

**Postmaterialist Values in the Supreme Court of Canada: Empirical Analysis of
Environmental Cases, 1973-2010**

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Abstract

For nearly 40 years, Ronald Inglehart has provided ample evidence of a postmaterialist value shift in advanced democracies. Public opinion polls document that intergenerational change has moved the mass publics of various societies away from economic security and materialistic concerns toward an increasing emphasis on quality of life and self-expression values. Despite the theory's widespread appeal, it has not been applied to the voting behavior of Supreme Court justices. We test his theory of value change in the Supreme Court of Canada, using more than 35 years of environmental decisions. Bivariate correlations suggest little support for Inglehart's theory, but that paints an unfinished picture. When rival variables are used to control for case complexity, factual circumstances and other explanatory variables, we demonstrate a convincing pro-environmental, postmaterialist shift by the Supreme Court appointees over time. The findings suggest that Canadian justices are in-step with an emerging pro-environmental ethic in Canada.

Over the last 35 years, Ronald Inglehart has advanced a theory of global modernization that indicates as societies develop over time they experience fairly predictable patterns of economic, social, and political change (1990, 1997; Inglehart and Welzel 2005). He has presented compelling evidence that economic advancement fosters two successive trajectories throughout the world: the movement from an agrarian to industrial society and subsequent post-industrial phase of development (Inglehart 1997 Chapter 1; Inglehart and Welzel 2005). As part of his global modernization thesis, he argues that a new postmaterialist worldview is emerging in democracies that is replacing a more materialist mindset that has existed since the industrial revolution. He claims that the prolonged period of prosperity after the two World Wars triggered a gradual shift in societal values in democracies like Canada from materialistic concerns focused on maximizing economic growth and security to postmaterialist values emphasizing self-expression and quality of life concerns (Inglehart 1997 Chapter 1; Inglehart and Welzel 2005, 23-25). Although Inglehart identifies the post-WWII economic boom as an obvious break point for the development of postmaterialist values, he would argue that this value transformation is part of a broader modernization process taking place throughout the world as societies advance from a pre-industrial to a post-industrial stage of development. This postmaterialist value shift is taking place over successive generations and Inglehart has amassed a wealth of public opinion data over the last 40 years to document this intergenerational value change across a host of societies (World Values Survey 2011).

Given Inglehart's postmodern values thesis, one might question whether and to what extent this value shift is occurring among judicial elites of advanced industrial societies like Canada. Since justices necessarily develop worldviews that reflect the values of their society, the postmaterialist value change reflected in Canadian public opinion should also be evident in the voting behavior of judicial elites. Seen in this light, our study assesses whether justices on the Canadian Supreme Court exhibit a gradual shift toward embracing postmaterialist values in their voting behavior in environmental cases heard between 1973 and 2010. The theory implies that younger cohorts of justices who are appointed more recently to the high court will necessarily exhibit stronger postmaterialist voting behavior than their older, more materialistic cohorts. We analyze environmental cases because they represent salient political disputes that burst on the political stage in the early 1970's at the same time as Inglehart began documenting a postmaterialist awakening in public opinion polls. Moreover, we chose these disputes because they highlight a tension between postmaterialist and materialist concerns that frequently juxtapose environmental protection against economic development and resource exploitation.

Postmaterialist Values and the Environment

In a 1996 book exploring the cultural and economic ties between Canada, the U.S. and Mexico, Inglehart et al. (1996, 151) state that "postmaterialism has a very significant impact on environmental attitudes in the American and Canadian publics." As such, environmental issues provide an obvious testing ground for Inglehart's theory of value change among judicial elites in Canada because his research shows that the Canadian public has been near the forefront of postmaterialist value change in the area of environmental protection. For example, in a 2000 survey, 64 percent of Canadians indicated they preferred "protecting the environment" as a priority "even if it causes slower economic growth and some loss of jobs" (World Values Survey 2011). In surveys conducted in 1990 and 2000, more than 50 percent of Canadians were willing

to accept increased taxes if they were used to protect the environment. Additionally, between 1982 and 2000, the percentage of Canadian saying they belonged to a conservation, environmental or animal rights group doubled (World Values Survey 2011). Despite this high level of support, Inglehart (1995, 60-61) found that Canada ranked only in the middle of the pack among other advanced postindustrial countries for supporting environmental protection in surveys he conducted in 1990-1991. Even so, the polling data clearly demonstrate that the Canadian public has increasingly embraced postmaterialist values that endorse environmental protection and this is particularly true for younger Canadian cohorts (Inglehart 1995, 62).

Attitudes are one thing, but actual pro-environmental behavior among the public also cements the belief that a pro-environmental shift is occurring in Canada. A 2006 study by Babooram (2008, 7) found that nearly half (45 percent) of all Canadians had taken four to six steps to engage in household behaviors to reduce energy consumption, water use, and/or recycling. Among those steps, fully 30 percent of households report composting waste on their property, while another 37 percent report installing reduced volume toilets (Babooram 2008, 8-9). He also found that more active environmental households were associated with higher income and education levels in Canada (Babooram 2008, 11), a fact that aligns well with Inglehart's postmaterialist values thesis in highly developed regions. These data suggest that there is no doubting that Canadian citizens rank strongly in their support for the environment.

Although Canadians have embraced environmental values, there are critics who point out the myth of Canadian environmental exceptionalism. Some Canadian environmentalists, such as David Boyd, have noted that across a wide range of ecological rankings for advanced western democracies, Canada places near the bottom. Only the United States placed lower on the release of sulphur oxides per capita and water consumption, while Canada was among the three worst countries regarding greenhouse gas emissions, energy efficiency, the volume of timber harvested, and nuclear waste (Boyd 2003, 6-7). He suggests that Canada's policymaking institutions have not matched the expectations of Canadian citizens on environmental issues. For example, 99 percent of Canadians surveyed in 2000 believed that reducing air pollution is important, but Canada was one of the worst air polluting countries at that time (Boyd 2003, 10; Prescott-Allen 2001). Similarly, while the Canadian public wants clean, secure water supplies, governmental policies are shaped, in part, by the mistaken belief that the country possesses an endless supply of water (Boyd 2003, 15). This contradiction reflects a populace with high expectations toward environmental protection, but environmentalists point to a poor track record on many regulatory fronts.¹

