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Institutions and Environmental Performance in Seventeen Western Democracies

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This article examines the relationship between national political and economic institutions and environmental performance since the early 1970s in seventeen OECD countries. After presenting hypotheses about some of the effects of the most important structural and institutional variables on performance, I test these hypotheses using a multiple regression analysis. I find that neo-corporatist societies experience much better environmental outcomes than more pluralist systems. However, neither the degree of 'consensual' political democracy nor traditional political factors can explain much variation in environmental performance. These relationships hold even after controlling for other structural factors such as income and manufacturing intensity. The results are robust despite perennial small-*n* statistical problems encountered in comparative political economy.

Numerous studies in the last two decades have shown that neo-corporatist forms of interest intermediation facilitate economic performance by promoting social stability and policy consensus.[1] However, critics, particularly proponents of new life-chance issues like environmentalism, have been more sceptical of neo-corporatist institutions. For them, unchallenged economic expansion is the root cause of environmental degradation. Thus, where political economists have noted corporatist countries' success, environmentalists have tended to see failure.[2]

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[1] Manfred Schmidt, 'Does Corporatism Matter? Economic Crisis, Politics and Rates of Unemployment in Capitalist Democracies in the 1970s', in Gerhard Lehmbruch and Philippe Schmitter, eds, *Patterns of Corporatist Policymaking* (Beverly Hills: Sage, 1982), pp. 237–58; David Cameron, 'Social Democracy, Corporatism, Labour Quiescence and the Representation of Economic Interests', in John Goldthorpe, ed., *Order and Conflict in Contemporary Capitalism* (Oxford: Clarendon Press, 1984), pp. 143–78; Peter Lange and Geoffrey Garrett, 'The Politics of Growth: Strategic Interaction and Economic Performance in the Advanced Industrial Democracies', *Journal of Politics*, 47 (1985), 792–827; J. Pekkarinen, M. Pohjola and B. Rowthorn, eds, *Social Corporatism: A Superior Economic System?* (Oxford: Clarendon Press, 1992); Markus Crepaz, 'Corporatism in Decline? An Empirical Analysis of the Impact of Corporatism on Macroeconomic Performance', *Comparative Political Studies*, 25 (1992), 139–68; A. Henley and E. Tsakalotos, *Corporatism and Economic Performance: A Comparative Analysis of Market Economies* (Aldershot and Brookfield, Vt.: E. Elgar, 1993).

[2] Janne Hukkinen, 'Corporatism as an Impediment to Ecological Sustenance: The Case of Finnish Waste Management', *Ecological Economics*, 15 (1995), 59–75. Also see R. Guy Peters, *European Politics Reconsidered* (New York: Holmes and Meier, 1991), chap. 6; H. Opschoor and J. van der Straaten, 'Sustainable Development: An Institutional Approach', *Ecological Economics*, 7 (1993), 203–22.

This article investigates the compatibility of neo-corporatism and environmental politics issues, looking specifically at the relationship between the structure of producer group institutions and national performance in reducing environmental degradation. In anticipation of the discussion below, I find a robust, positive relationship between corporatist institutions and national environmental performance. Similar to the processes by which they promote economic public goods (like wage restraint and stable macroeconomic conditions), corporatist institutions also lead to the effective provision of non-economic public goods through their ability to overcome collective action problems that characterize environmental sustainability. This finding is consistent with several other studies on the influence of political economic institutions on environmental policy outcomes.[3] It is innovative by utilizing a measure of performance that is based on changes rather than levels of pollution, providing theoretical explanations for the empirical relationships uncovered, and testing specific mechanisms by which institutions affect environmental outcomes.

The rest of the article is organised as follows. In the next section, I review the literature on corporatism and environmental performance. Then I discuss the reasons for my expectation that corporatist institutions promote more successful environmental performance than many of corporatism's critics suggest. Following that, I discuss the potential impact of other political institutions on environmental performance. The next section consists of statistical tests of the hypotheses, including a cross-sectional regression analysis of seventeen Organisation for Economic Co-operation and Development (OECD) countries. I then discuss the results of these tests and their theoretical implications in the final section.

CORPORATISM AND THE ENVIRONMENT IN THE EXISTING LITERATURE

Though there is an extensive literature on corporatism, a precise definition remains elusive. For some it is a theory or model of state and interest-group

[3] Lennart Lundqvist, *The Hare and the Tortoise: Clean Air Policies in the United States and Sweden* (Ann Arbor: University of Michigan Press, 1980); Steven Kelman, *Regulating America, Regulating Sweden: A Comparative Study of Occupational Health and Safety Policy* (Cambridge, Mass.: MIT Press, 1981); G. Hoberg, 'Technology, Political Structure and Social Regulation: A Cross-National Analysis', *Comparative Politics*, 18 (1986), 357–76; S. Kelman, 'Adversary and Cooperationist Institutions for Conflict Resolution in Public Policymaking', *Journal of Policy Analysis and Management*, 11 (1992), 178–206. Other work exploring policy outcomes using quantitative pollution indicators is Martin Jänicke *et al*., 'Structural Change and Environmental Impact', *Intereconomics*, January/February (1989), 24–35; Jänicke, 'Conditions for Environmental Policy Success', in M. Jachtenfuchs and M. Strübel, eds, *Environmental Policy in Europe* (Baden-Baden: Nomos 1992), pp. 71–97; and Markus Crepaz, 'Explaining National Variations of Air Pollution Levels: Political Institutions and their Impact on Environmental Policy-Making', *Environmental Politics*, 4 (1995), 391–414.

relationships that applies to all societies; for others it is a description of institutions that govern relations between national interest groups and the state.[4] My use of the term is based primarily on the second definition. Social systems can be said to fall along a continuum between *corporatist* and *pluralist* interest intermediation based on two main dimensions. The first includes the functions of interest aggregation and representation, while the second, sometimes referred to as 'policy concertation', incorporates general approaches to policy making and implementation. While there is extensive overlap between the two dimensions, they are not completely correlated, and each may have different implications for environmental performance.

Ideally, corporatism is characterized by both a high level policy concertation and interest aggregation/representation along functional lines. Government policy makers consult extensively at various levels of the policy process, with a small number of 'peak associations', hierarchically organized, encompassing and functionally distinct interest associations.[5] The two dominant peak associations in corporatist literature are employers and unions; but on particular issues, there may be groups representing other interests at the table. For example, representatives from industry, unions, 'official' environmental groups, government officials and environmental scientists often jointly participate on influential advisory commissions and boards in some countries.[6]

A distinctive aspect of corporatism is the quasi-official role of (economic) interest groups in representing functional interests and regulating their members in compliance with agreements negotiated by the groups' leaderships. This role often results in an interpenetration of traditional regulatory and representative responsibilities, for both the state and interest groups.

By contrast, *pluralism* is characterized by much more limited policy concertation, and by competitive interest representation/aggregation. Government receives input from a number of small, often competing, interest groups, and makes policy that is some vector of clashing interests. Interest groups compete to attract members, and to influence the policy agenda. Government is independently responsible for and authorized to make and implement regulatory policies. The result is that policy tends to be heavily contested from the time it appears on the agenda all the way through implementation.

In contrast to the literature on corporatism and economic and welfare policy, the literature discussing corporatism and environmental policy outcomes is quite limited. While much has been learned from these studies, there are several

[4] For a review of the corporatist literature, see P. Williamson, *Corporatism in Perspective: An Introductory Guide to Corporatist Theory* (Beverly Hills, Calif.: Sage, 1989).

[5] Austria and Sweden, among others, are often characterized as high corporatist countries, while the United States, Canada and, to a lesser extent, Great Britain, are characterized as pluralist countries.

[6] OECD, *Environmental Performance Reviews: Austria* (Paris: OECD, 1995); Martin Jänicke and Helmut Weidner, eds, *National Environmental Policies: A Comparative Study of Capacity-Building* (Berlin: Springer Verlag, 1997), chaps. 3 (Sweden), 6 (the Netherlands), and 8 (Denmark).

general shortcomings of this literature:[7] it is theoretically underdeveloped; it rarely considers more than one or two countries; it does not evaluate environmental outcomes (the major purpose of environmental policy); and it has little to say about the internal relationships within regulated groups.

While the comparative policy literature has traditionally had a sanguine view of the benefits of co-operation between industry and government, advocates of greater environmental reforms have two major criticisms of corporatist institutions:

(1) the dominant corporatist interest groups (labour and capital) are inherently hostile to environmental interests, and unwilling to accommodate environmental demands.
(2) Corporatist institutions are structurally incapable of incorporating new ecological issues to achieve major policy changes.

According to the first argument, producer-group institutions are a major *cause* of environmental problems. Referring to the opinions of many supporters of environmental politics, Markus Crepaz expresses the divide in stark terms:

> Corporatism follows an inherently materialist logic of economic growth that represents the smallest common denominator between the antagonistic interests of labour and business. The rise of post-materialist parties throughout Europe, however, questions the philosophy of economic growth because for these parties economic growth is precisely the reason for the environmental crisis our world faces today. *There is a fundamental incompatibility between corporatism that follows a materialist logic of economic growth and postmaterialism that favors ecological concerns over economics concerns.*[8]

According to the second criticism, labour, employers and the state may be willing, but unable, to incorporate environmental issues into their policies. According to this view, the 'logic' of neo-corporatist institutions, not the interests of the participants, undermines the development of sustainable environmental policies.[9] The short-term, 'productionist' ideology that made neo-corporatist arrangements possible in the first place now makes it difficult for producer interests or state regulators to incorporate long-term quality of life issues into their decision making, even when they recognize the importance of such issues.

