
Article:
Di Gregorio, M orcid.org/0000-0003-2545-217X, Gallemore, CT, Brockhaus, M et al. (2 more authors) (2017) How institutions and beliefs affect environmental discourse: Evidence from an eight-country survey on REDD+. Global Environmental Change, 45. pp. 133-150. ISSN 0959-3780

https://doi.org/10.1016/j.gloenvcha.2017.05.006

Published in Global Environmental Change as : Di Gregorio, M., Gallemore, C.T., Brockhaus, M., Fatorelli, L., Muharrom, E. (2017) How institutions and beliefs affect environmental discourse: Evidence from an eight-country survey on REDD+. Global Environmental Change, 45, 133-150. doi.org/10.1016/j.gloenvcha.2017.05.006

How Institutions and Beliefs affect Environmental Discourse: Evidence from an Eight-Country Survey on REDD+

Words 7,338 (including main body text, table and figure captions excluding references)

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Acknowledgements

This research is part of the policy component of the Center for International Forestry Research (CIFOR) Global Comparative Study on REDD+ (http://www.cifor.org/gcs/). The methods applied here build partially on research undertaken by the Comparing Climate Change Policy Networks program (http://compon.org), led by Jeffrey Broadbent and funded by the National Science Foundation. The authors would like to express their deep gratitude to our partners and the individual country teams in the global comparative study, without those work in the research countries this comparative paper would not have been possible. In particular, we would like to thank Maria Fernanda Gebara, Peter May and Shaozeng Zhang (Brazil), Felicien Kengoum (Cameroon), Moira Moeliono, Cynthia Maharani, Bimo Dwisatrio, Levania Santoso and Christine Wairata (Indonesia), Bryan Bushley, Dil Bahadur Khatri, and Naya Sharma Paudel (Nepal), Andrea Babon, Daniel McIntyre, Gae Y. Gowae (Papua New Guinea), Mary Menton, Javier Perla, Juan Sotes (Peru), Salla Rantala (Tanzania), Thuy Thu Pham and Dung N. Le (Vietnam). Funding for the study was provided the Norwegian Agency for Development Cooperation, the Australian Agency for International Development, the European Commission, the Department for International Development of the UK, and the Mershon Center at The Ohio State University. We also would like to thank two anonymous reviewers for their insightful comments. We wish to dedicate this work to the memory of Bryan Bushley, a colleague and friend whom we all sorely miss.

Abstract

This paper investigates the adoption of discourses on Reducing Emissions from Deforestation and forest Degradation (REDD+) across different national contexts. It draws on institutional theories to develop and test a number of hypotheses on the role of shared beliefs and politico-economic institutions in determining the discursive choices of policy actors. The results show that win-win ecological modernization discourse, embraced by powerful government agencies and international actors, dominates national REDD+ policy arenas. This discourse is challenged primarily by a minority reformist civic environmentalist discourse put forward primarily by domestic NGOs. We find evidence that countries with a less democratic political system and large-scale primary sector investments facilitate the adoption of reconciliatory ecological modernization discourse, which may not directly challenge the drivers of deforestation. Policy actors who believe in and are engaged in market-based approaches to REDD+ are much more likely to adopt ecological modernization discourses, compared to policy actors who work on community development and livelihoods issues.

Keywords: climate change discourse; institutions; policy beliefs; environmental governance; forest; mitigation

How Institutions and Beliefs affect Environmental Discourse: Evidence from an Eight-Country Survey on REDD+

1. Introduction

Reducing Emissions from Deforestation and forest Degradation (REDD+) was first proposed in 2005 as a way to link anti-deforestation and climate change mitigation efforts. While there have been numerous approaches to this basic idea, REDD+ can generally be seen as a financial mechanism aimed at directing results-based payments to areas undertaking forestry projects that reduce carbon emissions, particularly where these areas were previously subject to significant deforestation (Campbell, 2009).

Studies analysing REDD+ have often asked whether the initiative has the potential to spark transformative policy changes to improve forest protection in tropical forest countries (Brockhaus and Angelsen, 2012). A number of researchers studying REDD+ have investigated the formation of discourse coalitions with sufficient power to change business-as-usual, or, more broadly, status-quo, policies (den Besten et al., 2014; Di Gregorio et al., 2015; Vijge et al., 2016).

What we know less about, however, is how discursive practices are constrained and enabled by broader social contexts (Foucault, 1972). To address this gap, this paper investigates how institutions and belief systems affect environmental discourses on REDD+. Discourses about appropriate policy responses to environmental problems often form the backdrop for mobilization and activism around environmental concerns (Hajer, 1995). The studies cited in the previous paragraph, for example, document an absence of dominant reformist or radical discourse coalitions that could generate transformative, or fundamental, change in forest

governance, but, because of limited attention to the interaction between broader structures and specific discourses on REDD+, we lack a systematic account of why such frames fail to emerge or spread widely. We argue that developing such an account requires a multilevel approach that integrates institutional path dependence at the national level and belief systems at the organizational level to explain patterns in the adoption of three broader environmental governance discourses (Arts and Buizer, 2009; Bäckstrand and Lövbrand, 2006; Di Gregorio, 2012; Schmidt, 2008). These broader discourses, or meta-discourses, are the discourses of ecological modernization, civic environmentalism and green governmentality described by Bäckstrand and Lövbrand (2006).

Belief systems, discourses, and institutions, often have been used in isolation as alternative explanations in accounts of policy change (Schmidt, 2008). However, these mechanisms are complementary and sometimes overlap (Bulkeley, 2000; Winkel et al., 2011). In formulating a discursive response to novel policy initiatives, such as REDD+, organizations draw on prevalent broad and overarching environmental meta-discourses (Bäckstrand and Lövbrand, 2006), selecting appropriate positions based on a combination of their own values and beliefs (Sabatier and Jenkins-Smith, 1993) and the broader institutional context (Arts and Buizer, 2009; Schmidt, 2008).

To test these claims, we assess whether political institutions (Acemoglu and Robinson, 2012; North, et al., 2009), combined with shared beliefs, help predict organizations' adoption of meta-discourses. More specifically we investigate: (1) whether and to what extent organizations rely on the three meta-discourses in forming micro-discourses on REDD+; (2) whether and how political institutions and politico-economic conditions affect organizations' discursive

orientation; and (3) how shared beliefs systems affect organizations' discursive orientation. We use a unique dataset based on a survey conducted with policy actors engaged in the national REDD+ policy domain in eight countries (Brazil, Cameroon, Indonesia, Nepal, Papua New Guinea, Peru, Tanzania, and Vietnam), carried out between 2010 and 2013 as part of the Global Comparative Study on REDD+ (GCS-REDD) (Brockhaus and Di Gregorio, 2012). Our work builds on recent comparative analysis on climate change and forest mitigation that goes beyond case-study research to integrate evidence from multiple countries (Di Gregorio et al., 2015; Gallemore and Munroe, 2013; Gupta et al. 2013; Korhonen-Kurki et al., 2014; Minang et al., 2014; Vijge et al., 2016). The paper develops a theoretical framework that uses cognitive and institutional factors to explain patterns of adoption of environmental meta-discourses. Further, the research provides new evidence about national-level REDD+ discursive practices, in the countries implementing these policies.

We begin by presenting our theoretical framework, explaining how it applies to climate change and forests policy processes and deriving hypotheses connecting institutions and beliefs to discursive practices. This is followed by a discussion of our data collection and analytical methods. Utilizing survey responses we then model clusters of opinion statements with latent class regression to simultaneously identify meta-discourses representing different discursive orientations (or clusters) that subsume similar positions on REDD+ (micro-discourses). The model allows us to simultaneously assess the extent to which broad national-level institutions, and organizational beliefs explain the distribution of these meta-discourses across our eight REDD+ countries. We close by considering the implications of our findings for REDD+ policy and policy studies more broadly.

2. Theoretical framework

We draw on different neo-institutional traditions, from (boundedly) rational choice, to sociological and discursive institutionalism, to help us analyse the determinants and distribution of environmental meta-discourses in the climate and forests policy domain (Bäckstrand and Lövbrand, 2006; Campbell and Pedersen, 2001; Schmidt, 2008). We begin with New Institutional Economics, which suggests institutional path dependence is a key obstacle to policy change (North, 1990; Peters et al., 2005). On this account, institutions, understood as the "rules of the game" (North, 1990: 4), facilitate cooperation among boundedly rational individuals and are changed or maintained as a result of the relative bargaining power of different social groups (Williamson, 1975). More recent work in this tradition adds that values and beliefs also influence boundedly rational beings, in particular in policy domains where uncertainty is high (North, 2005). Constructivist institutional theories go further, arguing that institutions are in fact produced by discourses (Hajer, 1995). In other words, on the constructivist account, institutions might be altered not only due to changes in bargaining power among actors, but also due to changes in meanings and beliefs. Because constructivist discursive approaches risk blurring action and structure, many studies address two-way interactions between discourse and institutions and suggest that analytically policy change should be assessed from both ideational and institutional perspectives (Hay, 2008; Phillips et al., 2004; Schmidt, 2008, 2010).

While exhibiting considerable differences, these accounts all suggest policy transformations are a product of complex interactions between path-dependent institutions; agents wishing to utilize, co-opt, or transform existing institutional conditions; and discursive practices adopted in the

advocacy process itself (Arts and Buizer, 2009; Brockhaus and Angelsen, 2012). While these reciprocal connections are complex, the processes in question change at different rates (Padgett and Powell, 2012: 2-3), providing an opportunity for analytic leverage. Our primary process of interest - policy actors' adoption of a discursive orientation vis-à-vis REDD+ - takes place at the organizational level. From the perspective of organizational leaders, it is always necessary to adapt as political circumstances and agendas change. Organizational leaders rarely successfully innovate their own discourses separate from broader debates on environmental policy (Bäckstrand and Lövbrand, 2006). Instead, meta-discourses frame audiences' interpretations of forest and climate issues, such that truly novel interventions may be misunderstood, actively repressed, or simply ignored (Foucault, 1972). While such broad discursive frames might not be entirely consonant with organizations' values and beliefs, as long as they are somewhat compatible, there is an incentive to adopt such discourses in order to build coalitions for advocacy or implementation (Di Gregorio, 2012). The relative stability of meta-discourses at a global scale, in the short run, suggests that we should observe organisations' positions on REDD+ (micro-discourses) to cluster around the three meta-discourses that have emerged from countless discursive acts over time.

REDD+ discursive practices are informed by actors' values and beliefs (Bulkeley, 2000; Di Gregorio, 2012). While social learning might be expected to change beliefs at the organizational level over time, in the short term we can consider deep core beliefs - the "broadest and most stable among the beliefs" and policy core beliefs - the normative commitments and understanding of causal linkages in a given policy subsystem - to be relatively fixed (Weible et al., 2009: 122). Policy core beliefs include priorities such as the importance of economic growth

versus environmental protection, the appropriate division of authority between government and markets, and core value priorities of a subsystems such as the need to address inequalities and poverty or to facilitate growth in order to achieve sustainability (Sabatier, 1997). Secondary policy beliefs, such as deciding what position to take with regard to a novel policy issue like REDD+, tend to have a more rapid temporal pace as they are informed by more immediate strategic concerns as new issues arise on the organization's agenda (Sabatier and Jenkins-Smith, 1993).

Organizational leaders' discursive positions and beliefs are also necessarily constrained by institutional conditions (Arts and Buizer, 2009), including political institutional conditions at the national level, such as the degree of democratic control of the polity, and the broader political economic context, including factors like the political dominance of specific economic sectors in society. While over the long term dominant organizations' discursive practices may become institutionalized (Hajer, 1995), these broad institutional factors may be taken as relatively fixed in the short term (North, 1990). That is to say, while there is certainly a complex range of factors affecting the adoption of meta-discourses, we can get leverage on the role of at least some of those factors, including political institutions and politico-economic conditions, and policy core beliefs, which are unlikely to be endogenous in the short term. Figure 1 summarizes the main elements of our model.

