Introduction

The Comparative Politics of Climate Change

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Introduction

Climate change represents a "tragedy of the commons" on a global scale.[1] The nations of the world, and individuals within them, over-exploit the planet's atmosphere because they gain all the material advantages from the activities that contribute to global warming but suffer only a fraction of the environmental costs. In turn, nations and individuals typically are unwilling to reduce their greenhouse gas emissions unilaterally, because in doing so they would pay the full price of abatement but gain only a fraction of the benefits. Indeed, their sacrifice may be futile if other actors do not exhibit similar restraint.

Despite this formidable challenge, international efforts to address global warming have met with some, albeit limited, success. Under the Framework Convention on Climate Change (FCCC), which took effect in 1994, more than 180 nations committed to a long-term goal of stabilizing greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic interference with the climate system." While the Convention itself contained only hortatory emissions targets, at the third conference of parties to the FCCC (COP-3) in 1997, agreement was reached on the *Kyoto Protocol to the United Nations Framework Convention on Climate Change,* through which industrialized countries committed to reducing their collective emissions to 5% below 1990 levels by the period 2008 to 2012. Although the United States, which contributes roughly one quarter of global greenhouse gas emissions, withdrew from the treaty in 2001, it was ratified by a sufficient number of other countries to take effect in 2005.

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1. Hardin 1968.

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As the international community negotiates a post-Kyoto regime, it is timely to consider what lessons we can learn from experience to date. How can we understand the progress that has been made and why it has been so limited? Until very recently, most political scientists who have studied climate change have done so from an international relations perspective, with a focus on explaining international agreements based on the interests or ideational orientations of states as unitary actors, without opening the "black box" of domestic politics.[2] However, when international meetings conclude, actors invariably return home to their domestic constituents. Decisions whether or not to ratify international agreements and adopt national policies to mitigate climate change are in the end domestic political decisions, taken in the context of home-grown electoral interests, national discourses, and domestic political institutions.

It is this domestic process to which we now turn. This issue of *Global Environmental Politics* compares ratification of the Kyoto Protocol and climate policies of Annex 1 countries, since only those states faced binding emissions targets under the Kyoto Protocol. The articles cover the two Annex 1 countries that did not ratify, the United States and Australia, as well as four other jurisdictions, the European Union (EU), Russia, Japan, and Canada, which are the next largest Annex 1 emitters after the United States. (We treat the European Union as a single case in the analysis that follows since EU member states decided on ratification jointly and also coordinated development of climate policies at the EU-level.) The authors employ a common theoretical framework that focuses on the impact of electoral incentives, policy-makers' own normative commitments, and domestic political institutions, though with attention to international impacts on both electoral politics and domestic norms.

The International Context

Of course, ratification of the Kyoto Protocol would not be a matter for domestic politics if it were not for prior international negotiations. A multilateral agreement facilitates domestic action by both reducing individual countries' costs and providing reassurance of environmental benefits. Countries that may be unwilling to act unilaterally, whether because they do not want to harm the international competitiveness of local firms or because they anticipate that their unilateral actions would be of limited environmental benefit, may be more willing to take action with assurances that others will do the same. However, the costs of action depend on the particular terms of the treaty and may differ among signatory countries, with important implications for domestic political debates.

Several features of the Kyoto Protocol are relevant to assessing national costs of compliance. First, in recognition of the fact that industrialized countries have much higher per capita emissions than the developing world and also have

2. Paterson 1996; Oberthür and Ott 1999; Grubb, Brack, and Vrolijk 1999; and Newell 2005. Authors who have employed a comparative politics perspective include Lantis 2006; Busby and Ochs 2005; Zahran et al 2007; and Dolsak 2001.

Table 1
Comparison of Kyoto Protocol Targets and Ratification Decisions

	Kyoto Protocol Target, Net Greenhouse Gas Emissions in 2008–2012 relative to 1990 base year	*Ratification of the Kyoto Protocol*
Australia	+8%	No
Russia	0%	Yes
Japan	−6%	Yes
Canada	−6%	Yes
USA	−7%	No
EU15	−8%	Yes

contributed the majority of greenhouse gases that have accumulated in the atmosphere to date, the Protocol specifies binding emissions reductions targets only for industrialized (Annex 1) countries. While the normative basis for leadership by wealthy countries is indisputable, the inevitable implication is that mitigation measures undertaken by industrialized countries may hinder their competitiveness vis-à-vis developing countries. Second, the Kyoto Protocol includes differentiated targets even among Annex 1 countries, as indicated in Table 1. The EU accepted a collective target of -8%, with member states' targets further differentiated within the EU "bubble."

