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POLICY ELITE PERCEPTIONS: CANADA, THE UNITED STATES AND ACID RAIN

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ABSTRACT

This study investigates the perceptions of policy elites (researchers/scientists and members of the affected governments, industries, and environmental groups) in the United States and Canada with respect to the formation and implementation of environmental policy. The setting is the debate over acid rain policy that was carried out between Canada and the United States from the late 1970s until the signing of the 1991 Air Quality Accord. The findings suggest that despite the passage of the 1990 Clean Air Act Amendments and the signing of the 1991 Air Quality Accord, there exists little faith on both sides of the border that the implementation of these acts will effectively deal with the acid rain problem.

INTRODUCTION

The ongoing and mostly divisive acid rain debate between Canada and the United States during the 1980s and early 1990s offers a unique opportunity to investigate the policy elite perceptions with respect to environmental policymaking. Several researchers have already argued that Canadians are not only more sympathetic to environmental protection, but are also more supportive of environmental regulation [1]. At the same time, studies centered specifically on the acid rain issue have suggested that Canadians tend to perceive higher risks from acid rain pollution than do their American counterparts [2], that Canadians are more likely to believe that both the United States and Canada are responsible for the pollution [3], and that Canadians have a greater appreciation for the degree of scientific and technological collaboration needed to deal with such problems as acid rain [4].

This study investigates the perceptions of policy elites—researchers/scientists and members of the affected governments, industries, and environmental groups—in the United States and Canada with respect to the formation and implementation

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of environmental policy. The setting is the debate over acid rain policy that was carried out between Canada and the United States from the late 1970s until the signing of the 1991 Air Quality Accord, which set the terms under which Canada and the United States agreed to control air pollution, including acid rain, that flows across their borders. However, rather than looking at the general public (as most previous comparative research has done), this study concentrates on the perceptions of Canadian and American policy elites using data gathered from 102 interviews (51 in 1989; 51 in 1992) and 283 survey responses (139 in 1989; 144 in 1992; 61% return rate). Several of the people surveyed were also interviewed ($n = 13$).

The policy elites selected to participate were people directly involved in the acid rain debate in both Canada and the United States, in four specific groups: government officials (U.S. = 75; Canada = 25), representatives of the coal, utility, and smelting industries (U.S. = 62; Canada = 14), representatives of environmental groups (U.S. = 54; Canada = 14), and researchers/scientists (U.S. = 92; Canada = 36). American government officials included environmental committee staff members, members of the International Joint Commission, and administrators from such organizations as the Environmental Protection Agency, the National Acid Precipitation Assessment Program, the Department of Energy, the Office of Technology Assessment, and the Council of Environmental Quality. Canadian government officials included environmental committee staff members, members of the International Joint Commission, and administrators from such agencies as Environment Canada, the Canadian Consulate General, the Ministry of Natural Resources, and the Department of External Affairs.

American industry respondents included representatives from such organizations as the Edison Electric Industry, the Tennessee Valley Authority, the American Public Power Association, the National Coal Association, and the United Mine Workers. Canadian industry respondents included representatives from such organizations as Inco Limited, Falconbridge Limited, the Ontario Mining Association, and Hydro-Quebec.

Environmental respondents included representatives of organizations that lobbied at the national level, organized at the grass roots level, and provided much information to policy makers, the public, and the media. American members from such organizations as the Defenders of Wildlife, Natural Resources Defense Council, Sport Fishing Institute, Sierra Club, and Izaak Walton League participated. Canadian members from such organizations as the Canadian Coalition on Acid Rain, Canadian Nature Foundation, and Canadian Wildlife Federation participated. Finally, both the American and Canadian researchers/scientists who participated came from government agencies, national labs, and universities.

The investigation of differences takes place at two levels: between Canada and the United States and among the four selected groups. In this regard, questions were asked concerning the following areas of concern: 1) the existence of an acid rain problem; 2) the question of whether United States controls will solve the

problem; 3) the science of acid rain; and 4) the impact of Canadian lobbying in the United States.