The contradiction between environmental public opinion and public policy points to the importance of testing Inglehart's postmaterialistic value change thesis among political elites. If decisions by elite policy-makers do not match expectations of the public, then government institutions are open to the criticism that they do not reflect the values of the majority of the body politic. The expectation is that in a democratic system, legislatures and courts should not be

¹ Not all is grim in terms of governmental protection of the environment. For example, Federal and provincial agencies have taken steps to protect more and more open space and marine areas. Between 1990 and 2011, land and water protected from development grew by 95 percent, to a total of roughly 10 percent of Canada's total land area (Environment Canada 2011).

radically out of step with the mass public and the attitudinal shifts that come with inter-generational change in values. Indeed, elites are often more accepting of postmaterialist value change because they are more likely to come from high socio-economic backgrounds (see Inglehart and Welzel 2005, 219-20). Rosenberg (1991) suggests that it may be a hollow hope to expect courts and judges to be in lock step with changing public opinion, but representative democratic theory postulates that if courts are too out of step with public opinion, they are bound to face a backlash from other governmental institutions and their legitimacy questioned by the larger public. Our test of postmaterialist value change in the Supreme Court of Canada analyzes whether a shift in values has occurred over time in one of the most salient postmaterialist issue areas. In doing so, our study also evaluates the degree to which the justices are relatively in or out of step with changing values in Canadian society.

Postmaterialist Criticisms and Limitations of the Study

As one would expect, Inglehart's postmodernization theory and his intergenerational value shift thesis are not without its critics. Criticisms have been leveled on numerous fronts. First, some have criticized Inglehart's measurement techniques. Some question whether the cross-national surveys administered since 1970 actually measure the values that Inglehart claims they do, and debate centers around what types of questions most accurately tap materialist and postmaterialist values. Inglehart's early work was based on factor analysis and the creation of indexes based on a series of poll questions. Some scholars question whether his initial one-dimensional explanation for the postmaterialist values shift sufficiently captures the degree of cultural changes that are taking place in advanced industrial societies around the world (see Davis and Davenport 1999; Clarke et al. 1999). Inglehart has attempted to answer these criticisms by refining and expanding his theory and providing further data and complex dimensions to support his thesis (see Inglehart and Welzel 2005, 22-47). He also contends that the postmaterialist shift is only one type of change in a larger societal shift taking place in these societies (Inglehart and Welzel 2005, 22-47). Other scholars, in turn, have questioned Inglehart's contention that a shift toward postmaterialist values is actually occurring across multiple societies. For example, Boltken and Jagodzinski (1985) and van Deth (1983) assert that the intergenerational shift Inglehart found between the older and younger cohorts in various countries might simply be explained by life-cycle events, suggesting that as a cohort grows older, its members become less interested in quality of life concerns and more interested in monetary concerns, security and survival. Inglehart has demonstrated that this life-cycle criticism does hold up because "the data strongly suggest that generational replacement has been a major long-term force pushing postmaterialism upward" (Inglehart and Abramson 1994, 350). Other scholars have pointed out that values can fluctuate over time and this implies that postmaterialist values trends are hampered by period effects, or short-term forces that can change value orientations in a society (see Thomassen and van Deth 1989, 64). In more contemporary work, Inglehart and his colleagues acknowledge that period effects can dampen or accelerate the postmaterialist trend, but they influence all cohorts simultaneously (Inglehart and Abramson 1994, 339-344; Inglehart and Welzel 2005, 38). In addition, he recognizes that the postmaterialist value shift is not simply linear in nature, and that societies can regress back to materialistic concerns if economic survival re-emerges as a salient force (Inglehart and Welzel 2005, 46).

Even though Inglehart has effectively answered many of the criticisms leveled at his postmaterialist value change theory, few tests of his theory have been applied to legal elites. Work by Sniderman et al. (1996, 19-51) suggests that the opinions of legal elites in Canada are sometimes more supportive of postmaterialist positions relating to civil rights and liberties, but average Canadians are often more protective of individual rights. Morton and Knopff (2000) have claimed that in Canada there is a loose constellation of postmaterialist interest groups who have used their power to force a postmaterialist agenda on the Supreme Court of Canada since the enactment of the Charter (Morton and Knopff 2000, 78-80). Moreover, the rise of interest group activity has been well documented by others (Brodie 2002; Epp 1998; Hein 2001; and Manfredi 2004) who have collectively shown a rise of postmaterialist group activity has increasingly pressured judicial decision-makers since the introduction of the Charter of Rights and Freedoms in 1982. Yet, as Epp points out, the interest group activity began even before the adoption of the Charter and has accelerated after its enactment (Epp 1998, 175). In the environmental realm alone, groups initiated 73 cases in the 1990-95 period in Canada (Hein 1999). Our own analysis of environmental group intervening behavior in the Supreme Court shows a rise from just two appearances in the 1980's to 25 and 23 appearances in the 1990's and 2000's. These data collectively reinforce Inglehart's postmaterialist values thesis, with pressure groups taking a more active role in shaping public opinion and seeking transformative value change through the litigation process.

Given the decisive shift in the postmaterialist direction of citizen values in Canada over the last 40 years, a study that looks at the voting record of Canadian justices can provide a valuable link in the chain of postmaterialist theory, especially in cases involving environmental protection issues. However, a study that analyzes judicial voting behavior is not without limitations. As some would note, such research overemphasizes judicial voting activity at the expense of documenting the development of judicial standards and legal rationale articulated in written opinions. While we acknowledge there is value in tracking the legal development within issue areas, we also believe there are valuable insights that can be gleaned from empirical analysis of voting behavior across a wide swath of cases over a 40-year period. Not only can this uncover whether distinct statistical patterns emerge in the voting behavior of individual justices and across court cohorts, it can also highlight whether systematic changes in voting activity withstand scrutiny in the face of rival hypotheses that might alternatively explain such behavior. Although statistical data treats each case as important as the next, this even-handed approach is a necessary limitation when working with cases at the judge-vote level. One way to combat this limitation is to code for the salience of the case by paying attention to the particular issue areas, fact patterns, litigants, and case characteristics. Collectively, including these factors in a statistical model can offset some of the criticism leveled at this type of research, and thus, these factors are taken into consideration in the regression model featured later in this study. Others might question our limited focus on environmental cases, but as noted earlier, this is one of the most prominent postmaterialist value dimensions, and it provides an obvious first place to start a statistical study of this kind. If the findings in environmental cases in the Canadian Supreme Court do not provide support for Inglehart's modernization thesis, evidence is unlikely to emerge in other more tangential issue areas that are less central to his postmaterialist arguments.

