT	1244	FSC	131	
	SOCIAL	841	SOCIAL	110	
0.05 < 0.50	GOVERNMENT	606	PROCESS 3	75	
	PROCESS 3	476	GOVERNMENT	62	
	PUBLIC	458	PEFC	42	
	PRIVATE	331	CHILE	26	
	REGULATION	214	REGULATION	26	
	PROCESS 2	133	PRIVATE	26	
	BOYCOTT	79	BOYCOTT	6	
= 0.05	STAKEHOLDER	74	CFC/ISO FMUs	5	
	CHILE	38	ICEFI STK FMUs	4	
	PEFC	27	FSC/ISO FMUs	3	
= 0.01	ISO	5	FSC FMUs	1	
	FSC/ISO FMUs	2	STAKEHOLD	1	
= 0.001	<i>CFC</i>	<i>1</i>	<i>CFC</i>	<i>0</i>	
	<i>CFC FMUs</i>	<i>1</i>	<i>CFC FMUs</i>	<i>0</i>	
	<i>CFC STK</i>	<i>1</i>	<i>CFC STK</i>	<i>0</i>	
	<i>CFC/ISO FMUs</i>	<i>0</i>	<i>FSC/ISO/CFC FMUs</i>	<i>0</i>	
	<i>FSC FMUs</i>	<i>0</i>	<i>GOVERNANCE</i>	<i>0</i>	
	<i>FSC/ISO/CFC FMUs</i>	<i>0</i>	<i>ICEFI</i>	<i>0</i>	
	<i>ICEFI</i>	<i>0</i>	<i>ISO</i>	<i>0</i>	

Table 5.7 Actual Rates of Content Across Non-Chilean Articles (continued)

Rate	ENGLISH language	n = 1548	Rate	SPANISH language	n = 154
0.001 =	<i>ICEFI STK</i>	<i>0</i>	0.001 =	<i>ISO FMUs</i>	<i>0</i>
	<i>ISO FMUs</i>	<i>0</i>		<i>ISO STK</i>	<i>0</i>
	<i>ISO STK</i>	<i>0</i>		<i>PUBLIC</i>	<i>0</i>

Arauco and “US and Chilean environmentalists” (only ForestEthics and Greenpeace Chile were identified), most were either syndicated articles by a single author (e.g., Tobar 2003b, a), or wire reports (e.g., San Jose Mercury News 2003). Oddly, none of these mentioned certification (considering the centrality of FSC certification to ForestEthics’ campaign), and were therefore not captured by the search protocols used in the social distance analysis.

The only NON-CHILE.ENGLISH.FORESTRY article which discussed CHILE in any detail also mentioned forest management certification, including the intent of Millalemu and Monteaguila to implement ISO 14001, the European Commission-funded project with INFOR and CONAF, and a passing reference to research comparing FSC criteria to forest management practices in Chile at the time (Timber Trades Journal 1998). The only identified NON-CHILE.ENGLISH.GENERAL article (though an argument could be made that it belongs in the INDUSTRY segment) that directly mentioned a Chile-based forest products company as a source for certified wood was an announcement about a leadership change at Terranova’s US subsidiary, Terranova Forest Products (Business Wire 2004).

CHILE was more common in the NON-CHILE.SPANISH.GENERAL media, though still only appearing in 17 percent of those articles, six of which focused on the 2002 ForestEthics boycott effort (e.g., Spanish Newswire Services 2002). These articles

provided the most detail about forest certification in Chile, though this information was still generally limited to those stakeholders directly promoting the boycott (stakeholders in the FSC standard-setting process, such as Defensores del Bosque, among them), or the FSC-certified forestry companies within Chile. However, even with these fairly detailed articles, mention of Chilean stakeholders was still unusual overall – the most common, CFC/ISO (Bosques de Chile, or Forestales Arauco or Mininco), appeared only five times (3.3 percent). While it was slightly more probable to find other forest companies (FMUs) mentioned in this segment, as in the NON-CHILE.ENGLISH media, the majority of stakeholders were not discussed at all. Purely linguistic effects (e.g., there is no convenient Spanish word for “stakeholder”) were also evident, with terms such as “3rd party” completely absent as well.

In NON-CHILE.ENGLISH.INDUSTRY media, reference to CHILE was limited to the role of the country as a manufacturing site for a US-based flooring company which had secured COC certification with the FSC (Contract Flooring Journal 2003, p 6). A similar pattern was evident for many NON-CHILE.ENGLISH.GENERAL media sources: while many mentioned both CHILE and certification, most of these focused on non-Chilean forest industry actors (e.g., Weyerhaeuser, Boise Cascade), though they may have drawn attention for their activities in that country (see AScribe Newswire 2002). While certification (and especially FSC, at 96 percent) was discussed in articles throughout the period (the earliest in 1994), reporting tended to “spike” around key events, such as local conflicts over the FSC system (Associated Press 2003; Bangor Daily News 2003; Edgecomb 2003).

6 RECOGNIZING SCALE IN STATES AND MARKETS

Where governments do not govern, the private sector does.

Haufler 2001, p 29

Sed quis custodiet ipsos custodies?

Juvenal¹⁵⁶

During the latter part of the 20th century, the growth of international trade agreements led towards increased integration and harmonization of state economic policies. Unfortunately, cooperation on other public goods lagged, failing to address many of the externalities associated with the huge expansion of global economic activity. At the same time, developing nations were told the key to improving their economic status was to maximize their comparative advantage, which given their lower levels of industrialization and wealth, usually meant exporting natural resources with little or no processing. As these trends grew in scope, scale and pace – increasing pressure on environmental and social systems – concerns about long-term sustainability began to emerge.

One issue area where public concern was most pronounced focused on the dramatic levels of deforestation, especially in the tropics. Yet despite considerable efforts by state and civil society actors during the 1970s and 80s, negotiators failed repeatedly to establish a global forest treaty. In response, NGOs partnered with forest products companies to develop market-driven approaches to protect public goods by private means. These systems derive policymaking authority from stakeholder participation and market demand, rather than state institutions (Cashore 2002; Cashore, Auld, and Newsom

¹⁵⁶ This quote, which translates to “but who shall watch the watchman?” is from Satire VI: The Ways of

2004b). Such non-state, market-driven models are increasingly being proposed as alternatives to unproductive (or unresponsive) state-based policy processes, often with claims that they will improve efficiency and policy effectiveness (e.g., Campbell 1997; Yilmaz 1998; Council of Economic Advisors 2003; Russell and Clark 2003). Yet despite the implicit political significance of transferring regulatory authority (and capacity) from public to private actors, until now no studies have compared NSMD and state-based approaches as reliable means of policy implementation. This is partly due to assumptions that state and market institutions are fundamentally incommensurate, but also by the lack of a comparative framework that is tractable yet still capable of illuminating the sometimes subtle differences between policy systems (Schneider and Ingram 1997). This dissertation is an effort to develop just such a framework, by focusing on formal and informal structural factors that could be expected to impact the likelihood of implementation designs to achieve their nominal goals.

Comparing state-based and NSMD policy systems requires that we do more than merely ignore distinctions between the institutional foundations of each, especially where markets are global in scope. To truly understand the capacity of market-driven systems to “compete” with more territorially constrained state policies, we must acknowledge the role of information in consumer decisions, and how that might differ at national and global scales. While some characteristics (e.g., price, material quality) may be readily observable at either the point-of-purchase or once a product is used, others may require that consumers be exposed to additional information about the “value-added” by the means of production (e.g., environmental safeguards, labor relations). This presents

Women, a misogynistic comedy about the “dangers of marriage” (1992).

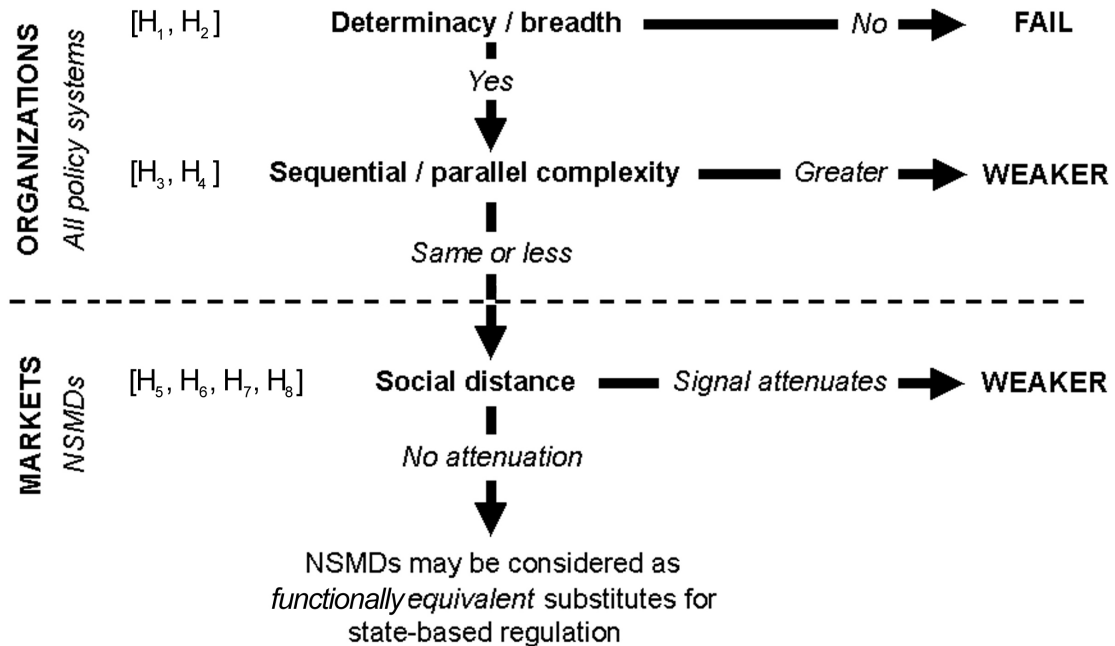
consumers with a dilemma – even if their intention is to favor such goods, they must not only trust that product labels honestly reflect reality, but also be able to discriminate between multiple labels that represent different capacities, philosophies, and possibly even levels of integrity. In other words, these “credence” or “reputation” goods¹⁵⁷ require informed consumers far more than traditional markets (Caswell et al. 1996). Rather than merely assume that NSMD systems are equivalent means of ensuring public goods, we should consider how such informational needs might effect the ability of either state or non-state systems to reliably inform “constituents” (i.e., citizens *or* consumers).

To gain leverage on such questions, I have identified and measured internal and external structural factors that can be expected to negatively affect communication in both state-based and NSMD regulatory systems (see Figure 2.7, replicated as Figure 6.1). I interpret *internal structure* as networks of authority-delegation dyads (of principals and agents), creating a generalizable comparative framework that can be applied to state, non-state or hybrid policy systems. Though the range of *external structural* factors that might degrade communication may be quite broad, I focused on the forms of social distance that we could expect to be relevant to global-scale systems. While state regulatory systems are territorially bound, both of the NSMD systems considered here strive to appeal to market actors on a global scale. Thus, evidence that social distance erodes the quality of information available throughout those market chains should lead us to question – or at least qualify – the reliability of NSMD systems which have been

¹⁵⁷ Again, since consumers cannot tell the quality of credence or reputation goods before or even after purchase, they must have trust in the seller’s claims (Golan, Kuchler, and Mitchell 2000; Engel 2001). Markets for these goods are typically much harder to sustain than those where consumers can determine quality themselves prior to purchase (i.e., search goods) or after use (i.e., experience goods) (Caswell and Mojdzuska 1996; Cason and Gangadharan 2002).

implemented at scales beyond the national level.

Figure 6.1: Comparing State and Market-Driven Implementation Systems



Thus, my goal has been to estimate the capacity of NSMD approaches to reliably ensure public goods (relative to state-based systems), with a case study of Chilean forestry. To address this question, I first defined two conditions (H_1 , H_2) for minimally reliable oversight: formally defined delegation (*determinacy*) and the absence of such relationships between 1st or 2nd parties (*political breadth*). If these conditions are not met, an implementation system cannot be said to be truly regulatory or likely to produce reliable results.

No act of communication is perfect – the transfer of information always introduces some degree of “noise” and degrades quality. Researchers have long known that such error is compounded when instances of communication increase; this observation allows us to compare the implementation networks of both state-based and

non-state policies by the relative likelihood that policymaker demands can be successfully communicated to all subordinate agents (H₃, H₄). *Ceteris paribus*, we would expect those systems exhibiting greater *structural complexity* to present greater barriers to successful communication between policymakers and policy targets, and thus be generally less reliable means of achieving policy goals.

We also know that communication can be problematic wherever actors are separated by culture and experience (*social distance*). While such factors may be relatively insignificant at the national level (at least in the Chilean context), they may be quite important at a global scale. Because NSMD approaches are predicated on informed demand¹⁵⁸, evidence that social distance is correlated with declines in the quality of publicly available and NSMD-relevant information (H₅, H₆, H₇, H₈) should lead us to question the reliability of such systems as means of ensuring public goods – at least at regional or global scales. While the magnitude of such factors depend on the market strategies of participants, this also raises an element of uncertainty about the consistency of policy outcomes. Moreover, even where it is possible to mitigate the effects of these factors, such costs may make a given system competitively disadvantaged to those less affected. If state-based systems prove weaker in terms of their internal structures (H₁, H₂, H₃, H₄), NSMD approaches may indeed present an improved design. But where NSMD systems are applied at global levels, any evidence of social distancing (H₅, H₆, H₇, H₈) means that external structural factors may threaten to reduce or eliminate such benefits.

¹⁵⁸ If consumers cannot distinguish between labels, then labels have little value as a means of product differentiation (Morris 1997; Costa and Ibanez 2000).

6.1 Revisiting the evidence

Inasmuch as it was possible to graph the roles and obligations detailed in each systems' policy documents, all of the systems considered here met the condition of *determinacy*. However, as I demonstrated in Chapter 4, the chain-of-custody – a critical instrument for connecting producers and consumers – introduces a degree of indeterminacy to both NSMD systems. Since participation in such systems is voluntary, we would expect systems that rely on chain-of-custody instruments to provide feedback to producers to be less reliable than those that do not. While this does not mean that NSMDs will always be less effective as a means of policy delivery, such challenges are not insignificant. Anecdotal evidence suggests that in the case of forest certification, a large proportion of certified logs are “lost” along the value chain¹⁵⁹. This has been attributed to the voluntary nature of these systems, as well as to the relative scarcity of COC-certified companies¹⁶⁰. In fact, this has been a major concern throughout the history of forest certification. Such losses should lead us to question the reliability of such systems to create market incentives for producers, and more generally, the functionality of market-based policy systems at the global level.

On the other hand, all of these systems appear to satisfy the condition of *political breadth* – no direct delegation linkages were observed between 1st and 2nd parties, as such

¹⁵⁹ When the *Conservation and Community Investment Forum* interviewed certifiers, foresters, and academic researchers in 2001, it was claimed that only one of every five logs leaving FSC-certified forests ended up in FSC-labeled products (2002).

¹⁶⁰ Even when certification has been verified all the way to retailers, there is not guarantee that those goods will be labeled as such (Teisl and Roe 2000). Large COC retailers (e.g., Home Depot, Lowe's) often avoid labeling certified goods, due to the irregularity of supplies, or concerns that sales of other products might be negatively impacted. Others (e.g., IKEA) have corporate branding policies that bar placing other logos on their products (Archer, Kozak, and Balsillie 2005).

actors were involved only as the targets of policy implementation. For both FSC and CertFor, this is not unexpected – indeed, one of the earliest lessons in the development of the forest certification regime was that consumers tended to lack faith in labels that were not 3rd-party certified (Teisl and Roe 1998; Cason and Gangadharan 2002). Though representatives of both forestry companies and industrial associations were actively involved in the development of both the FSC and CertFor systems, such participation was not delegatory in nature. While we may question the proper role of target actors in policymaking processes, we must use other analytical tools to shed light on such processes. Of course, such linkages – indeed, all structural patterns apart from those related to chain-of-custody instruments – are likely to be rather idiosyncratic, and thus less likely to be generalizable across all NSMD systems.