[7] For a critical review, see David Vogel and Veronica Kun, 'The Comparative Study of Environmental Policy: A Review of the Literature', in M. Dierkes *et al*., eds, *Comparative Policy Research: Learning from Experience* (New York: St Martin's Press, 1987), pp. 99–169.

[8] Crepaz, 'Corporatism in Decline?', p. 163, fn. 3 (emphasis added).

[9] One critic states this perspective clearly: 'There is nothing inherently incompatible between labour, capital and nature that could not be resolved through negotiations. In practice, however, this is impossible due to the very logic of corporatism. Even the most inclusive corporatist societies … effectively prevent ecological sustenance from ever entering as a party in corporatist negotiations because decision makers themselves conceptualize environmental issues in terms of non-problematic operating assumptions' (Hukkinen, 'Corporatism as an Impediment to Ecological Sustenance', p. 69.)

CORPORATISM AS BENEFICIAL TO ENVIRONMENTAL POLICY

A careful consideration of environmental problems, the interests of producer groups, and the 'logic' of corporatist institutions suggests that they are much more compatible with good environmental outcomes than some critics might allow. In fact, the features of corporatist institutions are actually *more* conducive to the environmental regulation of production compared with countries where these institutions are absent.

First, in negotiating regulatory policies, *the government often retains the threat to use direct regulation*. Since this option is seen by industry as less flexible than submitting to a negotiated policy regime, the 'shadow of strict regulation' provides an incentive for business and government to pursue flexible and co-operative steps in achieving greater environmental regulation.

Secondly, successful environmental regulation requires monitoring and enforcement and a long-term policy commitment. Such inherently intrusive regulatory limits will be more acceptable where there is a *history* of producer–government trust in areas of industrial/social policy and an inter-penetration of state and producer interest and authority. Corporatist institutions may also provide a context for more effective learning and adaptation. Given the uncertainties and evolving knowledge of environmental issues, corporatist systems may be more flexible in response to changes in environmental knowledge than systems where revisiting regulation requires a renewed struggle over all issues.[10]

A third reason why corporatist arrangements can be expected to produce better environmental policy is their ability to pursue public goods. Environmental protection is particularly subject to collective-action problems, which are similar to the economic collective-action problems that corporatism has been shown to overcome in the political economy literature.[11] Corporatist systems have two main advantages in overcoming collective-action problems compared to more pluralist systems. First, the power of national peak associations over local units facilitates the pursuit of national rather than particularistic interests. This helps to reduce (though certainly not eliminate) policy 'paralysis' led by small sets of distributional losers from environmental regulation. Moreover, because peak organizations 'encompass' a broader national constituency, they will be more likely to consider diffuse environmental benefits compared to individual firms or unions. Secondly, corporatist arrangements are associated with effective schemes to compensate losers in economic adjustment (for example, via generous retraining and unemployment benefits or subsidies),

[10] Jenny Stewart, 'Corporatism, Pluralism and Political Learning: A Systems Approach', *Journal of Public Policy*, 12 (1992), 243–55; Lundqvist, *The Hare and the Tortoise*, and Crepaz, 'Explaining National Variation', stress similar themes.

[11] See fn. 1, and Mancur Olson, *The Rise and Decline of Nations* (New Haven, Conn.: Yale University Press, 1982), pp. 89–92.

thereby socializing distributional costs of environmental policies.[12] This reduces the likelihood that producer interests will undermine the collective interest.

Arguments that corporatism and ecology are incompatible at an economic level rely on problematic assumptions about the interests of producers and producer associations of workers and industry. Primarily, they assume the existence of material trade-offs between economic and environmental issues that are demonstrably false. Despite the impression that the key actors are hostile to environmental protection, it is increasingly difficult to find unionists, industrialists (or even environmentalists) who see an inherent incompatibility between the regulation of production and the promotion of environmental protection.[13] The argument that producer interests are inherently opposed to environmental protection for material reasons, is premised on false economic trade-offs between employment and environmental protection (by unions) and between productivity and environmental protection (by capital). Most macro-economic studies dispute any extensive trade-off, and a number suggest considerable employment and productivity gains.[14]

While the economic results from environmental regulation might be expected to obtain under either pluralist or corporatist institutions, the centralization and co-operation among producer interests (and the state) under corporatist arrangements makes it more likely that the 'macro-economic facts' are not lost on individual members, who fear for their own, not society's, well-being. For example, in the United States and Britain, both pluralist systems, the jobs–environment trade-off is constantly invoked as a reason to be opposed to environmental protection. Even though union leaders acknowledge that there are very few overall employment effects, recent public statements by the British Trades Union Congress (TUC) still reflect continuing efforts at persuading decentralized member unions that environmental regulation does not significantly affect employment. However, officials in corporatist countries like Sweden and Denmark report that the issue of employment seldom even comes

[12] Peter Katzenstein, *Small States in World Markets* (Ithaca, NY: Cornell University Press, 1985).

[13] Eckart Hildebrandt, *Industrial Relations and Environmental Protection in Europe* (Luxembourg: Office for Official Publications of the European Communities/European Foundation for the Improvement of Living and Working Conditions, 1994); Gert Spaargaren and Arthur Mol, 'Sociology, Environment and Modernity: Ecological Modernization as a Theory of Social Change', *Society and Natural Resources*, 5 (1992), 323–44.

[14] OECD, *Employment and Environment* (Paris: OECD, 1978); Raymond Kopp, Paul Portney and Diane DeWitt, 'International Comparisons of Environmental Regulation', Resources for the Future Discussion Paper QE90-22-REV (Washington, DC: Resources for the Future, 1990); Michael Porter, *The Comparative Advantage of Nations* (New York: Free Press, 1990); Eban Goodstein, 'Jobs and the Environment: The Myth of a National Tradeoff' (Washington, DC: Economic Policy Institute, 1994), mimeo; A. Jaffe *et al*. 'Environmental Regulation and the Competitiveness of US Manufacturing: What Does the Evidence Tell Us?' *Journal of Economic Literature*, 33 (1995), 132–63; Curtis Moore and Alan Miller, *Green Gold: Japan, Germany, the United States, and the Race for Environmental Technology* (Boston, Mass.: Beacon, 1994).

up in official discussions of environmental policy. A Danish environmental official suggested that it has not been a serious issue since at least the early 1970s. Industry has had similarly accommodative responses to extensive environmental regulation in the latter two countries, while they have been notably resistant in the United States and Britain.[15]

A second assumption of environmentalist critics of corporatism is that co-operation between unions and employers occurs only in the pursuit of economic benefits.[16] Yet, environmental degradation often involves material issues and producers' groups (namely, unions) have long pursued intangible 'quality of life' issues. Thus, the provision of environmental amenities can be defended as enhancing the equality of 'life-chance' opportunities in ways that are natural extensions of the social welfare state.[17]

Finally, opponents of corporatism often object to the limited access of environmental interest groups to corporatist negotiations. While it is true that their access and influence on decisions makers is often limited, this is not unique to corporatist countries. In fact, 'official' environmental interest groups have been increasingly incorporated into environmental policy decision making.

What about the third leg in traditional neo-corporatist arrangements: the state? A common argument is that government ministries in corporatist countries have been 'captured' by regulated industries, making the state incapable of implementing effective environmental policy. However, though governments may appear to give away sovereignty by including production interests in policy making, they also give burdens of authority to these actors. This exchange is part of the process that induces co-operation and the consideration of public interests by ostensibly private actors.[18] Moreover, the

[15] TUC, 'Trade Unions and the Environment: A Multi-Stakeholder Initiative', Background Report for the TUC Environment Symposium (Chatham House, London, November 1996), mimeo; interview with Danish Government Environmental Counselor, Brussels, December 1996; OECD, *Environmental Performance Reviews: Sweden* (Paris: OECD, 1996), Conclusion; Jänicke and Weidner, chap. 8 (Denmark). Hildebrandt, *Industrial Relations and Environmental Protection in Europe*, chap. 5, reports that employers and unions tended to accept environmental responsibility earlier in countries with more corporatist institutions. His conclusions also suggest that the level of 'environmental corporatism' is highest in the traditionally more corporatist countries in the European Union (EU).

[16] See fn. 7; Herbert Kitschelt, 'Left Libertarian Parties: Explaining Innovation in Competitive Party Systems', *World Politics*, 40 (1988), 194–234, especially pp. 212–15; Michael Micheletti, 'Toward Interest Inarticulation: A Major Consequence of Corporatism in Interest Organisations', *Scandinavian Political Studies*, 13 (1990), 255–76.

[17] Hildebrandt, *Industrial Relations and Environmental Protection in Europe*, p. 75; Philippe Schmitter, 'Reflections on Where the Theory of Neo-Corporatism Has Gone and Where the Praxis of Neo-Corporatism May Be Going', in Lehmbruch and Schmitter, eds, *Patterns of Corporatist Policy-Making*, pp. 259–80; Andrei Markovits, *The Politics of West German Trade Unions* (New York: Cambridge University Press, 1986).

[18] Philippe Schmitter and Wolfgang Streeck, 'Community Market State – and Association? The Prospective Contribution of Interest Governance to Social Order', in Schmitter and Streeck, eds, *Private Interest Government: Beyond Market and State* (Beverly Hills, Calif.: Sage, 1985); Peter Lange and Marino Regini, 'Introduction: Interests and Institutions – Forms of Social Regulation and

'capture' thesis does not necessarily apply when business and unions (who tend to favour government regulation of business in environmental matters) both have access to policy makers. Regulatory authorities can also often exploit divisions among producer groups to achieve independent policies that may not be possible where only one group (usually employer groups in pluralist countries) have access to regulators.