[FIGURE 1 here]

Figure 1: Model of the theoretical framework

Next, we discuss the each elements in more detail. First we discuss the three meta-discourses, and then the institutional and the belief-based factors that affect the adoption of meta-discourses.

2.1. Environmental meta-discourses on REDD+

Bäckstrand and Lövbrand (2006: 50) contend that debates surrounding forest carbon projects are a "microcosm" of three broader meta-discourses regarding global environmental governance: ecological modernization, green governmentality, and civic environmentalism. Ecological modernization is a win-win narrative, in which economic growth and environmental protection are either already mutually consistent or can readily be reconciled with simple institutional changes. Weak forms of ecological modernization focus on technological solutions and modest governance reforms, while strong forms entail broader changes in institutions and economic structures, favouring open and democratic decision-making (Christoff, 1996). Green governmentality discourses, on the other hand, are focused heavily on the techno-scientific management of individuals and nonhuman systems, situating the state and scientific and policy experts in positions of considerable authority. Some versions feature more elitist, globalizing and top-down visions, while others admit reflexive approaches (Jasanoff and Martello, 2004). Civic environmentalism, finally, also has two poles. A reformist version calls for excluded and disenfranchised groups to be active participants in environmental projects, while more radical adherents contend the extant global order is inherently inequitable and unsustainable, necessitating dramatic transformation.

Very similar positions are articulated in global REDD+ debates. Early proponents of REDD+, for example, often adopted ecological modernisation's win-win outlook, contending that REDD+

would be “big, quick, and cheap” (Angelsen and McNeill, 2012: 33; Di Gregorio et al., 2015; den Besten et al., 2014; McDermott et al., 2011). Over time, however, advocates raised civic environmentalism critiques of REDD+, fearing for the rights and livelihoods of forest-dwelling peoples (Gupta, 2012). Technically sophisticated commentators participated in these debates, as well, pointing out difficulties with measurement, monitoring, and verification of emissions as they echoed green governmentality themes (De Sy, et al., 2012; Gupta, et al., 2012).

Previous research has documented some similarities and differences in dominant REDD+ discourses across countries. There is, for example, a general tendency to consider broad co-benefits compared to just emission reduction aims, to recognize the role of community, as opposed to expert-based monitoring, and to privilege market, as compared to fund-based approaches, and there are also differences of opinion on whether national or subnational REDD+ accounting approaches should be pursued (Vijge et al., 2016). Each of these conflicting positions can be subsumed under one of the three meta-discourses identified by Bäckstrand and Lövbrand (2006). Consequently, REDD+ micro-discourses might cluster under ecological modernization, green governmentality, of civic environmentalism discourses. The next step is to explain the institutional and belief-based determinants of these discursive orientations.

2.2. Institutional context and discursive practices

Formal and informal institutions have tangible effects, establishing certain practices as legitimate or illegitimate, affecting who has the right to speak in what capacity, and grounding relationships of power and resource access (Lukes, 2005). Political institutions, such as the type of political regime and other politico-economic factors, such as the evolution of the constellation of power in

key economic sectors, constrain agents' actions, including their discursive strategies (Phillips, et al., 2004; Schmidt, 2008). This presents a problem: institutional path-dependence can constrain the formation of reformist discursive orientations necessary for the transformational change required to address the drivers of forest loss (Korhonen-Kurki et al., 2014).

We would expect variations in political institutions and politico-economic context to systematically favour or constrain certain discursive practices. Countries with more democratic political systems, all else equal, provide more space for civil society, making it safer to adopt reformist or even radical discourses (McAdam et al., 1996). Conversely, in authoritarian regimes, where dissident political discourses are suppressed (Wedeen, 1999), we would expect to observe civic environmentalism perspectives less often. This leads up to our first hypothesis:

H1: Organizations in countries with greater democratic control will be more likely to adopt civic environmentalism discourses.

Politico-economic conditions that grant power to particular vested interests are also likely to impact the adoption of discourses. The strength of status-quo interests - that is, groups whose interests might be negatively affected by changes required to bring about transitions to sustainability - is critical (Brockhaus and Angelsen, 2012). Countries in which status-quo interests are stronger will be likely to exhibit more win-win discourses, which are more amenable to business-as-usual arguments opposing significant - or sometimes any - changes. In the case of REDD+, we would expect that in countries where large-scale forestry and agricultural interests are particularly powerful, organizations would be more likely to adopt weak ecological modernization discourses, more amenable to the interests of this powerful sector, compared to civic environmentalism. Thus, our second hypothesis reads:

H2: Countries where large-scale primary sector interests are strong will exhibit higher rates of ecological modernization discourse.

2.3. Beliefs and discursive practices

At the organizational level, cognitive approaches like Sabatier's (1988) Advocacy Coalition Framework (ACF) suggest that shared belief systems, in particular policy core beliefs, are the basis of coalition formation. Constructivist discursive approaches, such as Hajer's (1995) discourse coalition framework, instead, contend discursive practices perform the same role. Traditionally, these two approaches have been considered alternative explanations of policy change. However, both accounts revolve around the importance of ideas (Winkel et al., 2011). In fact, the systems of beliefs of the ACF, and their related underlying values, tend to be formulated as meanings of discourse. In other words, discourses express, reproduce, or enact belief systems (Van Dijk, 2006).

While discourses tend to be very broad and can be used strategically to seek instrumental alliances, people's core policy beliefs are more distinct, and are likely to be reflected in their key activities. For example, an organization that works on community development projects should value poverty alleviation as a key policy core belief. We therefore rely on specific organization's level of engagement in certain activities as a proxy indicator of policy core beliefs. In the case of REDD+, market-based approaches, community livelihoods development, and technical policy development and performance monitoring have become particularly politically important. In turn the policy core beliefs associated with these activities map onto different meta-discourses. Activities linked to carbon measurement and trading and implementation of REDD+ schemes are

closely aligned with win-win market-based environmental approaches (Dixon and Challies, 2015; Gallemore et al., 2015; Winkel, et al., 2011). Consequently, we argue that:

H3: Organizations specializing in carbon markets will be more likely to adopt ecological modernization discourses.

This same logic holds for organizations engaged in community livelihoods development. In the REDD+ context, this generally means being involved in sustainable livelihoods activities and community rights advocacy. These reflect more reformist and sometimes even transformative policy core beliefs that aim at changing underlying conditions driving environmental damage. In contrast to those of organizations engaged in carbon trading and markets:

H4: Organizations specializing in community livelihoods development will be more likely to adopt civic environmentalism discourses.

Finally, as noted above, there has been a significant demand for scientific research in support of REDD+, particularly to develop effective techniques to estimate carbon stocks and to assess mitigation reductions resulting from avoided deforestation (Romijn et al., 2012). Due to the scientific and technical focus of these activities we would expect that:

H5: Organizations engaged in research and policy design will be more likely to adopt green governmentality discourses.

Figure 2 summarizes the hypotheses and relationships between variables described above.

[FIGURE 2 ABOUT HERE]

Figure 2: Operationalization of the model

3. Methods

The primary data for this study was derived from a multi-country study on national REDD+ policy processes. While this survey was designed primarily to assess organizations' positions on REDD+ for the purposes of applied policy process analysis, it also provides a unique opportunity to study the determinants and distribution of discursive orientations in an emerging environmental policy arena. We used data from eight countries considered early starters on REDD+ (Angelsen et al., 2012; Arts et al., 2013): Brazil, Peru, Cameroon, Tanzania, Indonesia, Nepal, Papua New Guinea, and Vietnam. For all countries, we utilized data on organizations engaged in REDD+ policy at the national level, and, in the case of Indonesia, additionally used data on those active in the province of Central Kalimantan, which was designated by the national government to pilot jurisdictional REDD+, putting it on the forefront of national REDD+ policy development. We replicated our model estimations without these provincial actors as a robustness check (Tables B.2 and B.3).

Data were collected using a standardized collection method for all countries based on an in-person survey administered in the national language or English, based on respondents' preferences. Organizations engaged in REDD+ policy were identified based on country teams' knowledge and media searches, which involved collecting articles mentioning REDD+ from three to five of the largest circulation newspapers in each country over a 2005-2010, noting organizations and individuals mentioned as policy actors on REDD+ or directly quoted in each article. Once a list was compiled, a panel of five to ten experts from government, civil society, academia, and/or the private sector in each country or province reviewed the list, identifying organizations actively engaged in REDD+ policy processes, suggesting additional relevant and

deleting non-relevant organizations. High-level representatives of these organizations were invited to participate in the organizational survey. Potential interviewees were briefed on the purpose of the study, which was to conduct a comprehensive analysis of framing and policy networking engaged in REDD+ across multiple countries. Upon receiving informed consent from the organization's representative, surveys were administered in person by one or more interviewers. Interviews were recorded and transcribed if the interviewee granted permission, and all fixed-response survey data were recorded by the interviewers in a common database. Transcripts from interviews were consulted to provide context for the clusters estimated below. Our primary outcome variable in the study discussed here comes from 35 statements gauging organizations' framing of REDD+. Respondents were asked to rate each of these opinion statements on a five-point Likert scale from "Strongly Disagree" to "Strongly Agree." For modelling purposes, we dichotomized these scales, assigning a 1 to "Agree" or "Strongly Agree" and 0 otherwise. Our modelling objective was to assign organizations into clusters based on the pattern of their agreement with these stances.

3.1 Modelling the determinants of meta-discourses on climate and forests

While there is certainly a reciprocal relationship between organizations' discursive practices and broader politico-economic institutions (Schön and Rein, 1994; Benford and Snow, 2000), the models estimated in this paper focuses on how institutions and belief systems affect organizations' discursive practices. While these practices, in turn, reshape institutions and beliefs systems, they do so on longer timescales than could be captured in a single cross-sectional study. Therefore, in this particular analysis we do not explicitly consider how organizations' discourses

about REDD+ could in turn affect fundamental institutional contexts or global meta-discourses on the environment like those studied here. In effect, we apply an "analytical dualism" (Archer 1996), treating agents and structures as distinct, a technique we consider justified due to the difference in timescales upon which structures and our phenomena of interest - organizations' discursive and collaboration strategies - evolve.

To identify clusters in organizations' stances on REDD+ across countries, we utilized latent class regression, as implemented in the poLCA Package in R (Linzer and Lewis, 2011; R Core Team, 2015). Latent Class Regression has been used previously in literature on land-use decision-making (Poppenborg and Koellner, 2013) and has a long tradition in public opinion research (McCutcheon, 1985). Here, we adopted it to group organizations into clusters of different stances, based on their representatives' responses to opinion statements regarding REDD+. Simultaneously, we modelled factors explaining which organizations fall into each classification using a set of variables designed to proxy beliefs and values through organizational characteristics, as well as the political and politico-economic institutional context.

Latent class regression is an extension of latent class analysis, which classifies observations into a predetermined number of clusters based on the value of categorical variables. The model simultaneously estimates the clusters and a multinomial logistic regression that can be used to relate explanatory variables to resulting clusters, helping avoid biased coefficients. The resulting model estimates provide information about both the classes into which observations fall and the relationship between independent variables and observations' classifications.

Latent class models are a type of finite mixture model, in which outcome variables are modelled as the result of a combination of distinct probability distributions. As Linzer (2011: 175) explains

the approach, we can think of a population as consisting of different types of individuals, or, in our case, organizations, whose attitudes might be similar within classes and different between them. The model identifies these classifications by estimating the probability that an individual in a given class responds to an item in a particular way.

The fit of latent cluster regression models is generally evaluated by Akaike Information Criteria, Bayesian Information Criteria (BIC), or Pearson's Chi-squared tests (Linzer and Lewis, 2011). In our case, we utilized BIC to select the appropriate number of classes because it allows us to balance model fit and parsimony. Further, we assessed our best model's predictive adequacy using Receiver Operating Characteristic (ROC) curves (Bradley, 1997), which measure prediction success by the area under a curve created by plotting false positives against false negatives for different cutoff values of predicted probability. The measure ranges from 0 to 1, with 1 indicating perfect prediction. As the measure is designed for binary classification, we plotted and computed the area under separate ROC curves for each cluster identified by the model. In addition, because we expect discourses to lead to consistent responses across opinion statements, and to ensure our findings are robust, we fitted our models on a random subset of 20 of the 35 stances used from the survey, reserving 15 for cross-validation (see Appendix A Table A.1 for the complete description of the stances). This approach provides additional information on the validity of the resulting clusters by allowing us to see if the clusters of organizations identified by our models are also statistically significantly different on any opinion items that were not directly modelled.