Data and Methods for Descriptive Statistics and Judicial Voting Patterns

The data for this study are drawn from published opinions in the *Canadian Supreme Court Reports* from 1973-2010. Cases were included in the analysis if an environmental issue was a central component of the case (N = 74).² The 1973-2010 period was selected because it allows us to analyze the environmental rulings handed down by the Court under the tenures of the last four chief justices, namely Chief Justices Laskin (1973-1984), Dickson (1984-1990), Lamer (1990-1999), and the first ten years of Justice McLachlin's Court (2000-2010). Moreover, this timeframe was chosen because we can test the applicability of Inglehart's shifting values priority thesis among judicial elites over the time period when postmaterialist values were taking root in Canadian society.

The study provides three different stages of analysis to offer a robust understanding of the patterns of judicial behavior in the environmental area and to examine these cases according to Inglehart's postmaterialist theory. The empirical analysis begins by identifying the pro-environmental outcomes by each decade and across the four chief justice tenures of the modern court. In the second stage, we provide a scatterplot of judicial pro-environmental rulings by year of birth across the four courts to examine whether the patterns of voting comport with Inglehart's theory of value change over time. In the third stage, we conduct logistic regression analysis to evaluate the relative explanatory power that various judge-level variables and case-specific variables have on judicial voting patterns in environmental cases. This approach provides a more in depth assessment of Inglehart's shifting values thesis because it controls for multiple factors that might influence judicial voting across the four Courts and across nearly 40 years.

The dependent variable in our study is a dichotomous variable highlighting whether a justice (or court) handed down a pro-environmental ruling in the case or not (1 = pro-environmental/postmaterialist ruling, 0 = anti-environmental/materialist ruling). Ultimately, the dependent variable reflects each justice's willingness to protect the environment from encroachment by individuals, corporations, native tribes, and government. The cases in this portion of the analysis span environmental issues pertaining to pollution, hunting and fishing regulations, First Nation issues, and governmental takings and zoning cases to name a few. Our scoring of postmaterialist votes encompasses the following types of outcomes: votes to uphold pollution regulations; votes to uphold fishing and hunting restrictions; votes to require environmental assessments by government agencies; votes to prevent land development or to protect open spaces; votes to preserve native lands from development; and votes to protect fish

² Data for this study are available in SPSS format from the authors. Nine potential environmental cases are excluded from the analysis because some of them did not feature written reasons for judgment, and others are more appropriately identified as property, contract, insurance or jurisdiction disputes. The omitted cases included the following: *McKinney v. The Queen* [1980] 1 SCP 401; *Oregon Jack Creek Indian Band v. Canadian National Railway* [1989] 2 SCR 1069; *Delgamuukw v. BC* [1997] 3 SCR 1010; *Oppetschesaht Indian Band v. Canada* [1997] 2 SCR 119; *Reference Re: Upper Churchill Water Rights* [1984] 1 SCR 297; *Mastermet Cobalt Mines v. Canada* 2 SCR 743; *Lac D'Aimante Quebec v. 2858-0702 Quebec Inc.* [2001] 2 SCR 743; *BC Hydro v. British Columbia (Environmental Appeals Board)* [2005] 1 SCR 3; *Teck Cominco Metals, Ltd. v. Lloyd's Underwriters* [2009] 1 SCR 321.

and wildlife from further endangerment and possible extinction. Although the scoring of most of these cases makes intuitive sense, some might question the decision to code rulings that uphold regulations against native individuals seeking to hunt and fish on native lands as an anti-environmental/materialist ruling. It goes without saying that if every individual native brought forth hunting and fishing claims there would be far fewer wildlife or fish to protect. More importantly, the native individual's claim of the right to fish and hunt for subsistence purposes remains, at its core, a materialist claim that is based on principles of self-sufficiency and economic survival.³ If Inglehart's thesis that a postmodern value shift is indeed taking place among mass publics across advanced industrial societies, we would expect more pro-environmental rulings to be handed down by Canadian justices over time.

The first set of results, found in Table 1, denote the percentage of pro-environmental rulings by decade and by tenure of the four most recent chief justices of the Canadian Supreme Court. The results in Table 1 provide qualified support for Inglehart's thesis of postmaterialist value change. The data reveal that there is an increase in the number and percentage of rulings handed down in favor of the environment throughout the 1970's, 80's, and 90's and under Chief Justices Dickson and Lamer as compared to Chief Justice Laskin. Indeed, the percentage of pro-environmental rulings rose from 53 percent under the Laskin Court to 71 and 67 percent during the Dickson and Lamer Courts of the 1980's and 1990's. However, the table indicates that the percentage of pro-environmental rulings went down below the rate of Justice Laskin's Court during the first ten years of Chief Justice McLachlin's leadership (50 percent). The question remains whether that drop in pro-environmental rulings is reflective of a court that is less willing to support the environment under the McLachlin tenure, or whether it reflects a court that is facing more complex environmental issues in recent years. One can answer this question by controlling for competing variables in a regression model, which we turn to in the third stage of our analysis. However, given the preliminary data presented, it seems that Inglehart's thesis of postmaterialist value change was alive and well under the first three of the four modern Canadian Courts, but under the current chief justice's tenure, this thesis appears to have fallen into disfavor.