Finally, I should re-emphasize the importance of production in responding to the causes of environmental degradation. Business, government and the public increasingly believe that long-term environmental solutions require transforming production. This underscores the importance of *producers* as active agents (for better or worse) in resolving environmental problems.

To summarize, corporatist institutions are criticized for being unwilling or unable to respond effectively to environmental, and other new politics, demands. Nevertheless, several factors seem to suggest that corporatist institutions may be effective ways to regulate environmental pollution, at least when compared with pluralism. First, the existence of encompassing producer groups makes it easier to overcome collective action problems that might otherwise stifle environmental protection. Secondly, producer groups and the state do not limit themselves to economic issues in corporatist countries. They have long pursued other quality-of-life policy goals. Finally, the implicitly pluralist solutions to the alleged ecological shortcomings of corporatist regulation do not consider potential problems that pluralist systems have in overcoming collective action and co-ordination problems in order to achieve good environmental outcomes. Evaluating the ecological success of these competing approaches to economic and social regulation therefore requires a more empirical and comparative approach than has thus far occurred.

It is important to note that these are *comparative* advantages of corporatism in dealing with environmental issues. Since many critics of corporatism advocate alternative arrangements that are essentially pluralistic, only a comparative approach that evaluates the environmental outcomes of corporatism against the (empirical or hypothetical) outcomes of alternative institutional arrangements (i.e., those lacking corporatist institutions) can provide an appropriate basis for an evaluation of the consequences of corporatist institutions.

CONSENSUAL POLITICS AS BENEFICIAL TO ENVIRONMENTAL POLICY

The fact that many environmental demands have been associated with traditionally non-producer interests could suggest that traditional democratic institutions affect environmental policy (and hence outcomes) to an even greater extent than do economic institutions.[19] For example, social movement scholar

(F'note continued)
Public Policy-Making', in Lange and Regini, eds, *State, Market and Social Regulation: New Perspectives on Italy* (Cambridge: Cambridge University Press, 1989), pp. 1–25.

[19] Lange and Garrett, 'The Politics of Growth'; Douglas Hibbs, *The American Political Economy* (Cambridge, Mass.: Harvard University Press, 1987).

Hanspeter Kriesi suggests that 'compared to the party system, the union system is of only secondary importance for the mobilization of new social movements.'[20] The expanding role of political parties and pressure groups in environmental policy making suggests that close consideration be paid to these traditional democratic institutions of government when evaluating environmental performance issues.

Several fundamental political distinctions are very important in explaining environmental (as well as other types of policy) performance among democracies. Previous studies have investigated the effects of national political institutions on economic performance, regime stability or general regulatory policy. These studies provide the basis for suspecting that several institutional distinctions are important in environmental policy outcomes.[21]

First, *electoral rules* provide incentives for politicians to pursue more national or more localized policy issues. Where constituencies are large and few, interests with more diffuse benefits can be stressed and mobilized. Since environmental benefits are typically diffuse while the costs are typically concentrated, environmental interests should be higher on the agenda in systems with a few large constituencies as opposed to many small ones.[22] Secondly, the institutions of day-to-day government may also explain why some countries produce more consensual decisions and provide higher levels of public goods. These institutions may be more important than electoral rules, given the complexity of environmental issues and the necessary scope of administrative

[20] Hanspeter Kriesi, 'The Political Opportunity Structure of New Social Movements: Its Impact on their Mobilization', in J. Craig Jenkins and Bert Klandermans, eds, *The Politics of Social Protest* (Minneapolis: University of Minnesota Press, 1995), pp. 179–80.

[21] These variations are also highlighted by other authors examining the effects of institutions on environmental policy. See Jänicke, 'Conditions for Environmental Policy Success'; Kaare Strom and Steve Swindell, 'Political Parties, Institutions and Environmental Reform', University of California Centre for German and European Studies Working Paper 2.17, May 1993. On politics and economic performance, see Markus Crepaz, 'Consensus versus Majoritarian Democracy: Political Institutions and their Impact on Macroeconomic Performance', *Comparative Political Studies*, 20 (1996), 4–26. On regime stability, see G. Bingham Powell, *Contemporary Democracies: Participation, Stability and Violence* (Cambridge, Mass.: Harvard University Press, 1982); and Arend Lijphart, *Democracies: Patterns of Majoritarian and Consensus Government in Twenty-one Countries* (New Haven, Conn.: Yale University Press, 1984). On general policy impacts, see Douglas Rae, *The Political Impact of Electoral Laws* (New Haven, Conn.: Yale University Press, 1967); Francis Castles, ed., *The Impact of Parties: Politics and Policies in Democratic Capitalist States* (London: Sage, 1982); Roger Noll, 'The Political Foundations of Regulatory Policy', *Zeitschrift für die gesamte Staatswissenschaft*, 139 (1983), 377–404; Kent Weaver and Bert Rockman, eds, *Do Institutions Matter? Government Capabilities in the United States and Abroad* (Washington, DC, Brookings Institution, 1993).

[22] Larger electoral districts, especially multi-member districts, encourage more policies with relatively diffuse benefits. Proportional representation (PR) is also likely to encourage greater success in environmental protection, because it is linked to the size of districts, and encourages the representation of diffuse benefits. Parties under PR may gain policy influence through the process of party competition and compel larger parties to accommodate those interests.

monitoring and enforcement. An obvious difference is whether or not there is a *separation of legislative and executive accountability*. Such a division can produce government that is doubly divided – politically and administratively.[23] Doubly divided government will be even less capable of providing consensual decisions about public goods, and thus will experience even worse environmental outcomes. Thirdly, *the ideology of the governing party* may also impact expected environmental performance. Organized environmental interests are usually allied with the political centre or left, leading one to expect more leftist governments will have better environmental performance. Fourthly, subunits in a *federal system* face additional policy co-ordination problems. Such sub-units may attempt to 'externalize' their environmental problems onto other sub-units, or have problems co-ordinating policy with the central government. Thus, federal systems should have greater problems achieving good outcomes compared with more spatially political systems. Finally, and perhaps most importantly, Lijphart suggests that particular *configurations of political institutions* produce more 'consensual' or 'majoritarian' government.[24] Along the same lines suggested for economic institutions, these more consensual political institutions should be associated with better environmental performance if this linkage is in fact valid.

DO CORPORATISM AND CONSENSUS POLITICS IMPROVE ENVIRONMENTAL OUTCOMES?

In this section I assess the empirical relationship between environmental performance and corporatism, consensus politics and several control variables, including several measures of environmental organization strength, in seventeen OECD countries. First, I present several indicators of environmental performance. Then, I provide a brief explanation of the (more familiar) explanatory variables. Finally, I subject the main hypotheses – that corporatism and consensus politics are associated with better environmental performance – to several statistical tests. The comparative approach pursued in this section is essential to test theories of the role of institutions on social outcomes. Only by comparing different configurations of relevant institutions, can one gain any real confidence that some factors matter and others do not.

[23] Multi-party government is 'divided' in so far as there is no party that can be electorally punished for bad performance. However, they may tend to maintain a unified legislative–administrative structure, enhancing policy continuity and increasing accountability.

[24] Lijphart, *Democracies*; Peter Mair, 'The Correlates of Consensus Democracy and the Puzzle of Dutch Politics', *West European Politics*, 17 (1994), 97–123. Lijphart's work has been extended to suggest an association with neo-corporatism, though this association has been disputed, and I tend to agree with critics of this association. Moreover, my calculations of consensus democracies from the late 1960s to 1990 are not closely associated with neo-corporatism. See Hans Keman and Paul Pennings, 'Managing Political and Societal Conflict in Democracies: Do Consensus and Corporatism Matter?' *British Journal of Political Science*, 21 (1995), 268–80; and Markus Crepaz and Arendt Lijphart, 'Linking and Integrating Corporatism and Consensus Democracy: Theory, Concepts and Evidence', *British Journal of Political Science*, 21 (1995), 281–8.

Environmental performance, or an environmental outcome, is defined here to be the results of human responses to human-induced environmental pollution problems. Specific examples would be reducing emissions of sulphur dioxide or reducing concentrations of lead in air or water. These responses are evaluated at the national level. While such a political distinction may seem arbitrary given the transboundary nature of pollution problems, nations remain the primary repository of authority over environmental issues in the international system.

While the definition used is broad, such breadth is essential to capture the ostensible purpose of environmental concern and environmental action: *reduced environmental damage*. Assuming that good outcomes (or effort) are proxied by more spending or rigorous implementation overlooks the fact that spending and the law are really only means to an end. If environmental quality is viewed as a cost to the achievement of other goals, one should strive to spend *less*, for a given quality level. Moreover, if environmental concerns become operating norms, i.e., they are internalized in people's day-to-day decision making, then there should be *less* need for formal environmental policy. In both instances, what is normally taken to be evidence of good policy may be inversely, or simply not, related to good outcomes.