With this in mind, the NSMD systems considered here offer clear improvements in terms of *parallel complexity* (i.e., multiple principals), the factor which also varied the most across policy systems. Chile’s state implementation systems exhibit more than twice the parallel complexity of the most complex NSMD system, CertFor. In part, this reflects the diversity of the state’s policy tools, which include instruments such as subsidies, loans, tax holidays, and direct monitoring. But it may be partly derived from “institutional legacies,” the overlapping responsibilities often associated with long-lived state policies (North 1990). However, it is unlikely that all forms of parallel complexity are equivalent¹⁶¹. It is reasonable to believe that the duplicate relationships within the

¹⁶¹ In other words, that the “magnitude” of parallel complexity is commensurate, regardless of the particular procedures and institutions involved. Rather, it seems likely that some forms of parallel complexity may be specifically designed to reduce slippage (e.g., competing agents, each empowered to report on any deceptive behavior by others). While it is not clear that this has been the case for any of the systems studied here, it still suggests limits to which metrics such as *parallel complexity* might be universally applied.

CertFor system were designed to reduce the effects of sequential complexity, by interjecting direct and final authority by the Secretariat. Determining whether such differences matter is something that must be established with performance-based measures.

Structural comparisons become more complicated when we consider *sequential complexity*. While Chile's state-based forestry regulations exhibit the longest delegation chains, the balance shifts when we consider the "informational chains" necessary to guarantee that the products of certified forests (and only certified forests) bear certification labels. To link producers to consumers, chain-of-custody systems require that *every* link between forests and store shelves be certified. Since global commodity chains are often quite lengthy, the sequential complexity of these label-based systems may in fact be much greater than that of (Chile's) state regulatory systems. Though the actual length of a chain-of-custody depends on market structure and the economic strategies of firms along the chain (including voluntary participation in NSMD systems), such factors are exogenous to the NSMD policies themselves. This means that in practice, NSMD systems which rely on COC instruments are likely to be both *indeterminate* and *sequentially complex*. This may seem intuitively obvious, and in fact, direct-marketing to consumers was an early strategy of wood certifiers. However, to my knowledge, before now no one has identified the extended chain-of-custody as a structural flaw inherent in global-scale NSMD systems.

Given such challenges, the market-driven aspect of NSMD systems appears to be their weakest point. Yet those attempting to connect producers and consumers at the global level face the additional problem of *social distance* – understood here as the

tendency for informational asymmetries to emerge as actors are separated by geography, culture, or epistemic framing. Since domestic-level state-based policies are territorially constrained, such factors are less likely to be significant. However, inasmuch as informed consumers are necessary for label-based systems to succeed, any factor that produces such asymmetries will also limit the reliability of NSMD approaches as a means of policy delivery at the global scale.

In estimating the impacts of three forms of social distance on publicly available communication about forest certification, I determined that *epistemic framing* (i.e., professional communities) showed no attenuation effect (i.e., terms were no less common in INDUSTRY and GENERAL media articles than in FORESTRY publications). On the other hand, *cultural distance* showed a moderate attenuation effect, even when Chilean sources were excluded to reduce possible geographical effects. Especially interesting is a decline in the mention of the PEFC system, considering both its European origins and the claims that CertFor proponents have made about how that program will increase the visibility of their products beyond Chile.

However, such results should be qualified by near or total absence of many terms in media outside of Chile (see Figure 6.2). Indeed, it is *geographical distance* that demonstrates the strongest impact on communication quality. Sixteen categories were found in less than five percent of all NON-CHILE articles, including PEFC and CertFor, with the latter found in only a *single* article found outside of Chile. By comparison, FSC is found in 96 percent of NON-CHILE articles¹⁶². This is not surprising, given the historical

¹⁶² This apparently high salience must be qualified – a search of MAJOR PAPERS in LexisNexis reveals that US-based Home Depot was discussed in at least 5,313 articles in 2003 alone.

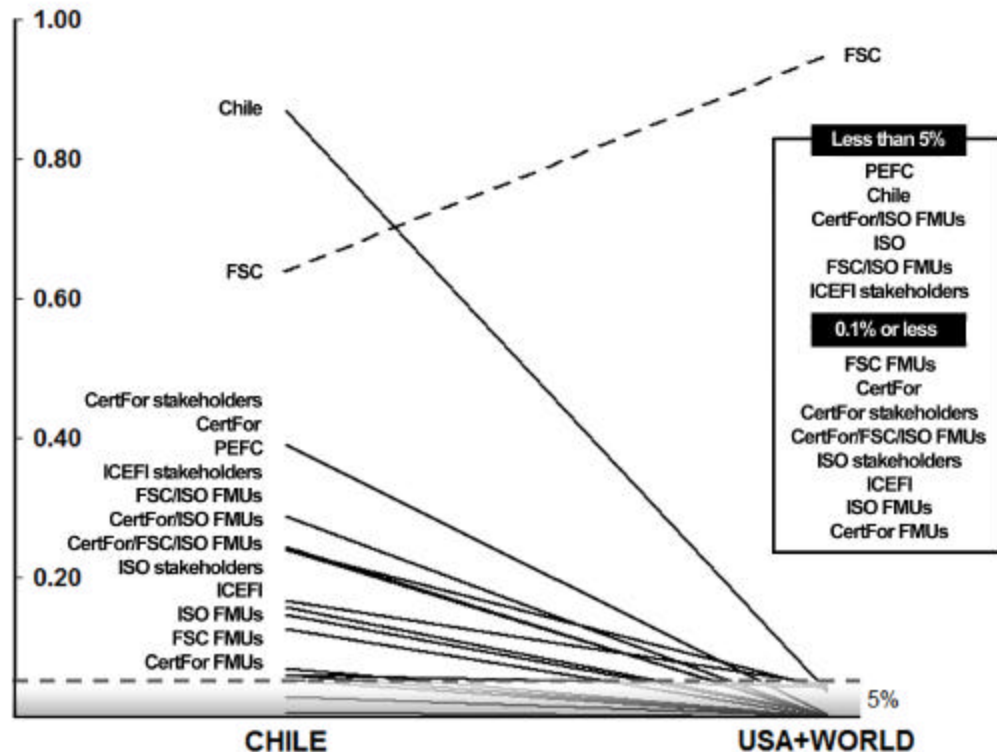
importance of the Forest Stewardship Council in the development of forest certification. The FSC has more than 740 FMUs and 4,200 COC companies certified in over 70 countries¹⁶³ (FSC 2006b); by comparison the PEFC and its affiliated programs (CertFor¹⁶⁴ among them) have certified 184 FMUs and 2,598 COC firms across 21 countries¹⁶⁵ (PEFC 2005). Though geographical distance may have serious implications for the competitiveness of market-driven systems, such effects must be understood within context, as other market alternatives may be advantaged in particular markets. Again, while this may seem intuitively obvious, relatively few scholars (or practitioners) have suggested that social distance may present problems for market-driven governance systems in general (exceptions include Princen 1997, 1999; Conca 2001). To my knowledge, this is the first attempt to measure such effects at the global level.

¹⁶³ As of January 2006, fifteen FMUs and twenty-six COC firms were certified to FSC standards in Chile (FSC 2006b).

¹⁶⁴ Currently, six FMUs and nine COC firms are CertFor-certified (CertFor 2006).

¹⁶⁵ This amounts to 133,889,563 hectares globally, almost twice the FSC's total of 68,125,087 hectares (FSC 2005), reflecting the general reluctance of the world's larger forest companies to embrace the FSC process.

Figure 6.2 Categories with Statistical Evidence of Attenuation or Gain Across Geographical Distance



Again, the problems caused by social distancing effects are *in addition* to those posed by internal structural factors – NSMD systems operating at global scales are prone to both. Though it may be possible for broadcast communication strategies to “skip ahead” to consumers further down the product chain, this cannot overcome all weaknesses of chain-of-custody systems. Because geographic and cultural distancing effects are evident across all market segments (FORESTRY, INDUSTRY, GENERAL), broadcast strategies may still fail to inform actors intermediate between producers and end consumers. Given the complexity, spatial distribution, and cultural diversity of global commodity markets, the task of informing manufactures, retailers and consumers is clearly a great challenge. Since the FSC so clearly dominates international discourse about forest certification, this problem would seem to be especially difficult for newer,

local systems, such as CertFor. The surprisingly scarce mention of the PEFC system (despite its greater certified acreage) suggests that a mutual recognition strategy (by which CertFor products are allowed in the PEFC chain-of-custody system) may not offer the market advantages which proponents of CertFor have hoped for.

6.2 Implications

These results echo many of the concerns that have been raised in the past about the reliability of private regulation (Vrielink and Brandsen 2004). Even before the newest wave of NSMD policies, scholars pointed to the critical importance – yet tenuous nature – of information in market-driven systems (Parkinson 1975; Laric and Sarel 1981). The tendency for both extended market chains and social distance to erode communication has been highlighted (e.g., Princen 1997; Fuchs and Lorek 2002), as has the possibility of geographical distance to affect the competitiveness of more distant producers (e.g., Bass et al. 2001). Thus, while NSMD approaches may be successful at national or regional scales, they are much less likely to produce consistent feedback at the global level. Since the regulatory apparatus of modern nation-states are territorially defined, we would expect the distancing effects for state-based policies – or locally based, market-driven systems – to be less than those found in global markets¹⁶⁶. *Ceteris paribus*, we would expect NSMD systems to be most successful where distances (both structural and geographic) between producers and consumers can be minimized. For some goods, lower structural distances may be achieved through direct marketing, though this is likely only

¹⁶⁶ Large or culturally diverse states would likely face more challenges of this sort than smaller, culturally homogenous states. While this is less of a factor for this particular case study, it does limit the generalizability of social distance as a constraining variable.

feasible for higher value goods (e.g., doors and moldings¹⁶⁷). For those of lower value (e.g., roundwood, lumber¹⁶⁸), geographic constraints are more likely to be significant. This is supported by the global distribution of certified producers; both the FSC and PEFC have been most successful at gaining marketshare in Europe, where most certified producers are also found (Thornber 1999, 2003; PEFC 2005). More distant producers – where the challenge of sustainable forest management is arguably more critical – have been disadvantaged in those markets (Cashore, Auld, and Newsom 2004b). While this may not be entirely attributable to either structural complexity or social distancing, the evidence I’ve presented here suggests that such factors should be of concern to those seeking to promote environmental and social sustainability via market forces.

However, distancing may not be the only – or most important – factor affecting the availability of producer information in consumer markets. Where market demand is so vast that it can only be met by a multitude of sources, it is unreasonable to expect individual producers or labeling systems to have a salience with consumers that is significantly greater than their marketshare. Although US markets consume over one-third of Chile’s forestry exports, this amounts to only 0.3 percent of US forest product imports (Howard 2004). In this context, it would seem unrealistic to expect Chilean producers – or Chilean policy systems – to have a very high profile in US media. Add to this the confusion caused by the great variety of certification and producers labels in the marketplace (recall Figure 2.6), and we have a clearer picture of the challenges facing

¹⁶⁷ Andersen Windows and Alexandria Moulding, two of the largest international wood products manufacturers in Chile, have both announced FSC-only purchasing policies, to the irritation of those in the Chilean industry who do not actively support FSC certification (El Mercurio 2003; Lignum 2003a).

¹⁶⁸ *Roundwood* are unprocessed logs, while *lumber* (also known as *sawn wood*) has been milled to

conscientious consumers (Cabarle et al. 1995; Teisl and Roe 2000).

Taken together, these conclusions suggest that if we want NSMD approaches to apply to a significant proportion of global production, markets must either be predominantly local¹⁶⁹, or substantially concentrated¹⁷⁰. While informational asymmetry is greater for products sourced from greater distances, the evidence shows this is likely to be less problematic for local sources. It may be possible to reduce asymmetries by combining ecolabels with other information (e.g., producer marks, country-of-origin labeling), and thus effectively shorten COC chains, reduce social distance, or both. But it is clear that both the context and scale of policy institutions – and the markets within which they compete – are likely to be more important factors for the success (or failure) of any given NSMD policy system than aggregate demand. This means that there are real, practical limits to our ability to achieve sustainability via market forces, just as there are limits to state-based regulatory approaches. In the Chilean context, structural complexity affects both state and market-based institutions, but social distance is much more likely to be an additional complicating factor for the latter. When comparing the expected efficacy of NSMD models with state-based regulatory approaches, we must always be conscious of such limitations.

standardized dimensions (Dykstra and Heinrich 1997).

¹⁶⁹ Ensuring global-scale public goods through localized markets faces the persistent problem that neither capital nor demand are evenly distributed. Indeed, it is the wealth and higher consumption of the US, Europe, and East Asia (rather than their proximity) that have made them Chile's most important markets.

¹⁷⁰ Of course, concentration increases the potential for other well-known problems, both economic and political. Bottlenecks of either supply (monopoly) or demand (monopsony) tends to produce market distortions (Princen 1997; Milward 1998), and disproportionate economic power has long been associated with disproportionate political power (Dahl and Lindblom 1953).

Some have suggested that the weaknesses of Chile's state forestry regulation may be resolved by clarifying CONAF's formal legal status (Silva 1997a; Clapp 1998) and strengthening that agency's authority (e.g., giving enforcement powers to forestry officials) (Leslie 1997). Paradoxically, this may even increase the effectiveness of the private sector approaches (Haufler 2001). However, these reforms alone would still not address problems of structural complexity (see Table 4.7). The non-state systems operating in Chilean forestry offer clear advantages in terms of parallel complexity, as well as possible marginal improvements in sequential complexity (leaving aside the problems associated with chain-of-custody instruments). Assuring both citizens and consumers may require the state to retain policymaking and licensing authority, as well as liberal use of "fire-alarm" oversight. An approach that has been successfully implemented in neighboring Bolivia is to establish state standards that are equivalent to NSMD alternatives in terms of stringency, but which exempt forest companies from government oversight if they have been certified by a state-recognized non-state system (Jack 1998; Taylor II, Nittler, and Kraljevic 2002). In at least some national contexts¹⁷¹, it may be possible to design hybrid systems to combine the best of both approaches: the more established policymaking authority of state institutions, and the leaner implementation structures of non-state systems (Koppell 2003).

Thus, peculiarities of the Chilean case may limit our ability to generalize all of these conclusions to other contexts. Chile presents a strong case for (potentially) effective

¹⁷¹ This option is available to Bolivian lawmakers because most forestland is owned by the state, and leased to logging companies. The model is much less feasible in Chile, where productive forests (and tree plantations) are overwhelmingly in private hands, and the constitution strongly emphasizes private property rights.

regulation: low levels of state corruption and relatively stronger economic status may imply an unusually high state capacity, and the country's highly modern commercial forestry suggest a relatively high capacity to implement *any* regulation, regardless of its institutional origins (i.e., state, non-state, or hybrid). However, Chile's history of neoliberal policies – and related emphases on private property rights and natural resource exports – has produced an environmental regulatory apparatus that is in fact, relatively weak (Rojas 1994; Silva 1997b). While many other wood exporters have also struggled to apply state forestry regulations, higher levels of corruption or generally fewer state resources in other national contexts may make state-based regulation even less reliable there. Similarly, the less-sophisticated forest industries and poorly defined property rights – both of which are common in the developing world – are each also likely to generally limit the ability to implement either state or non-state regulatory policies. Where these producers are also structurally or socially distant from demand for certified forest products (also quite common), we would expect NSMD policies to face significantly greater challenges than we find in Chile.