INSERT TABLE 1 HERE

In the second stage of analysis, we test the Inglehart thesis by placing the justices into a two scatterplots that juxtapose the year of their birth with their career support for environmental rulings. Justices who are more postmaterialist in their orientation are found toward the top of the plots (Justices Laskin, Bastarache, and LaForest all supported pro-environmental positions more than two-thirds of the time). The other end of the continuum features Justices Chouinard, Ritchie, Binnie and Deschamps, who cast pro-environmental votes less than 47 percent of the time. The data are broken down into two figures because the justices' fell into two distinct halves, with Figure 1a documenting the justices born between 1907 and 1928 and Figure 1b

³ Matt James (2006 7-12) makes a parallel argument about "Charter Canadians" by suggesting that some "postmaterialist" groups have been mislabeled because they use the constitutional arena to advance economic and political standing within Canada. We are contending that First Nation litigants are often pursuing economic and political advantages in environmental cases, and therefore better characterized as materialists, not postmaterialists.

covering justices born between 1929 and 1955.⁴ Plotting the justices in this manner makes sense given Inglehart's claim that citizens whose worldview was formed after the Great Depression and World War II would be more prone to support postmaterialist values than their earlier counterparts. It should be noted that the two groups do not quite fit with Inglehart's World War II generational break point, although the dividing line is not far from the mark.

INSERT FIGURES 1a & 1b HERE

As it turns out, the justices born in the earlier time period provide confirmation of a small, gradual postmodern transformation among early judicial elites in environmental cases. There is a slight upward slope in the pro-environmental direction indicating that for every 10 years added to the birth year of justices, support for environmental claims increased by 2.4 percent when looking at the earlier cohort (slope of $.245 \times 10 = 2.45$). Yet, Figure 1b, which documents the justices born since 1929, suggests support for environmental rulings declined as appointments were made to the bench up to the modern era. This latter data suggests that, on average, as birth year goes up by 10 years, there was roughly a 1.7 percentage point drop in support for environmental claims (slope of $.173 \times 10 = 1.73$). This slight downward shift, which coincided with more recent justices appointed to the Canadian Court, seems to present contrary evidence to Inglehart's thesis in the environmental area. Yet this analysis paints an unfinished picture, since the bivariate analysis fails to test for rival explanations of pro-environmental voting.

Data and Methods for the Logistic Regression Analysis

In our third stage of the analysis, we present two distinct logistic regression equations that test the relative impact of judge-level and case-level data separately, and then combine all of the variables into one final model. In all three models, each justice's vote in environmental cases becomes the unit of analysis, and depending on the variables in the model, we examine patterns based on as many as 562 voting outcomes.⁵ As noted earlier, the dependent variable is a dichotomous indicator highlighting whether a justice cast a pro-environmental vote (1) or not (0).

The independent variables in the equations include a host of judge-level and factual variables that allow us to address the following overarching question: whether judicial rulings in environmental cases are driven by judge-level variables like ideology or gender of the justice, or whether case facts, such as the number of pro-environmental interveners, cases featuring pollution or claims raised by native people are more prominent predictors of judicial votes. This

⁴ Justices Charron, Abella, Rothstein and Cromwell are omitted from the analysis in Figure 1b because they cast too few votes to record a meaningful career vote score in environmental cases.

⁵ While there were 562 judicial votes for the logistic regression equation pertaining to the case level model found in Table 10, there were only 496 judicial votes in the equations involving the judge level and combined model because we were unable to code ideology scores for several of the early justices in the analysis, including Justices De Grandpre, Judson, Laskin, Martland, Pigeon, Pratt, Richie, Spence, and Rothstein. As a result, there were 66 fewer case votes in the latter two equations.

multivariate test is significant because scholars differ over which types of independent variables are more salient for explaining judicial activity. In line with Segal and Spaeth (1993; 2002) and Songer et al. (2012), we believe that the best predictive models must consider both judge-level and case-level facts to provide a more robust explanation of judicial behavior. More importantly for Inglehart's thesis, if control variables denoting the tenures of the different chief justices over time prove statistically significant in the equation, it will provide further evidence that a postmaterialist value shift is taking place among justices in the Canadian Court.

There are seven judge/court level variables in the first regression model, ten case-level variables in the second equation, and all 17 variables in the final logistic analysis. The first judge-level variable identifies whether or not a female justice participated in the case (1 = yes, 0 = no). The gender variable is included in this study to examine whether prior patterns of gender differences that have been uncovered in the literature also appear in environmental disputes (see Ostberg and Wetstein 2007; Songer et al. 2012). One hypothesis might be that female justices are more prone to support environmental causes than men because of their greater tendency to display an "ethic of care" toward others and the community at large (see Ostberg et al. 2002). As such, they are more willing to hand down rulings supporting the environment because they tend to foster a higher quality of life for society writ large. However, a competing hypothesis might contend that women will exhibit more materialistic voting patterns than their male counterparts because of the desire to support economically vulnerable groups, such as individual natives, who face basic subsistence needs. Since many of the cases in this area feature hunting and fishing claims brought by individual natives, gender differences may appear along these lines. Ultimately, we include this gender variable in the equations to test these two competing theories.

We use a distinct measure of ideology in the logistic models that is based on prior work by Ostberg and Wetstein (2007). They created a measure of perceived ideology from newspaper accounts of the attitudes of the justice at the time of appointment tallied from content analysis of news stories obtained from nine different regional papers across Canada (see Ostberg and Wetstein 2007, Chapter 4; Songer et al. 2012). Their measure is based on assessments of journalist comments that were scored along a continuum ranging from +2 for very liberal comments to -2 for very conservative comments, while neutral or moderate comments receive a 0 score (Ostberg and Wetstein 2007, 49-58). We used their cumulative ideology scores for 26 of the 35 justices included in the study, and the scores range from the most conservative score tabulated for Justice Chouinard (-1.375) to the most liberal score for Justice Wilson (1.618).⁶ It is hypothesized that justices who obtained positive, more liberal, newspaper ideology scores are more likely to hand down pro-environmental postmaterialist rulings than their more conservative colleagues. This is a hypothesis in line with the expectation that justices emerging from a liberal background are more likely to endorse progressive policies aimed at protecting the environment.

The third judge-level variable is a dichotomous indicator that identifies whether or not the justice spent any time teaching in academia or as a law professor (1 = spent time teaching, 0

⁶ Ostberg and Wetstein (2007) did not create newspaper ideology scores for eight of the earlier justices included in our study because they found no ideological commentary at the time of their appointments, thus, they are omitted from this part of the analysis. We also excluded Justice Rothstein because he had too few votes to include in the analysis.