3.2. Latent class regression variables and data

Our hypothesis regarding the political institutional context focuses on democratic control of the political system. To measure democratic control, we used Polity IV democracy scores (Marshall, et al., 2014). A common measure of democratic governance, the Polity IV index ranges from -10 (autocracy) to 10 (consolidated democracy). For each country in our sample, we computed the mean score between 2008 and 2012, the primary years of REDD+ activity around the time our survey was administered (Democracy). As indicators of politico-economic conditions and status-quo interests we utilized data from the Food and Agriculture Organization (2017) on average gross fixed capital formation in the non-mining primary sector (that is, forestry, agriculture, and fishing) between 2008 and 2012. To normalize this variable, we calculate it as the number of US$ per US$1,000 of gross domestic product, in constant 2005 dollars and scale it in standard deviations for ease of model interpretation (Primary Capital).

Core policy beliefs were proxied through key organizational activities. To identify organizations that support market-based policy approaches we considered whether they were considerably engaged in carbon measurement or trading activities. We computed the proportion of times a respondent organization reported expending "much" or "very much" effort on "REDD-related carbon trading/brokerage" and "Implementation of REDD site activities (including demonstration sites activities, e.g. Forest Carbon Partnership Facility and UN-REDD initiatives)" (Market). We identified organizations engaged in community livelihoods development using the same technique, based on reported efforts on "Tenure rights (land, trees)," "Poverty alleviation and equity (including distribution of REDD revenues)," and "Community-based or joint forest management" (Community). Finally, we operationalized research and policy

design activities using the same technique again, this time using reported efforts on "Design of national level REDD strategies and policies," "Design of sub-national level REDD strategies and policies," and "REDD scientific research" (Policy & Research).

At the national level, we controlled for overall economic development using the natural logarithm of GDP per capita in constant US$2011, by purchasing power parity (ln GDP Per Capita), taken from the World Development Indicators (World Bank, 2015) and averaged from 2008 to 2012. In addition, to control for unmeasured variation in institutional conditions, we estimated models with and without organizational type and country fixed effects. At the organizational level, we grouped policy actors into six categories by type. The first, Government, includes all domestic government agencies, at the national or subnational level. Academic, our second classification, includes national research institutes, think tanks, and universities. Domestic NGOs include NGOs and civil society organizations (CSOs) headquartered in the country for which they were surveyed, and form our third class. This class also includes any rural or indigenous organizations active in national REDD+ policy arenas. Private Sector organizations, which include firms, trade associations, and consultants, make up our fourth group. Our fifth group is composed of International NGOs - that is, NGOs not headquartered in the country for which they are respondents. Finally, our sixth group is made up of Donor Agencies, whether international organizations or the development agencies of donor governments. A summary of our continuously valued variables is presented in Table 1 and a correlation matrix in Table 2.

Variable type	Variable name	Mean	St Dev	Max	Description
Political Institutions	Democracy	3.73	5.62	9	Mean Polity IV country score, 2008-2012 (H1)
Politico-economic conditions	Primary Capital	0	1	1.78	Dollar value of fixed primary capital formation per US$ 1 billion of GDP, scaled in standard deviations (H2)
Policy Core Beliefs	Market	0.102	0.133	0.667	Proportion of times organization reported "Much" or "Very Much" effort in REDD+ carbon offsetting activities (H3)
	Community	0.286	0.216	1	Proportion of times organization reported "Much" or "Very Much" effort in community development activities (H4)
	Policy & Research	0.393	0.366	1	Proportion of times organization report "Much" or "Very Much" effort in designing subnational or national policy or scientific research (H5)
Control	GDP Per Capita	6462	4182	14281	Gross domestic product per capita (Control)

Table 1: Continuously valued variables used in model estimation.

	Democracy	GDP Per Capita	Primary Capital	Market	Community
GDP Per Capita	0.577				
Primary Capital	-0.618	-0.894			
Market	0.0229	0.0480	0.0229		
Community	-0.0136	0.0480	-0.0136	-0.112	
Policy & Research	0.0664	0.0447	0.0664	0.447	-0.0633

Table 2: Correlation matrix of continuously valued variables used in latent cluster regression model estimation.

3.3. Methods for interpreting clusters

To aid interpretation of our latent class models, we conducted some additional analysis using the clusters determined by our optimal latent class model. We visualized differences in organizational responses by cluster on both the fitted and the cross-validation opinion statements. Also, we computed difference of proportions tests comparing the proportion of agreement with each item between our primary clusters, using 10,000 random permutations of the cluster assignments to test for statistical significance, using a Bonferroni correction (Dunn, 1961). We also utilize a measure of reputational power (Krackhardt, 1990; Perrucci and Pilisuk, 1970) to compare the relative influence of the discursive orientations (clusters) we identify across the countries surveyed. We measure reputational power by taking the sum of all respondent organizations listing a given organization as "particularly influential on REDD+ policy in [country]" in our survey. For comparability, we divide scores by the total number of organizations interviewed in each country.

4. Results

4.1. Identifying meta-discourses

The estimated latent class regression models are presented in Tables 3 and B.1. Based on lowest BIC, we find that a three cluster solution is the most appropriate. While we estimate multiple models due to concerns about multicollinearity, membership in the three clusters is quite stable across models. To aid in interpretation of the estimated clusters, we present agreement on all 35

opinion statements, by clusters estimated by Model 3, our preferred model, in Figure 1. We find a cluster of about 8% of the 428 organizational respondents that have low response rates across the opinion statements (see Figure B.1 in Appendix B for detailed responses from this group). We call this the 'No Comment' cluster. Notably, private sector actors seem to be much more likely to show up in this cluster, as are organizations active in less democratic countries, suggesting that a combination of strategic interests and political constraints may be making these organizations too risk-averse to take stances on many of our opinion items, even confidentially (Figure B.2). In qualitative interviews conducted along with the survey, many of these actors expressed low confidence in their expertise on REDD+, suggesting they may be marginal. One notable exception, however, were some governmental agencies, in particular Vietnam, who did not want to expresses or commit to a particular position on REDD+. Given that these organizations' responses give us little information about their position, we focus on the two main clusters (accounting for about 92% of respondents) in our interpretation.

The two other clusters we identify have statistically significant and substantively important differences across the opinion statements, though their points of agreement are equally telling. Figure 3 and Table 3 highlight opinion statements where the two groups' responses are statistically significantly different. The first of the two groups, accounting for about 59% of the sample, is more optimistic about the potential for REDD+ to effectively reduce emissions at a low cost while simultaneously improving livelihoods and forest governance. In keeping with the discussion of prevailing international discourses on forest policy above (Bäckstrand and Lövbrand, 2006), we identify the statements in the cluster as reflecting Ecological Modernization discourse. The second group, at about 33% of the sample, is much more sceptical of REDD+'s

impacts on forests, climate change, and poverty, its members concerned with fairness and the risk of conflict. In interviews, many of these organizations were openly sceptical about the role of markets in forest carbon policy, an important distinction separating these positions statements from Ecological Modernization discourse. Also based on the discussion of global discourses outlined above, we identify these clusters of positions statements as representing as predominantly Civic Environmentalism discourse.

[FIGURE 3 ABOUT HERE]

Figure 3: Percentage agreement with opinions statements, by cluster (see Table A.1. in Appendix A for the full description of the 25 opinion statements). Bolded entries indicate stances with statistically significant differences between Ecological Modernization and Civic Environmentalism Groups, based on 10,000 permutations of group assignments, with a Bonferroni correction. Created using ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015).

Overall Percentage Agree/Strongly Agree	**Opinion Statements**	**Label in Figure 1**
77%	REDD+ is an effective option for reducing greenhouse gas emissions globally	01 - Effective
77%	REDD+ schemes will provide incentives and resources to improve forest governance (e.g. illegal logging and rule of law)	16 - Improve forest governance
73%	REDD+ schemes are also likely to help countries to cope or adapt to the impacts of climate change	31 - Adaptation benefits
58%	REDD+ is a financially affordable way to mitigate climate change	02 - Affordable
57%	REDD+ schemes will be an important resource to reduce poverty	14 - Reduced poverty
38%	REDD schemes will exacerbate conflicts about forest land and forest resources	10 - Exacerbate conflict

32%	REDD+ will assure fairness in the international distribution of environmental costs and benefits	03 - Fair

Table 3: Full description and level of agreement of opinion statements with statistically significant differences between Ecological Modernization and Civic Environmentalism groups. Statement numbers correspond to statement numbers in Figure 1.

These findings suggest that organizations' opinions draw on environmental meta-discourses to frame REDD+. However, we find no cluster that can be equated with the green governmentality discourse. This could result from the survey design, which included few opinion statements on science and REDD+. Also, Bäckstrand and Lövbrand (2006) argue that reflexive forms of Green Governmentality overlap with Civic Environmentalism discourse, while more elitist technocratic forms overlap with weak Ecological Modernization positions, so Green Governmentality adherents may have been classified into one of these two other discourse clusters. On the other hand, previous media-based research on national REDD+ discourses found Green Governmentality to be a minority discourse observed only in one tenth of opinions expressed in the media in seven of the eight countries investigated in this paper (Di Gregorio et al., 2015). It may be that despite REDD+ being considered a technical issue, green governmentality discourses are not, in practice, a focal point for national level REDD+ policy discussions in the way they are studied here.

The points of agreement between the two main groups are as telling as their differences. There is generally consensus on the range of problems facing REDD+ across countries, for example. What distinguishes the Ecological Modernization and Civic Environmentalism groups is less their perception of what the problem is, such as land-use planning or governmental capacity, but, rather, the degree to which they are optimistic that governance reforms and market-oriented

approaches are adequate responses, with Civic Environmentalism being much more sceptical about the potential of REDD+ to deliver effectiveness and equity.

4.2. Modelling the adoption of meta-discourses

We estimate a number of different latent class regression models. Due to concerns of multicollinearity between GDP Per Capita, Primary Capital, and Democracy variables (see Table 2), we estimate a number of models including GDP Per Capita, Primary Capital, and Democracy separately, as well as full models with and without fixed effects by country. We find that models with fixed effects, such as Model 1, perform poorly on BIC related to models without fixed effects for all specifications and therefore only report the full fixed effects model (Table 4). Finally, we estimate a model with both Primary Capital and GDP Per Capita as a way of checking that the Capital variable is not just proxying for the level of economic development. While Primary Capital and Democracy have their expected sign and significance on their own, they are too highly correlated for their effects to be distinguished clearly. Democracy, for example, is not statistically significant when included in a model with GDP Per Capita (not shown), but, as seen in Model 6, Primary Capital continues to have a statistically significant, negative effect even when controlling for GDP Per Capita, which it outperforms. The model with the lowest BIC, Model 3, includes the Democracy variable alone. As it is both our best balance of fit and parsimony and avoids multicollinearity with GDP Per Capita, we focus on it in our interpretation, referring to the other models as necessary. To aid interpretation, we provide predicted probability plots for continuous variables based on the coefficients estimated in Model 3 in Figure 4 and predicted probability changes based on organization type in Table B.4 in Appendix B.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	0.499*** (0.146)	2.98 (4.26)	**-2.18*** (0.538)**	-1.86*** (0.480)	-6.10** (2.31)	2.97 (4.29)
Community	2.13** (0.820)	2.30** (0.731)	**2.19** (0.726)**	2.19** (0.719)	2.08** (0.712)	2.24** (0.729)
Market	-4.16* (1.80)	-2.98* (1.51)	**-3.45* (1.52)**	-3.16* (1.49)	-3.51* (1.49)	-2.91 (1.50)
Policy & Research	0.763 (0.587)	0.478 (0.491)	**0.420 (0.486)**	0.485 (0.484)	0.470 (0.477)	0.529 (0.490)
Democracy	0.552*** (0.0580)	0.0508 (0.0441)	**0.0872* (0.0350)**			
Primary Capital	0.665* (0.307)	-0.716 (0.377)		-0.497** (0.180)		-0.888* (0.373)
GDP Per Capita (ln)	-0.786*** (0.0844)	-0.593 (0.505)			0.503* (0.249)	-0.564 (0.503)
Research/ Academic	1.59* (0.808)	1.18 (0.613)	**1.21* (0.610)**	1.11 (0.607)	1.12 (0.600)	1.06 (0.611)
Domestic NGO	1.61** (0.535)	1.55*** (0.457)	**1.55*** (0.465)**	1.56*** (0.454)	1.57*** (0.455)	1.52*** (0.450)
Private Sector	0.454 (0.658)	0.613 (0.680)	**0.649 (0.655)**	0.640 (0.659)	0.678 (0.647)	0.558 (0.682)
International NGO	0.450 (0.658)	-1.94 (2.78)	**0.237 (0.597)**	0.230 (0.588)	0.270 (0.585)	0.0968 (0.590)
Donor Agency	0.606 (0.622)	0.485 (0.593)	**0.490 (0.587)**	0.490 (0.576)	0.488 (0.590)	0.385 (0.583)
Country Fixed Effects	Yes	No	**No**	No	No	No
N	428	428	**428**	428	428	428
BIC	9149	9116	**9102**	9105	9117	9113