6.2.1 The problem of demand

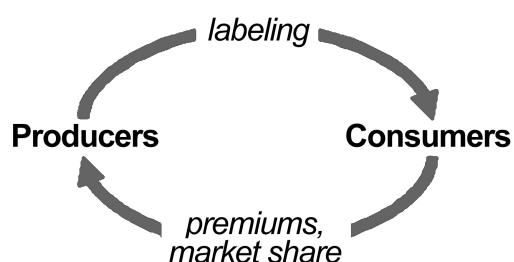
Of course, while partially retaining state policymaking authority may address a few functional challenges and normative concerns, critical issues remain. Perhaps most significant is the problem of demand – market-driven means of ensuring public goods are predicated on the belief that given a choice, informed consumers will discriminate in favor of certain goods, and such preferences will be communicated to producers in terms of higher prices for those goods, or an increase in market share (Wynne 1994; Sikod

1996). Product labels serve as the principal means of differentiation, which in the case of forest certification is intended to inform consumers that those products have greater “value-added,” inasmuch as their harvest or processing conform to standards intended to protect public goods¹⁷² (Simula, Rametsteiner, and Blåsten 2001). The model is meant to provide producers with incentives to turn out more “high-value” products, and thus expanding the protection of public goods (Moran 2001) (see Figure 6.3). But for such systems to function properly, at least two other conditions must be met: there must be an available supply of certified and labeled goods in the marketplace; and consumers must be sufficiently informed and motivated to prefer those goods over others (von Mirbach 2000; Simula et al. 2001). This presents something of a Catch-22 – producers are unlikely to incur additional cost¹⁷³ to produce such goods without some guarantee that consumers will respond, and even willing consumers are unable to reward producers if labeled products are not readily available (Hansen et al. 1998; UN-ECE et al. 1999; Whiteman et al. 1999).

¹⁷² Since the “added-value” of such goods cannot be determined by examining the products themselves (before or after purchase), markets for these *credence* goods are very different from those of ordinary commodities (Caswell and Mojduszka 1996; Engel 2001). They are heavily influenced by the level of consumer trust, one of the principal reasons why 3rd-party certification has become so important to NSMD systems (Teisl and Roe 1998; Cason and Gangadharan 2002).

¹⁷³ Bare (2000) has estimated that auditing and management costs associated with forest certification add 9.9 percent to base stumpage costs – that is, forest managers would need to earn almost a 10 percent premium to break even.

Figure 6.3 Market feedback



Since this problem is common to all new products (and efforts to differentiate existing products), it was anticipated by the early proponents of forest certification, who organized sympathetic retailers into “buyers’ groups” such as the *WWF 1995 Group* (founded in 1991, now known as the *WWF-UK Free Trade Network*), to create sufficient demand to “jump-start” producer interest in FSC certification (Bass et al. 2001). After the idea was expanded to include producers’ groups, the WWF formed the *Global Forest and Trade Network*, which now represents eighteen trade groups, active in more than two dozen countries – though over half are based in Europe, and buyers (principally DIY retailers) outnumber producers ten-to-one (WWF GFTN 2005). The *WWF-UK Free Trade Network* has been exceptionally successful at the local level, claiming to account for nearly 30 percent of that country’s forest products market (WWF-UK FTN 2005). Though this represents the high-water mark for FSC certification¹⁷⁴, the label has demonstrated the ability to expand or maintain market access for producers (Butterfield et al. 2005). Still, certified goods are not projected to account for more than a small fraction of the world’s total forest products market for the foreseeable future (Whiteman, Brown, and Bull 1999).

¹⁷⁴ The FSC is believed to have the largest share of the market for certified forest products, although

Similarly, the ability of producers to receive higher prices for certified goods has never been clearly established (Teisl and Roe 2000). The year the Forest Stewardship Council was named (but two years before its official founding assembly), a WWF survey found consumers were willing to pay up to 15 percent more for sustainably harvested wood products (Bass et al. 2001), and later surveys largely supported this belief (Ozanne and Vlosky 1997, 2003; Jensen et al. 2004). However, higher prices have rarely been observed in practice (Gullison 2003; Anderson et al. 2005). Such evidence as does exist shows far lower increases (e.g., a 2 percent gain for certified plywood) (Anderson and Hansen 2004a), or has been restricted to rare, highly valued species for which demand is strong, but supplies limited (Butterfield et al. 2005, p 21). While a small percentage of consumers consistently purchase certified goods with little sensitivity to price, most switch to unlabeled products as prices increase¹⁷⁵ (Rametsteiner 2001; Anderson et al. 2005). The vast majority are primarily concerned with price, value and convenience (Roberts 1996; Anderson and Hansen 2004b). Consumer demand has not been as important to the expansion of forest certification as have major retailers, who have often supported certification as a means of deferring bad publicity from environmental groups (Cashore, Auld, and Newsom 2004b). While this has rarely resulted in higher prices for producers, it may help to stabilize or increase their market share (Butterfield et al. 2005), though this point is disputed (Whiteman, Brown, and Bull 1999). Regardless, if this “middle-tier” is the dominant source of market-driven demand (in forestry, at least), then NSMD approaches may be difficult to justify in terms of consumer sovereignty, as some

demand for the PEFC label has grown slightly in recent years (UNECE-FAO 2001).

¹⁷⁵ The *Conservation and Community Investment Forum* has estimated that consumers will only accept a 5

proponents of market-driven public policy have argued (Zadek, Lingayah, and Forstater 1998; Overdest and Rickenbach 2005).

Thus, perhaps the greatest problem posed by a market-driven approach to public policy is that even where demand is sufficient, consumer preferences (at any point in the supply chain) may not reflect the factors most important to ensuring those public goods. Effective demand is unevenly distributed throughout the world, and distant consumers are unlikely to know about local ecological or social contexts. Since signal attenuation was observed across all market segments (i.e., FORESTRY, INDUSTRY, GENERAL), social distance is a likely to be a persistent constraint for NSMD systems that are applied beyond local or national scales. Because the global distribution of wealth is unlikely to change significantly before most of the problems facing “at risk” public goods are resolved, this suggests a serious limitation to market-driven policy systems, and should lead us to question the wisdom of devolving state responsibilities to increasingly globalized markets and market actors.

6.2.2 Alternative explanations of support for NSMD systems

Faced with persistent and powerful opposition in state-based policy arenas, and the possibility of gaining more direct control over policymaking processes, by the late 1980s, NGOs began establishing alternative means of ensuring what they perceive as public goods. Unable to directly rely on state power to encourage participation or compliance, these groups turned to markets and consumer demand as a principal means of rewarding (or punishing) producers. But given the low media profile of these alternative systems in

percent premium (2002).

critical markets, why would Chilean firms choose to participate in the CertFor system? Moreover, why expend the considerable resources necessary to develop an alternative, if such costs are unlikely to be recouped in the marketplace? One prominent explanation in Chile was that FSC standards were designed for tropical forests, and were thus inappropriate to the local context (Morales 2003a). Another was that participants in the local FSC working group (ICEFI) are not representative of Chilean society (Miranda 2002b), with the implicit suggestion that the developers of the CertFor standard were more so. Yet another has been that “monopoly power” by any single label is undesirable, and that Chilean producers needed viable alternatives (Agricultural Minister Jaime Campos, quoted in Lignum 2003d, p 11).

Interestingly, though CertFor proponents have often emphasized FSC’s tropical origins (e.g., Miranda 2002a), once their standard neared completion, they often emphasized the similarities of the two programs – even to the point of claiming there are “no significant differences” between the two (Cerde and Lira 2001, p 15)¹⁷⁶, apart from what were implied to be inconsequential procedural variations (Cerde 2003). Of course, the first claim is strongly disputed by FSC supporters, and CertFor’s more insulated policymaking processes were often criticized during that system’s development (personal communication). While I have described variations in the implementation designs of

¹⁷⁶ While this report was produced under the aegis of the “independent non-profit organization” *Econativa* (p 3), both authors were then employees of *Forestal MININCO* and active in development of the CertFor standard. Cerde is now Executive Director of CertFor, and Director of Fundación Chile’s *Forests and Forestry Program* (Ecoamerica 2005); Lira is currently Director of the foundation’s *Development and Conservation Program for Forests, Industry and Sustainable Tourism* (Lira 2005). I am aware of no independent field trials that compare the two systems, nor any comparisons of either NSMD policies with prior management regimes.

these two systems in detail, I have only hinted at¹⁷⁷ some of the differences in the way each system has approached participation in policymaking processes. As with the situation I described in the opening of Chapter 1, the most persistent differences between Chilean NSMD systems appear to be political in nature. This suggests that questions of representation may also be critical to fully understand non-state policy development.

Certification is not cost-free – both FMU and COC firms are generally required to pay auditing fees to certifiers¹⁷⁸, and licensing or membership fees to the NSMD secretariats. For highly competitive markets (such as exist for forest products), any additional cost is difficult to justify, whether it is absorbed by producers or passed on to consumers. Since the auditing costs for large firms are less on a per-unit basis than they are for smaller firms (Scrase 1999; Bass et al. 2001), certification schemes tend to benefit larger-scale producers more¹⁷⁹ (Meidinger 2000). Though there is no evidence to suggest that this has been a factor in Chile, the ability of firms to turn regulation to their competitive advantage is well-known (Yandle 1983). Raising the costs borne by rivals is often easier and less costly than competition based on price or volume (Salop and Scheffman 1983). There is little reason to believe that such “Baptists and bootleggers”

¹⁷⁷ A description of CertFor’s governance structure can be found in Chapter 4, Section 4.3. As the timeline in Appendix III also suggests, ICEFI processes were essentially democratic, with the Directorate elected by Working Group participants (Verscheure 2000b, 2002), whereas CertFor’s governing and technical councils were chosen prior to public announcement of the initiative (CertFor 2001b; Morales 2003a). That I have generally not emphasized such factors does not mean that I believe them to be insignificant, but rather that they largely fall outside of my central thesis.

¹⁷⁸ Throughout the FSC’s history, civil society organizations have occasionally paid such costs for small-scale producers (especially in the developing world) as a means of promoting community development (Bass et al. 2001).

¹⁷⁹ A study of FSC-certified firms showed that FMUs of 10,000 hectares or less (38.6 square miles) accounted for fewer than one-fifth of all certificates and just three percent of FSC’s total certified area (Thornber 1999, 2003).

dynamics would be absent in non-state policymaking (see Yandle 1999; DeSombre 2000); indeed, the possibility that ecolabels might serve as barriers to market-entry has long been of concern (OECD 1997; EPA 1998; Raines 2003).

On the other hand, buyer and producer groups working together under the FSC label have seen certification as an opportunity to coordinate their efforts, and create sufficient demand or supply to compete on a par with the mainstream (i.e., large-scale) forest products industry. This quasi-integration of multiple producers under a single label could be interpreted as a loose form of vertical integration, similar to Alchian and Demsetz's contract-based concept of the firm (1972), or Coase's idea of firms as a means to reduce informational asymmetries¹⁸⁰ (1937, reprinted in 1988). To the degree that NSMDs are successful "quasi-firms," then the choice of participating in them may be appealing to firms that have traditionally been at a disadvantage in the marketplace (e.g., small- to medium-scale producers). While describing NSMD systems in this way requires some conceptual stretching, the underlying motivation for participation in these systems is still in question – to what degree are NSMD systems purely voluntary, or hierarchical? To what degree might participation be merely an effort to compete on an equal footing with large-scale producers, by combining both marketing resources and output?

Finally, it may be that a firm's visible participation in certification may be seen to have greater benefits than any potential price premiums or growth in marketshare. Though research has suggested that forest companies "must perceive a direct or indirect

¹⁸⁰ With at least one key difference – Coase argued that firms reduced asymmetries by internalizing information within authoritative hierarchies, while NSMDs attempt to reduce asymmetries between *external* actors (i.e., producers and consumers). Still, the idea that economic actors might enter into stable contractual relations (bearing many similarities to hierarchies) as a means of lowering transaction costs (at least for consumers) echoes Coase's general argument.

benefit” before choosing to participate in NSMD systems (Cashore, Auld, and Newsom 2004b, p 237), such gains must be understood in context. Firms facing persistent political pressures – especially the possibility of non-voluntary state regulation, or negative exposure in critical markets – may find significant benefits in these systems (Haufler 2001). Yet if their subsequent participation fails to fully engage citizens, local stakeholders, or consumers, we may reasonably question the ultimate effectiveness – or normative value – of such “feedback.”

6.3 Directions for future research

While the general ranking (i.e., degree of internal structural complexity) of these policy systems roughly parallels the expectations of both Downs’ *Law of Diminishing Control* (1966) and Williamson’s linear *control-loss* approach¹⁸¹ (1967), my “implementation network” framework distinguishes different forms of institutional complexity (*sequential* and *parallel*), and highlights potential conflicts of interest (*political breadth*). Because the framework can be applied to state, non-state, and hybrid implementation designs, it addresses a persistent problem within comparative policy studies (Schneider and Ingram 1997). Moreover, although social distance has been proposed as a limiting factor for efforts to achieve sustainability in global markets (Dickson and MacLachlan 1990; Princen 1997, 1999), this is the first effort to measure empirical effects across multiple contexts and content categories. Combined, these two methodologies provide a clearer

¹⁸¹ Based purely on the total number of actors involved in implementation, the most complex policy design would be D.L. 701/19561, followed by D.L. 19300 / D.S. 30, then CertFor, and finally FSC (not considering the real-world application of chain-of-custody instruments). This ranking is identical when only the number of hierarchical layers (i.e., *sequential complexity*) is considered (ala Williamson).

picture of the formal and informal structural constraints on policy implementation, drawing much needed attention to the twin constraints of institutional and geographical scale.

Because it appears that not all forms of parallel complexity are likely to have the same impact on communication, I want to determine if such features are most often instances of true *institutional redundancy* (ala North 1990), or whether they are designed to reduce *slippage* (i.e., divergence between principals' goals and agents' actions). I suspect that the sequence of oversight will be a significant factor, as might the presence or absence of "fire alarm" oversight. For instance, the dyads between the CertFor Secretariat and FMU and COC firms (see Figure 4.2) are the last oversight/delegation relationships in that system's certification processes¹⁸², effectively giving the Secretariat the "final word" on the issuance of certificates. It is also possible that certain network characteristics (e.g., the distribution of "sending" or "receiving" links by agent) may reflect other relevant structural relationships, such as the degree to which control has been centralized or distributed, or the relative importance of delegatory or purely informational (e.g., "fire alarm" oversight) relations. Exploring oversight and delegatory relationships from a structural perspective– and across a variety of implementation network designs – may provide insights about which policy instruments are more effective, and why.

¹⁸² Such information is implicit in the ordering of links (e.g., A, B, C...) in the implementation network graphs I presented in Chapters 3 and 4.

I am also interested in seeing whether the “harmonization” of multiple policy approaches can be observed in their formal implementation structures, and more or generally, the degree to which policy designs have evolved structurally over time. If possible, I would also like to compare real-world COC market chains, to identify under what conditions these have been successful in connecting producers to consumers – in other words, to systematically test the hypotheses that NSMD actors that pursue strategies to reduce structural or social distance are more likely to succeed in the marketplace (i.e., attain market premiums or increased marketshare). I also believe more could be learned about the protection of public goods by private means by applying these methods to other issue areas where both state and NSMD policy systems are found (e.g., organic agriculture, social standards). However, just because the network framework allows for multiple actor types (e.g., state, non-state, hybrid) does not mean that research needs to be restricted to areas where all of these types are found – as Figure 4.3 demonstrates, we may be able to reveal interesting patterns by comparing state-based policies to each other. In fact, the degree to which internal structural factors are correlated with empirical success or failure (even across issue areas) may suggest positive reforms for state-based (or non-state) policy designs.