= no time teaching in the academy). Our use of this variable follows earlier studies by Tate and Sittiwong (1989) and Songer et al. (2012) that have shown a link between academia and liberal voting patterns. Since individuals working in the academic environment tend to be more postmaterialist than those in the corporate setting, we hypothesized that the Canadian justices who engaged in full or part time teaching are more likely to hand down a pro-environmental ruling than their non-academic colleagues.

The last three judge level variables are dummy indicators that identify whether or not the judge vote occurred under each of the three most recent chief justices (1 = vote under the Dickson or Lamer or McLachlin Court, 0 = otherwise). As mentioned earlier, if Inglehart's thesis holds up, we would expect the three most recent Courts would hand down successively more pro-environmental rulings than the Laskin Court, which was left out of the equations for comparison purposes. In short, positive coefficients for these indicators would show a positive postmaterialist shift by the Canadian Supreme Court over time. Although birth year of the justices is a plausible rival variable that could be used to measure Inglehart's postmaterialist values change thesis, we believe this indicator is too granular and not as fruitful at capturing the notion of intergenerational change. The variables tapping distinct Court periods provide a better indicator for Inglehart's thesis because they are emblematic of generational change occurring on the Court as long serving justices are replaced by a younger cohort. As evidence of this point, the mean birth years for the various Courts are: Laskin, 1915; Dickson, 1925; Lamer, 1932; and McLachlin, 1941. The post-depression era justices of the Lamer and McLachlin Court should exhibit the strongest pro-environment, postmaterialist orientation of the justices in our data set, when controlling for other factors.

The ten case-level variables, in turn, seek to examine whether and to what extent various case facts impact judicial voting in environmental cases. Scholarship by Segal and Spaeth (1993, 2002), Ostberg and Wetstein (2007) and Songer et al. (2012) provides compelling evidence that case facts can have an important impact on judicial votes and they, in turn, can provide a more robust model to explain judicial voting behavior. Since Supreme Court cases often prompt interveners to join both sides of the legal issue, we included four different types of interveners that might influence judicial behavior. First, we tabulated the number of pro-environmental interveners that were featured in each case. This variable ranged from 0 to 20 across the 74 cases, and it was hypothesized that the more pro-environmental interveners that joined the suit the greater the likelihood that the justices would hand down a ruling in favor of the environment. Our hypothesis is rooted in litigant resource theory, which suggests that justices can draw important cues from interveners who bring forward specialized legal arguments regarding the specific dispute or interveners who are repeat players in the litigation process (Brodie 2002, Galanter 1974; 2003; Manfredi 2004; McCormick 1993, 1994). We next included a variable identifying whether or not the Canadian Environmental Law Association intervened in the case or not (1 = yes, 0 = no). We expected the justices would be more likely to hand down a ruling in favor of the environment in such instances because the presence of CELA provides a cue to the justices of the salience of the environmental cause in the case. We also included two different variables identifying the number of other groups or native groups that intervened in the cases. Since these two types of interveners could support either side of the environmental issues, we simply tallied the number of groups who favored an environmental outcome and gave them a positive count and those that supported an anti-environmental outcome were given a negative

count. In the end, the range of scores for the other intervener variable ranged from -1 to +4, while the native group interveners ranged from -13 to +7. Similar to the previous intervener variables, it was expected that the more pro-environmental groups or native groups that join the suit the greater the chance that the justices would favor the environmental interest in a case.

We included three important issue characteristics as dichotomous variables in the equation, namely whether or not the case dealt with pollution (1 = yes, 0 = no), government takings and land use (1 = yes, 0 = no), or whether the case involved a first nation issue (1 = yes, 0 = no). All other things being equal, we expected justice to be more likely to rule in favor of the environmental interest if pollution was at issue in a case -- at least in relation to other cases not featuring pollution. The rationale for this hypothesis is that pollution can trigger the most protective sentiment in the environmental area given the shock to the conscience that incidence of pollution can foster in the minds of the Canadian public.⁷ Likewise, we hypothesized that justices would be more favorable to the government in cases where land is being taken away or preserved for environmental purposes or to ensure the protection of the natural wilderness. In short, under Inglehart's postmaterialist thesis we expected justices to show positive deference to governmental efforts to protect the environment in takings and land use cases. Lastly, since the bulk of the First Nation cases involved individual natives attempting to circumvent governmental hunting, fishing and resource regulations for their own economic advantage, we expected the justices to side more often than not with the government in such cases because it is trying to protect natural resources and species from exploitation. Again, this hypothesis is derived from Inglehart's notion that the public has shifted its value priorities toward environmental, postmaterialist sentiments and away from strictly materialist and development concerns.

The logistic equation also included a variable identifying whether or not any level of government favored an environmental outcome in the case (1 = yes, -1 = no, 0 = no government participation in the case). Since justices tend to take government's interest into serious consideration when handing down rulings, and governments are the most frequent repeat players in court, it was expected that when government supported the environmental interest, the justices would have a greater likelihood to hand down a pro-environmental ruling. The last two case level variables in the equation pertained to whether or not a case involved a federal or provincial environmental regulation or not (1 = yes, 0 = no), and both were juxtaposed to the existence of a municipal law which was kept out of the equation for comparative reasons. In line with party capability theory, it was expected that the Canadian justices would be more likely to favor the environment in cases where federal and provincial environmental restrictions are at issue than a municipal ordinance because the federal and provincial governments have more resources, litigate more environmental cases, and have better win records in courts than municipalities (see Galanter 1974; 2003; Kritzer 2003; McCormick 1994, 156). Overall, the logistic regression models provide insight into the kinds of variables that play a critical role in influencing judicial decision making in environmental disputes in the modern Canadian Court. Moreover, it provides us with a deeper understanding of the veracity of Inglehart's postmodern transformation thesis

⁷ Although we initially analyzed various types of pollution in our logistic models, such as air, land and water pollution, these indicators were kept out of the final logistic regression because the N's for each sub-area were too small and the indicators were highly correlated with the broader pollution measure.

among judicial elites because we can control for rival variables that may influence judicial voting behavior, as well as consider the evolution of case complexity as more difficult environmental disputes reach the Court over time.