Table 4: Estimated Latent Class Regression model with 3 clusters, Civic Environmentalism versus Ecological Modernization. See Appendix B Table B.1 for No Comment versus Ecological Modernization results. P-value of likelihood-ratio test against an intercept-only model with three clusters = 0.000. * = sig. at 0.05, ** = sig. at 0.01, *** = sig. at 0.001.

[FIGURE 4 ABOUT HERE]

Figure 4: Predicted probabilities for continuous variables using coefficients estimated in Model 3. Organization type set to Government, all other variables set at their means. Plots show the probability that an organization adopts each of the three discourses as the value of the independent variables change. Variables are plotted across their complete range in the data. Created with ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015).

National political institutions appear to have statistically and substantively significant relationships with the adoption of particular discursive strategies, but it is difficult to distinguish these relationships from one another and the effects of economic development more broadly. On their own, Democracy is positively and Primary Capital negatively associated with the adoption of Civic Environmentalism discourses (H1, H2). However, while Primary Capital retains its sign and significance when controlling for GDP Per Capita, this is not the case for Democracy, which, while still positive, is no longer statistically significant ($p = 0.112$) in a model without fixed effects and excluding only Primary Capital (not shown). However, both Democracy and Primary Capital outperform GDP Per Capita in explanatory power, based on lowest BIC, suggesting that institutional conditions, rather than the overall level of economic development, are more closely associated with organizations' discursive practices.

With regards to core policy beliefs, we find that specialization in carbon offsetting decreases the probability that an organization will adopt Civic Environmentalism discourses (H3) across all models except Model 6, where the coefficient is not significant ($p = 0.053$), while specialization in community development activities is positively associated increases the probability across all models (H4). We do not, however, find any statistically significant effects of Policy & Research variable on the propensity to adopt Civic Environmentalism discourses. This could be in part

because of the absence of a clear Green Governmentality discourse cluster, which we would expect to be most affected by these activities.

Controlling for type of organization shows that domestic NGOs and CSOs are more likely than state, donors, international NGOs, and private sector organizations to adopt Civic Environmentalism discourses, as, in several models, are Research and Academic organizations. It is telling that we find this effect for domestic NGOs and not international NGOs, which have been found to act more in concert with donor agencies in some REDD+ countries (Moeliono et al., 2014).

4.3. Reputational power across clusters

Figure 5 presents the distribution of reputational power for Ecological Modernization and Civic Environmentalism clusters across countries. Consistent with findings of prior studies of policy advocacy on REDD+ (Babon, et al., 2014; Korhonen-Kurki, et al., 2014; Di Gregorio et al. 2015), we find that the Ecological Modernization cluster is not only more numerous than the Civic Environmentalism cluster, its adherents also tend to be recognized as more powerful.

[FIGURE 5 ABOUT HERE]

Figure 5: Normalized reputational power, by cluster. Created using ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015).

5. Discussion

While several studies have focused on the question of how discourse coalitions can affect policy outcomes (Bulkeley, 2000; den Besten, et al., 2014; Hajer, 1995), there are also important

questions regarding the feedbacks between broader institutions, belief systems and discursive orientations (Schmidt, 2008). Taking advantage of a unique dataset, we have tested five hypotheses regarding organizations' adoption of particular discourses in different national contexts. We find compelling evidence that organizations discursive practices are influenced by their shared beliefs and, at the same time, are constrained by the broader institutional context (Weible et al., 2009; Arts and Buizer, 2009; Di Gregorio, 2012). We show that while comparing the adoption of discourses across national contexts can be demanding in terms of resources, it is possible to combine these research efforts with broad multi-country studies like the one utilized here. Model-based cluster analysis can be helpful in identifying meta-discourses (Bhatia et al., 2008).

Our findings indicate that not only do national level political institutions and politico-economic conditions impact organizations' ability to affect policy change (Brockhaus and Angelsen, 2012), they also constrain the types of ideas that are circulated in discourse, in the first place (Foucault, 1972; Smith 2008; North, 2005). Such path-dependencies place barriers in the way of the kind of transformations expected to be necessary for approaches like REDD+ to result in effective changes in environmental governance (Brockhaus et al., 2016). However, we are not fully able to distinguish the effects of the broader political economy and democratic institutions. Understanding the unique contributions of these two different forms of institutional context should be a consideration in case selection for future research in this area.

At the same time, shared belief systems represent key building blocks of broad discursive practices (Di Gregorio, 2012; Elgert, 2012; Forsyth, 2013). In particular, the divide between policy core beliefs that have a fundamentally positive outlook about REDD+ and prioritize

market-based solutions from those that prioritize community development objectives, non-carbon benefits and highlight distributive concern, seem to have crystallized into distinct orientations in REDD+ discourse in numerous countries (Vijge at al. 2016). These shared policy core beliefs, while themselves impacted by institutional conditions, contribute to the formation and strength of policy coalitions, advocating distinct positions, some favouring business-as-usual others demanding transformative change (Babon et al. 2014). Overall, and consistent with previous research on climate and forests, we find that organizations engaged in REDD+ tend to adopt more conservative Ecological Modernization discourses, as compared to Civic Environmentalism perspectives (Bäckstrand and Lövbrand, 2006; Di Gregorio et al., 2015).

6. Conclusion

This study has drawn on diverse neo-institutional traditions to explain the distribution of broad discursive practices in eight REDD+ countries. While these approaches have often been used in isolation, thinking of them as complementary approaches identifying processes operating at different levels provides a more holistic picture of REDD+ policy processes. On the one hand, rational-choice explanations of institutional path dependencies help us study broad, slow processes that provide the context in which organizations adopt discursive practices. Yet, discursive choices are also informed by shared beliefs systems, which facilitate or constrain the formation of much more fluid discourse coalitions.

Most importantly from a policy perspective, this study underlines the dominance of simplistic win-win ecological modernization discourses and associated politico-economic challenges that REDD+ faces in reversing the drivers of deforestation within national contexts. This is not to say

that there is no possibility of such change. What these findings do suggest, however, is that transformations toward more democratic governance - whether through long-term policy learning, political contention or evolutionary changes - and the presence of substantive constituencies that value the protection of local rights and livelihoods, provide the necessary basis for reformist discourses to emerge and spread. At present, in national REDD+ domains Civic Environmentalism discourses remain minority discourses, both in terms of numbers and political influence. Yet, how these perspectives might evolve to overcome politico-economic path dependencies remains an important area for further research. Studying the role of coalition building, collaboration and normative change via long term discursive-institutional co-evolution will continue to be an important part of developing accounts of advocacy on global environmental concerns.

Appendix A on Methods

Numbering	Opinion Statements	Percentage Agree/ Strongly Agree	Use
1	REDD is an effective option for reducing greenhouse gas emissions globally	77%	Model
2	REDD is a financially affordable way to mitigate climate change	58%	Model
3	REDD will assure fairness in the international distribution of environmental costs and benefits	32%	Model
4	REDD schemes should only be financed through funds	28%	Model
5	In the long-run REDD should be included in schemes to offset credits in compliance carbon markets	59%	Model
6	In the post-Kyoto regime the definition of forest should exclude monocultures	43%	Model
7	All REDD accounting and payments should go through the national governments	32%	Model
8	REDD benefits should reward large-scale industries/companies for reducing forest emissions	42%	Model
9	REDD should mainly reward local people for emission reduction activities	88%	Cross Validation
10	REDD schemes will exacerbate conflicts about forest land and forest resources	38%	Cross Validation
11	All REDD schemes aimed at reducing CO2 emissions should also require the realization of other key benefits like poverty reduction and biodiversity conservation	89%	Model
12	Improved recognition of local tenure rights is a pre-	86%	Cross

	condition for effective and equitable implementation of REDD schemes		Validation
13	REDD schemes developed with the sole objectives to reduce CO2 emissions are likely to be in contrast with biodiversity conservation aims.	44%	Cross Validation
14	REDD schemes will be an important resource to reduce poverty	57%	Model
15	Without involvement of local people in their implementation, REDD projects are unlikely to be effective	87%	Cross Validation
16	REDD schemes will provide incentives and resources to improve forest governance (e.g. illegal logging and rule of law)	77%	Model
17	Strengthened governance is a pre-condition for successful REDD schemes	90%	Model
18	REDD schemes will further weaken the limited administrative capacity of the state	14%	Cross Validation
19	One of the main challenges for an effect REDD Strategy in [country] is . . . lack of knowledge and awareness on REDD by relevant stakeholders	88%	Cross Validation
20	One of the main challenges for an effect REDD Strategy in [country] is . . . achieving effective coordination between state agencies, the private sector, and civil society	92%	Model
21	One of the main challenges for an effect REDD Strategy in [country] is . . . the lack of technical expertise for monitoring carbon emissions and sequestration	73%	Cross Validation
22	One of the main challenges for an effect REDD Strategy in [country] is . . . the delay in the clarification of tenure rights	82%	Model
23	One of the main challenges for an effect REDD Strategy in [country] is . . . contradictions among laws and regulations in forestry, agriculture and other sectors	79%	Model
24	One of the main challenges for an effect REDD Strategy in [country] is . . . social conflict and local resistance	56%	Cross Validation
25	One of the main challenges for an effect REDD Strategy in [country] is . . . effectively addressing main drivers of	79%	Cross Validation

	deforestation without compromising development objectives		
26	One of the main challenges for an effect REDD Strategy in [country] is . . . achieving broad consensus on changes in existing land use plans	83%	Model
27	One of the main challenges for an effect REDD Strategy in [country] is . . . low capacity to enforce laws and regulations	81%	Cross Validation
28	One of the main challenges for an effect REDD Strategy in [country] is . . . negotiating with powerful special interests influencing the main drivers of deforestation	70%	Cross Validation
29	Scientific experts are the best and final authority on REDD	18%	Cross Validation
30	Scientific experts dominate the national REDD policy discussion, at the expense of other relevant interests (e.g. business and civil society organizations)	34%	Model
31	REDD schemes are also likely to help countries to cope or adapt to the impacts of climate change	73%	Model
32	REDD schemes should always require permission from local forest resource users in the form of Free Prior and Informed Consent (FPIC)	77%	Cross Validation
33	Forest conservation schemes, sustainable forest management and enhancement of forest carbon stocks should all be eligible for REDD	81%	Model
34	REDD mechanisms are unlikely to be effective in reducing national level emissions because of difficulties in controlling leakage and in assuring the additionality and permanence	43%	Cross Validation
35	A national approach (for reference levels, MRV, rewards etc.) is necessary to ensure effectiveness of REDD schemes (as compared to project-based approach)	66%	Model

Table A.1: Opinion statements (stances) used in model fitting and cross validation. 15 statements were chosen as a compromise between providing a rigorous test of the model by providing more statements that can be used to assess the model's validity, and providing sufficient numbers of statements for the model to fit. The statements chosen as cross-validation statements were

randomly selected by the statistical software R (R Core Team, 2015)

Appendix B on Results

[FIGURE B.1 ABOUT HERE]

Figure B.1: Percentage responses across all response categories, No Comment group. Created using ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015).