In order to create a comparable indicator of environmental outcomes, I look at aspects of the problem which are clearly under human control: pollution emissions. The specific indicators used are emissions of sulphur dioxide, nitrogen oxide, nitrogen and phosphorus emissions from fertilizer consumption, municipal waste, recycling rates for glass, and the percentage of the population served by waste-water treatment. A full justification of these particular indicators is beyond the scope of this article, but the choices were based on:

(1) data comparability and availability across nations;
(2) the general acceptance of the environmental importance of these sources of environmental pollution – both for human health and ecological reasons – in the countries in the study;
(3) the fact that they encompass the three major environmental media – air, water, soil.[25]

For each of the first four environmental indicators, countries were given a score between 0 and 100 based on the total percentage reductions of emissions of that pollutant.[26] Total percentage changes (beginning of period to end

[25] Because they are based on percentage changes over time, the measures imply increasing marginal costs of abatement – a reasonable assumption.

[26] Data for environmental indicators are in the OECD's 1993 *Environmental Data Compendium*. In several cases, where an endpoint value is missing, I computed the average five-year period change for the other countries, and used that average to estimate the missing country value. For example,if country *X* is missing the 1970 value, I derive it by dividing *X*'s 1975 score by 1 plus the average change 1970–75 for the other countries. If it is missing 1970 and 1975, I filled in 1975 first. Missing values were given the mean score of the other countries. Sample averages were substituted for missing values for Belgium, Great Britain and Ireland for water treatment and for Canada and Norway for glass recycling.

of period) were calculated for SO_x emissions, NO_x emissions, total apparent fertilizer use (1970–90) and per capita municipal waste generation (1975–90). Country scores were assigned based on the following formula.

$$Env_n = \sum_p \left[\frac{(\%\text{reduction}_{np} - \text{lowest}\%\text{reduction}_p)}{(\text{highest}\%\text{reduction}_p - \text{lowest}\%\text{reduction}_p)} \times 100 \right] \quad (1)$$

p = pollutant
n = nation

Thus, if a nation has the lowest percentage reduction (or highest percentage increase) for a particular pollutant, it gets a 0. The nation with the highest reduction (or lowest increase) scores 100 for that pollutant. If a nation's percentage reduction is the midpoint between the highest and lowest national reduction, it receives a score of 50.

For the two remaining indicators – recycling and water treatment – I utilized the following formula to compare levels and changes in recycling rates:

$$([1990 \text{ level}] - [1970 \text{ level}])/(100 - [1970 \text{ level}]). \quad (2)$$

This formula balances improvement and past levels of performance. Like the measures in Equation 1, it provides a maximum score of 100 and a minimum (provided there is not backsliding) of 0. However, this procedure does not score countries relative to each other, but towards the ideal of 100 per cent treatment coverage and recycling rates.

The measures employed capture *changes* in environmental degradation, not levels. This is the best way to proceed for three reasons.

(1) *The OECD advises against directly comparing pollution levels*, because national definitions and data collection methods differ. Comparing percentage changes rather than levels reduces some comparability problems while maintaining a measure suitable for multivariate analysis.
(2) *Using percentage reductions helps reduce the influence of the 'pre-environmental era' on the measure*. Most of the harms of these pollutants were little known, reported or widely considered until the late 1960s and 1970s.[27] Because pollution levels could vary greatly as a result of decisions undertaken before there was a 'known harm', comparing *levels* might conflate an effective *response* to pollution with previous production decisions.
(3) Constructing a measure to assess each nation's relative success in reducing each pollutant separately (and only then aggregating the measures, see below) avoids the problem of equating a percentage point change of, say, SO_x with a percentage point change in, say, NO_x.

[27] Albert Weale, *The New Politics of Pollution* (Manchester: Manchester University Press, 1992); Lynton Caldwell, *International Environmental Policy: From the Twentieth to the Twenty-First Century*, 3rd edn (Durham, NC: Duke University Press, 1996).

TABLE 1 *Aggregate National Environmental Performance Scores*

	Environmental Performance Index	
Country	ENV 1	ENV2*
Austria	371.4	255.1
Belgium	394.1	297.8
Canada	230.5	169.3
Denmark	355.5	203.3
Finland	274.9	174.6
France	324.6	251.6
Germany (West)	469.5	361.9
Ireland	126.9	47.1
Italy	244.6	156.1
Japan	400.4	351.0
Netherlands	460.1	314.4
Norway	348.0	271.4
Spain	169.4	108.0
Sweden	440.7	324.2
Switzerland	332.1	202.2
United Kingdom	315.1	234.8
United States	268.6	197.6
Mean	325.1	230.6
St. dev.	97.2	86.1

* ENV2 excludes scores for Water Treatment and Recycling.

Table 1 shows summed scores for all six measures and only the four measures computed with Equation 1. Aggregating the scores on each pollutant for a single country is, in effect, a measure of that country's relative (i.e., standardized) performances for the 'sample' of pollutants. Since I am interested in explaining countries' general responses to environmental problems, not just their responses to a specific pollution problem, this measure is used as the dependent variable. Table 1 suggests considerable cross-national diversity in environmental performance between 1970 and 1990. The first aggregate score has a conceivable range of 600 points, an actual range of about 343 points, a mean of 325, and a standard deviation of 97. Approximately two-thirds of the cases (equally divided above and below) fall within one standard deviation of the mean. The second aggregate score is closely correlated with the first (raw = 0.95, rank = 0.96), suggesting that including the recycling and water treatment measures does not fundamentally change the relative positions of the countries. Only one country changes more than two ranks as a result of using the more comprehensive score: Denmark moves from 10 to 7. Finally, a confirmatory factor analysis of the individual measures shows that they all load

positively on a single common factor. This means that countries which score well (poorly) on one measure, also tend to do well (poorly) on the others.

Several results in Table 1 may be surprising. The performance of the United States may seem surprisingly low. This is true despite the fact that US regulations are generally held to be some of the most stringent. The United Kingdom and France's performances may also be surprising because they are often regarded as having quite poor environmental records. Perhaps France's performance is due to its heavy reliance on nuclear power. This would deflate its air pollution emissions and deflate its reputation in the environmental community.

The chief explanatory variables employed in this analysis are the levels of national corporatism and consensual politics.[28] For corporatism, I use Lijphart and Crepaz's (LC) standardized average of expert rankings.[29] Since my analysis suggests two principal mechanisms by which neo-corporatism should enhance environmental performance – producer group encompassingness and consensual policy making – I also use disaggregated measures of producer group encompassingness. As proxies I use Cameron's labour-force unity measure, and Soskice's classification of countries according to their level of co-ordination between employers, capital and the state.[30] To measure consensual policy-making institutions, I rely on Lehmbruch's ranking of corporatist concertation, which explicitly considers government consultation with relevant social interests and consensus-seeking.[31] Due to the fact that Lehmbruch characterized Japan and France as 'concertation without labour', the statistical results were estimated separately with these two countries coded as moderate concertation, low concertation and pluralist.[32]

[28] The full dataset is available from the author.

[29] Arend Lijphart and Markus Crepaz, 'Corporatism and Consensus Democracy in Eighteen Countries: Conceptual and Empirical Linkages, *British Journal of Political Science*, 21 (1991), 235–56. I assign Spain a value of zero. I could find no scoring method that gives it better than an average ranking, which is where it is shown in the figure, though some studies suggest a lower ranking. See Susana Aguilar, 'Corporatist and Statist Designs in Environmental Policy: The Contrasting Roles of Germany and Spain in the European Community Scenario', *Environmental Politics*, 2 (1993), 223–47; Cameron, 'Social Democracy, Corporatism, Labour Quiescence', p. 165.

[30] Cameron, 'Social Democracy, Corporatism, Labour Quiescence', p. 165; David Soskice, 'Divergent Production Regimes: Co-ordinated and Uncoordinated Market Economies in the 1980's and 1990's,' in Herbert Kitschelt *et al*., eds, *Continuity and Change in Contemporary Capitalism* (Cambridge: Cambridge University Press, 1999). Soskice's classification does suggest a close correlation between the continued incorporation of labour among the countries he considers 'Coordinated'. He also excludes France and Spain, though he presents data to suggest that France be coded as Coordinated.

[31] G. Lehmbruch, 'Concertation and the Structure of Corporatist Networks', in J. Goldthorpe, ed., *Order and Conflict in Contemporary Capitalism* (Oxford: Oxford University Press, 1984), pp. 60–80.

[32] Moderate concertation is probably the best way to categorize these countries with regard to environmental policy for two reasons. First, concerted environmental regulation generally emphasizes industry and government negotiation more than anything else. Thus, the fact that there is extensive consultation with industry in Japan and France justifies a higher coding. Secondly, the

One possible problem with the use of these measures of corporatism is that they are based primarily on the period from the 1960s to the early 1980s, while the dependent variable covers changes from 1970 to around 1990. Though some have noted declines in the use of peak bargaining agreements, particularly in the area of wages, cross-national studies tend to suggest that the 'collapse of corporatism' may be overstated.[33] Finally, it is reasonable to expect some lag time between policy-making and the physical outcomes of that the policy-making process. Thus, the fact that the corporatism measure (the expected cause) may predate the measured environmental outcome (the effect) is perfectly consistent with the hypothesized causal process under consideration.

The following sources and methods were used to operationalize the political institutional factors. Lijphart's majoritarian–consensus score, a sum of standardized scores on nine indicators, was modified to measure the degree of consensual and majoritarian politics in Western European countries since approximately 1970.[34] This recalculation seems prudent given both the time-frame of the current study and the fact that using a 1970–90, rather than Lijphart's 1945–80, periodization significantly affects the rankings of the countries. Data on the number of electoral districts, electoral system (proportional versus plurality) and extent of federalism are taken from readily available sources.[35] To measure government partisanship, I used a score which measures the relative ideological composition of government on a left (low)–right (high) scale averaged over the 1970–90 period.[36]

A number of non-institutional factors have often been suggested in the literature to have important influences on environmental policy and awareness. Many of these are based on broad economic and structural changes in industrial societies. As such, they might be considered alternatives to my institutional explanations. Perhaps the most important factors have been structural economic

(F'note continued)

crucial point that organization and repeated interaction permits a more rational and consensual regulatory process suggested that these countries were more properly ranked higher rather than lower.