Table 2 presents three distinct logistic regression models that assess the relative impact that judge-level and case fact variables had on Canadian environmental rulings, with the final model culminating in a regression equation that combines all 17 variables (see Table 2). Logistic regression analysis is required for this part of the study because the dependent variable is dichotomous (Aldrich and Nelson 1984). The table provides logistic regression maximum-likelihood estimates for the judge-level, case-level, and combined models, along with goodness of fit statistics at the bottom of the table. A quick perusal of the summary statistics indicates that the judge-level model does not produce statistically significant results, but both the case-level and combined equations do. The case level model with 10 factual variables was able to accurately predict 74 percent of the judicial votes, which provided a 41 percent reduction in error over the modal guessing model.⁸ The combined model, which has a total of 17 variables taken from the two previous equations, accurately predicts 71 percent of the case votes and provides a 36 percent reduction in error. Clearly, the latter two equations explain a significant proportion of variance in the dependent variable and generate robust model-fit statistics.

INSERT TABLE 2 HERE

Only three variables prove statistically significant in the judge-level model, namely gender, and two of the three court variables (the Dickson and Lamer Courts). The positive coefficients for the Dickson and Lamer Court ($b = .648$ and $.768$) are in the hypothesized direction and the change in probabilities reflected in the third column are in line with Inglehart's expected thesis. Indeed, while Justices on the Dickson Court were 15 percent more likely to hand down a pro-environmental ruling than the Laskin Court, those on the Lamer Court were fully 19 percent more likely to do so. These differences are statistically significant and suggest the first three early courts do fit with Inglehart's theory of intergenerational value change. However, in this initial model, the McLachlin Court indicator did not attain statistical significance, although we have yet to control for case facts and interveners, which prove to be a critical consideration in this area of law. Interestingly, the gender variable is significant and indicates that female justices are more materialistic than their male brethren, with the odds of them casting a pro-environmental vote 11 percent below that of the male justices. In light of the dueling hypotheses discussed earlier, this finding suggests that the female justices seem more interested in protecting the material claims of native individuals and groups than in protecting environmental claims, at least when compared to their male counterparts. This finding indicates that the materialist underdog thesis rather than the feminine postmaterialist thesis plays a more a more critical role in the minds of modern Canadian female justices.

⁸ A modal guessing strategy is often used as a yardstick to measure logistic regression models. It assumes that if one tried to "guess" each justice's vote in each case, you could be right if you always guessed "pro-environment" 55.7 percent of the time. Any decent regression model should improve considerably over that guessing strategy, and in this case, the 73.8 percent accuracy rate represents a 40.9 percent improvement over that modal approach.

In the second model, fully 8 of the 10 case fact variables in the equation are statistically significant, and 5 of them at the 99.9 percent confidence level. Looking more closely at the second model in Table 10, three of the four intervener variables are statistically significant, but only two of those three are in the expected direction. As expected, the positive parameter estimates for the Canadian Environmental Law Association ($b = 1.521$) and Native Groups ($b = .129$) suggest that when these two groups took pro-environmental stances when intervening in cases, the justices were more likely to hand down a ruling in favor of the environment than in cases where either they did not intervene, or intervened on the opposite side of the environmental issue. For example, since the native group variable ranged between negative 13 and positive 12, the odds-ratio analysis at the end of the row indicates that the presence of 12 native groups in favor of the environment leads the justices to be 66 percent more likely to cast a pro-environmental vote than in cases where 13 native groups intervened against the environmental claim (change in $p = +.657$). Similarly, if the Canadian Environmental Law Association intervened in a case, the justices were 30 percent more likely to rule in favor of the environment than when they did not. Clearly, the presence of native groups and CELA as advocates for pro-environmental stances has a significant impact on how the Canadian justices vote in these types of cases. However, the presence of too many pro-environmental interveners may be problematic. For instance, our results show that if a case features 20 pro-environment interveners, the justices will be 42 percent less likely to hand down a ruling in favor of the environment than a case featuring no interveners at all. This suggests that, contrary to expectation, intervening activity that becomes too extreme has a counterintuitive effect on the justices in environmental cases.

The parameter estimates for two of the three types of environmental issue included in the equation, namely whether the case involved pollution ($b = .484$) or a government takings or land use case ($b = .725$) are statistically significant and in the expected direction (see Table 2). The odds ratios indicate that if the case involved pollution, there was a 12 percent greater likelihood the justices would vote in favor of the environment than cases not featuring pollution. Similarly, the odds of a pro-environmental vote go up 17 percent if the case involved government takings or land use. Given the concern for environmental pollution and the need for government to take land to preserve open spaces and natural resources, these findings are not surprising and they square well with Inglehart's postmaterialist thesis. However, the parameter estimate for a First Nation Issue ($b = -1.045$) was statistically significant but in the unexpected direction. Surprisingly, the odds ratio for this variable suggests that when native issues are in play in a case, principally aimed at securing hunting and fishing rights for individual natives, the odds of a pro-environmental ruling go down 26 percent. This suggests that when controlling for all other factors, first nation issues tend to produce more anti-environmental rulings than pro-environmental ones. Thus, and perhaps ironically, the materialist argument brought forth by the bulk of native individuals tend to foster a greater margin of victory over government attempts to protect resources for the community as a whole.⁹

⁹ Although native tribes did bring cases to court on behalf of environmental interests during this period, the bulk of the claims in this area were brought by individual natives seeking to fight governmental regulations aimed at protecting natural resources and species from exploitation and possible extinction.

The parameter estimates for federal law ($b = .491$) and provincial law ($b = 1.303$) were in the expected direction, but only the provincial indicator was statistically significant. The results suggest that when a provincial law is at issue, the justices will be 31 percent more likely to favor the environment as opposed to when it features a municipal ordinance, which was kept out of the equation for comparative purposes. However, it is surprising that the federal indicator is not significant when stacked up against a municipal ordinance. This is contrary to expectation, because scholarship suggests that since the federal government is a “bigger gorilla” in the litigation realm in terms of resources, staff, and expertise, they are likely to be more effective at persuading justices to embrace their side of the environmental argument in a given case than attorneys from the lower levels of government. Meanwhile, the results for the last variable in the equation suggest that if government supports an environmental ruling, the justices are 33 percent more likely to cast a pro-environmental vote than in cases where government is lined up against environmental interests ($b = .690$). Taken together, the data results from the second equation suggest that the justices overwhelmingly rely on case-level variables when resolving environmental disputes, and there are strong indications that interest groups advancing postmaterialistic claims have had a powerful impact on case outcomes in the Canadian Court over the past four decades. The equation clearly demonstrates the importance of examining case characteristics when explaining judicial voting behavior on the Canadian Court.