Finally, although I was able to demonstrate strong evidence of geographic distancing effects, the statistical validity of other factors (e.g., cultural, epistemic) may have been limited more by my method of aggregating content, than by actual patterns in the data. I believe the results I have presented here could be strengthened by using article-level coding and Logit analysis instead. I would also like to try representing geographic distance more directly, possibly by introducing an ordinal dummy variable to control for

general proximity. Because some time has passed since I gathered the articles for the original analysis, I would also like to return to Chile to gather additional media materials and re-interview stakeholders about the current status of forest certification there.

6.4 Regulatory institutions of states, markets, and civil society

While the choices and strategies of individual actors may significantly affect outcomes for both state-based and NSMD policies¹⁸³, all must contend with the structural factors I have described here. In developing this two-part framework (*structural complexity* and *social distance*), I have been careful to avoid assumptions about actors' motivations – indeed, we would expect complexity and distance to be constraints even if every actor were perfectly altruistic. Since the problems of informational asymmetry and slippage are only worsened by goal divergence (i.e., non-altruistic or selfish motives), we can assume that these structural factors represent a minimal baseline for policy success. In other words, introducing more “realistic” assumptions about actor motivations is only likely to make the problems identified here worse. Similarly, I have generally ignored the possibility that individuals may have different decisionmaking capacities – or abilities to act upon those decisions – either of which may also significantly impact policy outcomes. Instead, I have focused on factors that have been either formally (and endogenously) defined in the constitutive documents of each policy system, as well as the exogenous factors which have been observed in social systems of increasing scale and heterogeneity.

¹⁸³ As I have already explained, the choice of whether to participate in voluntary systems affects the *determinacy* of each system, and strategies such as direct marketing may reduce *sequential complexity*. More generally, *slacking* and other forms of *deception* may also seriously impede the effectiveness of any policy forms.

Apart from those related to *determinacy* and *political breadth*, my hypotheses all derive from one assumption – that no act of communication is perfect. By investigating some of the various ways that formal and informal institutions can be expected to degrade the flow of communication, I have developed not only a framework capable of comparing very diverse institutions, but also established some of the baseline conditions by which agency is constrained.

Thus, my approach is broadly compatible with what have been dubbed the “Three New Institutionalisms” (Hall and Taylor 1996; Kato 1996)¹⁸⁴. Rather than building my arguments on assumptions about the motives of actors or institutions, I have generally followed Skocpol’s advice that institutional analyses ought to be historically and empirically grounded (1984; 1995). However, though I have remained neutral as to the “rational” or “self-interested” behavior of participants, the more formal elements of my framework (especially *implementation networks*) should accommodate a variety of rational choice perspectives (Waterman and Meier 1998), even as it provides a more nuanced and empirical understanding of how complex institutions are designed. This should also lead to more realistic theories of principal and agent dynamics at the systemic level (Lyne and Tierney 2002; Lyne, Nielson, and Tierney 2003). Indeed, despite claims by Bendor et al. that any study of principals and agents beyond the dyadic relationship is “excess baggage” (Bendor, Glazer, and Hammond 2001, p 236), I believe that I have offered conclusive proof that macro-structure can matter.

¹⁸⁴ While these authors agree about two schools of new institutionalism (*historical institutionalism* and *rational choice*), they formulate the third somewhat differently. Whereas Hall and Taylor add *sociological institutionalism*, which emphasizes the effect of cultural contexts on institutions, Kato offered *bounded rationality* as based on assumptions distinct from that of rational choice. However, her formulation of bounded rationality is sufficiently broad that it appears to merely reflect a greater emphasis on the political

Inasmuch as we expect both *structural complexity* and *social distance* to negatively impact the transfer of information, this framework could also be interpreted as an extension of the concept of *bounded rationality* to both formal and informal social systems. In fact, elements of this approach were implicit in Williamson's studies of hierarchy and optimal scale (1967; 1970) and explicit in Princen's work on "shading and distancing" in global markets (1997). However, by supporting a more empirically grounded understanding, my framework should offer greater resolution on the root causes of suboptimal outcomes, whether they stem from these structural factors, or from strategic behavior¹⁸⁵. Similarly, my formulation of social distance – and its effects on communication – should be recognizable to sociological institutionalists who strive to situate institutions in more subtle cultural contexts (e.g., Gilardi 2002). By paying closer attention to the possibility that various forms of *social distance* may affect communication throughout local, regional and global markets, we will be better able to assess many of the claims (and counterclaims) made about the success of NSMD policies.

I have also helped to extend institutional and organizational analysis into new areas. While the use of organigrams is not uncommon in organizational analysis (e.g., Mintzberg and Westley 2000), this is the first time this formal approach has been applied to compare regulatory forms. Again, this method could facilitate comparative policy studies, which has long lacked a generalizable framework of sufficient subtlety (Schneider and Ingram 1997; Vedung 1998). Because the method also accounts for the role of non-state and hybrid actors in policy implementation, it enables comparison of

science literature over that of sociology.

¹⁸⁵ Lyne et al. contrast the structurally induced problems of multiple principals (i.e., *parallel complexity*)

state, non-state and hybrid policy designs – at least in terms of delegation, oversight, and related structural characteristics at the systemic (and sub-systemic) level. This not only helps to ground our discussion of both state and non-state policies, it allows us to move beyond the metaphorical use of the term “regulatory” to describe many non-state system dynamics. Indeed, by applying this network-based, principal-agent framework to other regulatory forms – and experimenting with a variety of assumptions about actors’ capacities and motives – we should be able to extend current theories of regulation in new directions.

6.5 Governance in the era of globalization

This project began with a casual observation that procedural elements of policy implementation appeared to be more contentious to supporters of competing non-state policies than differences in their standards of substantive success. Although other scholars have attempted to compare non-state policy systems in terms of process, these have generally been studies of stakeholder access and participation (e.g., Elliott 1999; Elliott and Schlaepfer 2001; Lindahl 2001). Others have compared non-state systems to state-based policies by focusing on the means by which policymaking authority (or legitimacy) is established and maintained, outside of the state’s formal coercive authority – especially market-driven systems (e.g., Cashore et al. 2001; Cashore 2002). While there have been other examples where scholars have compared state and non-state policy systems by their substantive standards (e.g., Pinchot Institute for Conservation 2005; US Forest Service 2005), this is the first attempt to compare such systems according to their

with the “ordinary agency losses” attributable to goal divergence or deception (2002, p 9; 2003, p 7).

expected effectiveness as means of policy delivery.

Where states have failed to establish strong and effective policies, civil society organizations have come to work directly with economic interests to develop non-state means to regulate responsible behavior (Haufler 2001; Cashore 2002). Yet while these non-state, market-driven systems may increase the alternatives available to those concerned with sustaining public goods, they may reduce options in other areas. Economic actors have been known to pursue non-state initiatives as a means of preempting state regulation (Sheppard 1999a; Arnold 2003); in fact, many proponents of private regulation have proposed such approaches as part of a broader privatization of economic and social regulation (e.g., de Bruijn and Norberg-Bohm 2001; Albrecht 2002; Council of Economic Advisors 2003). Yet if the alleged economic benefits of NSMD systems are illusory (or at least rare), it is difficult to see how they can be sustained as means of ensuring public goods. This is problematic, since devolving regulatory functions away from state institutions affects the state's future capacity. The ability to discipline economic actors relies on maintaining the *countervailing power*¹⁸⁶ currently derived from both governmental and civil society actors (Haufler 2001); indeed, we may find it more difficult (and possibly more costly) to re-regulate at a later point than to shore-up or reform current state capacity.

¹⁸⁶ The term *countervailing power* comes Galbraith's 1952 classic American Capitalism. While Galbraith had focused on the state's role in *economic* regulation (e.g., prices, wages), the principal is the same for *social* regulation (e.g., environmental standards); economic actors have little incentive to serve the broader public good without a non-market force (e.g., government) strong enough to compel their cooperation (1954).

Whether we consider these NSMD systems as simply the latest examples of private governance¹⁸⁷ (Sasser 2001; Falkner 2003), or as nascent examples of an emergent international “soft law” (Walter 2003; Bernstein and Cashore 2004), they present dramatic innovations to the means of policy delivery (Cashore, Auld, and Newsom 2004b). This is especially the case for regional and global (i.e., transnational) public goods, of which the environment is one of the clearest examples (Sonnenfeld and Mol 2002). Though the benefits of such goods often transcend national boundaries, the cost of sustaining them is primarily borne locally. This presents widespread incentives to free-ride on the efforts of others, and thus a persistent source of institutional and market failure. This holds true for both state and market actors, each of which often face incentives to externalize costs in pursuit of greater competitiveness (Goodwin and Harris 2001; Revesz 2001). Indeed, most of the new-era NSMD policies have been promoted as means to reduce such failures, even while increasing efficiency and ultimately, policy effectiveness.

Because independently monitored certification with a label-based chain-of-custody – features of both the FSC and CertFor systems – are considered the “gold standard” of NSMD governance (Wartelle 2002; Cashore, Auld, and Newsom 2004b), we may assume that the factors impacting voluntary chain-of-custody instruments at the global scale (*indeterminacy*, *sequential complexity*, and *social distance*) would likely be worse for other NSMD forms. Without independent monitoring and an auditable chain-

¹⁸⁷ “Governance” parallels “government” inasmuch as both involve rule systems intended to influence purposive, “goal-oriented activities” (Rosenau 1992, p 4), but the first is more inclusive. Whereas government has recourse to police powers, governance may also include systems based less on formal authority than on shared goals and norms (ibid.).

of-custody, consumers are unlikely to place much trust in the claims of producers, manufacturers or retailers (Golodner 1997; Zadek, Lingayah, and Forstater 1998), and without product labeling, it is difficult to see how even well-meaning consumers could realize their preferences in the marketplace (Cason and Gangadharan 2002). But since there are conditions under which NSMDs are unlikely to produce reliable outcomes (e.g., when *sequential complexity* and *social distance* are greatest between producers and consumers), we must question whether market-driven public policy is truly the panacea that so many of its supporters would have us believe (e.g., Campbell 1997; Yilmaz 1998; Schwarcz 2002a; Holcombe 2003).

For those public goods which transcend political boundaries, there are no easy answers. This is a different issue than whether we prefer a system of one dollar-one vote, or one person-one vote. Though how we define “the public” is as important as how we define the public good, there are also functional reasons why we might choose one approach over another. Based on the results of this research, we should expect neither state or non-state systems to perform well as institutional and geographical scale increases. Regardless of whether we seek to sustain public goods by public, private, or hybrid means, we must expect slippage to increase along with institutional scale – especially the extended chains-of-custody associated with global markets. And inasmuch as rational demand (political or economic) is predicated on informed citizens or consumers, we must also expect feedback to the “suppliers” of public goods to diminish with social – and especially geographical – distance. Given the evident importance of structural and social distance, it seems that establishing and maintaining reliable oversight (i.e., *watching the watchmen*) will very likely require us to *localize* control. To

paraphrase the late House Speaker Tip O'Neill, "all implementation is local" (1994). The same may be said of reliable oversight – and thus, effective regulatory policy – whether it is attempted by public or private means.

APPENDIX I: IDENTIFYING NETWORK RELATIONS

The implementation networks I have depicted in this dissertation are single-mode and multi-relational (Wasserman et al. 1999), in that they involve a single class of entities (encompassing agencies, firms, and civil society organizations) that are interconnected by delegation, information, or resource transfer relationships. They are similar to *organigrams* (formal models of organizational structure), but differ in at least one fundamental respect: whereas organigrams have typically been used to depict paths of authority or responsibility within a single organization, implementation networks – at least as applied to regulatory policies – must by definition include multiple independent actors or organizations (Taylor 1958; Mitnick 1980). It is this seemingly minor difference that has prevented analysts from developing formal network models of regulatory implementation.

The most basic unit of measure in a network is the *dyad*, defined as two actors and the link (or relationship) connecting them. In broadest theoretical terms, *actors* are “discrete individual, corporate or collective social units” (Wasserman et al., 1999, p 17), which might be understood quite broadly. But because the central purpose of my framework has been to highlight regulatory processes, I have generally chosen to ignore tasks mandated within single “corporate units” (i.e., intra-organizational processes), since these lack sufficient political breadth. Of course, what constitutes a “corporate unit” is not always obvious. Where there is evidence of budgetary or managerial autonomy (e.g., agencies within a government bureaucracy), I have treated those “nested” units as separate from others within the larger organizational structure. Where such autonomy has been less evident (e.g., FSC regional offices), I have considered those larger

organizations as unitary actors, and treated any mandated processes as internal. What this means, of course, is that the complexity of any given implementation network is likely to be dependent on the level of resolution (or “granularity”) of the analysis.

Similarly, while all but two links (see Figure 3.1) in the implementation networks that I mapped in Chapters 3 and 4 represented either a delegatory or an informational relationship between actors, certain provisions of D.L. 701 / 19561 could not be characterized in this way (i.e., loans and reimbursements for reforestation and management costs). For other policies, it is possible that other types of linkages between principals and agents may also be relevant. Thus, the complexity of a given implementation network also depends on the theoretical focus of the researcher and the character of the policies being studied.

One of my central goals in this research has been to ground as much of my analysis as possible in empirical data. Thus, in interpreting the implementation networks for each policy system, I have worked solely from the formative policy documents of each (e.g., organic laws, by-laws, regulations). Identifying the dyads of which the networks are composed is a matter of scanning the documents for passages that describe actions which are either required or permitted, and parsing the *subject* actors (those who “act” upon others) and *predicates* (verbs or verb phrases, and the objects of those verbs) into principals, relations, and agents. Of course, this is as much an art as a science in practice. Yet it is arguable that the roles and obligations can be consistently interpreted from policy documents – indeed, this is the essence of the first hypotheses of *determinacy*.

For example :

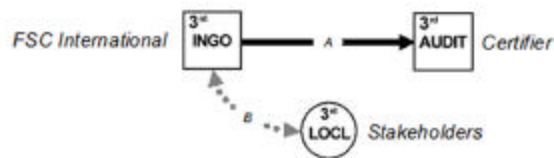
FSC Accreditation Manual, Part 2.2. Section 3.6:

“During the evaluation visit, the FSC evaluation team: ... **discusses** problems that have been identified during the evaluation of the application documents; ... **discusses** concerns that have been **identified** by local consultees ... **inspects** additional documentation ...”

Can be parsed to:

- a FSC representatives visit applicant's offices to assess management systems.
- b FSC representatives meet with local stakeholders.

And represented as:



Another:

Procedimiento para la ejecución de la visita de pre-auditoria, Section 8.1:

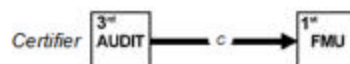
“El procedimiento comienza una vez que se ha **firmado** un contrato entre el postulante y el cuerpo certificador, y se ha **llegado a un acuerdo** en relación a las tarifas involucradas.”

Trans: “The procedure begins once a contract has been **signed** between the applicant and certifying body, and they have **agreed** to the fees involved.”

Can be parsed to:

- c Applicant returns signed contract, obligating them to Pre-Assessment provisions.