[33] Peter Lange and Lyle Scruggs, 'Where Have All the Members Gone: Union Density in the Era of Globalization', presented at the 1997 Annual Meeting of the American Political Science Association, Washington, DC; Michael Wallerstein and Miriam Golden, 'The Fragmentation of the Bargaining Society: Changes in the Centralization of Wage-Setting in the Nordic Countries, 1950–1992', *Comparative Political Studies*, forthcoming.

[34] Lijphart, *Democracies*, chap. 13.

[35] Jan-Erik Lane and S. Ersson, *Politics and Society in Western Europe* (Beverly Hills, Calif.: Sage, 1991); Jan-Erik Lane, D. McKay and K. Newton, *Political Data Handbook* (Oxford: Oxford University Press, 1991).

[36] This data was provided by Geoffrey Garrett, and is based on the share of cabinet seats held by left, centre and right parties as classified in Duane Swank, '18 Nation Pooled Time Series Dataset' (mimeo, n.d.); Also see Alexander Hicks and Duane Swank, 'Politics, Institutions and Welfare Spending in Industrialized Democracies, 1960–1982', *American Political Science Review*, 86 (1992), 658–74.

changes taking place since the late 1960s. This includes a declining dependence on manufacturing, changing levels and types of energy use, and differential levels of income and income growth.[37] To control for these factors I used, respectively, the level of manufacturing in gross domestic product in 1968; percentage change in energy use 1970–90; percentage of nuclear power in total energy consumption in 1990; the average level of per capita income growth 1970–90; and the average per capita income level 1970–90. Another factor, population density, has been widely considered to affect relative costs and demand for environmental improvements, and is thus also included among the control variables.[38]

A final factor should be accounted for to control for competing factors influencing environmental performance properly: the strength of the environmental movement. To capture this, I used four measures: the average vote share for national green/ecology parties and for 'left–libertarian' parties, 1970–90 (all countries); self-reported environmental group membership in eight EU countries in the 1982 Eurobarometer, and the difference between the percentage of materialists and post-materialists in each country in 1982 (for all countries except Switzerland and Austria).[39] Higher scores on all of these measures, all else equal, are expected to produce better environmental performance. Moreover, if these variables are more important than corporatism in explaining environmental performance, including them in multivariate analyses will reduce the estimated effects of corporatism variables and make those estimates insignificant.

Whether some of these control variables are truly independent of the institutional factors I expect to influence outcomes is not obvious. For example, reductions in manufacturing might be the direct cause of good environmental performance, but still be the result of responses attributable to well-functioning corporatist institutions. Including variables that might be partially correlated with institutional ones, however, tends to bias the statistical tests *against* finding significant results for corporatism.

Table 2 shows the independent variables, the expected direction of the relationship between them and the dependent variable (environmental performance) and the Pearson correlation coefficient between each independent

[37] Martin Jänicke, H. Mönch and U. Simonis, 'Structural Change and Environmental Impact', *Intereconomics*, January/February (1989), 24–35; Martin Jänicke, H. Mönch and M. Binder, 'Ecological Aspects of Structural Change', *Intereconomics*, July/August (1993), 159–69; Strom and Swindell, 'Political Parties, Institutions and Environmental Reform'.

[38] OECD, *Economic Outlook: Historical Statistics* (Paris: OECD, 1990); International Energy Agency, *Energy Balances* (Paris: IEA, various years); Robert Summers and Alan Heston, 'The Penn World Tables: Mark 5', *Quarterly Journal of Economics*, 106 (1991), 327–68.

[39] Green party and left–libertarian vote shares taken from Lane, McKay and Newton, *Political Data Handbook*, 122–48; Jaques-Renée Rabier *et al*. *Eurobarometer* 17 (1982); Ronald Inglehart and Paul Abramson, 'Economic Security and Value Change', *American Political Science Review*, 88 (1994), 336–54.

TABLE 2 *Correlation between Environmental Performance and Economic, Political and Organizational Variables*

Variable	Expected Sign	Pearson *r*
LC Corporatism Score	+	0.60
Concertation	+	0.58
Employer 'Unity'	+	0.65*
Labour Unity	+	0.51
Majoritarian/Consensus Democracy	−	− 0.04
Government Partisanship	−	− 0.33
Relative District Size	−	− 0.05
PR/Plurality Voting	+	0.26
Federalism	−	0.11
Energy Use	−	− 0.56
Nuclear Power	+	0.21
Manufacturing	+	0.60
Growth (per capita)	−	− 0.27
Income (per capita)	+	0.35
Population Density	+	0.55
Green Vote	+	0.33
Left–Libertarian Vote	+	0.38
Post-Materialism	+	0.28†
Environmental Group Members	+	0.59‡

* No data for Spain.
† No data for Austria and Switzerland.
‡ 1982 EU members with ENV scores.

variable and the dependent variable. Based on these results, there is preliminary support for the hypothesis that corporatist institutions have a positive influence on environmental performance. Correlation coefficients for LC's corporatism measure, and Lehmbruch's concertation measure (0.60 and 0.58 respectively) are quite high. Figure 1 plots the Lijphart and Crepaz corporatism measure and environmental performance scores. The results are quite striking. Higher levels of corporatism are systematically correlated with better environmental performance from the 1970s to 1990. The largest deviations from a plotted regression line occur for Spain, Ireland – both tend to underperform relative to their corporatism score – and Germany – which overperforms slightly. The correlations between performance and the encompassingness/co-ordination between the two principal corporatist economic agents (capital and labour) are also quite high. Cameron's labour unity measure and Soskice's production organization are 0.51 and 0.65, respectively.

The effects of political institutions on environmental performance are less promising. The standardized score measuring Lijphart's majoritarian–consensus distinction, does have the correct (negative) sign, but is essentially zero (− 0.04). Of the potentially influential political factors highlighted in the

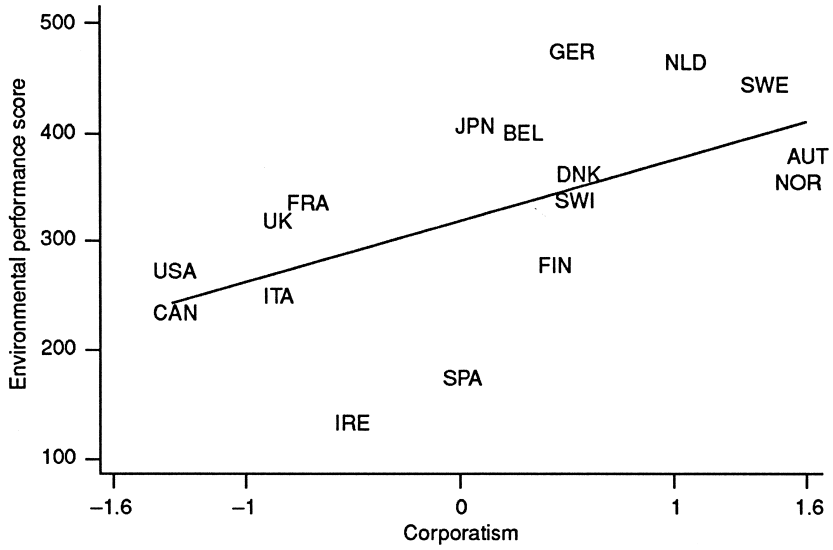

Fig. 1. Corporatism and environmental performance

second section of this article, only electoral rules (PR v. plurality) and partisanship are moderately correlated with environmental performance (0.26 and − 0.33, respectively). District size and federalism are unrelated to outcomes, and the sign on the federalism variable is the opposite direction of that hypothesized.

Several of the control variables are also correlated with environmental performance. Change in energy use (− 0.56), the level of manufacturing relative to GDP in 1968 (0.60), average per capita income (0.35) and population density (0.55) are all at least moderately correlated with environmental performance in the expected direction. In addition, the average rate of per capita income growth (− 0.27) and dependence on nuclear power (0.21) are marginally associated with good performance.

Finally, the relationship between measures of environmental organization strength and environmental performance is mostly in the expected positive direction, but varies considerably depending on the measure used. Correlations between performance and post-materialism and the level of electoral support for more green and left–libertarian parties is relatively weak to moderate (0.28, 0.33 and 0.38, respectively). The strongest correlation is for the percentage of the adult population belonging to nature and ecology groups (0.59). This correlation is not surprising, since few doubt that environmental groups mobilize environmental policy demands. It is important to note that this relationship is estimated using the eight EU members in our sample (Spain was not in the Eurobarometer survey in 1982), as comparable data on environmental group membership for other countries was not available; and should thus be treated with some caution.

A valid objection to the use of simple correlation coefficients is that they do not allow controls for alternate causes. For example, it could be the case that environmental performance and corporatism are correlated because corporatist countries used more energy, or began with higher levels of manufacturing. Similarly it may be the case that consensus politics enhances environmental performance, but only if we control for per capita income levels. A multivariate analysis permits tests of the influence of particular factors more rigorously by holding others factors constant. Ideally, one would be able to control for all of the factors highlighted in the previous sections of this article. However, because there are only seventeen countries in the analysis, this is impossible. Instead, the influence of the factors of most interest (neo-corporatism and political consensus) can be assessed from models which include alternative combinations of those variables and the statistical control variables.[40] It should be noted that the limited degrees of freedom (due to the small *n*) inflates standard errors and biases the results *against* finding statistically significant relationships.