The third equation in Table 2, which combines the variables in the first two equations, yields virtually identical results as found in the other two (with two small exceptions). As mentioned earlier, this model correctly predicts 71 percent of the case votes and produces a 36 percent reduction in error. Although there are small shifts in the coefficients and slight changes in the probabilities, all of the variables that proved statistically significant in the first two equations were significant in the combined equation, save one (the pollution variable). Moreover, in the combined model the McLachlin Court variable, like the other two, obtains statistical significance in relation to the Laskin Court.

While only two of the three court level variables are statistically significant in the first equation that featured only judge level characteristics, all three obtain statistical significance in the correct hierarchical order when both case and judge level variables were thrown together in the combined model (Dickson Court $b = .724$, Lamer Court $b = 1.061$, and the McLachlin Court $b = 1.797$). It is important to remember that these variables are included in the equation to test whether Inglehart’s postmaterialist transformation thesis is taking place among judicial elites, and the last equation demonstrates that when important rival explanatory variables are included in the model, Inglehart’s thesis does pan out nicely in the environmental area of law. The data indicate that the Dickson Court was 17 percent more likely to hand down a pro-environmental ruling than the Laskin Court, the odds increased to 25 percent for the Lamer Court and 40 percent for the McLachlin Court. This is a critical finding and points to the importance of conducting logistic regression analysis that includes both judge and case-level variables in the equation. If we simply relied on the descriptive statistics found in the first stage of our analysis, or just relied on the judge-level regression equation, we would conclude that while there was an upward swing in pro-environmental rulings over time during the Dickson and Lamer Courts, this pattern did not seem to hold during the first ten years of the McLachlin Court (see Figures 1a and 1b). Yet, the findings for the McLachlin Court variable in the regression analysis indicate that this court did hand down significantly more pro-environmental rulings than the Laskin Court.

Moreover, the McLachlin coefficient produces a greater swing in pro-environmental judicial voting than did the Dickson and Lamer Courts when controlling for case characteristics and interveners. In short, by placing the Court variables into the equation we are able to control for the potential impact that often occurs when dealing with judicial cases, namely that types of environmental claims heard become more challenging and difficult to resolve over time (see Baum 1988 for a similar argument about the U.S. Supreme Court). When holding such variables constant, the McLachlin Court justices prove considerably more postmaterialist than at first blush. This type of analysis, focused on particular issues and control variables, is necessary to show that Inglehart's theory is indeed playing out on successive Canadian courts over time.

One important overarching conclusion to be drawn from the logistic analysis is that the ideology of the justices, measured by newspaper ideology scores, does not have an impact on judicial voting in environmental cases. This is a critical finding because past research has indicated that in some prominent areas of economic and criminal law, judicial ideology does indeed influence voting behavior on the Canadian Supreme Court in the post-Charter era (see Ostberg and Wetstein 2007; Songer et. al., 2012). The question remains: what distinguishes environmental rulings in the modern Canadian context from rulings handed down in some economic and criminal areas? One explanation for why ideology might not matter in environmental cases, as opposed to other types of disputes, may be derived from findings by other scholars in the field of tax law (Ostberg and Wetstein 2007). It seems that in particular areas of law, where justices may not possess as much subject matter expertise and ideology is less salient to the issue, they tend to rely on other critical cues to help them resolve a case, such as case facts, a lower regulatory agency ruling, or expert litigants and interveners. As such, justices in these situations are less likely to be influenced by their personal ideological views when handing down such rulings. The judge-level model in Table 2 seems to confirm this conclusion since only a few of the judge level variables proved statistically significant in the equation, while the bulk of the case level variables in the second and third equations were statistically significant. Thus, it seems that in select fields of law, like the tax and environmental areas, modern Canadian justices will rely on case facts and litigant/intervener cues rather than judge level variables to resolve disputes. This finding demonstrates that ideology, which dominates the judicial decision-making process in the United States setting, plays a more nuanced and muted role in Canada, particularly in the context of environmental disputes.

Conclusion

Our test of Inglehart's postmaterialist theory proceeded in three distinct stages. First, we examined whether overall support for pro-environmental rulings increased within the Canadian Supreme Court over time. When examining court support by decade and Chief Justice tenure, we found qualified support, with the Dickson Court and Lamer Court justices handing down 18 and 13 percent more pro-environmental rulings than their Laskin Court predecessors. However, the McLachlin Court handed down pro-environmental rulings only 50 percent of the time, a rate that was three points below the Laskin Court standard. Our second stage of analysis examined the correlation between the pro-environmental voting records of 24 justices and their birth year. The hypothesis was that if intergenerational change was occurring, justices with later birth years should exhibit higher rates of pro-environmental voting, especially for justices coming of age after World War II. We found very little support for Inglehart's hypothesis when conducting this

simple bivariate correlation, finding only a slight up-tick in the cohort of pre-Supreme Court justices who came of age prior to World War II. In contrast to Inglehart's compelling findings in public opinion polls, the 12 justices born between 1929-1955 period exhibited a slightly negative slope in our bivariate analysis. These findings seem to suggest that Inglehart's thesis does not translate to the voting behavior of judicial elites in a key postmaterialist area of law.

The last stage of our analysis points to the importance of moving beyond simply tabulating the pro-environmental record of different Court periods or conducting one-to-one correlations between the age of justices and pro-environmental voting records. Our logistic regression models illustrate the significance of including both judge-level variables and case characteristics, because it allows us to fully understand what drives judicial decision making in advanced industrial societies. The fact that all three Court level indicators panned out in the full regression equation demonstrates that in the environmental area it is important to control for the increasing difficulty of case fact patterns that emerge over time. Unlike the earlier tests of Inglehart's theory, the statistical significance of the Dickson, Lamer and McLachlin Court coefficients demonstrate convincingly that a postmaterialist value change has been taking place among Canadian justices over the past 40 years. The justices seem to be fairly in tune with the democratic drumbeat of the environmental values held by the Canadian public at large. Coupled with the rise in interest group activity, increasing government efforts to protect the environment, and strong public support, the judicial evidence presented here suggests that a postmaterialist environmental ethic seems to have taken root at all levels of Canadian society.