Third, the Kyoto Protocol included a number of mechanisms that increased participating states' flexibility in meeting their targets, and thus offered the potential to reduce compliance costs. These included multi-year averaging, with compliance based on each country's emissions over a five-year period from 2008 to 2012, and inclusion of a "basket" of six greenhouse gases, which allows countries to trade off greater reductions in some gases against lesser reductions or even increases in others. The Protocol also allows countries to take into account changes in land use, thereby offsetting emissions either by reducing their rate of land clearing or increasing forest cover. Finally, the Kyoto Protocol included three international flexibility mechanisms, each of which offers the potential for participating states to take advantage of less expensive mitigation opportunities in other countries: emissions trading among Annex 1 countries, "joint implementation" by Annex 1 countries to earn credit for cutting emissions or increasing sinks in the least expensive Annex 1 locations, and the "Clean Development Mechanism" through which Annex 1 countries can gain credits toward their targets by investing in projects in developing countries.

The proximity of the targets for Japan, Canada, the US, and the EU in Table 1 is, of course, hardly fortuitous. Central to the discussions for each country was a desire to address the common pool problem, but in a way that did not entail accepting greater costs than other parties. Based on the formal Kyoto

targets, however, it is hard to understand the pattern of ratification and non-ratification decisions evident in Table 1. For instance, the EU ratified the Kyoto Protocol despite having the deepest reduction commitment, while Australia chose not to ratify despite an apparently lenient target.

In practice, however, the formal target relative to 1990 emissions is at best a crude measure of the magnitude of effort required to achieve compliance. By the time of the Kyoto meeting in 1997, some countries, including Canada, the US, and Australia, were already well above their 1990 emissions while others, most notably Germany and Russia, were well below. Moreover, depending on anticipated population and economic growth, countries also were on very different trajectories for future emissions. An alternative measure of the depth of commitment that takes into account both of these factors is the degree of reduction below the "business-as-usual" trajectory for 2010 (the midpoint of the Kyoto compliance period) that each country thought it was undertaking at the time of its ratification decision.

Table 2 reorders the cases in Table 1 based on the anticipated cut below the business-as-usual projection. Viewed in these terms, several countries' decisions make more sense. As Henry and Sundstrom argue, it was relatively easy for Russia to ratify because it had already met its target by 1997 as a result of economic collapse and most economic models did not project that Russian emissions would return to their 1990 levels by 2010.[3] Russia not only didn't need to do anything to comply, but actually stood to gain financially from the sale of any remaining business-as-usual or "hot air" credits to other countries. It is also less surprising that the US did *not* ratify the Kyoto Protocol when one considers that it faced the most demanding target relative to its business-as-usual trajectory. Similarly, Crowley reports that although Australia negotiated what seemed like a lenient formal target and also anticipated heavy reliance on ongoing reductions in land clearing, dramatic growth in the coal sector nonetheless implied that Australia still would need to make significant emissions reductions in order to comply.[4]

Schreurs and Tiberghien report that an important part of the EU story lay in the emissions trajectories of Germany and the UK.[5] The former experienced significant emissions reductions in the early 1990s as a result of closure of inefficient East German facilities following reunification. The UK, for its part, anticipated that replacement of coal by newly exploited reserves of offshore gas would yield significant emissions reductions by 2010. Indeed, building on its windfall reductions, Germany's proposed reduction target accounts for 75% of the total EU reduction, and the UK and Germany together account for more than 100% of the EU's commitment, thus providing room for other EU states' emissions to grow, in some cases quite dramatically.[6]

3. Henry and Sundstrom, this issue.
4. Crowley, this issue.
5. Schreurs and Tiberghien, this issue.
6. Germany's and the UK's promised reductions of 21% and 12.5% below 1990 emissions would

Table 2
Comparison of Kyoto Targets Relative to Business-as-Usual Trajectory

	Kyoto Target	*Anticipated Reduction relative to projected "business as usual" emissions in 2010*	*Ratification*
Russia	0%	>0%	Yes
EU15	−8%	−3% to −9%	Yes
Japan	−6%	−12%	Yes
Australia	+8%	−17%	No
Canada	−6%	−29%	Yes
USA	−7%	−31%	No

Sources: Henry and Sundstrom, this issue; EEA 2002 a, b; Schreurs and Tiberghien, this issue; Crowley, this issue; Harrison this issue.