Models excluding organizations based in Central Kalimantan are presented in Tables B.2 and B.3. We find only minor differences in coefficient sign and significance in comparison to the models with Central Kalimantan, with two exceptions. First, the Market variable, which has estimated p-values only slightly below 0.05 in the models with all observations, has a p-value slightly above 0.05 in some of the models without Central Kalimantan. The second difference is found in Model 4. In this model, a different set of clusters, which do not correspond well to the Civic Environmentalism/Ecological Modernization clustering found to be consistent across the other models is found. As this is not the lowest BIC model, and as the other models are consistent with one another and with the models including the observations from Central Kalimantan, we concentrate on the models including Central Kalimantan in the body of the paper.

[FIGURE B.2 ABOUT HERE]

Figure B.2: Discourse cluster distribution by organizational type and country. Created using ggplot2 (Wickham, 2009) in R 3.2.3 (R Core Team, 2015).

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-0.629	-10.0	-0.880	-1.15	6.00	-9.87

	(0.494)	(12.9)	(0.690)	(0.711)	(4.78)	(12.7)
Community	-0.657 (1.90)	-0.996 (1.60)	-0.600 (1.52)	-0.816 (1.29)	-0.695 (1.20)	-0.900 (1.35)
Market	0.959 (5.56)	-0.249 (5.19)	-0.204 (4.53)	-0.984 (4.30)	-1.14 (3.93)	-1.06 (4.55)
Policy & Research	-5.19 (4.46)	-4.43 (2.90)	-3.79 (2.95)	-4.61 (2.59)	-3.94 (2.57)	-5.01 (2.57)
Democracy	0.249* (0.112)	-0.132 (0.0932)	-0.165 (0.0845)			
Primary Capital	0.949 (1.03)	1.15 (1.08)		0.858* (0.435)		1.47 (1.04)
GDP Per Capita (ln)	-0.339 (0.195)	1.06 (1.51)			-0.831 (0.570)	1.02 (1.48)
Research/ Academic	0.389 (1.93)	0.508 (1.41)	0.271 (1.44)	0.227 (1.26)	0.0692 (1.27)	0.494 (1.20)
Domestic NGO	-13.2*** (0.000)	-40.4*** (0.000)	-13.0*** (0.000)	-16.5*** (0.000)	-12.0*** (0.000)	-19.5*** (0.000)
Private Sector	2.35 (1.33)	2.48* (1.16)	2.29* (1.01)	2.20** (0.776)	2.12** (0.723)	2.29** (0.856)
International NGO	-1.66 (2.74)	-1.47 (2.11)	-1.63 (2.16)	-1.55 (1.81)	-1.55 (1.77)	-1.49 (1.77)
Donor Agency	-2.02 (3.34)	-1.94 (2.78)	-1.85 (2.63)	-2.02 (2.52)	-1.71 (2.35)	-2.11 (2.42)
Country Fixed Effects	Yes	No	No	No	No	No
N	428	428	428	428	428	428
BIC	9148	9115	9102	9101	9117	9113

Table B.1: Estimated Latent Class Regression model with 3 clusters, No Comment versus Ecological Modernization. * = sig. at 0.05, ** = sig. at 0.01, *** = sig. at 0.001.

[FIGURE B.3 ABOUT HERE]

Figure B.3: ROC Curves and Area Under the Curve for Model 3. Plotted with pROC (Robins, et al., 2011) in R 3.2.3 (R Core Team, 2015).

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	0.445** (0.147)	3.14 (4.29)	-2.25*** (0.556)	0.422 (0.412)	-6.25** (2.35)	3.04 (4.32)
Community	3.31*** (0.978)	2.72*** (0.842)	2.62** (0.837)	-1.29 (0.764)	2.43** (0.810)	2.58** (0.830)
Market	-3.74 (1.91)	-2.46 (1.52)	-3.07* (1.54)	2.12 (1.30)	-3.18* (1.50)	-2.41 (1.50)
Policy & Research	0.879 (0.616)	0.515 (0.489)	0.466 (0.484)	-0.373 (0.453)	0.512 (0.473)	0.548 (0.485)
Democracy	0.507*** (0.0594)	0.0555 (0.0434)	0.0917** (0.0355)			
Primary Capital	0.559 (0.315)	-0.764* (0.387)		0.613*** (0.168)		-0.939* (0.380)
GDP Per Capita (ln)	-0.801*** (0.0914)	-0.624 (0.507)			0.518* (0.252)	-0.580 (0.506)
Research/ Academic	1.76 (0.926)	1.18 (0.627)	1.22 (0.623)	-0.974 (0.570)	1.08 (0.611)	1.03 (0.622)
Domestic NGO	1.81** (0.596)	1.57*** (0.464)	1.58*** (0.471)	-0.996* (0.422)	1.58*** (0.461)	1.54*** (0.457)
Private Sector	0.587 (1.21)	0.711 (0.707)	0.710 (0.693)	-0.370 (0.577)	0.789 (0.673)	0.689 (0.694)
International NGO	0.555 (0.741)	0.0188 (0.620)	0.0796 (0.612)	0.502 (0.502)	0.122 (0.596)	-0.0521 (0.605)
Donor Agency	0.756 (0.664)	0.450 (0.597)	0.471 (0.587)	0.202 (0.487)	0.452 (0.588)	0.335 (0.584)
Country Fixed Effects	Yes	No	No	No	No	No
N	401	401	401	401	401	401
BIC	8589	8559	8547	8549	8563	8558

Table B.2: Estimated Latent Class Regression model with 3 clusters, Civic Environmentalism versus Ecological Modernization, without organizations based in Central Kalimantan. * = sig. at 0.05, ** = sig. at 0.01, *** = sig. at 0.001.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-0.177 (0.416)	-9.73 (14.3)	-0.947 (0.733)	-0.816 (1.11)	5.96 (5.30)	-9.52 (13.2)
Community	-0.932 (1.89)	-0.833 (1.70)	-0.431 (1.60)	-1.54 (2.57)	-0.488 (1.27)	-0.606 (1.39)
Market	-2.11 (6.84)	-2.43 (6.33)	-2.19 (5.46)	-0.147 (5.92)	-3.12 (4.56)	-3.39 (5.34)
Policy & Research	-4.31 (3.37)	-4.36 (3.09)	-3.68 (3.27)	-5.62 (4.25)	-3.85 (2.88)	-4.90 (2.65)
Democracy	-0.253* (0.113)	-0.138 (0.0980)	-0.171 (0.0910)			
Primary Capital	-0.388 (0.738)	1.21 (1.22)		1.75* (0.819)		1.50 (1.09)
GDP Per Capita (ln)	-0.0728 (0.141)	1.02 (1.67)			-0.833 (0.630)	0.984 (1.54)
Research/ Academic	0.400 (1.56)	0.612 (1.43)	0.356 (1.47)	-1.54 (2.57)	0.145 (1.32)	0.590 (1.21)
Domestic NGO	-13.2*** (0.000)	-12.4*** (0.000)	-13.0 (0.000)	-17.4*** (0.000)	-12.3*** (0.000)	-12.8*** (0.000)
Private Sector	2.42 (1.43)	2.68 (1.31)	2.45* (1.08)	1.73 (1.03)	2.27** (0.790)	2.43* (0.956)
International NGO	-1.68 (2.63)	-1.41 (2.31)	-1.58 (2.29)	-1.28 (2.53)	-1.49 (1.99)	-1.50 (1.92)
Donor Agency	-2.05 (3.21)	-1.84 (2.97)	-1.73 (2.77)	-1.50 (1.44)	-1.58 (2.48)	-2.04 (2.51)
Country Fixed Effects	Yes	No	No	No	No	No

N	401	401	401	401	401	401
BIC	8589	8559	8547	8549	8563	8558

Table B.3: Estimated Latent Class Regression model with 3 clusters, No Comment versus Ecological Modernization, without organizations based in Central Kalimantan. * = sig. at 0.05, ** = sig. at 0.01, *** = sig. at 0.001.

Organization Type	**Ecological Modernization**	**Civic Environmentalism**	**No Comment**
Government	0.798	0.140	0.062
Research/ Academic	0.590	0.350	0.0599
Domestic NGO	0.547	0.453	0.000
Private Sector	0.477	0.161	0.363
International NGO	0.808	0.180	0.0122
Donor Agency	0.770	0.221	0.00940

Table B.4: Predicted probabilities of cluster membership by organization type, based on Model 3. All other variables set to their means.