And represented as:



Simplifying assumptions

Of course, reducing what are often quite lengthy and complicated policy documents to (relatively) simple network visualizations requires several simplifying assumptions – some of which may be quite unrealistic. Judgement as to the degree to which any individual assumption may be acceptable – or unacceptable – will very likely require an in-depth understanding of the relevant actors and institutions at hand, as well as the real world contexts within which those policy systems play out. For instance, a close reading of the case studies I presented in Chapters 3 and 4 (as well as Appendix V) suggests that several assumptions may need to be qualified. These assumptions can be grouped into two categories, according to the core elements of the unit of measure: the equivalency of actors and of the linkages between them. As I argue in Chapter 6,

In any setting where multiple actors are involved, we can reasonably expect those actors to vary – sometimes quite significantly – by both *motives* and *capacity*. I addressed the first of these in Chapter 2 (see the discussion on *preference divergence* in Section 2.2), and emphasized in Chapter 6 how the negative effects of either structural complexity and social distance are only compounded by goal conflict between participants (see Section 6.4). Again, even if all actors were perfect altruists, structural limits on communication can be expected to impact their ability to coordinate their actions towards shared goals.

One potentially problematic simplifying assumption I have applied to these implementation networks is that all actors are considered to have an equivalent capacity to perform their roles and seek their objectives. Given the known diversity of some participants (e.g., the largest Chilean forestry firms, versus local NGOs), this may be

more or less significant, depending on the magnitude of the tasks and challenges facing each. For instance, larger firms may command greater resources, but also tend to face more complex management challenges. In general, whether individual actors or institutions are mismatched will depend on specific contexts, identified through careful case studies. And, as I argued in Chapters 2 and 6, while it may be possible for individuals or groups to mitigate the impact of some structural factors, the resources required to accomplish this feat would necessarily be diverted from other purposes (e.g., lower prices, higher profits). This would disadvantage such actors relative to others of similar capacity, but who face less-significant structural challenges.

But perhaps the greatest simplification I have made when operationalizing these implementation networks has been to treat all linkages of a given type (i.e., *relation*) between actors as equivalent. This means that not only have I ignored potential variations in the “importance” of individual links (e.g., voluntary relationships are treated the same as more “coercive” ones), but I have also generally ignored multiple linkages between identical actors – that is, I have treated single instances of delegation or information transfer no differently than many, repeated linkages. Moreover, while the sequence of delegation or information transfers is sometimes implicit in the ordering of linkages (see the discussion in Chapter 6, Sections 6.2 and 6.3), this may just as often be masked wherever multiple linkages between actors are not treated individually. It may also be that the order in which responsibilities are detailed in policy documents is not identical to the sequence by which they will occur in practice. For instance, provisions in D.L. 701/19561 that mandate reimburse for reforestation costs are described relatively early in the text of the law, but would clearly occur only after other delegation and monitoring

tasks. Thus, integrating sequence and timing into a formal network framework would necessarily require much more complicated methodologies than I have developed here.

While focusing on the purely structural features of policy design clearly omits many important factors, it still facilitates comparison of policies with differing goals, constituent actors, and organizing principles. A full understanding of the similarities and differences of multiple policy approaches requires that we pay attention to other contextual factors (e.g., actor capacities and motives, substantive policy provisions), which is why I have attempted a richer case study than was absolutely necessary to describe each of the policies in this analysis.

APPENDIX II: CONTENT ANALYSIS IN LEXISNEXIS ACADEMIC UNIVERSE

The first step in using Lexis-Nexis' Academic Universe to perform content analysis is to generate an *initial search pool*. These are partly defined by the way Lexis-Nexis organizes its web-based interface¹⁸⁸, but I also delimited the searches by calendar year, to facilitate possible time-series analyses at a later point (see Figure II.1). To generate the initial pool, I searched for articles that mentioned¹⁸⁹ “wood” or “woods,” variations¹⁹⁰ on the word “forest” (e.g., forests, forestry), “timber”, or variations on the word “certification” (e.g., certify, certified). Because the purpose of this analysis was to gauge the relative availability of public source information about the forest certification systems relevant to Chilean forestry, I also limited the article pool to those mentioning the FSC, CertFor, or PEFC systems (using the Boolean “AND” function).

¹⁸⁸ The relevant content groupings for this project were: **General News** (Major Papers, Magazines and Journals, Newsletters, Policy Papers, Time Incorporated Publications); **US News** (Midwest, Northeast, Southeast, and Western Regional Sources); **World News** (North/South American, European, Asia/Pacific, and Middle East/Africa News Sources); **News Wires**; **News Transcripts**; **Non-English Language News** (Spanish Language News); and **Business News** (Business and Finance, Industry News, and Knight-Ridder/Tribune Business News).

¹⁸⁹ I used similar terms for Spanish-language sources (see Appendix VII).

¹⁹⁰ As I mentioned in Chapter 5 (Section 5.2), Academic Universe supports “wildcards,” symbols which can be used to delimit a specific (“*”) or unlimited (“!”) number of characters within a given text string.

Table II.1: Pool-generating Keywords

	wood or fores! or timber or lumber or certif!
AND	FSC OR "Forest Stewardship Council" OR PEFC OR "Pan European Forest Certification" OR "Progra*** for the Endorsement of Forest Certification" OR CertFor
AND NOT	"Dangerous Goods Certification" OR "Fairmont State" OR "Financial Services Corp!" OR "Forest Park" OR "Free Speech Coalition" OR "Freeport-McMoRan Sulphur" OR "Insurance Counselors" OR "Lake Forest" OR "new hires" OR "PR Newswire European" OR "Field Studies Council" OR "Figure Skating" OR "Fiji Sugar Corporation" OR "Financial Services Compensation" OR "First South China" OR "Florida Southern" OR "Food Standard Committee" OR "Foreign Sales" OR "Forest School Camps" OR "Framingham State College" OR "FSC Management Corp!" OR "FSC Paper" OR "FSC Urban Ministries" OR "Funeral Standards Council" OR "stock-market" OR "Tax Association" OR asbestos OR components OR electronic! OR financial planner OR game OR hospital OR mortgag! OR obituar! OR securities OR spor** OR troop! OR wrestl!

Of course, this technique still produces a number of *false-positives* (Tankard et al. 1994) (i.e., articles not really related to forest products certification). After a significant trial-and-error period (i.e., scanning the *initial search results*), I was able to develop a set of "AND NOT" terms that reduced the overall false-positive rate to 12.2 percent (see Table II.1). I then was able to identify those media sources which had produced relevant articles for each segment and annual time period. Overall, I found 196 English-language and 29 Spanish-language sources (see Appendix VII for a full listing) which published articles on forest certification between 1991 and 2004, for a total of 1,899 articles.

Figure II.1: Generating Search Pools in Academic Universe

The screenshot shows the 'Guided News Search' interface of Lexis-Nexis Academic Universe. It consists of five steps: Step One: Select a news category (General News); Step Two: Select a news source (Major Papers, with a Source List link); Step Three: Enter search terms (three search boxes with terms like 'r lumber or certifi', 'cation' or CertFor', and 'or *stock-market*'); Step Four: Narrow to a specific date range (From: 1/01/2002 To: 2/31/2002); Step Five: Search this publication title(s) (s Post-Dispatch" OR "Washington Post"). Search and Clear Form buttons are at the bottom right.

To identify the national origin and epistemic segment (as well as period of coverage¹⁹¹) for ambiguous sources (e.g., the “Courier Mail,” published in Brisbane, Australia), I first referred to the “About This Title” links (within the “Source List” subpage) of Lexis-Nexis’ Academic Universe® “Guided News Search” (see Figure II.2). Where that information was not sufficient to resolve the location or target audience of the source, I went to Internet searches (see Appendix V for a full listing of Academic Universe sources, by year and market segment). To ensure the maximum consistency of my search results¹⁹², I generated each search pool again, this time limiting the results to only those sources known to have produced valid articles (and also, controlling for location and target market) (see “Step 5” in Figure II.1).

¹⁹¹ Of course, the availability of sources varies widely across time and place, but even sources accessible throughout the 1990s (e.g., the New York Times, Chilean media), only discuss forest certification sporadically. This is the chief justification for consolidating the content analysis results solely by social distance context (e.g., CHILEAN-SPANISH-GENERAL media), rather than attempting a time-series analysis.

¹⁹² LexisNexis is constantly adding new media sources; therefore, the same pool-generating keywords might call up varying numbers of articles for a given period and market segment. Thus, limiting the final pool-generating searches to known sources is more likely to produce consistent outcomes over time, as

Figure II.2: Selecting Individual Source Media

Source List
Major Papers

Paste to Search

<input checked="" type="checkbox"/> Atlanta Journal and Constitution, The	About This Title
<input checked="" type="checkbox"/> Baltimore Sun, The	About This Title
<input checked="" type="checkbox"/> Boston Globe, The	About This Title
<input checked="" type="checkbox"/> Boston Herald, The	About This Title
<input checked="" type="checkbox"/> Buffalo News, The	About This Title
<input type="checkbox"/> Chicago Sun-Times	About This Title
<input type="checkbox"/> Christian Science Monitor, The	About This Title
<input type="checkbox"/> Columbus Dispatch, The	About This Title
<input type="checkbox"/> Daily News (New York)	About This Title
<input type="checkbox"/> Daily Telegraph (London), The	About This Title
<input type="checkbox"/> Daily Yomuri (Tokyo), The	About This Title

Thematic content analysis in academic universe

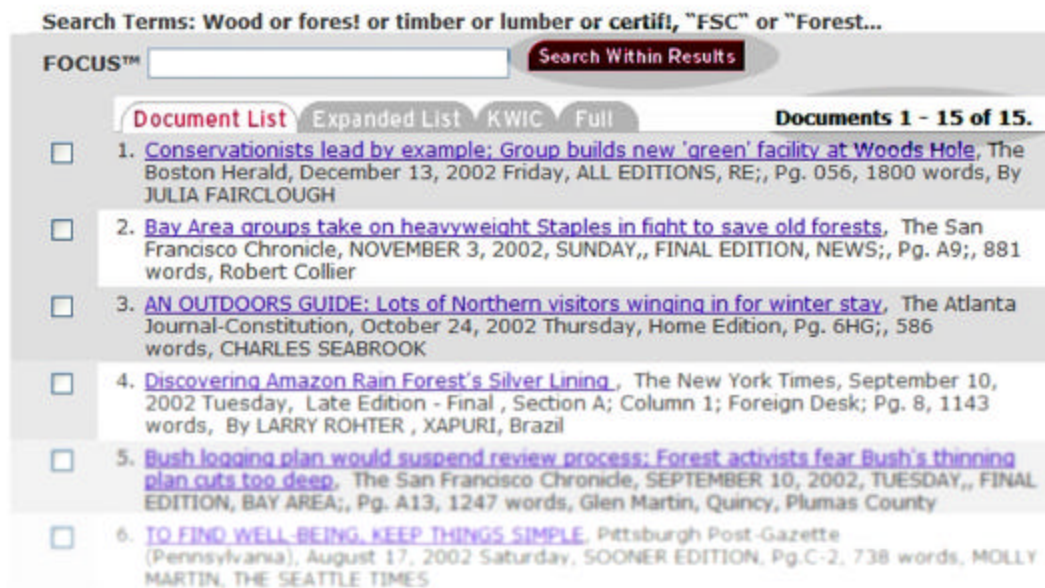
Once again, a key premise of categorical or thematic coding methodology (and indeed, of many other forms of content analysis) is that terms which occur more frequently are “more important” (or at least represent a greater salience of those terms) (Lee 2004). This approach is based on three assumptions: the amount of media coverage of an issue can influence public opinion; that this can be estimated from a lexical analysis; and that the appropriate terms have been identified for the analysis. The first two assumptions have been repeatedly supported by media researchers (e.g., Graham and Dziuban 1996; Bernard et al. 1998; Bendix et al. 2003). As I explained in Chapter 5, the last of these is a quintessentially subjective question, which I have done my best to satisfy in that chapter.

As Tankard et al. (1994) have suggested, when sufficient care is taken to control for source and context, it is possible to use LexisNexis’ Academic Universe to analyze

LexisNexis expands its resources.

content. Yet while their approach was simply to determine the distribution of stories about target issues, I have gone a step further, using the “Search Within Results” feature of Academic Universe to identify the portion of articles within a general search which also address more focused topics. Since Academic Universe reports the total number of cases returned by all its searches, it is thus possible to identify general statistical characteristics about the pool of all results.

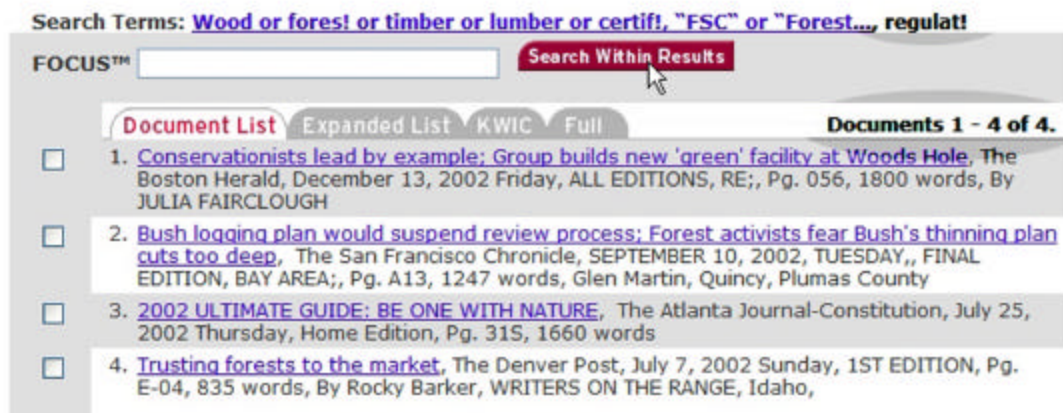
Figure II.3: Initial Search Results



The process is as follows: as I have already described above, I first selected the relevant sources for a given social distance segment (e.g., US-ENGLISH-GENERAL_MEDIA) within each search groups allowed by Academic Universe (e.g., GENERAL_NEWS-MAJOR_PAPERS). The combination of the segments defined by the social distance framework and Academic Universe’s internal organization resulted in 129 pool-generating searches. Working from a template which included all of my search terms, I noted the total number of articles generated by each search (see highlighted area in Figure II.3). Using “Search Within Results,” I then searched for the occurrence of terms from

each of the 27 sub-categories, and noted the number of articles containing those terms (see Figure II.4). This resulted in a total of 3,483 individual content searches across the entire corpus of forest certification articles.

Figure II.4: Search within Results



Once all 129 pools had been searched for the content associated with each sub-category, I aggregated the absolute (i.e., not proportional) values identified for each pool and sub-category according to the appropriate social distance segment. I then simply divided the “Search within Results” number by the size of each pool-generating search to determine the ratio of content associated with each sub-category for each social distance segment. I then compared these proportions for statistical difference using a t-test, which accounts for variations in population size (e.g., differences in the total number of articles associated with each social distance segment).

APPENDIX III: CERTIFICATION TIMELINE

1983	The International Tropical Timber Agreement (ITTA) is signed at the UN Conference on Tropical Timber. It is the first to binding commodity agreement include a conservation mandate (Sizer 1994).
1985	The Tropical Forestry Action Program (TFAP) is launched by FAO, UNDP, the World Bank, and the World Resources Institute. TFAP aimed to promote international donor coordination in the development of National Forestry Action Plans (Sizer 1994).
1986	International Tropical Timber Organization (ITTO) is established (Elliott 1999).
1988	Friends of the Earth UK publish the “Good Wood Guide,” an early effort to encourage the purchase of “environmentally or socially sensitive” wood products. The initiative sought to create demand for wood from sustainably managed forests (Donovan 1996).
1989 May	The British government and Friends of the Earth submit a proposal to the ITTO to study the feasibility of labeling tropical wood (Elliott 1999).
1990	Rainforest Alliance’s SmartWood program certifies <i>Perum Perhutani</i> in Indonesia (Donovan 1996). The “1995 Group” is formed by ITTO, WWF, and “major retail and wholesale companies” in the UK, to “reduce consumption of unsustainably produced forest products” (Donovan 1996).
1991	Home Depot begins selling certified non-timber forest products (Eisen 1996).
April	The idea and name “Forest Stewardship Council” are proposed at a California meeting of timber users, traders, environmentalists, and human rights organizations (FSC 2003).
May	The first draft of the FSC charter is written (it later evolved into the FSC Statutes and Bylaws) (FSC 2003).
July	First draft of FSC’s Forest Stewardship Standards are written (these later became the FSC Principles and Criteria) (FSC 2003).