The disparity in the depth of anticipated reductions below projected emissions, particularly between the EU and US, prompts one to ask why the US would have agreed to what looks like a rather bad deal. The terms of the Kyoto Protocol reflected a grand compromise between the US (and its allies) and the EU, in which the US conceded to a deeper reduction than it had originally proposed while the EU agreed to various flexibility mechanisms proposed by the US. However, in relaxing its principled opposition to emissions trading and other flexibility mechanisms, the EU actually gained materially—both because it cut its own reduction commitment to roughly match that of the US and because it too stood to benefit from international flexibility. Thus, the nature of the central compromise reached in Kyoto, between US material interests and EU norms, had the effect of *increasing* the disparity in costs between these two jurisdictions.

As discussed below, disparities in reduction commitments in turn were reflected in the balance of political support and opposition to ratification within different jurisdictions. However, while the magnitude of commitments can help to explain the ratification decisions of Russia, the US, and Australia, significant questions remain. In particular, why would the EU, Japan, and especially Canada commit to undertake very real reductions, particularly after a major economic competitor, the US, had withdrawn from the treaty, thus increasing potential impacts on economic competitiveness for remaining parties? The sections that follow examine domestic electoral incentives, politicians' own ideas, and political institutions in order to understand why these countries departed from their apparent national interests.

yield 257.5 MT and 97 MT respectively, which together exceed the EU's commitment of 341.2 MT.

Electoral Incentives

An important motive for a politician in any democracy is that of re-election. All else being equal, the greater the public demand, the more likely a democratic country should be to ratify the Kyoto Protocol and adopt mitigation measures. One partial exception to this rule is the Russian case, since democratic accountability in that country is minimal compared to the other Annex 1 states covered in this issue.

Interpretation of public opinion polls concerning climate change is challenging because protecting the environment is a valence issue that typically elicits its support from a majority of those polled in virtually all countries. A more relevant question is the degree to which voters are actually paying attention to their governments' climate policies as opposed to other potential conflicting issues, such as energy prices. However, cross-national polls suggest that voters have been more concerned and thus presumably more attentive in some countries than in others. Table 3 reports the results of a cross-national survey conducted by World Public Opinion in 2003, shortly after most countries' decisions with respect to ratification of the Kyoto Protocol. Although neither Australia nor Japan was included, the results indicate higher levels of concern in Western Europe than in Russia, Canada, and the United States.

The articles in this issue provide further support for the influence of electoral pressure. Consistent with the Europe-US differences reported in Table 3, there were larger protests across Europe than in the US itself when the Bush administration announced in 2001 that the US would not ratify the Kyoto Protocol.[7] In the case of Japan, Tiberghien and Schreurs argue that the Kyoto Protocol took on symbolic significance for voters because it bears the name of a Japanese city, rendering it virtually impossible for the government *not* to ratify.[8] In contrast, Harrison asserts that although American and Canadian voters indicated support for ratification when asked, they simply were not paying close attention to environmental issues.[9]

When voters at large are not attentive, one can expect politicians to weigh more heavily the voices of organized interest groups on either side of the issue. The articles in this issue collectively suggest that politicians faced relatively greater political opposition, and thus were less willing either to ratify the Kyoto Protocol or adopt domestic abatement measures, the greater the costs of compliance for their own countries. While environmentalists actively supported ratification in all countries studied, the degree of business and labor opposition was consistent with the magnitude of reductions below the business-as-usual trajectory reported in Table 2. Thus, the US saw formidable opposition from both business and labor, which yielded bipartisan opposition to ratification

7. Schreurs and Tiberghien, this issue.
8. Tiberghien and Schreurs, this issue.
9. Harrison, this issue.

Table 3
World Public Opinion Survey, 2003
Approximately 1000 respondents in each country were asked the following question: "How serious a problem do you consider climate change or global warming due to the Greenhouse Effect to be? Is it a very serious problem, somewhat serious problem, not very serious problem or not a serious problem at all?"

	Very Serious	*Somewhat Serious*	*Not Very Serious*	*Not at All Serious*
Italy	63	30	5	1
Germany	54	33	10	2
UK	50	35	9	3
France	46	43	8	1
Russia	43	34	15	1
Canada	40	41	11	5
USA	31	40	13	11

Source: http://www.worldpublicopinion.org/pipa/pdf/apr06/ClimateChange_Apr06_quaire.pdf

and ultimately resulted in non-ratification.[10] In Australia, concerns from both business and labor resulted in opposition from the Liberal Party and perfunctory support at best for ratification from the Labor Party.[11] At the other end of the spectrum, Henry and Sundstrom report that the business community in Russia was supportive on balance, making ratification a politically easy decision. That material interest would tend to make most countries, and economic actors within them, reluctant to undertake mitigation is hardly surprising. The question remains why the EU, Japan, and Canada ratified, despite anticipation of considerable costs and attendant political opposition.