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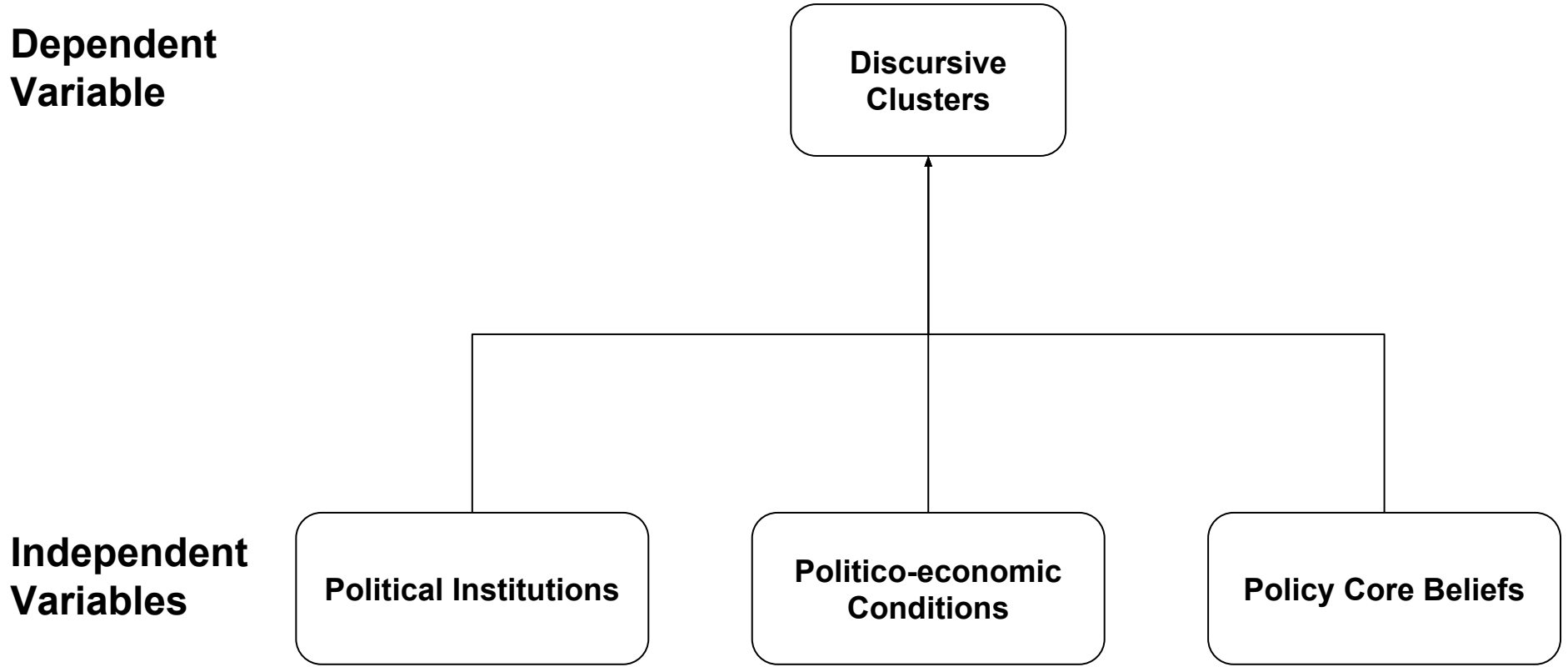
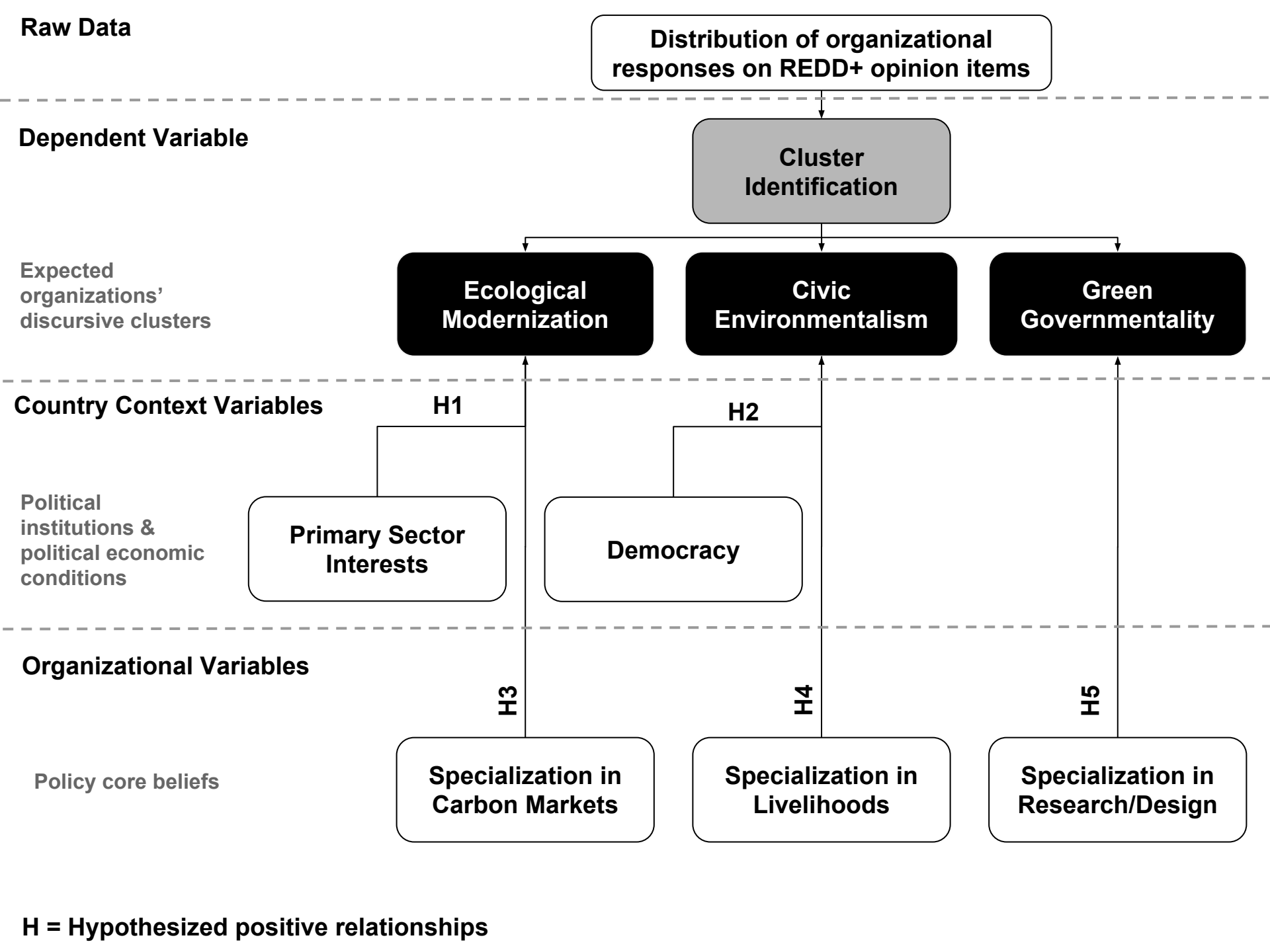
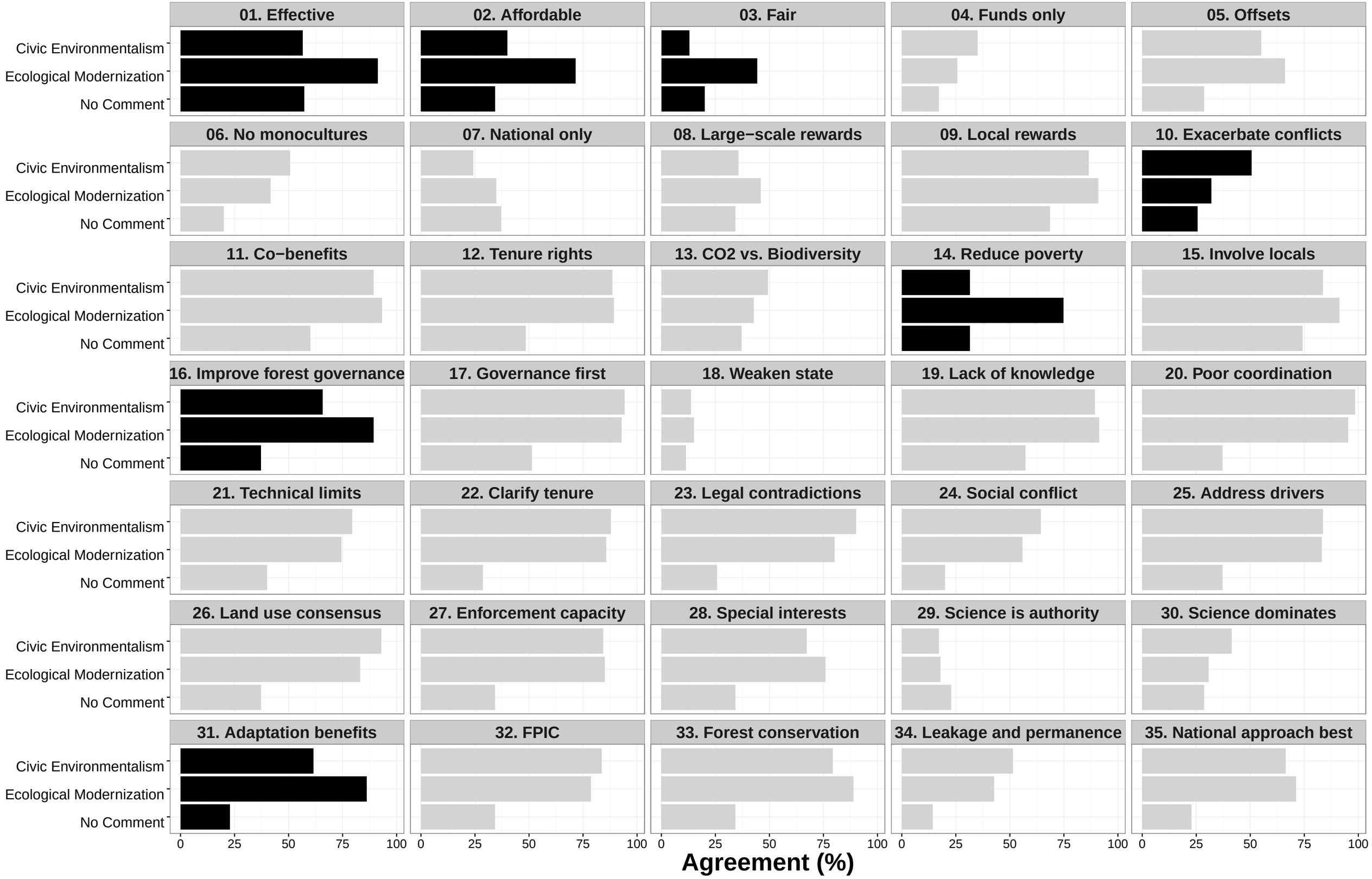
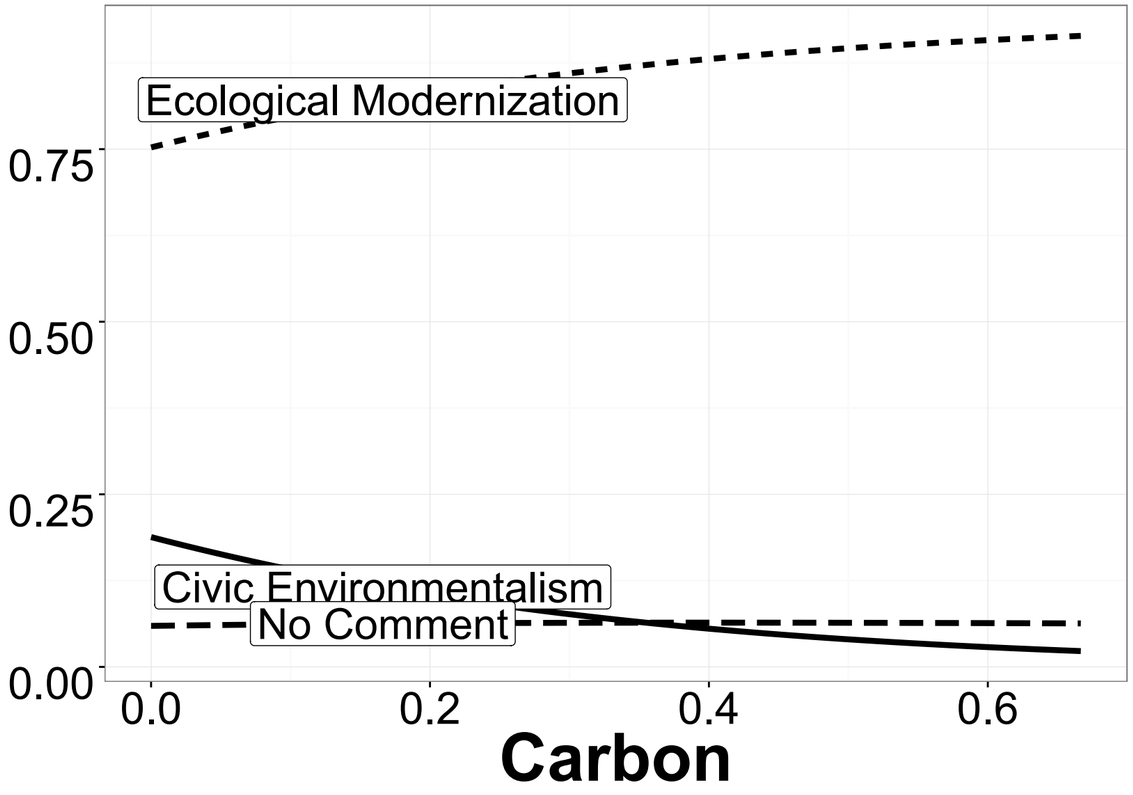

Dependent Variable
Discursive Clusters
Independent Variables
Political Institutions
Politico-economic Conditions
Policy Core Beliefs


Raw Data
Distribution of organizational responses on REDD+ opinion items
Dependent Variable
Cluster Identification
Expected organizations' discursive clusters
Ecological Modernization
Civic Environmentalism
Green Governmentality
Country Context Variables
H1
H2
Political institutions & political economic conditions
Primary Sector Interests
Democracy
Organizational Variables
H3
H4
H5
Policy core beliefs
Specialization in Carbon Markets
Specialization in Livelihoods
Specialization in Research/Design
H = Hypothesized positive relationships


01. Effective
02. Affordable
03. Fair
04. Funds only
05. Offsets
06. No monocultures
07. National only
08. Large−scale rewards
09. Local rewards
10. Exacerbate conflicts
11. Co−benefits
12. Tenure rights
13. CO2 vs. Biodiversity
14. Reduce poverty
15. Involve locals
16. Improve forest governance
17. Governance first
18. Weaken state
19. Lack of knowledge
20. Poor coordination
21. Technical limits
22. Clarify tenure
23. Legal contradictions
24. Social conflict
25. Address drivers
26. Land use consensus
27. Enforcement capacity
28. Special interests
29. Science is authority
30. Science dominates
31. Adaptation benefits
32. FPIC
33. Forest conservation
34. Leakage and permanence
35. National approach best
Civic Environmentalism
Ecological Modernization
No Comment
0
25
50
75
100
Agreement (%)