1991 (continued)	
November	A WWF report mentions that it is helping establish a “credible independent labeling scheme that gives consumers a choice. A group of small-scale traders and several environmental groups – the Forest Stewardship Council – is working on the scheme details (Elliott and Sullivan 1991).
1992	UN Conference on Environment and Development (UNCED) is held in Rio de Janeiro.
	<i>Woodworkers Alliance for Rainforest Protection</i> proposes the establishment of a Forest Stewardship Council (Elliott and Donovan 1996).
March 16-18	An interim FSC board is elected at a Washington, DC meeting to organize the FSC founding assembly (Elliott and Donovan 1996).
October	Consultation with representatives from eleven countries lead to agreement on the initial FSC Principles and Criteria (except Principle 10) (FSC 2003).
1993	
August	First draft of FSC Principle 10 (Plantations) is written (FSC 2003).
October 1-4	FSC founding assembly meets in Toronto, 130 attend from 25 countries. A Board of Directors is elected, with the “mandate to establish the FSC and to develop FSC’s statutes and membership criteria and procedures” (Upton and Bass 1996).
1994	
January	A new ITTA is negotiated; the 1983 agreement remains in force until the new one is ratified (Sizer 1994).
April 29	First mention of certification in Chile, as a CONAF proposal to ensure that forest products are from "sustainably managed" native forests. (Estrategia 1994b).
May	ITTO publishes the first international report on forest certification (Baharuddin and Simula 1994) and organizes working group to study the issue (Elliott 1999).
August	FSC Secretariat is established in Oaxaca, Mexico (FSC 2003).
	A seminar is convened by ProChile and the German Development Institute to discuss ecolabeling and sustainable forest management (Lagos T 1994).

1994 (continued)	
August 18	Discussion of proposal to have CONAF certify native forest management. (Estrategia 1994a).
September	FSC Statutes and Principles and Criteria are approved by FSC members (FSC 2003).
September 21	First mention of the FSC in Chilean public media, written by the then President of INFOR. (Catepillán U 1994).
1995	Chile joins the International Forest Industry Roundtable, which "provides the opportunity to establish contacts with important industrial forestry associations of other countries such as the AFPA (US), Bracelpa (Brazil), Skogsindustriera (Switzerland), CEPI (European Union), and the Forest Products Association (Canada). Support of the AFPA has been key" (Raga 2002a).
February	Santiago Declaration signed at the sixth meeting of Montreal Process members (Otero and Maluenda 1998; Elliott 1999).
June	ISO begins discussing a proposal to develop sustainable forest management standards (Mankin 1996).
1996	According to Elliot and Donovan, INFOR and Fundación Chile "expressed interest in certification" as early as 1996 (1996).
January	First four FSC auditors are accredited (FSC 2003).
February	FSC Principle 10 (Plantations) is ratified (FSC 2003).
June	First FSC General Assembly held in Oaxaca, Mexico (FSC 2003).
February 21	FSC logo is announced in London (FSC 2003).
May	SmartWood certification, mentions Home Depot's "preferred purchasing" policy. (Schatz and Triana 1996, reprint from WSJ).
November	Broad discussion, including (FSC) certifiers, FSC, overview of certification by international region (including vague mention of project for Chilean "national program"), brief mention of PEFC. (Unda 1996).

1997	
June	CONAF and INFOR formed the Working Group for Sustainable Forest Management (GMS), to achieve consensus on criteria and indicators. The Group, presided over by CONAF, also includes CORMA, CONAMA, and the Foreign Relations Ministry. NGOs such as Defensores del Bosque Chileno, CODEFF, la Agrupacion de Ingenieros Forestales por el Bosque Nativo, and CIFAG are invited to participate. (Otero and Maluenda 1998; Schlegel and Echeverria 2001b). The project is funded by a grant from the European Community (Cerdeja and Lira 2001).
July 31	Grupo Santa Fe and FAMASA (both part of Grupo Shell) are the first ISO 14001-certified Chilean forest-products companies. (Aravena 1997; El Mercurio 1997; Las Ultimas Noticias 1997).
October	FSC Percentage-based claim policy is announced (FSC 2003).
November	Seminar by Richard Donovan (SmartWood), sponsored by CIPMA and SUSTENTA XXI Forestry Consultants. Scheduled for the end of the month, the seminar focuses on certification and the sustainable management of native forests. (Chile Forestal 1997, 1998).
1998	
	CORMA issues its Declaration of Environmental Values in Concepción (CORMA 2002).
January	CODEFF forms a group to develop a preliminary FSC Working Group until an official Working Group could be formed (FSC 1999b).
April	Chile's FSC Working Group, the <i>Iniciativa Chilena de Certificacion Forestal Independiente</i> (ICEFI) is founded (FSC 1999b).
May	Sweden develops the first FSC-accredited national standard (FSC 2003).
June	(Terms of reference of the) FSC Working Group are established. It is led by CODEFF and involving more than thirty NGOs, institutions and businesses (Otero and Maluenda 1998; Schlegel and Echeverria 2001b).
July 9	CODEFF sponsors a seminar in Santiago on the FSC national initiative (Sheppard 1999a).
August	Pan-European Forest Certification working group formed by small-scale Finish, German, French, Norwegian, Austrian and Swedish forest owners (Bass et al. 2001; Anderson and Hansen 2003).

1998 (continued)	
September	28 members of the Chilean (FSC) National Initiative Working Group are elected (FSC 1999b).
1999	Home Depot establishes an office in Chile (Miranda 2002b).
April	First International Certified Products Fair held in Mainz, Germany (Environmental News Service 1999). ICEFI National Working Group proposes applying to the FSC for formal recognition (FSC 1999b).
June	Second FSC General Assembly in Oaxaca, Mexico (FSC 2003).
June 30	PEFC system launched in Paris (Cadman 2001b).
August 26	Home Depot vows not to purchase products made from old-growth timber (Bond 1999).
September	ICEFI working group elects Directorate, coordinating and secretariat role is given to CODEFF (for two years) (Verscheure 2000a); ICEFI begins work on FSC standards for Chile (Voces del Bosque 2002).
October	ICEFI Native Forest Technical Committee begins work on a draft FSC standard (ICEFI 2002b).
2000	
June	International Certified Products Fair held in London (Voces del Bosque 2002).
August	INFOR-Fundación Chile project (un-named) will be ready in 2001; CORMA's <i>Temas de Fondo</i> describes an effort to support a national standard, recognized by PEFC and the "Mutual Recognition" initiative of the International Forest Industries Roundtable (Estrategia 2000).
September	CORFO approves funding for CertFor project (Morales 2003a).
2000 (continued)	
October	CertFor Superior Council is chosen (Morales 2003a).
November	ExpoCorma2000 focuses on certification of environmental management (El Sur Concepción 2000; Estrategia 2000).
December	CertFor Technical Committee is selected (Morales 2003a). US and Chile begin bilateral trade negotiations (USTR 2002).

2001	Chile becomes the leading moldings exporter to the US (Lignum 2003c).
January 5	CertFor Working Group formed to “work with international consultants in the identification and definition of the National Standard for plantations, based on the standard developed by INFOR in December 2000. Attending were Aldo Cerda and Antonio Grass (CORMA), Maria Ines Miranda (Fundación Chile), and Victor Vargas (INFOR) (CertFor 2001b).
	Forestal Monte Aguila (FAMASA) has 60,290 hectares of <i>eucalyptus</i> , <i>e. nitens</i> and <i>radiata</i> FSC-certified (FSC 2006b).
January 22	(CertFor) Superior Council approves CertFor’s Nine Principles (CertFor 2001b).
January 26	First CertFor organizational meeting (CertFor 2001b).
February	Chilean national standards initiative (unnamed), a CORFO-Fundación Chile partnership (with subtle reference to CORMA), including a two-week assessment by international consultants Bert van Hensbergen (South African Association of Forest Owners and Borje Drakenberg (Professor of Forestry at the Swedish Agricultural University) (Lignum 2001e).
February 1	CertFor Working Group meets to address Principle 1 (<i>management plans</i>) (CertFor 2001b).
February 27	CertFor Working Group meets to address Principles 2 (<i>environmental values</i>) and 3 (<i>biodiversity</i>) (CertFor 2001b).
March 8	CertFor Working Group meets to address Principles 4 (<i>soil productivity and water quality and quantity</i>) 5 (<i>local communities</i>) and 6 (<i>indigenous groups</i>) (CertFor 2001b).
March 13	CertFor Working Group meets to address Principle 7 (<i>workers rights</i>) (CertFor 2001b).
March 14	CertFor Working Group meets to address Principles 8 (<i>national laws, international treaties</i>) and 9 (<i>monitoring</i>) (CertFor 2001b).
March 20-23	CertFor standard revised with international consultants (CertFor 2001b).

2001 (continued)

March 28	CertFor Working Group gives first draft of CertFor plantation standard to the Technical Council, who is to review and circulate it to a broader range of stakeholders over the coming months (van Hensbergen 2001).
April	First public mention of CertForChile (Lignum 2001a). Project is funded by CORFO (75 percent), forest companies (24 percent) and Fundación Chile (1 percent) (Cerdeña and Lira 2001).
May	The preliminary CertFor Chile auditors manual is finished. The standard is field tested on properties managed by Mininco, Arauco, and Bosques de Chile (Lignum 2001f; Dubé et al. 2004).
June 29	ICEFI sponsors a workshop in Temuco on High Conservation Value Forests (ICEFI 2001).
July	CertFor's Superior Council decides its plantation standard may be opened for public comment (Morales 2003a).
August	CertFor representatives present the CertFor draft standard at the International Forest Industries Roundtable meeting in Oslo (Morales 2003a).
September	CertFor is publicly announced and a website is created (Ambiente y Desarrollo 2001).
September 6-23	First public comment period for CertFor draft standard, available from Fundación Chile headquarters and on their website (CertFor 2001c).
September 12	Election of 2001-03 ICEFI Board of Directors (Verschuere 2002).
October	Protocol Agreement on the Native Forest Law Project signed (Sierra 2002).
October 11	Forestal Berango has 2014 hectares of <i>p. radiata</i> FSC-certified (FSC 2006b).
October 18	ICEFI Board of Directors re-elect Hernan Verschuere as coordinator, CODEFF is re-affirmed as the local Secretariat (Verschuere 2002).

2001 (continued)

October 26 Consultative workshop on draft of CertFor's national plantation standard; participants included: Defensores del Bosque Chileno; Greenpeace; CODEFF; EcoNativa; university deans; FAO; CertFor members and staff; INN; SAG; Asociación Chilena de Seguridad; CONAF; CORMA; the Minister of Agriculture; CORFO; and INFOR (CertFor 2001b; Lignum 2001a).

2002 Fundación Chile, INFOR and CORMA will work to develop a national management standard for "lenga and renewable forests," in a project financed by CORFO (Fundación Chile 2002a).

Alexandria Moldings and Golden State Lumber will no longer purchase radiata pine without FSC certification (de Ovando 2003; Maldonado V 2003).

January Second public comment period for CertFor draft standard (Dubé et al. 2004).

February Superior Council approves CertFor Chile standard (Dubé et al. 2004).

February 4 Forestal Tornagaleones has 44,355 hectares of *semi-natural* and *natural forests* FSC-certified (FSC 2006b).

March CertFor travels to the FSC Secretariat in Oaxaca, Mexico to seek mutual recognition with the FSC, which is not granted (El Diario 2002a).

March 20 Forestal Bio Bio 66,555 has hectares of *eucalyptus* and *pine* FSC-certified (FSC 2006b).

April 10 Greenpeace attempt to blockade the Japanese ship *Iwanuma Maru*, which is loaded with woodchips from native forests (Soza 2002).

April 21 Terranova (inc Millalemu) 120,237 hectares of *radiata* and *other species* is FSC-certified (FSC 2006b).

April 25-27 Forest Leadership Forum-International Certified Wood Trade Fair held in Atlanta (Voces del Bosque 2002). Domtar (one of the largest paper companies in North America) announces it is seeking FSC (COC) certification, and will be developing a new line of FSC-certified products (Carlton 2002).

May PEFC receives mutual recognition application from CertForChile (Lignum 2002; Morales 2003).

May 22 Greenpeace launches native forest campaign (El Diario 2002).

2002 (continued)

- June CertFor completes draft Chain-of-custody standard (Morales 2003a).
- June 15 CAF El Alamo has 3,501 hectares of *eucalyptus*, *poplar*, and *pine* FSC-certified (FSC 2006b).
- June 29 INFOR and CORMA sponsor a closed workshop on certification in Concepción. Also attending were Fundación Chile, CONAF, INN and the company members of CORMA. The objective of the workshop was to communicate all that had occurred regarding this theme, and to coordinate future effort (CORMA 2002).
- July Superior Council approves CertFor Chain-of-custody standard (Morales 2003a).
- July 24 "Boycott" campaign announced (El Diario 2002b), CORMA Directors meet to discuss the campaign (attendees include CMPC and Arauco, Minister of Agriculture Jaime Campos, CORMA President Letamendi, and Exec-VP Eduardo Correa) and draft a letter to Chile's Senators and other authorities (70 letters in all) requesting the government make a declaration that Chile has laws and the authority to enforce them (La Segunda 2002a).
- July 25 Roundtable on FSC certification held at the Conference Center of the *Sociedad de Fomento Fabril* (SOFOFA) (El Mercurio 2002). Over 150 attend, mostly business representatives and academics (ICEFI 2002c).
- July 26 Within a week, CONAF is to convene a meeting between CORMA and ENGOs to forge an agreement between those actors to define a new native forest law. Mentions that CONAF said an appeal to the WTO would be unlikely, as the boycott was not private, not governmental action (Gonzalez 2002).
- July 28 "Next week the Minister of Agriculture will send a letter to the North American Wholesale Lumber Association (NAWLA) that will try to convince them that Chile is not destroying its forests" (Allendes E 2002).
- July 29 At a ninety-minute meeting with Malu Sierra, Marcel Claude, Gonzalo Villarino (Greenpeace), and Hernan Verscheure, Agricultural Minister Jaime Campos said that the government was not going to favor any label (La Segunda 2002b).
- July 31-August 2 Second Latin American Forestry Congress meets in Guatemala (ICEFI 2002d).

2002 (continued)

September	CertFor completes draft Group Certification standard (Morales 2003a).
September 13	A full-page NY Times ad marks the official launch of a campaign against Chilean wood that is not FSC certified. Ad appeared only in the paper's Eastern edition (Gonzalez 2002; La Nacion 2002b; Rodríguez 2002a).
September 19	Rio Cruces has 3,588 hectares of <i>native species</i> FSC-certified (FSC 2006b).
September 23	CORMA meets with the Director of Economic Relations about the NY Times ad and boycott campaign (El Diario 2002).
September 23-24	Eduardo Morales (Director of CertFor) participates in the ninth meeting of the International Forest Industry Roundtable in Rio (Lignum 2002c). CertFor representatives agree to study harmonization of that standard with the national standards of Australia and Brazil (Raga 2002a).
September 30	Heiko Liedeker and Daniel Arancibia come to Chile to meet with CMPC executives, CORMA, CONAF, Celarauco, and major companies that have not been FSC-certified (El Diario 2002c). At Fundacion Chile, they meet with the Director General Eduardo Bitran and Eduardo Morales, manager of Fundación Chile's Forestry Department (Lignum 2002a).
October	Superior Council approves CertFor Group Certification standard (Morales 2003a).
October 1	Forestal Tierra Chilena has 12,753 hectares of <i>eucalyptus</i> FSC-certified (FSC 2006b).
October 5	Meeting with CORMA, Heiko Liedeker denied any support for the boycott, and announced the intent to "realize complimentary activities between the Chilean seal CertFor Chile and the FSC" (Estrategia 2002; Rodríguez 2002b).
October 7-9	Meeting of Latin American FSC national initiatives in Buenos Aires, Argentina. Fifty representatives attend to discuss FSC decentralization, regional strategies, and tools for developing FSC national standards (ICEFI 2002d).
November	Danish window company Velux accepts PEFC as equivalent to the FSC seal, and Lowe's, the world's second largest DIY chain, "announced interest in learning more about PEFC" (Morales 2002).