Policy-makers' Ideas

In the face of such opposition, policy-makers could conceivably be motivated by their causal knowledge (science) and principled values,[12] rather than their interests in re-election. With respect to the former, the more convinced politicians are that climate change is real and caused by human activity, the more strongly one would expect them to support costly measures to address the problem. This is nominally supported by the cases examined in this issue. While there was strong consensus among *scientists* in all jurisdictions concerning the contribution of anthropogenic greenhouse gas emissions to climate change, there was greater *political* debate about climate science in three countries, two of which

10. Harrison, this issue.
11. Crowley, this issue.
12. Goldstein and Keohane 1993.

(Australia and the US) did not ratify the Kyoto Protocol, while the other (Russia) was a late ratifier. However, while Henry and Sundstrom argue that Putin's doubts concerning climate science may well have been real, prompted by the surprising skepticism of the President's lead scientific advisor,[13] Crowley and Harrison question whether Australian and US policy-makers were genuinely uncertain about causal mechanisms of global climate change or merely questioned climate science as a strategy to defend powerful business interests.[14]

Even if a politician believes the science, the question is how willing she or he is to accept political risks in order to pursue a personal commitment to environmental protection. The impact of a politician's own values was most evident in the case of Canada, where Prime Minister Jean Chrétien personally made the call to ratify despite strong opposition from the business community, though Harrison argues that the Prime Minister's imminent retirement facilitated that sacrifice. However, that Chrétien's successors did not follow through and Canada's emissions have continued to soar suggests that policies inspired by politicians' own ideational commitments may be more fragile than those inspired by sustained voter support.

The extent to which policy-makers' partisan ideology matters is an open question. Green Parties have long argued that protection of the environment is "neither left nor right." However, parties on the left could conceivably be more willing to pursue the kinds of regulatory or tax interventions needed to arrest growth of greenhouse gas emissions. Although left and right meant nothing in the Russian context, in other cases covered in this issue, ideology was a reasonably good predictor of governing parties' stances on Kyoto Protocol ratification. Thus, Democrats were generally more supportive than Republicans of ratification in the US, Liberals were more supportive than Conservatives in Canada, and social democrats in Europe were more supportive of action to address climate change than their more conservative counterparts. That said, party ideology was by no means the dominant influence on either ratification or adoption of domestic policies. In the face of strong public demand, even right-wing subnational governments in the United States have adopted aggressive climate policies, while Christian Democratic German Chancellor Angela Merkel recently led the international charge as President of the EU.[15]

Political Institutions

Other scholars have noted the contingent nature of political institutions, the effects of which depend on their interaction with other variables.[16] We focus in particular on two institutional characteristics: the ways in which electoral sys-

13. Henry and Sundstrom, this issue.
14. Crowley, this issue; and Harrison, this issue.
15. Harrison, this issue; and Rabe 2004.
16. Weaver and Rockman 1993.

tems express voters' interests; and the degree to which institutions concentrate or diffuse authority.

The articles in this issue confirm that proportional electoral systems that more closely represent environmentally concerned voters' interests, often through the emergence of Green parties, yield stronger electoral incentives for action than majoritarian electoral systems. Schreurs and Tiberghien argue that proportional representation (PR) in key EU member states as well as the European Parliament helps to explain the EU's consistent support for strong international and domestic policies to combat global warming.[17] In the Japanese case, Tiberghien and Schreurs report that introduction of PR for a fraction of parliamentary seats prompted politicians to become more attuned to issues of concern to urban voters, and to build alliances with nongovernmental organizations including environmental groups. In contrast, majoritarian electoral systems in Canada, the US, and Australia's lower house reward appeals to median voters, for whom the environment has not been highly salient until very recently. In two other cases, however, PR systems did not have the same impact. In Australia, the Senate is elected by a single transferable vote system, which has resulted in election of Green Party representatives. However, because the lower house is the confidence chamber, the Senate does not initiate most Australian legislation. In the case of Russia, although half of its legislative seats at the time of the ratification debate were elected by proportional representation, the State Duma is a weak body compared to the president, and pro-presidential parties dominate the legislature. The Australian and Russian cases demonstrate that proportional electoral systems only advance voters' environmental values to the extent that the legislature to which they apply has meaningful influence.