THE ACID RAIN PROBLEM

The acid rain policy debate has raised a very straight-forward question: does a serious acid rain problem truly exist? The answer to this question proved to be not so straight-forward. In fact, most of the important works dealing with the acid rain issue written during the midst of the policy debate never offered a definitive answer to this question [5-8]. And for good reason—there was no definitive answer. Even the most heralded and comprehensive study completed concerning acid rain [The National Acid Precipitation Assessment Program 1990 Integrated Assessment Report] offers such caveats as

> Unavoidable scientific uncertainty precludes complete resolution of many key cause-effect issues.
>
> A comprehensive probabilistic analysis using fully integrated models was not possible because of the limited ability to quantify uncertainty . . .
>
> Accurate forecasts of future conditions are impossible due to inherent uncertainties about future economic activity, energy demand, fuel prices, and other variables [9].

Because the question of seriousness is central to the acid rain debate and because a clear consensus appears to be lacking, two questions were asked of the study group to discern their perceptions of the state of the acid rain problem. The first simply asked whether acid rain was a serious environmental problem and the second asked whether acid rain was an important transboundary issue. The results are shown in Table 1.

Several aspects of these results deserve mention. First, while there exists both a substantial and a statistically significant difference between the American and Canadian respondents' views of the seriousness of acid rain, there is less difference on the question of importance of acid rain as a transboundary issue.

Second, there is a dramatic drop in percentage concerning the seriousness of the acid rain problem from 1989 to 1992. While a much higher percentage of Canadians continued to view acid rain as a serious problem, except for Canadian environmental groups (where the percentage remained the same), every group indicated that acid rain was not as serious a problem in 1992 as it was in 1989. This change in attitude appears to support the often cited contention that once issues have successfully completed the formulation stage (i.e., a law is passed), they soon fade from the policy agenda [10]. On the other hand, the change may simply reflect a simple change in opinion, based on new scientific studies, or on

Table 1. United States-Canadian Question Comparisons: Percent Answered Yes

	United States			Canada		
	1989	1992	Total	1989	1992	Total
Is acid rain a serious environmental problem today?						
Government***	86	67	78	100	83	92
Industry*	39	10	24	100	78	86
Environmental Groups	100	87	92	100	100	100
Researchers/scientists**	86	67	76	100	92	94
Totals*	78	59	68	100	89	93
N	144	139	283	36	53	89
Is acid rain currently an important transboundary issue?						
Government	—	55	55	—	75	75
Industry**	—	40	40	—	78	78
Environmental Groups	—	83	83	—	75	75
Researchers/scientists	—	87	87	—	88	88
Totals	—	68	68	—	81	81
N	—	139	139	—	53	53

Note: The difference between the United States and Canada totals is statistically significant to the: * = .01 level, ** = .05 level, *** = .10 level.

more considered judgment, rather than a drop in interest or salience or the policy agenda.

Third, American environmental groups line up almost identically with the overall Canadian responses on both questions. This should not be surprising as it has been previously shown that Canadian lobbying entities worked extremely closely with American environmental groups in pursuing their objectives [11]. Fourth, note the response of American industry to both the question of seriousness and the question of transboundary importance. While it is well known that the U.S. coal and utility industries opposed much of the legislation dealing with acid rain pollution control, these numbers highlight the depth of that conviction.

UNITED STATES ACTION

The passage of the American Clean Air Act Amendments in 1990 served notice that the United States was willing to formulate not only a domestic policy with

respect to acid rain, but would finally formalize an agreement with Canada regarding this issue. This occurred with the aforementioned signing of the Air Quality Accord in March of 1991. Because of the basic asymmetric relationship between the United States and Canada with respect to acid rain (the United States being by far the largest producer of pollutants and Canada being much more vulnerable to damage), reduction of pollution and, consequently, transboundary flows of pollution are greatly dependent on the successful implementation of the acid rain section (Title IV) of the United States Clean Air Act. This law was passed by the United States Congress and signed by President Bush in November of 1990.