Ecological Modernization
Civic Environmentalism
No Comment
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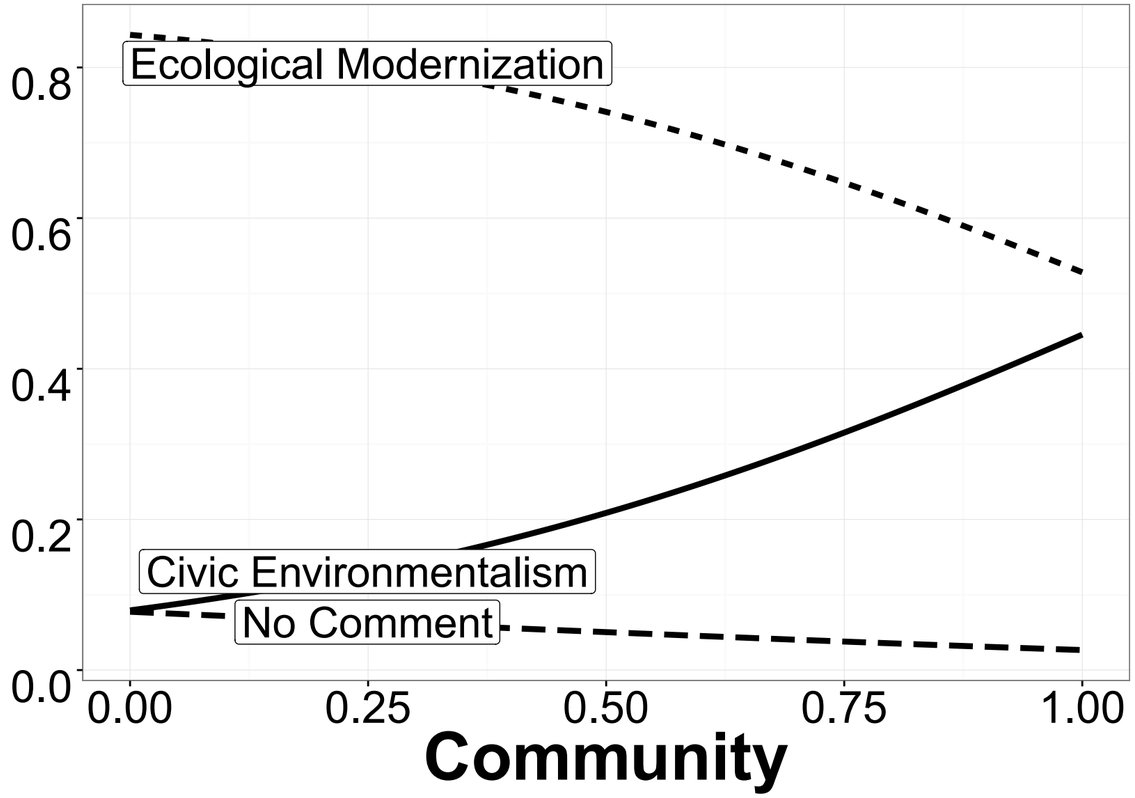
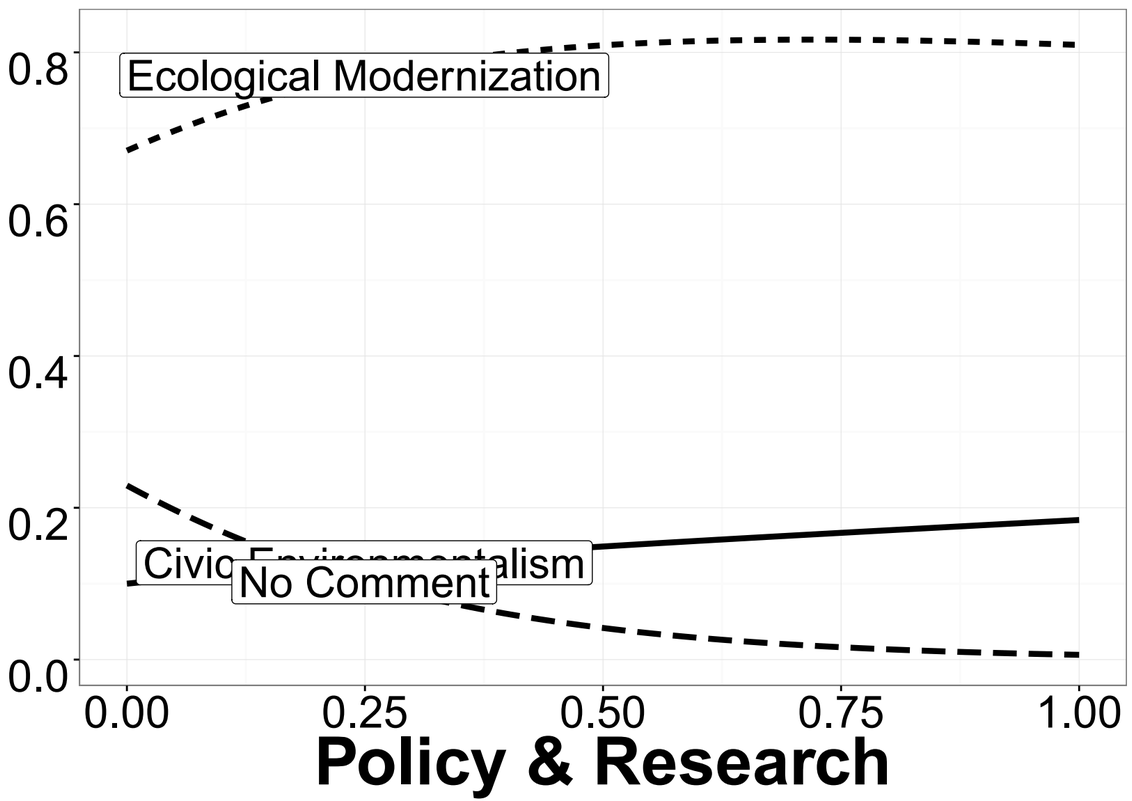
0.25
0.50
0.75
0.0
0.2
0.4
0.6
Carbon


Ecological Modernization
Civic Environmentalism
No Comment
0.0
0.2
0.4
0.6
0.8
0.00
0.25
0.50
0.75
1.00
Community


Ecological Modernization
Civic Environmentalism
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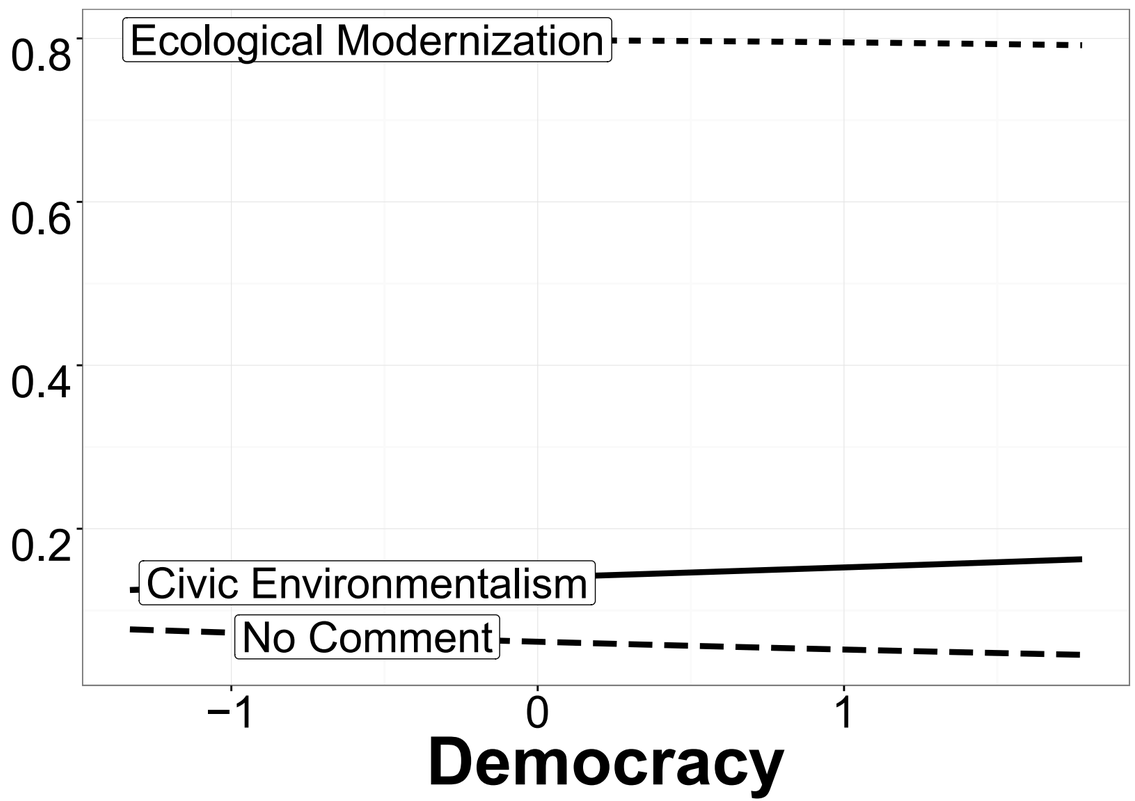
0.25
0.50
0.75
1.00
Policy & Research


Ecological Modernization
Civic Environmentalism
No Comment
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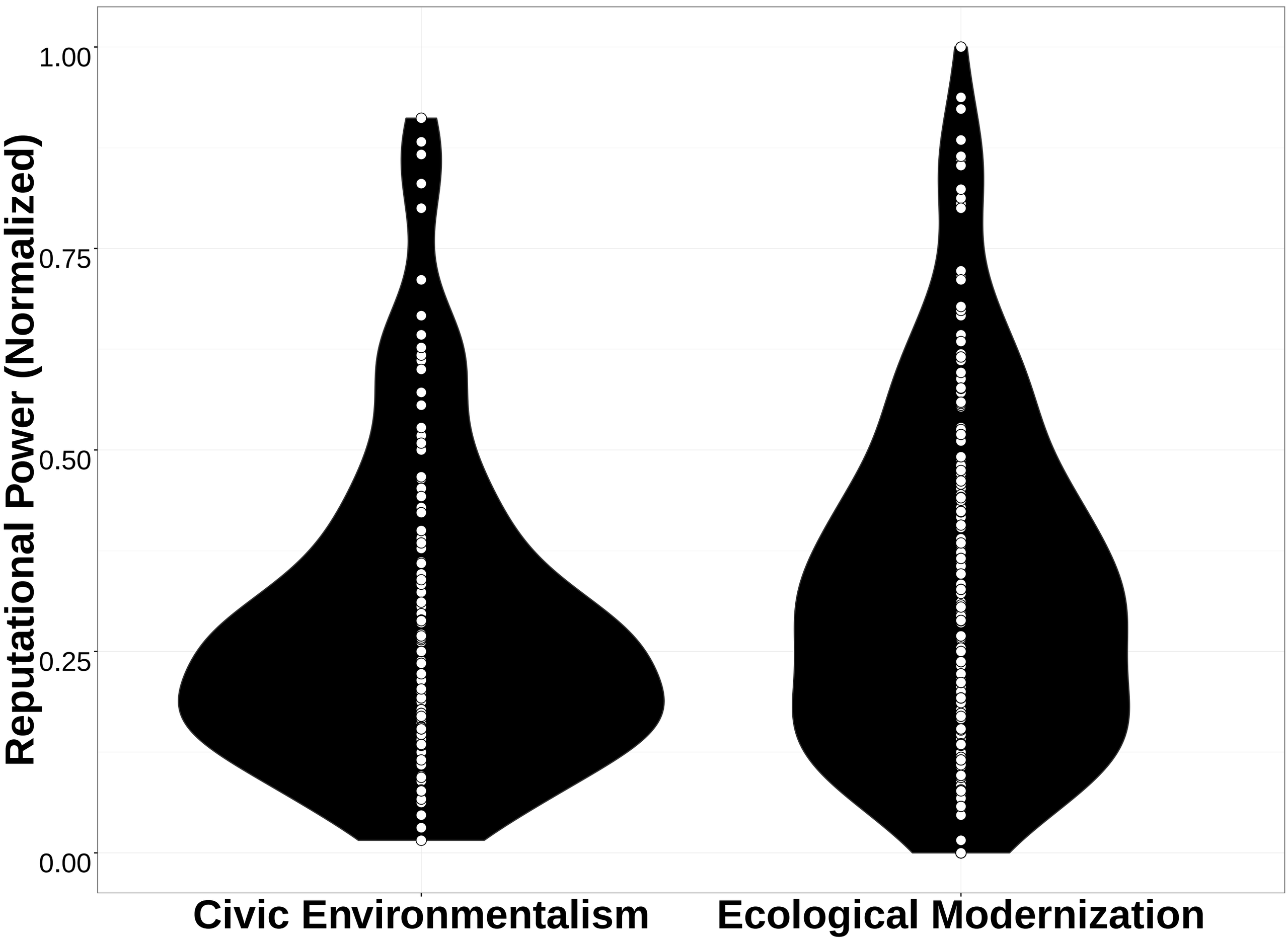
0.4
0.6
0.8
−1
0
1
Democracy