A second institutional characteristic concerns the concentration of authority. Analyzing international and domestic climate commitments prior to the Kyoto Protocol, Dolsak found that countries with parliamentary systems were more aggressive than those with presidential systems.[18] Similarly, Lantis found that leaders in parliamentary systems had greater success in ratifying international treaties than those in presidential systems.[19] We find evidence here of institutional interactions with both ideas and electoral incentives. With respect to the former, concentration of authority can facilitate leadership if key policymakers are personally committed to action, as was the case with Prime Minister Jean Chrétien's decision that Canada would ratify the Kyoto Protocol. Similarly, Russian President Putin decided that Russia would ratify, though the degree to which this was motivated by norms as opposed to economic interests is unclear. In contrast, US President Bill Clinton also supported ratification, but did not have comparable institutional capacity to deliver on his ideals. By the same token, however, concentration of authority can make it easier for actors who wield authority to decline to act if they do not believe it is the right thing to do. Thus,

17. Schreurs and Tiberghien, this issue; see also Busby and Ochs 2005.
18. Dolsak 2001.
19. Lantis 2006.

Chrétien's successor, Stephen Harper, simply declared upon his election in 2006 that Canada would no longer even try to meet its Kyoto Protocol target.

The impact of the diffusion of authority also depends on interactions with electoral incentives. Multiple veto points can be employed more effectively by opponents than supporters of ratification or mitigation policies. This was most evident in the US case, where members of Congress, both unconstrained and unprotected by party discipline, were beholden to local economic interests, thus yielding bipartisan Senate opposition to ratification.[20] Busby and Ochs also note the importance of US politicians' reliance on private campaign contributions, in contrast to other jurisdictions' systems of public campaign finance, in explaining the US Congress' responsiveness to business interests.[21]

Federalism is of particular interest in that it diffuses authority vertically among levels of government. With the exception of Japan, the jurisdictions under study all involve federal or quasi-federal arrangements. Institutional impacts were again complicated, however, depending on the particular division of powers, the regional distribution of costs, and electoral incentives. At the limit, in the EU, where key member states and members of the European parliament faced strong pressure from environmentally concerned voters, Schreurs and Tiberghien document a competitive dynamic that facilitated EU leadership with respect to both ratification and adoption of mitigation measures. In Australia and the United States, national governments rejected ratification of the Kyoto Protocol and federalism thus did not yield a comparable competitive dynamic. However, leadership by "green" states did allow sub-national governments to partially compensate for federal inaction.[22]

In contrast, Canadian federalism to date has been an obstacle to adoption of climate policies.[23] In part this reflects the considerable powers of provinces within the decentralized Canadian federation, including most notably their ownership of natural resources. However, another explanation for why some vertically decentralized systems display upward pressure on climate policy while others hamper action seems to lie with the regional distribution of costs and how that determines the interests of the most powerful players within such systems. In the EU, the two member states with the greatest emissions, Germany and the UK, could afford to adopt aggressive positions on climate change given their windfall reductions. Similarly, in the United States, the state governments that rank first and third in emissions, California and New York, do not have particularly greenhouse gas-intensive economies and thus were able to exercise leadership more readily. In contrast, the two Canadian provinces with the greatest emissions both rely heavily on industries threatened by climate policies, oil in the case of Alberta and auto-manufacturing in the case of Ontario, and those

20. Harrison, this issue.
21. Busby and Ochs 2005.
22. Crowley, this issue; and Harrison, this issue.
23. Harrison, this issue.

provinces have consistently opposed any federal proposals that might harm "their" local industries.

International Influences

International factors not only set the stage for the question of ratification, but also continued to interact with electoral incentives and ideas during domestic debates concerning ratification and adoption of domestic climate policies. The articles in this issue identify three distinct international mechanisms: normative pressures from foreign governments and NGOs, international negotiations to reduce the costs of compliance with the Kyoto Protocol, and business concerns about competitiveness in the global economy.