Table 3 shows the results of national environmental performance regressed against LC's standardized measure of corporatism and the economic/structural variables which were associated with environmental performance in the simple correlation analysis (energy use, nuclear power, growth, manufacturing, population density and income). In all models, corporatism shows strong, stable and statistically significant effects on environmental performance. Depending on which control variables are included, a single unit increase in the degree of corporatism is associated with a 55–61 point increase in the environmental performance measure. Thus, controlling for these other factors, the difference between the most and least corporatist country is roughly between 165 and 180 points or about half of the observed differences in performance among the countries. Stronger corporatist institutions are strongly associated with better environmental performance.

As expected, structural and economic factors also have discernible effects on environmental performance. Average per capita income – ranging from about $6,500 per person in Ireland to over $15,000 in the United States – has a strong positive influence on environmental performance, though collinearity with energy use sometimes obscures the effects of both variables. While affluence is a cause of many environmental problems, high per capita income is considered beneficial to environmental performance (at least up to a certain levels), because it allows more resources to be devoted to environmental protection and more 'sustainable' investments. However, income alone is

[40] Strictly speaking this approach is not an entirely valid way to 'eliminate' variables. However, the multiple specifications tested (as well as the use of multiple indicators) do serve as robustness checks of the effect of corporatism indicators, which are considered increasing important to validate statistical results (Edward Leamer, 'Let's Take the Con Out of Econometrics', *American Economic Review*, 73 (1983), 31–43).

TABLE 3 *Regression Results: Corporatism and Economic Variables on Environmental Performance*

	1	2	3	4	5
Constant	317.431**	37.515	− 7.1	40.867	268.399**
	(19.76)	(193.52)	(88.95)	(77.75)	(102.86)
LC Corporatism	60.779**		55.523**	55.148**	59.431**
	(21.20)		(8.93)	(10.07)	(16.63)
Energy Use		− 1.348	− 1.075**	− 0.836*	− 1.319*
		(0.755)	(0.349)	(0.374)	(0.553)
Nuclear Power		1.577	1.509*		
		(1.635)	(0.749)		
Manufacturing		6.17	3.804	4.714	
		(5.028)	(2.335)	(2.587)	
Income per Capita		0.008	0.014**	0.014*	0.01
		(0.011)	(0.005)	(0.005)	(0.008)
Growth per Capita		17.397	23.98		
		(35.198)	(16.160)		
Population Density		0.192	0.266*	0.235	
		(0.239)	(0.110)	(0.124)	
N	17	17	17	17	17
R^2	0.354	0.656	0.935	0.899	0.663
Adj. R^2	0.311	0.45	0.885	0.853	0.585
F	8.2	3.2	18.5	19.5	8.5

Notes: Standard errors are shown in parentheses.
*$p < 0.05$, **$p < 0.01$.

a limited explanation for the observed variations in performance.[41] These results are thus consistent with the existing environmental performance literature.

Growth in energy use between 1970 and 1990 – which ranges from a 9 per cent *reduction* in Denmark to a 129 per cent increase in Spain – has a strong negative effect on performance. This is expected for two reasons. First, current energy use generally has large negative environmental implications. In the performance measure used here, two factors, SO_x and NO_x emissions, are both affected by energy use trends. Secondly, the energy sector has long been a target industry for cost-effective regulation, and indicates a country's commitment to environmental protection.[42]

The effects of manufacturing and population density are also notable. The lack of statistical significance of estimates on both variables individually is due to collinearity, but the joint influence of these factors is substantial (compare summary statistics in columns 4 and 5). The positive association between manufacturing and performance is probably due to two factors. First, if non-manufacturing sectors are generally less pollution intensive, then those countries starting with larger manufacturing sectors could reduce pollution as the importance of manufacturing in the economy falls. This is especially true because older, more polluting, plants will tend to close first. Secondly (and perhaps at odds with the first explanation), the relative returns to abatement effort may be higher when there is a larger, more concentrated 'inherently polluting' sector (as manufacturing operations tend to be) even if that sector remains important. However, like energy use, manufacturing cannot reasonably explain changes in all of the environmental index measures.

Population density reflects the relative exposure of the population to a given level of pollution, and hence the potential costs of and demand for pollution reduction. Among these countries, it ranges from two persons per square kilometre in Canada to 379 in the Netherlands. The estimated total effect of population density on environmental performance thus ranges from about 70 to 100 points, depending on which model is evaluated. These results may be part of the reason why American and Canadian performance is so low. Low population density makes it easier to disperse pollution. Though dispersion is generally only a short-term strategy (and may still have negative, non-human ecological effects), it may lead to lowered demand for strong pollution control policies.

The only variables not associated with environmental performance in the multivariate models are per capita economic growth and nuclear power. The first

[41] David Stern, Michael Common and Edward Barbier, 'Economic Growth and Environmental Degradation: The Environmental Kuznets Curve and Sustainable Development', *World Development*, 24 (1996), 1151–60.

[42] Corporatist countries also tend to have the more active conservation and renewable energy policies. See Elisabeth Ruijgrok and Frans Oosterhuis, *Energy Subsidies in Western Europe: How Governments Use Taxpayers' Money to Promote Climate Change and Nuclear Risk* (Amsterdam: Greenpeace, 1997).

TABLE 4 *Regression Results for Effects of Additional Corporatism Measures on Environmental Performance*

	1	2	3	4	5	6
Constant	− 168.702	37.175	− 84.554	− 46.322	− 163.017	59.996
	(87.897)	(112.849)	(120.871)	(113.520)	(110.212)	(143.605)
Concertation	56.153**				49.582*	
	(10.208)				(23.084)	
Employer 'Unity'		102.970**		70.227*	11.971	
		(87.415)		(35.805)	(40.625)	
Labour Unity			183.426**	115.153	22.938	
			(60.812)	(66.152)	(70.468)	
Energy Use	− 0.467	− 1.132	− 0.193	− 0.546	− 0.636	− 1.132
	(0.388)	(0.667)	(0.614)	(0.695)	(0.589)	(0.685)
Manufacturing	6.727**	5.218	4.957	4.463	6.232*	7.125
	(2.542)	(3.749)	(3.712)	(3.445)	(3.024)	(4.713)
Income per Capita	0.018**	0.009	0.012	0.011	0.018**	0.009
	(0.006)	(0.008)	(0.008)	(0.007)	(0.007)	(0.010)
Population Density	0.169	0.106	0.363	0.25	0.186	0.163
	(0.123)	(0.179)	(0.188)	(0.183)	(0.157)	(0.227)
N	17	16	17	16	16	17
R^2	0.899	0.767	0.793	0.825	0.889	0.622
Adj. R^2	0.85	0.65	0.699	0.709	0.792	0.496
F	19.6	6.6	8.4	7.1	9.2	4.94

Notes: Standard errors in parentheses.
*$p < 0.05$ **$p < 0.01$.

outcome seems to refute claims that growth is a major culprit in environmental degradation. In fact, two of the four countries with above average environmental performance and per capita economic growth (Austria and Norway) are highly corporatist, the other two (Belgium and Japan) are moderately corporatist, while the two countries with below average growth and environmental performance (the United Kingdom and United States) are highly pluralist. The effect of dependence on nuclear power is also not different from zero at conventional statistical significance levels, but it comes very close and the estimate has the (positive) sign expected. The marginal influence of nuclear power may be due to the fact that it directly effects only the two energy-based pollutants included in the aggregate pollution measure. Moreover, since half of the top eight performers on the SO_x index produce virtually no nuclear energy (the Netherlands used nuclear power for about 1.4 per cent of GDP in 1990) and all were corporatist, there appear to be viable non-nuclear energy strategies. It remains true, however, that several countries (notably Sweden and France) would be likely to have lower performance scores without nuclear power.

Table 4 shows the results from regressing the same economic structural variables with different component measures of corporatism: labour encompassingness, capital encompassingness and concertation. Because greater encompassingness and co-ordinating capacity *within* groups are essential elements of corporatism, it is not surprising that all three are correlated with Lijphart and Crepaz corporatism measure ($r = 0.66$, 0.77 and 0.89, respectively). Lehmbruch's measure is also correlated with group encompassingness (0.62 with labour unity 0.71 with employer co-ordination, and 0.79 with the linear combination of the two).

The results in Columns 1 and 5 of Table 4 suggest that Lehmbruch's concertation measure is a somewhat better predictor of outcomes than is either encompassingness/co-ordination factor considered alone, and the total predicted effect is similar to that for the LC corporatism measure. However, each of the measures used individually has a strong positive correlation with environmental performance. This strongly suggests that the correlations in Table 3 are not an artefact of the Lijphart and Crepaz measure.

The results in both Tables 3 and 4 imply that the relationship between main institutional features of corporatism and environmental performance is relatively robust to alternative specifications of corporatism, and to the inclusion of several specifications of control variables that are correlated with both corporatism and environmental performance.[43] On the whole, the results support

[43] Recoding France and Japan from a 2 to a 1 on Lehmbruch's measure reduces its regression coefficient to 51.2 ($p < 0.01$). Recoding them to 0 reduces the coefficient to 38.7 ($p < 0.02$). Thus, even if France and Japan completely lack a truly consensual policy regime (which is not consistent with the bulk of the literature), concertation is still a significant predictor of environmental performance. To test the robustness of the results further, models were estimated excluding each country, one at a time. The corporatism coefficient fluctuates by about 20 per cent, but remains substantively and statistically significant in all cases. The same is true for each of the other measures of corporatist institutions, though the range of estimates is somewhat wider.