The results depicted in Table 2 show that large portions of both American and Canadian respondents are somewhat skeptical of United States implementation. In fact, there is no statistically significant difference between Canadians' and Americans' opinions concerning the effectiveness of United States policy in addressing the acid rain problem or in substantially reducing the amount of

Table 2. United States-Canadian Question Comparisons: Percent Answered Yes

	United States			Canada		
	1989	1992	Total	1989	1992	Total
Will U.S. 1990 Clean Air Act significantly reduce cross-border pollution?						
Government	—	52	52	—	42	42
Industry**	—	31	31	—	67	67
Environmental Groups	—	33	33	—	62	62
Researchers/scientists	—	87	87	—	88	88
Totals	—	47	47	—	51	51
Does U.S. Clean Air Act sufficiently deal with the problem of acid rain?						
Government	—	45	45	—	45	45
Industry	—	50	50	—	50	50
Environmental Groups	—	14	14	—	38	38
Researchers/scientists	—	30	30	—	29	29
Totals	—	35	35	—	34	34
N	—	139	139	—	53	53

Note: The difference between the United States and Canada totals is statistically significant to the: ** = .05 level.

cross-border pollution. Forty-seven percent of the American and 51 percent of the Canadian respondents said they thought that passage of the United States Clean Air Act would significantly reduce cross-border pollution.

These results contrast with those from Table 1. The percentage of people who believed acid rain was a serious problem (in both Canada and the United States) declined substantially from 1989 to 1992. As noted, it is plausible that this was at least partially due to the fact that an American law was passed and a bilateral agreement signed which mandated reduction of cross-boundary pollutants. Yet, when asked if they had faith in the ability of these policies to be effectively implemented, no policy elite group from either nation indicated they did. There exists little confidence in the government or bureaucracy to carry out the intent of the agreements. While one might expect the Canadians to be somewhat apprehensive about the Americans' ability to fulfill their promises, you would not necessarily expect those reservations on the American side, especially from some of the very people (government) who helped formulate the policy in the first place.

THE SCIENCE OF ACID RAIN

Previous research has shown the difficulty of disengaging the political and policy aspects of the acid rain issue from the science involved [8]. The questions portrayed in Table 3 specifically deal with this aspect of the debate. As expected, the results show a statistically significant and substantial difference between how the American and Canadian respondents view the science of acid rain.

With respect to the question of complexity, a much larger portion of the American respondents (33%) said they thought that the science of acid rain was too complex, compared to 19 percent of the Canadians. The exceptions were the Canadian and American environmental groups, for which the percentages are nearly identical.

Every group, except for Canadian industry, showed a sharp decline from 1989 to 1992 in their belief that the science was too complex. This change could be an indication of the extensive amount of scientific research conducted involving acid rain during the 1980s. However, it is probably more reflective of two events which occurred in 1990: 1) the release of the 1990 Integrated Assessment Report by the National Acid Precipitation Assessment Program in September of 1990; and 2) the passage of the aforementioned acid rain legislation by the American Congress in November of 1990.

The first event was the culmination of more than ten years of scientific research on acid rain and was characterized as "the best available, scientific, technological and economic information relevant to the [acid rain] issue" [9]. It signalled the end of a massive and expensive effort by the United States government to provide a credible scientific recommendation to policy makers. The second event, as discussed earlier, was generally considered the end of the American policy

Table 3. United States-Canadian Question Comparisons: Percent Answered Yes

	United States			Canada		
	1989	1992	Total	1989	1992	Total
Was the science of acid rain too complex?						
Government**	49	21	37	23	08	16
Industry	42	33	38	20	33	29
Environmental Groups	29	13	20	33	12	21
Researchers/scientists***	47	20	33	33	08	17
Totals*	44	22	33	28	13	19
Was there scientific consensus on the causes of acid rain?						
Government**	73	73	73	100	92	96
Industry*	29	57	43	80	100	93
Environmental Groups	90	77	82	83	100	93
Researchers/scientists	87	91	89	75	92	86
Totals*	71	76	73	86	94	91
Was there scientific consensus on the effects of acid rain?						
Government	51	51	51	69	67	68
Industry*	13	23	18	80	56	64
Environmental Groups	71	47	57	67	62	64
Researchers/scientists	54	57	56	75	67	69
Totals*	47	46	46	72	64	67
N	144	139	283	36	53	89

Note: The difference between the United States and Canada totals is statistically significant to the: * = .01 level, ** = .05 level, *** = .10 level.

formulation process. Once the acid rain law was passed, many of the respondents may have thought it quite inappropriate or impolite to argue that the issue was beyond scientific understanding.

The Canadians clearly had a much stronger impression of scientific consensus. The differences between the United States and Canadian respondents were substantial and statistically significant on the existence of consensus both as to causes (U.S.: 73%; Canada: 91%) and as to effects (U.S.: 46%; Canada: 67%). American industry stands far apart from all other groups, however; 43 percent said they

believed that there was scientific consensus on the causes of acid rain, 18 percent for the effects.