Both foreign governments and transnational NGOs applied normative pressure in an effort to influence decisions by late ratifiers. This was most evident in the cases of Japan and Russia, since those two states' ratification became essential to the treaty's survival once the United States backed out. However, with respect to Japan, Tiberghien and Schreurs note that there was relatively balanced pressure both for and against ratification from the EU and US, respectively.[24] While some transnational NGOs, such as Greenpeace and WWF, were active in Japan, and thus may have contributed to some degree to public support for ratification, the authors do not consider that as a particularly influential factor in Japan's ratification. Greenpeace and WWF also worked with partners in Russia to promote ratification, but Henry and Sundstrom conclude that this had little effect on the outcome given the lack of contact between President Putin and NGO activists and the unchangingly low level of public awareness of the Kyoto Protocol in Russia. International norms nevertheless were cited as influencing some leaders' decisions to ratify, though it can be difficult to discern whether this played a decisive role relative to material interests, and in all likelihood these decisions involved a combination of strategic and normative factors.[25] The Russian president in particular, according to many observers, was concerned that Russia should appear to be a good international citizen. Yet given the potential material benefits to Russia from ratification, normative impulses are unlikely to have weighed heavily in the decision. In the case of Canada, a desire to promote the norm of multilateralism was cited by many observers as a factor in Jean Chrétien's decision to ratify the Kyoto Protocol. Here the normative argument is less fettered because Canada accepted tremendous material costs in ratifying, though it remains difficult to assess the degree to which Chrétien was motivated by international versus domestic norms.

Foreign governments not only applied moral suasion, but also engaged in diplomatic bargaining that reduced the material costs of compliance for later ratifiers. This was most significant in the Russian case. The EU and Russia were

24. Tiberghien and Schreurs, this issue.
25. Checkel 2001.

simultaneously negotiating the conditions for EU approval of Russia's bid to enter the World Trade Organization while Russia was considering Kyoto Protocol ratification. Although never confirmed officially by either side, the two decisions roughly coincided, suggesting that WTO approval was granted as a side payment to Russia to induce its positive ratification decision. Significant diplomatic concessions were also made by the EU to Japan and Canada. As noted above, the agreement reached in Kyoto in 1997 included provisions concerning carbon sinks and various international flexibility mechanisms. However, the parties to the treaty were still debating the degree to which parties to the Protocol could rely on these mechanisms in lieu of domestic emissions when the US withdrew from the Protocol in 2001. In response, at the continuation of COP-6 in Bonn in 2001 the EU made generous concessions on each point that offered the potential to significantly reduce the costs of compliance for both Japan and Canada. However, while these diplomatic gains may have helped at the margin, they did not eliminate the prospect of significant compliance costs nor eliminate attendant political opposition in either country.

The third international factor influencing domestic ratification debates was the interdependent global economy. Governments of states that had accepted tougher targets for emissions cuts below business as usual were concerned that their industries would not be able to compete with industries in countries that either had less onerous targets or, in the case of developing countries, no binding targets at all. As noted by Crowley and Harrison, both the US and Australia cited this factor in withdrawing from the treaty. Once the US had withdrawn, the governments of other countries—particularly Canada and Japan—became even more concerned that they would not be able to compete with their chief trading partner, the US. However, in the end both of these countries did ratify despite concerns about international competitiveness raised by their business communities.

Overall, international factors were mixed in the direction of their influence on ratification decisions. The simple presence of an international agreement to cut emissions resolved the basic collective action problem typically involved in global environmental issues. A norm of multilateralism seemed to push Canada somewhat towards ratification, while material concessions also eased ratification decisions for Russia, Japan, and Canada. However, concerns about international competitiveness played a central role in the withdrawal of both Australia and the US from the treaty, and, as discussed below, may also have hindered ongoing implementation efforts by other jurisdictions that did ratify.

Ratification vs. Domestic Policy Adoption

Thus far we have discussed the two outcomes of interest, ratification of the Kyoto Protocol and adoption of domestic mitigation policies, simultaneously. However, the two do not necessarily go hand in hand: a country could, for instance, ratify but make little effort to comply.

Table 4
Comparison of Greenhouse Gas Emission Trends

Country	*Emissions Growth (without LULUCF) 1990 to 2004*	*Population Growth, 1990 to 2004*	*Increase in Emissions (without LULUCF) per capita, 1990 to 2004*
Australia	+24.3%	+17.0%	+6.3%
Canada	+26.6%	+17.0%	+8.2%
Japan	+6.5%	+3.1%	+3.4%
Russia	−33.1%	−3.0%	−31%
United States	+15.8%	+17.1%	−1.2%
EU 15	−1.0%	+4.5%	−5.3%
Germany	−17.4%	+3.8%	−20.3%
UK	−14.3%	+4.8%	−18.2%
Rest of EU	+12.8%	+4.7%	+7.8%

Sources: Emissions data from UN FCCC emissions profiles (http://unfccc.int/ghg_emissions_data/items/38954.php). Population data from US Census Bureau (http://www.census.gov/ipc/www/idbrank.html).