TABLE 5 *Regression Results for Effects of Selected Political Factors on Environmental Performance*

	1	2	3	4	5	6	7	8	9	10	11	12	13
Constant	325.087* (24.334)	10.519 (158.676)	− 13.694 (77.170)	− 220.241* (87.385)	− 165.115 (124.627)	− 89.306 (90.718)	514.674** (148.775)	515.428** (143.311)	285.490* (143.898)	188.568 (181.840)	17.762 (125.188)	5.4 (114.994)	172.292 (190.005)
Majoritarianism	− 1.466 (8.923)	5.964 (7.524)	6.558 (3.656)	6.148 (3.711)	8.519 (5.429)	14.503** (4.554)	− 0.567 (8.759)					6.827 (4.010)	− 3.706 (7.640)
Partisanship							− 61.496 (47.636)	− 61.742 (45.882)	− 78.289** (29.232)	41.137 (57.693)	7.657 (31.548)	− 7.07 (30.187)	46.311 (60.287)
Energy Use		− 0.994 (0.717)	− 0.682 (0.352)	− 0.324 (0.371)	0.068 (0.600)	− 0.643 (0.506)			− 0.767 (0.573)		− 0.855* (0.399)	− 0.658 (0.384)	
Manufacturing		6.301 (4.899)	3.789 (2.415)	5.876* (2.417)	3.632 (3.588)	2.714 (2.821)			4.662 (3.938)		4.823 (2.742)	3.651 (2.606)	
Income per Capita		0.014 (0.012)	0.020** (0.006)	0.024** (0.006)	0.020* (0.009)	0.022** (0.007)			0.013 (0.008)		0.014* (0.006)	0.020** (0.006)	
Population Density		0.219 (0.242)	0.298* (0.118)	0.227 (0.119)	0.457* (0.186)	0.228 (0.135)			0.355 (0.198)		0.221 (0.143)	0.314* (0.142)	
LC Corporatism			55.591** (9.185)							76.989* (31.330)	58.176** (16.320)	52.814** (15.289)	79.662* (32.690)
Concertation				56.284** (9.484)									
Employer 'Unity'						131.925** (25.806)							
Labour Unity					195.968* (57.690)								
N	17	17	17	17	17	16	17	17	17	17	17	17	17
R^2	0.002	0.643	0.923	0.921	0.834		0.108	0.108	0.771	0.377	0.899	0.924	0.388
Adj. R^2	− 0.065	0.48	0.88	0.874	0.7345	0.8172	− 0.02	0.05	0.667	0.288	0.839	0.865	0.246
F	0	4	20.1	19.4	8.4	12.2	0.9	1.8	7.4	4.2	14.9	15.6	2.7

Notes: Standard errors are shown in parentheses. *$p < 0.05$ **$p < 0.01$.

the analysis of corporation as beneficial to the environment presented earlier in this article: corporatist institutions enhanced national environmental performance during the first two decades of the environmental era.

What can be said about the role of *consensus politics* in achieving good environmental performance? While the simple correlations suggested that there was not a significant association between performance and consensus politics, controlling for other factors might lead to more favourable results. To explore this possibility, I regressed performance against the consensus politics measure, government partisanship along with various structural, economic and institutional (i.e., corporatist) variables. The results in Table 5 show that the effects of political institutions are *not* robustly associated with environmental performance.[44] First, consensual political institutions appear to have a *negative* (albeit insignificant) impact on environmental performance once any control variables are introduced. However, in only one case does the estimate approach conventional levels of statistical significance (Column 6). These results may be best explained by the fact that the traditional elements Lijphart uses to define 'consensual polities' are not uniformly conducive to good environmental policy outcomes. For example, Lijphart considers federalism and cabinet fragility to be factors contributing to consensual politics, while earlier I suggested that centralization reduces collective action problems and continuity over time increases the willingness of business to accept new environmental regulations.

Looking at government partisanship, we find a problem similar to that which occurs for consensual majoritarian politics: fragile estimates. Depending on which variables are included in the model, partisanship effects are positive or negative, significant or insignificant. Columns 9–13 of Table 5 also show how an improperly specified model can result in an errant inference about the role of partisanship on environmental performance. When partisanship is considered in the absence of corporatist institutions but with structural controls (Column 9), there is a moderate and significant association between left governments and good environmental performance. This result might be thought to undermine the corporatist thesis, since corporatist institutions have been associated with (if not created by) left governments. In fact, partisanship and corporatism are correlated (-0.75). However, the results in columns 10–13 show that the partisanship–environmental performance relationship is probably spurious. When both corporatism and partisanship are included in the model, the partisanship variable becomes substantively and statistically insignificant, while the corporatism coefficient is significant and estimates are similar to those in Table 3.

In summary, differing political structures in these seventeen democracies seem to make little difference in accounting for national environmental outcomes. To the extent that they do matter, it appears that, on the whole, greater

[44] Estimates of models including other political factors – i.e., those not highly correlated with environmental performance in Table 2 – were made but are not reported.

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TABLE 6 *Regression Results for Effects of Environmental Mobilization on Environmental Performance*

	1	2	3	4	5	6	7	8	9	10	11
Constant	298.856** (27.892)	− 61.374 (116.666)	310.947** (25.546)	220.535** (45.776)	233.898** (37.001)	226.921** (50.204)	− 2.538 (80.575)	− 171.394* (85.986)	− 32.496 (111.451)	− 146.773 (94.101)	95.65 63.800
Left–Libertarian	6.107 (3.831)	7.685** (2.491)	1.669 (3.984)	1.269 (4.200)	1.899 (3.319)	3.111 (4.032)	2.971 (2.106)	2.698 (2.201)	4.952 (2.923)	6.007** (1.995)	
Post-materialism											0.92 0.750
LC Corporatism			55.355* (25.362)				44.988** (12.034)				59.7 11.4*
Concertation				52.646* (25.638)				46.353** (12.790)			
Employer 'Unity'					123.081** (45.842)				65.47 (37.827)		
Labour Unity						156.701 (93.116)				141.993** (48.194)	
Energy Use		− 0.443 (0.569)					− 0.624 (0.389)	− 0.341 (0.393)	− 0.554 (0.701)	0.133 (0.479)	− 1.27** 0.340
Manufacturing		8.087* (3.618)					5.530* (2.544)	7.134** (2.508)	6.563 (3.531)	6.199* (2.849)	11.3** 2.800
Income per Capita		0.01 (0.008)					0.014** (0.005)	0.017** (0.006)	0.01 (0.007)	0.013** (0.006)	
Population Density		0.273 (0.178)					0.265* (0.120)	0.207 (0.124)	0.198 (0.173)	0.403** (0.143)	− 0.05 0.120
N	17	17	17	17	16	17	17	17	16	17	17
R^2	0.145	0.797	0.362	0.343	0.435	0.289	0.915	0.912	0.823	0.892	0.91
Adj. R^2	0.089	0.705	0.271	0.249	0.348	0.187	0.865	0.86	0.705	0.823	0.87
F	2.5	8.7	4	3.7	5	2.8	18.1	17.4	7	13.7	19.7

Notes: Standard errors are shown in parentheses. *$p < 0.05$ **$p < 0.01$.

majoritarianism, not consensus politics, has a positive influence on environmental performance, once other factors are controlled for. The effect of partisanship is rather small and not robust, once other factors, especially the level of corporatism, are controlled for. Finally, and most importantly for the main thesis of this article, controlling for major political institutional conditions does not substantially affect the positive association between corporatism and environmental performance.[45]

I have thus far found evidence that the consensual approach to policy making and encompassingness of producer interests have a strong positive influence on cross-national environmental performance. However, we have not explicitly considered the effect of environmental organizations. According to corporatism's critics, the growing strength of environmental movements is the true indicator of better environmental performance, because such groups are responsible for pressuring for reforms. To examine this possibility I include the variables for environmental mobilization and issue support – Green party vote, left–libertarian party vote, the level of post-material values and national environmental group membership – in the model.[46] These measures are imperfect, but there are few other measures of environmental group strength that are consistent across a number of countries and measured early enough to be considered causally prior to the outcomes being examined.[47]

As previously noted (Table 2) there is only a weak correlation between Green and left–libertarian party support and environmental performance. Moreover, there is very weak collinearity between corporatism and green party vote (0.24).[48] Looking at the broader category of left–libertarian party support, its correlation with corporatism is much higher (0.51). Columns 1–5 of Table 6 show the relationship between environmental scores and left–libertarian support once other factors are controlled for. If we control for economic and structural factors like income, population density and manufacturing intensity (Column 2), the estimated effect of left–libertarianism increases and is significant, increasing the (adjusted) explained variance by about 20 points. However, controlling only for the effects of corporatism (Columns 3–6), no estimate of support for environmental parties differs from zero, estimates are all less than their standard errors, and the maximum predicted effect (difference between

[45] Checks using alternative measures and deletion of individual observations confirm that the corporatism results are robust.

[46] The reason for preferring left–libertarian, rather than green party support is that many non-green, left-socialist parties took up environmental issues early, thus pre-empting the emergence of green parties, as such (see Kitschelt, 'Left–Libertarian Parties').