2002 (continued)

- November 12-16 Over a thousand attend CORMA-Chile 2002 to celebrate CORMA's 50th anniversary. Fundación Chile and CORMA organized the International Workshop on Environmental Forest Certification, with presentations by: Juan E Correa (Exec VP, CORMA); Olivar Ruiz (Director, CONAMA); Aldo Cerda (Research Director, CMPC); Lern Apediaile (UBC); Ana Rosa Yáñez (FSC); Eduardo Morales (Director of Forestry, Fundación Chile); and Valentina Lira (Econativa) (Lignum 2002d).
- November 22 PEFC announces mutual recognition of CertFor at its meeting in Luxemburg (Lignum 2002e).
- November 22-26 Third FSC General Assembly in Oaxaca, Mexico (FSC 2003). Over 1,200 persons attend from 37 countries (ICEFI 2002a).
- December Home Depot sells \$250 million of FSC-certified products in 2002, compared to \$10 million in 1999 (FSC 2003).
- December 9 Forestal Los Lagos has 16,065 hectares of *eucalyptus* FSC-certified (FSC 2006b).
- December 15 Forestal Anchile has 61,069 hectares of *eucalyptus* and *radiata* FSC-certified (FSC 2006b).
-

2003

- January 21 PROCER has 1,522 hectares of *eucalyptus*, *e. nitens* and *radiata* FSC-certified (FSC 2006b).
- February 21 Anderson Windows sends letter to ForestEthics announcing their decision to require FSC certification of all Chilean products it purchases (Maldonado V 2003).
- March 4 Anderson Windows publicly announces it will no longer purchase *radiata* without FSC certification (de Ovando 2003; El Diario 2003b).
- March 7 Presiding over the launch of PROCER (Promotora de Certificación Forestal), the Minister of Agriculture reaffirmed that the government will not favor any form of certification (Lignum 2003d).
- March 10-14 The first CertForChile Auditor Training is held (Lignum 2003c).

2003 (continued)

March 11	The Congressional commission on natural resources and the environment proposes a meeting to discuss the FSC and the implications of the actions of some US firms, as well as how Chile is responding. Invitees include Carlos Weber (CONAF), Jose Letamendi (CORMA), Gianni Lopez (CONAMA), and Simon Berti (Forestal Bio Bio) (El Diario 2003a).
April 3	CONAF and PROCER sign technical cooperation agreement to increase the number of smallholders interested in certification (Lignum 2003c).
May 4	Home Depot brokers talks between Chilean and US environmentalists and Chilean forestry companies (Nixon 2004b). Chilean ENGO representatives include Malu Sierra (Defensores de Los Bosques), Bernardo Reyes (Instituto de Ecologia Politica), and Miguel Fredes (Centro de Estudios Ambientales) (La Tercera 2003). A "truce" is signed between Chilean and US ENGOs and Arauco and CMPC. The companies will provide information about Chilean plantations; environmentalists will suspend the campaign until August. Meetings are planned for June and August (Venegas 2003).
May 5	Arauco "opens the possibility" of certifying itself under the FSC (La Segunda 2003).
June	FSC representatives meet with ICEFI and CertFor to "strengthen working relationships between the organizations." FSC attendees included Nancy Vallejo, Mathew Wenban-Smith, Liviu Amariei, Danial Arancibia; ICEFI attendees included Hernan Verscheure and Ana Young; CertFor representatives were Guillermo Geisse (Board Chair), Leonel Sierralta (Chair of Technical Committee, Secretary of Superior Board), and Aldo Cerda (Working Group for Plantation Standards) (ICEFI 2003).
June 6	US and Chile sign Free Trade Agreement in Miami (USTR 2003).
August	Bosques Arauco, Forestal CELCO, and Forestal Valdivia (Arauco) has 926,900 hectares CertFor-certified (CertFor 2006).
October 31	Bosques Cautin has 15,194 hectares of <i>Eucalyptus</i> and <i>E. nitens</i> FSC-certified (FSC 2006b).
December 11	Sociedad Agrícola y Forestal Degenfeld Ltda has 9,607 hectares of <i>eucalyptus</i> , <i>e. nitens</i> , and <i>radiata</i> FSC-certified (FSC 2006b).

2004	
January	FAMASA (Monteaguila) has 59,514 hectares CertFor-certified (CertFor 2006).
January 9	ICEFI is legally incorporated as a Trade Association (ICEFI 2004c).
March	Bosques de Chile has 25,240 hectares CertFor-certified (CertFor 2006).
April 5	A new ICEFI Directorate is elected (ICEFI 2004e).
April 17-18	Meeting of Latin American FSC national initiatives in Sao Paulo, Brazil to discuss funding, marketing, and participation strategies. Participants include: Colombia, Guyana, Argentina, Ecuador, Guatemala, Bolivia, Perú, Chile, Brasil, Honduras and México (ICEFI 2004d).
May	ICEFI opens draft standards for native forests and plantations to public review (ICEFI 2004g, f).
	Forestal MININCO has 540,766 hectares CertFor-certified (CertFor 2006).
June 21	First draft of the CertFor Chain-of-Custody Standard is released (CertFor 2004b).
July 1	INN assumes its role as CertFor accreditation body. Two certifiers – QMI and SGS Chile – apply (CertFor 2005).
July 2	First draft of the CertFor Group Certification Standard is released (CertFor 2004c).
September	Arauco and MININCO sign the <i>Chilean Joint Solutions Project</i> , an agreement with domestic and international ENGOs. The agreement ends the two-year campaign to draw attention to commercial impacts on Chile's native forests (Nixon 2004a).
September 10-13	ICEFI is officially accredited as an FSC national initiative at the FSC 10 th Anniversary Conference in Bonn (FSC 2004a; ICEFI 2004b).
October 8	DICERFA-ASTEX has 820 hectares of <i>Eucalyptus</i> FSC-certified (FSC 2006b).

2005	
February 15	CertFor is licensed to use the PEFC label (CertFor 2005).

APPENDIX IV: STATEMENTS OF PRINCIPLES

CertFor Chile Principles (CertFor 2002)

Principle 1: The use of the forest resources must be planned and managed so as to provide a sustained flow of products and services in successive rotations, according to a comprehensive long term management plan appropriate to the scale of operations and applicable to the Forest Management Unit (FMU), whether it belongs to a single owner or group of them. The master plan should be prepared before operations commence.

Principle 2: The use of forest resources should be planned and managed so that the environmental values of the natural ecosystems contained in the Forest Management Unit are protected and significant negative impacts on biodiversity are avoided.

Principle 3: Forest resources should be managed so as to maintain their health, vitality and productivity, by protecting them from fires and other damaging agents.

Principle 4: Forest resources are managed so as to promote soil conservation and to minimize adverse impacts on the quantity and quality of water resources, taking particular account of the needs of downstream communities.

Principle 5: Forest managers must respect the traditional and customary uses and rights of local communities, maintaining good neighbor relations with them and supporting the development of local capacities which contribute to the improvement of their quality of life.

Principle 6: Forest managers will take into account declared agreements, documented commitments and respect the legally established rights and the traditional knowledge of indigenous peoples to use and manage their lands and resources.

Principle 7: Forest managers will respect the rights of the forest workers, compensating them fairly and equitably, safeguarding their health and safety at work.

Principle 8: Forest managers respect the laws of Chile and international agreements and legally binding treaties and will take into consideration any other agreements and treaties, to which Chile is a signatory.

Principle 9: Regular monitoring of the forest resources, the management system and the responsible companies and owners of the FMU, will be conducted with the purpose of evaluating the progress in achieving the stated principles

FSC Principles and Criteria for Forest Stewardship (FSC 2004)

Principle 1: Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

Principle 2: Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

Principle 3 The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

Principle 4: Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.

Principle 5: Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

Principle 6: Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

Principle 7: A management plan – appropriate to the scale and intensity of the operations – shall be written, implemented, and kept up to date. The long term objectives of management, and the means of achieving them, shall be clearly stated.

Principle 8: Monitoring shall be conducted – appropriate to the scale and intensity of forest management – to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

Principle 9: Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

Principle 10: Plantations shall be planned and managed in accordance with Principles and Criteria 1-9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

APPENDIX V: LEXIS-NEXIS ACADEMIC UNIVERSE SOURCES

News Wires

- 1992 Business Wire
- 1993 IPS-Inter Press Service, PR Newswire
- 1995 Business Wire, IPS-Inter Press Service, PR Newswire
- 1996 Associated Press, Associated Press Worldstream, Business Wire, IPS-Inter Press Service, PR Newswire
- 1997 Associated Press, Associated Press Online, Associated Press Worldstream, Business Wire, IPS-Inter Press Service, PR Newswire
- 1998 Associated Press, Associated Press Online, Associated Press Worldstream, Business Wire, IPS-Inter Press Service, PR Newswire, U.S. Newswire
- 1999 Associated Press, Associated Press Online, Business Wire, Environment News Service, E-Wire, IPS-Inter Press Service, PR Newswire, AScribe Newswire
- 2000 AScribe Newswire, Associated Press, Associated Press Online, Associated Press Worldstream, Business Wire, Environment News Service, E-Wire, IPS-Inter Press Service, PR Newswire, Associated Press State & Local Wire, U.S. Newswire
- 2001 AScribe Newswire, Business Wire, Environment News Service, IPS-Inter Press Service, PR Newswire, Associated Press State & Local Wire, U.S. Newswire, United Press International
- 2002 Business Wire, Environment News Service, IPS-Inter Press Service, PR Newswire, Associated Press State & Local Wire, U.S. Newswire, AScribe Newswire
- 2003 AScribe Newswire, Associated Press Online, Associated Press Worldstream, Business Wire, IPS-Inter Press Service, Market Wire, PR Newswire, Associated Press, Associated Press State & Local Wire, U.S. Newswire, United Press International
- 2004 AScribe Newswire, Associated Press Worldstream, Business Wire, Market Wire, PR Newswire, Associated Press State & Local Wire, U.S. Newswire, PR Newswire

News Transcripts

- 1995 Federal Document Clearing House Congressional Testimony, Federal News Service
- 1996 Federal Document Clearing House Congressional Testimony, Federal News Service
- 1998 FDCH News Service Capitol Report
- 1999 Federal Document Clearing House Congressional Testimony, Federal News Service, National Public Radio (NPR), All Things Considered
- 2000 CNN International, CNN International World News, CNN, CNN Worldview, Federal Document Clearing House Congressional Testimony, Federal News Service, Fox News Network, Fox Hannity & Colmes
- 2001 CNBC News Transcripts, Rivera Live, Federal Document Clearing House Congressional Testimony, NBC News Transcripts, Today
- 2002 Federal Document Clearing House Congressional Testimony, National Public Radio (NPR), Weekend Edition Sunday, Presidential Campaign Press Materials
- 2003 National Public Radio (NPR), Weekend Edition Sunday

US News : Midwest Regional Sources

- 1997 Dayton Daily News (OH), South Bend Tribune (IN)
- 1999 Bismarck Tribune (North Dakota), Dayton Daily News (OH), South Bend Tribune (IN)
- 2000 Capital Times (Madison, WI), Dayton Daily News (OH), Milwaukee Journal Sentinel (WI), South Bend Tribune (IN), Telegraph Herald (Dubuque, IA)
- 2001 Chicago Daily Herald, Milwaukee Journal Sentinel (WI), Telegraph Herald (Dubuque, IA), The Pantagraph (Bloomington, IL)
- 2002 Capital Times (Madison, WI), Chicago Daily Herald, Milwaukee Journal Sentinel (WI), Telegraph Herald (Dubuque, IA), The Pantagraph (Bloomington, IL), Topeka Capital-Journal (KS), Wisconsin State Journal (Madison, WI)
- 2003 Milwaukee Journal Sentinel (WI), Wisconsin State Journal (Madison, WI)
- 2004 South Bend Tribune (IN)

US News : Northeast Regional Sources

- 1995 The Post-Standard (Syracuse, NY)
- 1996 Bangor Daily News (ME), Providence Journal-Bulletin (RI), Telegram & Gazette (MA)
- 1997 Bangor Daily News (ME), Intelligencer Journal (Lancaster, PA), Lancaster New Era (Lancaster, PA), Portland Press Herald (ME), Providence Journal-Bulletin (RI), Sunday News (Lancaster, PA), Telegram & Gazette (MA), The Record (Bergen County, NJ)
- 1998 Bangor Daily News (ME), Portland Press Herald (ME), Telegram & Gazette (MA), The Times Union (Albany, NY)
- 1999 Bangor Daily News (ME), Intelligencer Journal (Lancaster, PA), Lancaster New Era (Lancaster, PA), Portland Press Herald (ME), Providence Journal-Bulletin (RI), Telegram & Gazette (MA), The Times Union (Albany, NY), Village Voice (New York, NY)
- 2000 Bangor Daily News (ME), Intelligencer Journal (Lancaster, PA), Lancaster New Era (Lancaster, PA), Portland Press Herald (ME), The Times Union (Albany, NY)
- 2001 Bangor Daily News (ME), Portland Press Herald (ME), Providence Journal-Bulletin (RI), Telegram & Gazette (MA), The Post-Standard (Syracuse, NY), The Record (Bergen County, NJ)
- 2002 Bangor Daily News (ME), Intelligencer Journal (Lancaster, PA), Lancaster New Era (Lancaster, PA), Portland Press Herald (ME), Telegram & Gazette (MA)
- 2003 Bangor Daily News (ME), The Post-Standard (Syracuse, NY), The Times Union (Albany, NY)
- 2004 Bangor Daily News (ME), Intelligencer Journal (Lancaster, PA), Lancaster New Era (Lancaster, PA), Montachusett Telegram & Gazette (MA), Sunday News (Lancaster, PA), Telegram & Gazette (MA), The Times Union (Albany, NY), The Union Leader (Manchester NH)

US News : Southeast Regional Sources

- 1996 Roanoke Times & World News (Roanoke, VA), The Washington Times
- 1997 Arkansas Democrat-Gazette (Little Rock, AR), The Commercial Appeal (Memphis, TN)

US News : Southeast Regional Sources (continued)

- 1998 News & Record (Greensboro, NC), The Post and Courier (Charleston, SC), The Virginian-Pilot (Norfolk, VA)
- 1999 Charleston Gazette (WV), Florida Times-Union (Jacksonville, FL), Roanoke Times & World News (Roanoke, VA), The Augusta Chronicle (GA), The Capital (Annapolis, MD), The Stuart News/Port St. Lucie News (Stuart, FL), The Virginian-Pilot (Norfolk, VA)
- 2000 Birmingham News (AL), Chattanooga Times Free Press (TN), Sarasota Herald-Tribune (FL)
- 2001 Charleston Gazette (WV), Chattanooga Times Free Press (TN), News & Record (Greensboro, NC), Roanoke Times & World News (Roanoke, VA), The Capital (Annapolis, MD)
- 2002 Charleston Daily Mail (WV), Charleston Gazette (WV), Chattanooga Times Free Press (TN), Richmond Times Dispatch (VA), Roanoke Times & World News (Roanoke, VA), The Augusta Chronicle (GA), The Commercial Appeal (Memphis, TN)
- 2003 Charleston Daily Mail (WV), Chattanooga Times Free Press (TN), Winston-Salem Journal (Winston Salem, NC)
- 2004 Arkansas Democrat-Gazette (Little Rock, AR), The Hill, The Ledger (Lakeland, FL), Winston-Salem Journal (Winston Salem, NC)