One way to compare policy stringency is to compare policy impacts, that is, trends in greenhouse gas emissions. Table 4 compares emissions trends from 1990 to 2004 among the jurisdictions covered in this issue. While there is tremendous variation in performance, from a 33% decline in emissions in Russia to a 27% increase in Canada, the variation in population growth evident in the next column suggests that emissions trends reflect more than just policy efficacy. Canada, the US, and Australia have experienced much greater increases in emissions in large part because they have experienced much greater population growth than other jurisdictions. Indeed, when one compared trends in *per capita* emissions, it is striking that the only country to see a decline other than the three that experienced "windfall" reductions (Germany, the UK, and Russia) is the US, which has been vilified for its decision not to ratify the Kyoto Protocol. In fact, with the exception of Germany and the UK, the rest of the EU has experienced increases in per capita emissions comparable to those of Canada and Australia.

The figures in Table 4 suggest that few, if any, countries have adopted effective climate policies to date. One might argue, however, that it is simply too soon to assess impacts on emissions since most parties to the Kyoto Protocol only became serious about devising policies to reduce their emissions after ratification. Another means of comparing climate policies is to consider the range of policy instruments various jurisdictions have adopted to date, though such a comparison is necessarily preliminary in light of ongoing policy development in all jurisdictions. Table 5 summarizes the degree to which different jurisdictions have employed instruments ranging from politically less challeng-

Table 5
Comparison of Policy Instruments Employed by Different Jurisdictions

	USA	*Australia*	*Russia*	*Canada*	*Japan*	*EU*
Plan to meet Kyoto target	No	Yes	Yes	No	Yes	Yes
Voluntary Programs	Yes	Yes	No	Yes	Yes	Yes
Spending on Domestic Programs	Yes	Yes	No	Yes	Yes	Yes
Spending on International Mechanisms	N/A	N/A	No	No	Yes	Yes
Regulation	No	No	No	No	No	Yes
Carbon Taxes	No	No	No	No	No	Yes

Notes: The table draws on discussion of climate policies in this issue by Crowley, Tiberghien and Schreurs, Schreurs and Tiberghien, Harrison, and Henry and Sundstrom. Only federal-level, or in the case of the EU supra-national, policies are considered. International mechanisms are not applicable to the US and Australia since they are not parties to the treaty.

ing planning and voluntary measures through to more contested, but arguably more effective, measures such as regulations and taxes.

Perhaps not surprisingly, the two jurisdictions that have not ratified the Kyoto Protocol, the United States and Australia, have not made very aggressive efforts to date to control or offset greenhouse gas emissions. Both have relied on expenditures, especially on research and development, but have declined to provoke either the business community or individual consumers by regulating or taxing emissions. While the relatively weak domestic programs of these two jurisdictions are consistent with their status as non-ratifiers, more striking is the degree of variation in domestic policies among the countries that ratified. Russia represents a special case because that country received a generous target in the Kyoto Protocol and thus does not have to undertake mitigation measures in order to comply. Among Canada, Japan, and the EU, one might have expected differences in the aggressiveness of domestic policies reflecting more or less demanding targets in the Kyoto Protocol. However, the variation observed is inconsistent with that. Canada arguably faces the most demanding reduction target, yet of these three jurisdictions, it is the one that has done the *least* to contain its emissions. Like the US and Australia, Canada to date has relied exclusively on voluntary programs and subsidies to business and consumers. In contrast, the EU has established a Europe-wide cap and trade program and several EU countries are also relying on the Kyoto international mechanisms. Japan lies between these two poles, with extensive reliance on international mechanisms and spending, but to date only voluntary programs to promote behavioral change among firms and individuals.

Canada, Japan, and the EU converged with respect to ratification, yet have diverged with respect to domestic abatement policies. We suggest three plausible explanations. First, the settings of key variables can change between the time of ratification and a later date when concrete policy options are debated. This is most pertinent in the case of Canada, where a change in government in 2006 resulted in a significant shift in climate policy.