**Table 1 – Pro-Environmental Rulings by Decade and Court
in the Supreme Court of Canada, 1973-2010**

Decade	Number of Cases	Percentage Pro-Environment
1970s (1973-1979)	9	55.5
1980s	20	65.0
1990s	21	66.7
2000s (2000-2010)	24	50.0

Court Period	Number of Cases	Percentage Pro-Environment
Laskin Court (1974-1984)	15	53.3
Dickson Court (1984-1990)	14	71.4
Lamer Court (1990-1999)	21	66.7
McLachlin Court (2000-2010)	20	50.0

Figure 1a - Pro-Environmental Voting by Year of Birth, 1907-1928

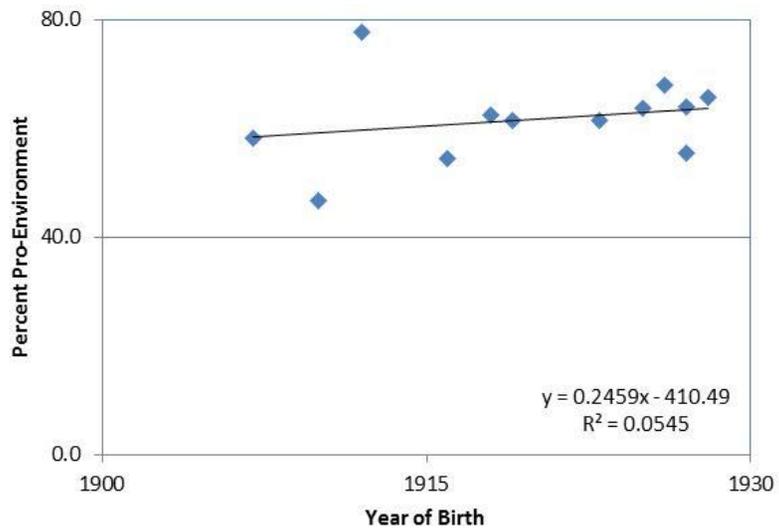


Figure 1b - Pro-Environmental Voting by Year of Birth, 1929-1955

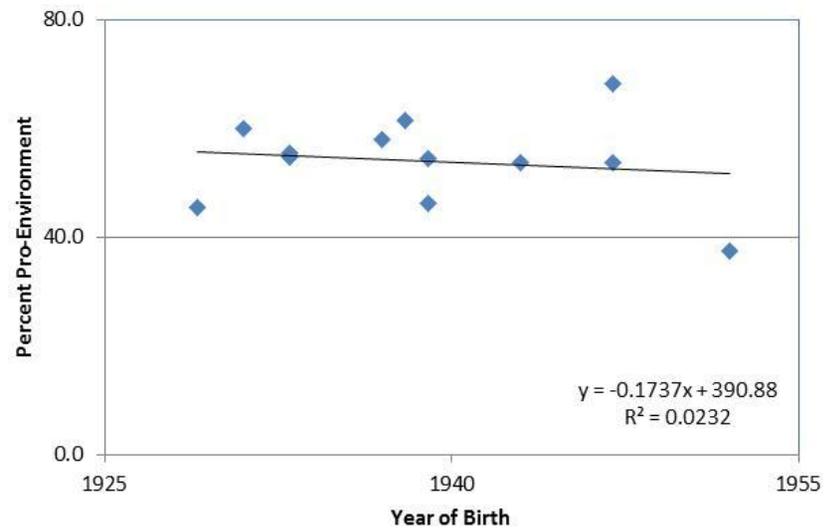


Table 2 - Estimating the Odds of a Pro-Environmental Vote in Canadian Supreme Court Environmental Cases, 1974-2010

Variable (Min., Max.)	Judge Level Model			Case Level Model			Combined Prediction Model		
	Coeff.	Std. Error	Change in Prob.	Coeff.	Std. Error	Change in Prob.	Coeff.	Std. Error	Change in Prob.
Female Justice (0, 1)	-.442 *	.230	-.110				-.530 *	.260	-.131
Ideology Score (-1.375, 1.618)	.101	.126	+.075				.141	.140	+.103
Academic (0, 1)	-.175	.212	-.043				-.170	.234	-.041
Quebec Justice (0,1)	-.022	.196	-.005				-.086	.218	-.021
Dickson Court (0, 1)	.648 *	.363	+.154				.724 *	.409	+.167
Lamer Court (0, 1)	.768 *	.324	+.185				1.061 **	.376	+.246
McLachlin Court (0, 1)	.496	.318	+.121				1.797 ***	.445	+.399
Pollution Case (0, 1)				.484 *	.284	+.115	.516	.337	+.122
First Nation Issues (0, 1)				-1.045 ***	.230	-.255	-.925 ***	.246	-.226
Taking and Land Use (0, 1)				.725 *	.368	+.166	.956 *	.416	+.213
Num Pro-Env Interveners (0, 20)				-.091 ***	.030	-.416	-.141 ***	.039	-.571
CELA Intervenes (0, 1)				1.521 ***	.460	+.304	1.840 ***	.560	+.347
Other Pro-Env Interveners (-1, 4)				.546	.353	+.493	.359	.361	+.369
Native Pro-Env Interv (-13, 12)				.129 ***	.032	+.657	.172 ***	.035	+.781
Govt. Favors Envir (-1, 1)				.690 ***	.161	+.330	1.105 ***	.215	+.490
Federal Law (0, 1)				.491	.425	+.117	.747	.519	+.174
Provincial Law (0, 1)				1.303 **	.439	+.314	1.361 **	.528	+.327
Constant	-.149	.337		-.795	.433		-1.903	.649	
Number of Cases	496			562			496		
Chi Sq. -2 Log Likelihood	11.523			97.552 ***			113.36 ***		
Pseudo R Square	.031			.213			.273		
Percent Correct Predictions	59.3%			73.8%			71.2%		
Reduction in Error	9.2%			40.9%			35.7%		

* significant at 95% confidence level

** significant at 99% confidence level

*** significant at 99.9% confidence level

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