From 1989 to 1992, there also was a slight increase in both the American and Canadian respondents' impressions of scientific consensus involving causes, and a slight decrease in their impressions of scientific consensus involving effects. Despite the substantial scientific progress toward defining the acid rain problem over the past decade, many policy elites still do not perceive that scientific consensus exists at the present time, at least with respect to the effects of acid rain.

Of particular interest for this set of questions are the responses of the researchers and scientists. On the question of complexity, there is a statistically significant and substantial difference between American and Canadian scientists, with a far greater percentage of American scientists (33%) viewing the science as complex compared to the Canadian scientists (17%). However, on the questions of scientific consensus on causes and effects, there are no statistically significant differences.

CANADIAN LOBBYING

Several studies have suggested that throughout the 1980s the Canadians attempted to influence American policy with respect to acid rain [12-14]. The results summarized in Table 4 show that there are sharp differences between American and Canadian beliefs about how Canada's actions were perceived. A significantly higher percentage of Canadians (91%) than Americans (60%) said they thought that Canada had a valid grievance against the United States with respect to cross-border acid rain pollution. This pattern held for every group.

A significantly higher percentage of Canadians (69%) than Americans (23%) also said they thought that Canada had done more than the U.S. to reduce acid rain. This pattern also held for every group. In contrast to the large differences documented above, there was no substantial difference between the American and Canadian respondents in their beliefs about the success of Canadian lobbying in the United States. Both the Americans (74%) and the Canadians (83%) believed that the Canadian effort was successful.

COMMENTS

Integrating both the Canada-United States and group (government, industry, environmental, and researchers/scientists) dimensions of analysis produces some interesting findings. As expected, there exist several areas of Canada-United States agreement and disagreement. Canadian respondents not only perceived the acid rain issue as far more serious than their American counterparts, they also believed that they had done a much better job of addressing the problem. On the other hand, both the American and Canadian respondents felt that acid rain was an

Table 4. United States-Canadian Question Comparisons: Percent Answered Yes

	United States			Canada		
	1989	1992	Total	1989	1992	Total
Does Canada have a valid grievance?						
Government**	66	55	61	92	92	92
Industry*	23	03	13	80	78	79
Environmental Groups	90	90	90	100	100	100
Researchers/scientists**	71	74	73	100	88	92
Totals*	62	57	60	94	89	91
Has Canada done more to reduce acid rain than the U.S.?						
Government*	18	18	18	85	67	76
Industry*	03	00	02	20	56	43
Environmental Groups	60	47	52	100	38	64
Researchers/scientists*	22	26	24	83	71	75
Totals*	22	23	23	78	62	69
Was Canadian public relations effort successful in U.S.?						
Government*	75	58	68	100	92	96
Industry	55	75	64	100	67	79
Environmental Groups	91	77	83	83	88	86
Researchers/scientists	88	76	82	75	75	75
Totals**	77	72	74	89	79	83
N	144	139	283	36	53	89

Note: The difference between the United States and Canada totals is statistically significant to the: * = .01 level, ** = .05 level, *** = .10 level.

important transboundary issue and that the Canadian public relations effort was quite successful. Furthermore, both sides are not sure that the policies now in place will bring about any substantive changes in either the pollution levels or the cross-border transport of pollution.

With respect to the questions dealing with science, the results were quite mixed. While the overall totals indicated that there exist major differences between how Canadians and Americans view the science of acid rain—Canadians have a much stronger perception of scientific agreement—the individual group results

are not as consistent. For instance, a statistically significant and substantial difference exists between how the Canadian and American researchers view the complexity of science (the Americans feeling it is much more complex), but no such difference exists between the same groups with respect to consensus on the causes of acid rain (both sides believe there is consensus). Along these same lines, there exists a statistically significant and substantial difference between how Canadian and American industry view consensus on the causes of acid rain (Canadian industry has a much stronger belief in consensus), but both agree that the science of acid rain is not complex.