A second explanation lies in characteristic differences between the enterprises of ratification and adoption of domestic abatement policies. In most jurisdictions, the decision to ratify received a great deal of media and public attention. However, the black and white issue of ratification then gave way to technical questions of cost-effectiveness and complicated emissions projection scenarios. Good intentions confront persistent interest group opposition when the hard work of devising policies to deliver emissions reductions proceeds out of the limelight. In addition, while voters tend to be strongly supportive of the *idea* of compliance with international environmental treaties, they can simultaneously be strongly resistant to the reality of higher taxes or energy prices. The political incentives thus can be very different between ratification and implementation of that international commitment. While this is true in all jurisdictions, as evidenced by considerable foot-dragging even in the EU, the implications tend to be greatest where the costs of compliance are highest, thus provoking stronger interest group and voter backlash.

Third, institutions can have different impacts at different stages in the process from international negotiation to domestic implementation. In the case of Canada, provincial governments that opposed the Kyoto Protocol were not in a position to block ratification, but given their ownership of key natural resources they were in a position to obstruct implementation of that international commitment. Moreover, institutional diffusion of authority is again relevant. As discussed above, in systems where multiple actors exercise vetos, it is often more difficult to achieve agreement on a course of action. However, to the extent that agreement *can* be reached, participants may insist on central oversight to ensure that their hard-won compromise is respected. Thus, after the complex negotiations of EU burden sharing and ongoing negotiation concerning abatement strategies, the European Commission was granted authority to approve or disapprove member states' abatement plans. The Commission is now playing an "enforcer" role with respect to national allocation of carbon credits in the second round of the European emissions trading system.

Conclusions

Our exploration of the impact of domestic factors using the theoretical lens of comparative politics yields several insights. First, even when policy-makers are motivated by moral imperatives to conserve the planet's resources and protect future generations, costs still matter a great deal. The existence of an international treaty is a critical step toward equalizing costs to different countries. How-

ever, the Kyoto Protocol equalized costs crudely at best. The commitment by industrialized countries to demonstrate leadership in the first round, while morally laudable, raised the specter that they would lose competitiveness to developing countries, an argument voiced loud and clear by domestic producers. Moreover, Annex 1 parties to the treaty took on commitments of varying depth. Those that committed to deeper reductions in turn faced greater domestic opposition from the business community, which threatened higher prices, loss of jobs, and impacts on economic growth. While it is tempting to paint the US as an international outlaw for its withdrawal from the Kyoto Protocol, it is also the case that the US accepted a more demanding commitment than other jurisdictions in Kyoto. Comparison of costs relative to business-as-usual can explain both why Russia would ratify the Kyoto Protocol and why the US and Australia did not.

The case of Canada demonstrates that under the right institutional conditions, leaders' normative commitments can carry the day, despite considerable political opposition. However, the fact that Canada did not follow through after ratification by adopting domestic policies to reduce its emissions suggests that policy-makers' ideational commitments can be fragile in the face of persistent political and institutional obstacles. In the cases of Japan and the EU, it was *voters'*, rather than policy-makers', normative commitments that ensured a positive outcome by affecting politicians' strategic calculations. Consistent with Vogel's earlier comparison of US, UK, and Japanese environmental policy,[26] the EU and Japanese cases demonstrate that when voters feel strongly enough, politicians can and do rise to the challenge.

However, the magnitude of that challenge also depends on political institutions in several ways. Proportional electoral systems give greater expression to environmentally-motivated voters' concerns than first-past-the-post systems, thus amplifying electoral incentives for policy-makers. Institutional diffusion of authority can either facilitate or obstruct action on climate change, depending on interaction with other factors. Comparison of the Canadian and US cases, which were otherwise remarkably similar, reveals that the separation of powers in the US presidential system played a critical role in preventing US ratification. Schreurs and Tiberghien report that a competitive dynamic emerged between EU member states and the European parliament. In the US, federalism has allowed subnational governments to partially offset inaction by national governments. However, in both cases it was fortuitous that the largest and most influential players faced relatively low costs to abate emissions. In contrast, federalism has to date been a negative force in Canadian climate policy, where the most influential provinces have been intent on protecting greenhouse-gas intensive industries.

In the time frame during which actions are urgently needed to address global warming, institutional reform is unlikely to be an option. Climate policy

26. Vogel 1993.

thus will remain more of an uphill battle for some jurisdictions than others. However, the case studies analyzed in this issue suggest that, while institutions may facilitate or deter action, there is no substitute for voters caring enough to demand action by their elected representatives. In that respect, it is heartening that the environment has enjoyed an increase in salience among voters in Canada, Australia, and the US in the last year. In the end, it is voters' sustained commitment to addressing the problem of climate change that will matter; arguably it is the only thing that can.

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