US News : Western Regional Sources

- 1991 Lewiston Morning Tribune (ID)
- 1996 Cal-Osha Reporter, Press Enterprise (Riverside, CA), Salt Lake Tribune (UT)
- 1997 Daily Camera, Salt Lake Tribune (UT), Spokesman Review (Spokane, WA), The Business Press (CA), The Columbian (Vancouver, WA)
- 1998 Anchorage Daily News (AK), Lewiston Morning Tribune (ID), Tulsa World (OK)
- 1999 Albuquerque Tribune (NM), Santa Fe New Mexican (NM), The Columbian (Vancouver, WA), The Oregonian
- 2000 Albuquerque Journal (NM), Press Enterprise (Riverside, CA), Santa Fe New Mexican (NM), Seattle Post-Intelligencer (WA)

US News: Western Regional Sources (continued)

- 2001 Anchorage Daily News (AK), Northwest Construction, Seattle Post-Intelligencer (WA), Spokesman Review (Spokane, WA), The Columbian (Vancouver, WA), The Oregonian
- 2002 Daily Journal Of Commerce (Portland, OR), The Oregonian, Seattle Post-Intelligencer (WA), Tulsa World (OK), Vancouver Business Journal (Vancouver, WA)
- 2003 Alameda Times-Star (Alameda, CA), Lewiston Morning Tribune (ID), Salt Lake Tribune (UT), San Antonio Express-News (TX), San Mateo County Times (San Mateo, CA), Seattle Weekly (WA), Spokesman Review (Spokane, WA), The Columbian (Vancouver, WA), The News Tribune (Tacoma, WA), The Oregonian, Seattle Post-Intelligencer (WA), The Sunday Oregonian, Tulsa World (OK)

US News: Western Regional Sources

- 2004 Daily Journal Of Commerce (Portland, OR), Spokesman Review (Spokane, WA), The Santa Fe New Mexican (NM), Seattle Post-Intelligencer (WA)

Major Papers

- 1991 Independent
- 1992 Independent, Ottawa Citizen
- 1993 Christian Science Monitor, Financial Times, Guardian, Journal of Commerce, Toronto Star
- 1994 Australian Financial Review, Christian Science Monitor, Courier-Mail, Guardian, Independent, Journal of Commerce, Scotland on Sunday, Times, Times-Picayune
- 1995 Australian Financial Review, Buffalo News, Business Times, Christian Science Monitor, Columbus Dispatch, Courier-Mail, Daily Yomiuri, Evening Post, Financial Times, Herald, Herald Sun, Independent, Journal of Commerce, New Straits Times, South China Morning Post, St. Louis Post-Dispatch, St. Petersburg Times, Straits Times, Times
- 1996 Advertiser, Age, Australian, Australian Financial Review, Buffalo News, Business Times, Christian Science Monitor, Courier Mail, Daily Yomiuri, Dominion, Financial Times, Gazeta Mercantil Online, Gazette, Guardian, Herald, Independent, Journal of Commerce, New Straits Times, Observer, Ottawa Citizen, Press, South China Morning Post, St. Louis Post-Dispatch, Straits Times, Tampa Tribune, Times-Picayune

Major Papers (continued)

- 1997 Australian, Bangkok Post, Buffalo News, Business Times, Dominion, Evening Post, Financial Times, Gazeta Mercantil Online, Guardian, Herald, Hindu, Independent, Irish Times, Journal of Commerce, New Straits Times, New York Times, Pittsburgh Post-Gazette, Seattle Times, South China Morning Post, Straits Times, Sunday Times, Tampa Tribune, Toronto Star, Toronto Sun, Wall Street Journal, Weekend Australian
- 1998 Advertiser, Age, Atlanta Journal-Constitution, Australian, Bangkok Post, Boston Globe, Boston Herald, Buffalo News, Business Times, Christian Science Monitor, Courier Mail, Daily Yomiuri, Evening Post, Financial Times, Gazeta Mercantil Online, Guardian, Herald, Hindu, Hobart Mercury, Houston Chronicle, Independent, Irish Times, Jakarta Post, Journal of Commerce, New Straits Times, Observer, Omaha World Herald, Seattle Times, South China Morning Post, St. Louis Post-Dispatch, Straits Times, Sydney Morning Herald, Times, Toronto Star, USA Today, Washington Post, Weekend Australian
- 1999 Age, Asian Wall Street Journal, Atlanta Journal-Constitution, Australian, Australian Financial Review, Bangkok Post, Buffalo News, Business Times, Christian Science Monitor, Columbus Dispatch, Courier Mail, Denver Rocky Mountain News, Dominion, Financial Times, Gazeta Mercantil Online, Guardian, Herald, Hindu, Independent, Irish Times, Jakarta Post, Journal of Commerce, New Straits Times, New York Times, Omaha World Herald, Oregonian, Ottawa Citizen, Press, San Francisco Chronicle, Scotland on Sunday, Scotsman, Seattle Times, South China Morning Post, St. Louis Post-Dispatch, Straits Times, Sunday Age, Sunday Mail, Sydney Morning Herald, Times, Times-Picayune, Toronto Star

General News Magazines-Journals (Forestry)

- 1997 Forestry & British Timber, Timber Trades Journal
- 1998 Farmers Weekly, Farming News, Forestry & British Timber, Timber Trades Journal
- 1999 Farmers Weekly, Forestry & British Timber
- 2000 Forestry & British Timber
- 2001 Forestry & British Timber
- 2002 Farmers Weekly, Forestry & British Timber
- 2003 Forestry & British Timber
- 2004 Forestry & British Timber

General News Magazines-Journals (Manufacturing)

- 1997 Builders Merchants Journal, Building Design, Cabinet Maker, Contract Journal, International Manufacturing Review, Printing World, What's new in Building
- 1998 Builders Merchants Journal, Building Design, Cabinet Maker, Intermountain Contractor, International Manufacturing Review, Printing World, What's new in Building, Wood Based Panels International
- 1999 Builders Merchants Journal, Building Design, Contract Journal, Global Design News, International Manufacturing Review, Printing World, Wood Based Panels International
- 2000 Building Design, Global Design News, International Manufacturing Review, New York Construction, Printing World
- 2001 Building Design, Cabinet Maker, Global Design News, New York Construction, Northwest Construction, Presstime, Printing World, What's new in Building
- 2002 Building Design, Building Design and Construction, Cabinet Maker, Contract Flooring Journal, Latin Trade, Printing World, What's new in Building
- 2003 Building Design, Building Design and Construction, Cabinet Maker, Colorado Construction, Contract, Contract Flooring Journal, Contract Journal, Contract Magazine, Direct, Northwest Construction, Printing World, What's new in Industry
- 2004 Contract Flooring Journal, Contract Journal, New York Construction, Printing World, What's new in Building, What's new in Industry

General News Magazines-Journals (Retail)

- 1995 Marketing News TM
- 1996 Marketing News TM
- 1997 DIY Week, Marketing News TM
- 1999 DIY Week, Purchasing Magazine

General News Magazines-Journals (Academic)

- 1995 The Washington Quarterly
- 2002 Global Environmental Politics
- 2004 Global Environmental Politics

General News Newsletters (Academic / Legal)

- 1995 Georgia Environmental Law Letter, Louisiana Environmental Compliance Update, New York Environmental Compliance Update
- 1996 Environmental Compliance & Litigation Strategy, Georgia Environmental Law Letter, Illinois Environmental Law Letter, Louisiana Environmental Compliance Update, Maryland Environmental Law Letter, Minnesota Environmental Compliance Update, Missouri Environmental Compliance Update, North Carolina Environmental Law Letter, Ohio Environmental Law Letter, Pennsylvania Environmental Compliance Update, Tennessee Environmental Law Letter, Texas Environmental Compliance Update
- 1997 Michigan Environmental Compliance Update
- 1998 Georgia Environmental Law Letter
- 2000 Michigan Environmental Compliance Update

General News Magazines-Journals (General)

- 1996 Business Week, The Economist
- 1997 Nation's Business
- 1998 The Economist
- 1999 Business Week
- 2000 Business Week
- 2001 The Economist
- 2003 Business Week, The Economist, The Spectator

Spanish Language News

- 2002 Agence France Presse -- Spanish, Deutsche Presse-Agentur, El Comercio (Peru), *El Mercurio (Chile)*, El Pais (Uruguay), Expansion (Madrid), La Nacion (Argentina) Comercio Exterior, NoticiasFinancieras, Portafolio (Colombia), Spanish Newswire Services
- 2003 CompanynewsGroupe, *El Mercurio (Chile)*, Expansion (Madrid), NoticiasFinancieras, Spanish Newswire Services, Xinhua News Agency – Spanish
- 2004 *El Mercurio (Chile)*, Spanish Newswire Services, *UPI Chile*

APPENDIX VI: CERTIFIED FMU AND COC COMPANIES IN CHILE

Certified Forest Management Units

NSMD	Company	Hectares	Wood sources
FSC	Anchile	61,069	Plantation (Eucalyptus, pine)
CFC	Arauco	926,900	Plantation (Eucalyptus, pine)
FSC	Basauri Forestal	2,014	Plantation (Pine)
FSC	Bio Bio SA	66,555	Plantation (Eucalyptus, pine)
FSC	Bosques Cautin	15,194	Plantation (Eucalyptus)
CFC	Bosques de Chile	25,240	Plantation (Pine)
FSC	CAF El Alamo	3,501	Plantation (Eucalyptus, poplar, pine)
FSC	Degenfeld	9,607	Plantation (Eucalyptus, pine, beech)
FSC	Dicerfa–Astex	820	Plantation (Eucalyptus)
FSC	FAMASA	60,290	Plantation (Eucalyptus, pine)
CFC		59,514	
FSC	Los Lagos SA	16,065	Plantation (Eucalyptus)
CFC	Mininco	540,766	Plantation (Eucalyptus, pine)
FSC	ProBosque	5,983	Plantation (Eucalyptus, pine)
FSC	PROCER	1,522	Plantation (Eucalyptus, pine)
FSC	Rio Cruces SA	3,588	Natural forest
FSC	Terranova	120,237	Plantation (Pine)
FSC	Tierra Chilena	12,753	Plantation (Eucalyptus)
FSC	Tornagaleones	44,355	Semi-natural and mixed plantation, natural forest)

(Sources: QMI 2003; SGS 2003, 2004; CertFor 2004; FSC 2005)

Chain-of-custody Companies

NSMD	Company	Products
FSC	Astillas Exportaciones Ltda – Astex	Wood chips
FSC	Bagaro	Logs, boards
FSC	Bosques Cautín SA	Logs, wood chips, pulp
CFC	CMPC Celulosa	Wood pulp
FSC	Comercial Canta Rana Ltda	Lumber, molding, paneling, furniture and toy components, fencing
FSC	Compañía Chilena de Fósforos SA	Chopsticks, paddles, matches, splints
FSC	Forestal Austral	Lumber
FSC	Forestal Calle-Calle SA	Wood chips
FSC	Forestal del Sur SA	Wood chips
FSC	Forestal Diguillín SA	Wood chips, boards, blocks
FSC	Forestal Sofoagro Ltda	Wood chips
FSC	FAMASA	Logs
	FAMASA - Planta Astillado Coronel	Logs, wood chips
FSC	FTG Veneer	Veneers
FSC	Inber SA	Kitchen furniture, boards
FSC	Maderas Anchile Ltda	Logs, wood chips
FSC	Masisa SA - División Madera Sólida	Sawn timber, molding, doors, wood chips
FSC	Masonite Chile SA	Doors, veneers
FSC	Norwood SA	Lumber, millwork, laminated beams, molding, wood chips, bark, sawdust
FSC	Novaland SA	Lumber, flooring, furniture and construction components

NSMD	Company	Products
FSC	Pablo Esquerre Teulade - Cabanes	Wood chips
FSC CFC	PROMASA	Doors, moldings, posts
FSC	Sociedad Agrícola y forestal Pozo y Reyes Ltda	Logs, wood chips
FSC	Sociedad de Productores y Exportadores	Lumber, molding, paneling, furniture and toy components, fencing
FSC	TEMSA	Chopsticks, paddles, sticks
	TEMSA - Los Lagos	Mousetraps, paddles
FSC	Tulsa SA	Veneer, plywood

(Sources: CertFor 2004; FSC 2005; SGS 2005)

APPENDIX VII: SPANISH SEARCH TERMS

Terms derived from FSC and CertFor Principals:

ECONOMICS	mercad! or eficien! or product! or rentabl! or servic!
ENVIRONMENT	biodivers! or biolog! or conserv! or ecolog! or ecosiste! or ambient! or natural!
SOCIAL	comunida! or equida! or just! or indigen! or vecin! or segurida! or soci! or obrer! or trabaj!
PROCEDURAL 1	respons! or certific! or custodia or ejecut! or monitor!
PROCEDURAL 2	“primer part!” or “segundo part!” or “tercer part!” or “1a part!” or “2a part!” or “3a part!” or “tercero independiente”
PROCEDURAL 3	participa! or represent! or delega!

Additional categories:

CHILE	Chile or Chilen**
BOYCOTT	boicot!
SHAREHOLDER	accionist!
STAKEHOLDER	stakeholder! or “partes interesadas” or “grupos de interés”
GOVERNMENT	gobierno or gubernament!
GOVERNANCE	governance
REGULATION	regla! or regula!
PUBLIC	público
PRIVATE	privad!
FSC	FSC or “Forest Stewardship Council”
ICEFI	ICEFI or “Iniciativa Chilena de Certificación Forestal Independente” or “Iniciativa Nacional del FSC”

Additional categories (continued)

ICEFI Stakeholders	“Agrupación de Ingenieros Forestales por el Bosque Nativo” or AIFBN or “Comité Nacional Pro Defensa de la Fauna y Flora” or CODEFF or “Departamento de Acción Social” or DAS or “Federación Nacional de Sindicatos de CONAF” or FENASIC or “Red Nacional de Acción Ecológica” or RENACE
ICEFI / FSC FMUs	“Rio Cruces” or “Bosques Cautin” or Anchile or “Los Lagos” or “Tierra Chilena” or “Forestales Regionales” or “CAF El Alamo” or Procer or “Sociedad Agrícola y Forestal Degenfeld”
CERTFOR (CFC)	CertFor or “Estandar Nacional de Certificación Forest!”
CFC Stakeholders	“Fundación Chile” or INFOR or “Instituto Forestal”
CFC FMUs	CELCO or “Forestal Valdivia”
PEFC	PEFC or “Pan European Forest Certification” or “the Endorsement of Forest Certification” or paneuropeo
“ISO 14!” (ISO)	“ISO 14!” or “International Organization for Standardization” or “Organización Internacional para la Estandarización”
ISO FMUs	Licancel or Quilpolemu or “Cementos Bío Bío” or “Bosques SA”
ISO Stakeholders	“Instituto Nacional de Normalización”
FSC/ISO FMUs	“Bío Bío” or Tornagaleones or Millalemu or Terranova
CFC/ISO FMUs	MININCO or “Bosques de Chile” or Arauco
FSC/ISO/CertFor FMUs	“Forestal y Agrícola Monteáguila” or FAMASA

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