[47] If there is a bias in the two-party support measures, it is probably *against* neo-corporatism as an explanation. All neo-corporatist countries have electoral systems that encourage smaller parties, while more pluralist countries have electoral systems that discourage small parties. Thus, green and left–libertarian parties should be stronger in neo-corporatist countries even if concern across the countries were equal.

[48] Since multivariate results for green party vote are weak, and greens are subsumed by a 'pro-environment' left–libertarian party variable, the green vote variable is not discussed further.

predicted performance score based on minimum and maximum left–libertarian or green party support) is only 70–80 points. The estimates for corporatism, however remain significant, except perhaps for labour unity. Finally, if we include both corporatism and structural factors (Columns 7–10), the effects of left–libertarian support remain insignificant except when it and labour unity are included in the model, while estimates for all corporatism variables are significant except for employer co-ordination.[49] Thus, support for left–libertarian parties might enhance performance, but the results depend greatly on model specification (i.e., they are not robust). Furthermore, including environmental party support in the model does not undermine the independent effect of corporatism in accounting for environmental performance.

Given the previous analysis, these results are stark, but not terribly surprising. While party support indicates interest in more environmental policy, this may not translate easily into real outcomes without the institutions. Though environmental parties are likely to elicit some response from other parties or policy makers, they do not make the continuing collective action and co-ordination problems disappear. Post-materialism, despite its alleged links to ecological politics, is unrelated to environmental performance. Though the coefficient estimates are usually in the right direction (positive), its predicted effect is small and no estimates approach statistical significance, nor do they affect the estimates of the corporatist variables. The results shown in Column 11 of Table 6 are representative of results from various specifications.

While parties may represent a strong measure of environmental policy support, pressure groups might provide an even better measure of the extent and intensity of support for environmental policy. Environmental interest groups have implicitly been an indicator of the strength of environmental issues and organization especially under pluralist assumptions that interest-group membership reflects mobilized resources and votes, and has policy impacts. Unlike party support, environmental interest-group pressure can be wielded more broadly on legislators and officials during and between elections.

Unfortunately, historical data on environmental group membership is not readily available. Though there have recently been cross-national efforts to study membership in environmental groups, most of this data looks at recent levels of environmental group support and is limited to only a few (for example, EU) countries.[50] Since recent (early 1990s) membership levels cannot influence prior (1970–89) policy outcomes, I used environmental and ecology member-

[49] The significant results for left–libertarian parties are influenced tremendously by Sweden. If it is removed from the sample, the estimate for left–libertarian party support is not significantly different from zero.

[50] Russell Dalton, *The Green Rainbow: Environmental Groups in Western Europe* (New Haven, Conn.: Yale, 1994).

ship levels reported by respondents in the 1982 Eurobarometer.[51] This data covers eight of the seventeen countries covered in this article.

Among these eight countries, corporatism is more closely correlated with environmental performance (0.74) than is environmental group membership (0.59), though there is a high correlation between the two independent variables (0.81). While this collinearity might be taken to suggest that environmental group strength, not corporatist institutions, produces the observed environmental performance, this argument is not compelling. First, strong environmental groups certainly do not deny benefits from corporatist policy making and implementation discussed earlier. Secondly, since no one claims that environmental groups approach the power of industry in any country, how could one explain the fact that corporatist countries – with supposedly the most firmly entrenched 'productionist' interests – achieve superior environmental performance in spite of that entrenched power? Finally, the comparative evidence points to the superiority of corporatism, not environmental membership, as the key variable when both are included in the model.[52] For example, Germany, a moderately corporatist country, has moderate levels of environmental group membership, yet it has an environmental performance near that of the highly mobilized and corporatist Netherlands. In addition, Belgium has low membership, moderate corporatism and performance close to that of highly corporatist, highly mobilized Denmark.

On the whole, the results of including environmental organizational strength do suggest the (perhaps obvious) importance of environmental groups in attaining good environmental policy outcomes. However, the conclusion that the strength of environmental organizations can explain environmental performance better than (or rather than) corporatist institutions faces several interesting problems. First, the positive results for environmental organization strength are not robust to alternative specifications of environmental strength, while the various corporatist measures used here perform quite well and consistently. Secondly, the multivariate results favour corporatism over environmental movement strength when both are included in the same models. Thirdly, the empirical evidence suggests several cases of corporatist countries that have very good environmental performance despite having relatively weak environmental movements (Belgium and Austria), but no countries that have strong environmental movements but predominantly pluralist institutions.

[51] There are two further problems with using these more recent data, which are often based on membership rolls. First, it is quite likely that individuals belong to more than one group, creating a large amount of double counting. The Eurobarometer survey I use asks people if they are members of ecology or nature protection groups; and up to 75 per cent of respondents in some countries say they are members of an organization in both categories. Secondly, leaving aside the problems of double counting, it is unlikely to be true that national mobilization in the 1990s is highly correlated with membership in the early 1980s.

[52] The results indicate that environmental movement strength is *negatively* associated (though not statistically significant) with performance once we control for the level of corporatism. There is also a negative univariate correlation (− 0.40) for these eight countries between ecology group support – which suggests more radical support for environmental issues – and performance (based on the same Eurobarometer survey). Both results are consistent with the idea that the effective policy (of pre-existing corporatist institutions) reduces the need for extensive environmental mobilization.

While it is clearly true that corporatist actors alone, left to their own devices, might not have been responsive to environmental policy reform in the absence of environmentalist pressure, the benefits of the corporatist *institutional* framework for achieving better environmental performance than more decentralized and conflictual methods of policy making seem to be a compelling inference from these results. Even if it is the case that environmental protection was not clearly in the interest of producer groups, the structure of the institutions in corporatist countries can still have an impact on the eventual effectiveness of environmental policy, because it encourages the effective incorporation of environmental policy goals. Initial resistance gives way to a compromise decision which is then incorporated into the goals pursued. How particular producers or unions are 'sold' on the compromise may involve combinations of inducements, force or persuasion from the state or corporatist actors.

CONCLUSION

This article has suggested that corporatist institutions have a positive impact on environmental outcomes, even after controlling for differences in economic structures, political institutions and the mobilization of environmental interest groups. The effect of corporatism appears, moreover, to be resilient to different model specifications, operationalizations of corporatism and tests for particularly influential cases. These positive results, along with the analysis refute claims that corporatist institutions are inherently more detrimental to enhanced environmental protection than their pluralist counterparts. Indeed, they imply that, if anything, social systems should build, rather than dismantle, more consensual and encompassing forms of interest-group representation.

There is also specific evidence in support of two specific mechanisms by which corporatism influences environmental outcomes: policy concertation and encompassingness. By facilitating consensual policy making among producers, regulators, and even environmental groups, neo-corporatist patterns of policy making seem to be as successful at environmental policy as they have been in other areas of economic and social policy. It is undoubtedly the case that part of the ability to achieve consensus is based on the role of encompassing producer groups in corporatist societies. Not only is this likely to facilitate a long-run perspective that appreciates the social benefits of effective environmental policies which many environmental and other new movements pursue, but it helps reduce temptations by individual producers to violate agreements.

In contrast to corporatist institutions, the idea that consensual democracy is also associated with good environmental performance is not supported by the evidence. The majoritarian–consensual nature of political institutions has had no systematic effect on performance. This result raises questions about empirical linkages between consensual political systems and neo-corporatism. Finally, there is some evidence that environmental organization strength (via pro-environment or left–libertarian party support or environmental group

membership) is correlated with corporatism and environmental performance, but the evidence does not do well when controlling for other factors (including corporatism).

The approach followed in this article has attempted to overcome some methodological shortcomings in the environmental policy literature. Explicit attention has been paid to developing testable hypotheses and conducting empirical tests in a number of countries. Although the measures are relatively crude, they do demonstrate the utility of statistical tests of hypotheses about environmental politics.

There are at least three important considerations (and perhaps some limitation of the results) as regards the relationship between corporatism and performance in the future. First, there is some fear that countries have been moving away from corporatist institutions since the mid 1980s. While this article has attempted to refute that contention, the dismantling of corporatism would imply more difficulty attaining good environmental performance. A second issue concerns the integration of Europe, where all of the corporatist countries considered in this article are located. As nations look to Europe to set the rules for economic competition and environmental policy, there may be some convergence in European national environmental performance as national corporatist institutions lose control over national policy.

This research could (and should) be extended in a number of ways. More specific and well-defined comparative case studies would help to establish that the processes suggested here actually do cause these outcomes. One can select countries with similar environmental problems but different levels of corporatism to assess the reactions of the respective countries' economic actors. For example, if there are more explicit or tacit agreements to compensate 'losers' for policy changes in more consensual or corporatist systems, this would be supportive evidence. Likewise, one might expect similarly situated citizens in societies with different levels of corporatism to have different perceptions of appropriate social trade-offs in this area and the personal implications of such policy. One might also examine whether there are cross-national differences in the actions taken in response to claims of environmental protection conflicts with traditional economic issues. Such studies might help us to get a better understanding of the aggregate relationships hypothesized and empirically supported in this article. They would certainly help in integrating vital new issues like environmental protection into the study of comparative political economy. However, these studies need to go beyond single-country sector-specific case studies. Secondly, it is obviously important to update this work as more recent comparable environmental data becomes available. Especially beneficial too in this regard would be the ability to use more recent, cross-national data on environmental movement strength and membership. Finally, it is extremely important that studies take into consideration a more dynamic and outcomes-driven approach to environmental pollution issues. The nature of environmental problems is such that their solution demands changed outcomes over long periods of time.