Of particular interest are the findings involving American industry and American environmental groups. American industry stood substantially apart from all other groups. On only three of the ten questions did American industry agree with their Canadian counterparts. Yet it was not necessarily the number of disagreements that made American industry distinctive, but the magnitude of their differences. Their percentage of disagreement with all American respondents (26.4% per question) was only surpassed by their percentage of disagreement with their Canadian counterparts (31.7%). Corresponding percentages for the other American groups were much less than those for industry (government: 5.9% and 22.2%; environmental groups: 17.5% and 12.8%; and researchers/scientists: 12% and 12%).

In contrast to this demonstrated recalcitrance of American industry is the overwhelming support of American environmental groups for the Canadian perspective. In no instance did the responses of American environmental groups differ significantly from those of their Canadian counterparts. American environmental group percentages were consistently close to the Canadian total percentages for almost every question. On four of the questions, the American environmental percentages differed from the Canadian total percentages by two or fewer percentage points.

CONCLUSION

The purpose of this research project was to investigate the perceptions of policy elites in both Canada and the United States as it pertains to environmental policymaking, especially as concerns the policy debate over acid rain. In general, the findings support many of the tenets established by previous researchers as they were depicted at the beginning of this article.

The evidence does suggest that the Canadian policy elites involved with acid rain perceive much higher environmental risks and have a much stronger faith in science and the ability of science to delineate causal effects. However, there was no clear indication that the Canadians differed significantly from the Americans in their support of the recently passed environmental regulations. Neither country's policy elites displayed much hope that the present-day

regulations, as defined by the 1990 Clean Air Act and written into the 1991 Canadian-United States Air Quality Accord, would sufficiently reduce acid rain pollution or its cross-boundary transport. These results indicate that Canada appears to have the ability to influence United States policymaking. Respondents on both sides of the border, including American industry, indicated that they believed that the Canadian effort to stimulate United States action on acid rain was successful.

In the end, imbalances surely remain. American industry, a potent force in the United States policy-making arena, steadfastly remains opposed to Canadian interests as they pertain to cross-border reduction of pollutants. However, at least with respect to certain environmental concerns, large portions of Americans (led by environmental groups) remain closely aligned with Canadian beliefs.

REFERENCES

1. B. S. Steel et al., Consensus and Dissension among Contemporary Environmental Activists: Preservationists and Conservationists in the U.S. and Canadian Context, *Government and Planning, 8,* pp. 379-393, 1990.
2. M. A. Steger et al., Information Source Reliance and Knowledge Acquisition: Canada/U.S. Comparisons Regarding Acid Rain, *The Western Political Quarterly, 41,* pp. 474-764, 1988.
3. J. C. Pierce et al., *In Bed with an Elephant: Canadian and American Public and Activist Perceptions of Responsibility for Acid Rain,* paper delivered at the Tenth Biennial Meeting of the Association for Canadian Studies in the United States, San Francisco, California, November 17-20, 1989.
4. W. Winegard et al., *Canada and the United States in the 1990s: An Emerging Partnership,* Brassey's Inc., Washington, D.C., 1991.
5. R. Gould, *Going Sour: Science and Politics of Acid Rain,* Birkhauser, Boston, 1985.
6. E. J. Yanarella and R. H. Ihara (eds.), *The Acid Rain Debate: Scientific, Economic, and Political Dimensions,* Westview Press, Boulder, 1985.
7. A. M. Kahan, *Acid Rain: Reign of Controversy,* Fulcrum Inc., Golden, Colorado, 1986.
8. J. Regens and R. Rycroft, *The Acid Rain Controversy,* University of Pittsburgh Press, Pittsburgh, 1988.
9. National Acid Precipitation Assessment Program, 1990 Integrated Assessment Report, NAPAP, Washington, D.C., 1990.
10. J. W. Kingdon, *Agendas, Alternatives, and Public Policies,* Little, Brown and Company, Boston, 1984.
11. L. R. Alm, The Long Road toward Influence: Canada as an American Interest Group, *Journal of Borderlands Studies, 8,* pp. 1-20, 1993.
12. E. Cataldo, Acid Rain Policy in the United States: An Exploration of Canadian Influence, *The Social Science Journal, 29,* pp. 395-409, 1992.

13. D. Munton and G. Castle, Air, Water, and Political Fire: Building a North American Regime, in *Canadian Foreign Policy and International Economic Regimes,* C. Cutler and M. Zacher (eds.), University of British Columbia Press, Vancouver, 1992.
14. J. E. Carroll, *Environmental Policy,* National Planning Association, Washington, D.C., 1986.

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