Reputational Power (Normalized)
1.00
0.75
0.50
0.25
0.00
Civic Environmentalism
Ecological Modernization

01. Effective
02. Affordable
03. Fair
04. Funds only
05. Offsets
06. No monocultures
07. National only
08. Large−scale rewards
09. Local rewards
10. Exacerbate conflicts
11. Co−benefits
12. Tenure rights
13. CO2 vs. Biodiversity
14. Reduce poverty
15. Involve locals
16. Improve forest governance
17. Governance first
18. Weaken state
19. Lack of knowledge
20. Poor coordination
21. Technical limits
22. Clarify tenure
23. Legal contradictions
24. Social conflict
25. Address drivers
26. Land use consensus
27. Enforcement capacity
28. Special interests
29. Science is authority
30. Science dominates
31. Adaptation benefits
32. FPIC
33. Forest conservation
34. Leakage and permanence
35. National approach best

Strongly Agree
Agree
Neither Agree nor Disagree
Disagree
Strongly Disagree
No Response

0 5 10 15 20

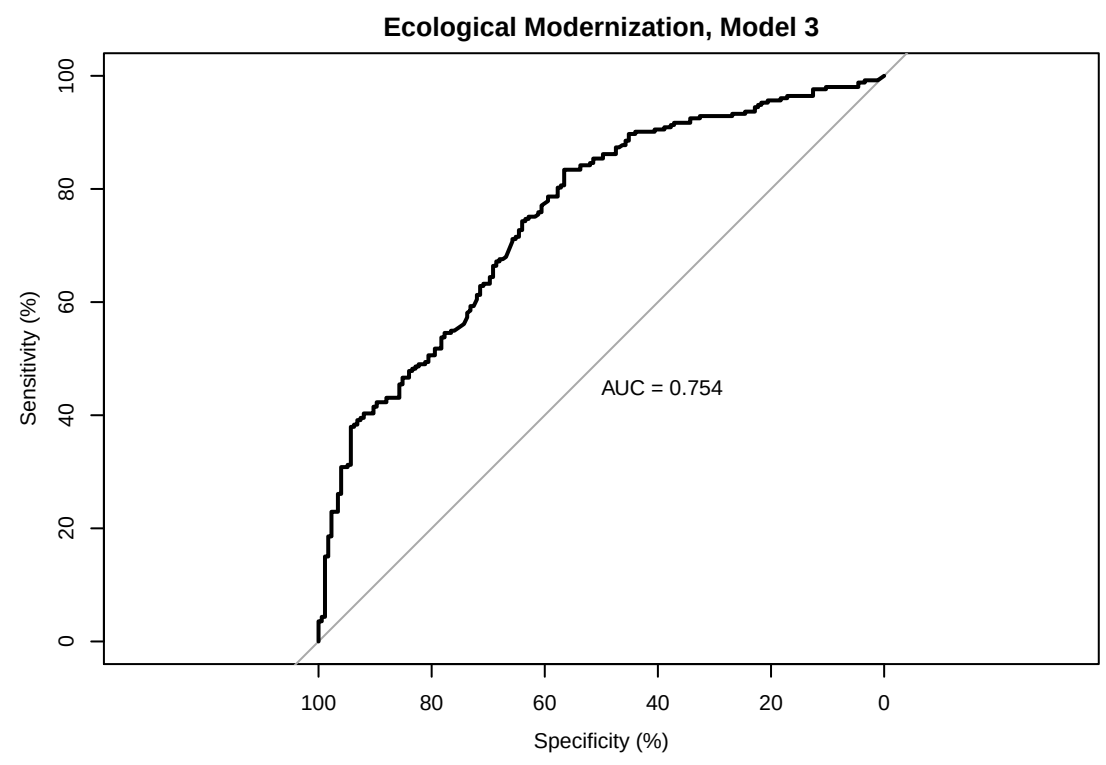
Responses

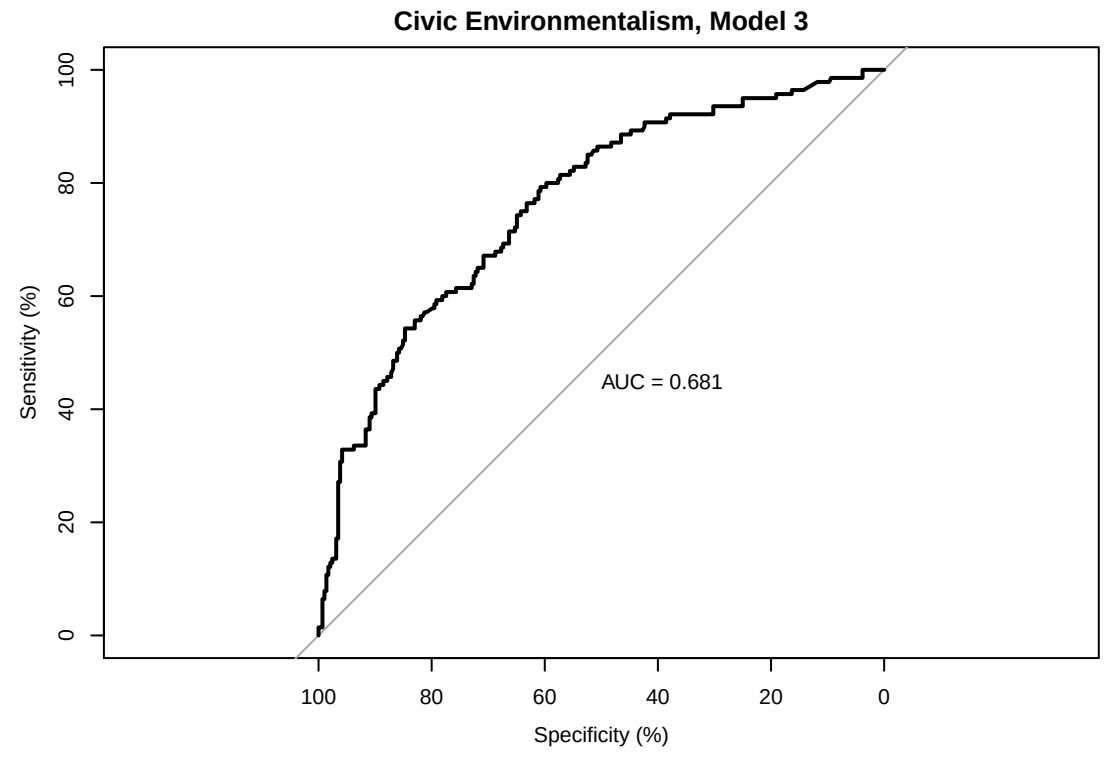
Percent of Country Respondents of Same Type

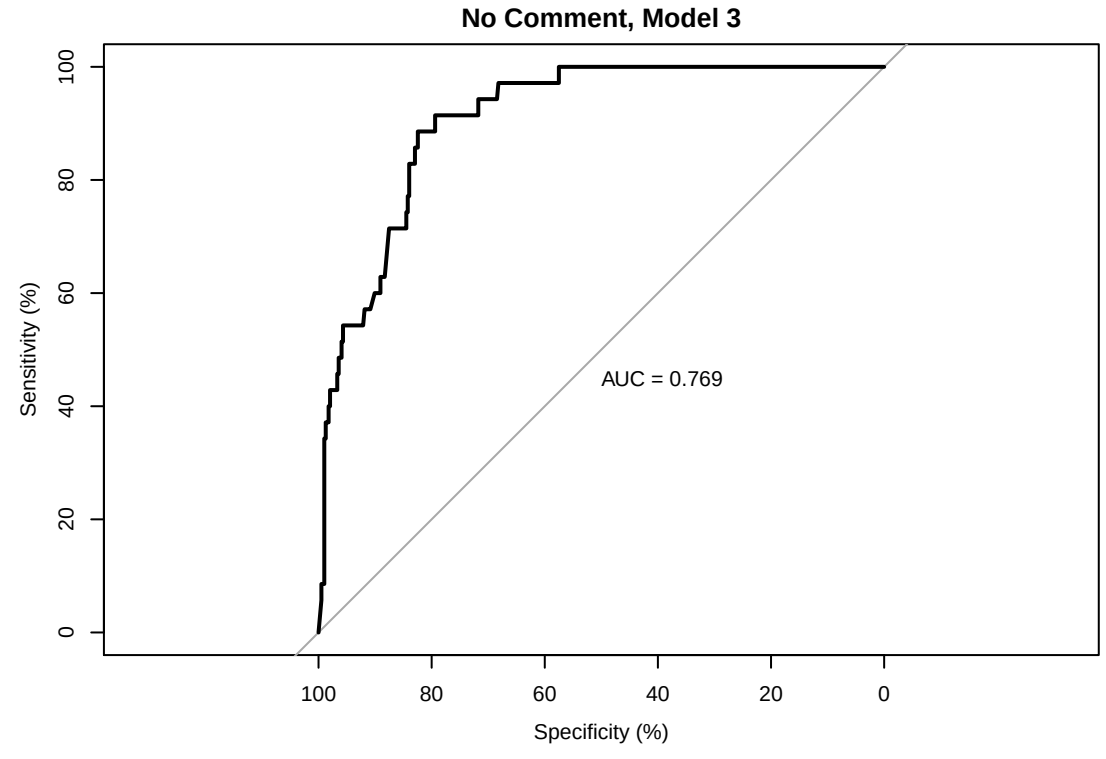
BRA−Civic Environmentalism
BRA−Ecological Modernization
BRA−No Comment
CMR−Civic Environmentalism
CMR−Ecological Modernization
CMR−No Comment
IDN−Civic Environmentalism
IDN−Ecological Modernization
IDN−No Comment
NPL−Civic Environmentalism
NPL−Ecological Modernization
NPL−No Comment
PER−Civic Environmentalism
PER−Ecological Modernization
PER−No Comment
PNG−Civic Environmentalism
PNG−Ecological Modernization
PNG−No Comment
TZA−Civic Environmentalism
TZA−Ecological Modernization
TZA−No Comment
VNM−Civic Environmentalism
VNM−Ecological Modernization
VNM−No Comment

0
25
50
75
100

Domestic NGO
Donor Agency
Government
International NGO
Private Sector
Research/Academic


Ecological Modernization, Model 3
Sensitivity (%)
100
80
60
40
20
0
AUC = 0.754
100
80
60
40
20
0
Specificity (%)


Civic Environmentalism, Model 3
Sensitivity (%)
100
80
60
40
20
0
AUC = 0.681
100
80
60
40
20
0
Specificity (%)


No Comment, Model 3
Sensitivity (%)
100
80
60
40
20
0
AUC = 0.769
100
80
60
40
20
0
Specificity (%)