

Attitude Towards Risk-Taking and Individual Choice in the Quebec Referendum on Sovereignty

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How do people make decisions when they have to choose between unknown futures? Do they simply rely on anticipated costs and benefits or do they use some other criteria to assess their options? And what determines the criteria they use to make such decisions? This article explores the way voters take sides when they are faced with a fundamental political choice. Using data from a survey of voting intentions conducted prior to the 1995 referendum on sovereignty in Quebec, we find that attitude towards risk-taking influences political choice indirectly, as it affects the relative weights given to different decision criteria. Individuals who usually accept risk more readily tend to choose entirely on the basis of anticipated costs and benefits, but individuals who are more reluctant to take risks give almost as much weight to the perceived possibility of a 'worst outcome'. Our analysis suggests that attitude towards risk-taking had a modest but significant impact on individual choice, and thus was a contributing factor in the outcome of the Quebec referendum.

In democracies, citizens can be called upon to make decisions that have profound and irreversible consequences, yet the environment in which they make these decisions is inherently uncertain, and sometimes hazardous. In many cases, when a decision has to be made between unknown alternative futures, it may be impossible to draw on past experience.¹ How do people decide in such situations? Do they simply rely on a straightforward assessment of anticipated costs and benefits or do they use some other criteria to assess their options? And what determines the criteria they use to make such decisions?

We investigate different patterns of decision making that citizens may rely upon when they are faced with a fundamental political decision. The notion that different groups of people use different criteria to make decisions is referred to

* Department of Political Science, Université de Montréal. Earlier versions of this article were presented at the Annual Meeting of the American Political Science Association, Chicago, 1995, and at the annual meeting of the Société québécoise de science politique, Montreal, 1996. The authors thank the Fonds FCAR (Quebec) and the Social Sciences and Humanities Research Council of Canada for financial support, and Patrick Fournier for research assistance. For their comments on previous versions, we are grateful to Dennis Chong, Richard Johnston, George Marcus, Hudson Meadwell, Richard Niemi, John Richards and Robert Young. We also thank David Sanders and three anonymous referees for their valuable suggestions. The data used in this study can be obtained by contacting Pierre Martin on e-mail at pierre.martin@umontreal.ca

¹ On this type of decision situation, see James H. Kuklinski, Daniel S. Metlay and W.D. Kay, 'Citizen Knowledge on the Complex Issue of Nuclear Energy', *American Journal of Political Science*, 26 (1982), 615–42.

in the literature as the 'heterogeneity' assumption.² In short, we cannot assume that all voters use the same criteria when they are making decisions. Thus, the challenge is to identify variables that allow us to make distinctions between groups using different patterns of decision. In this spirit, we propose that the way people make up their minds, when confronted with high-stakes decisions about uncertain futures, may be related to their general psychological disposition towards risk-taking.

It is particularly appropriate to explore this possibility in the context of a fundamental and almost irreversible political decision: the vote taken by citizens of Quebec in 1995 to determine whether or not their province should become a sovereign country. The record level of turnout in the referendum held on this question in October 1995 (94 per cent) suggests that the vast majority of Quebecers believed the issue was important to them. Because the debate over sovereignty was based in large part on hypothetical conjectures about the future and because the decision portended potentially huge consequences, it offers an ideal setting for studying citizen decision making.

Our objective is to account for the individual decision to vote for or against sovereignty. We distinguish between sociological explanations of the vote, which focus upon the durable characteristics that shape predispositions towards the contending options, and decision-making explanations, based on the more proximate determinants of the vote. Within the latter dimension, we argue that citizens can emphasize two types of criteria when they gauge the likely outcomes of contending political options. On the one hand, they can decide on the basis of the anticipated costs and benefits of each option. On the other hand, they can judge options on the basis of the potential worst-case scenarios they might associate with one option or another. In other words, according to one type of criteria, which is closest to conventional theories of decision, an individual chooses the option for which his or her anticipation of the balance of costs and benefits is most favourable. For some people, however, other criteria might apply, such as the avoidance of potential worst-case scenarios. For these individuals, the perception that either option could potentially lead to a catastrophe might influence the decision, even after we account for their overall assessment of the most likely costs and benefits.

² Paul M. Sniderman, Richard A. Brody and Philip E. Tetlock, *Reasoning and Choice: Explorations in Political Psychology* (Cambridge: Cambridge University Press, 1991), p. 10. According to Delli Carpini and Keeter, most recent studies have shown that 'realistic theories of voting must allow for the possibility that citizens differ in the criteria they employ in voting' (Michael X. Delli Carpini and Scott Keeter, *What Americans Know About Politics and Why it Matters* (New Haven, Conn.: Yale University Press, 1996), p. 358). On this notion, see also: James A. Stimson, 'Belief Systems: Constraint, Complexity and the 1972 Election', *American Journal of Political Science*, 19 (1975), 393–417; Kathleen Knight, 'Ideology in the 1980 Election: Ideological Sophistication Does Matter', *Journal of Politics*, 47 (1985), 828–53; Douglas Rivers, 'Heterogeneity in Models of Political Choice', *American Journal of Political Science*, 32 (1988), 737–57; Larry M. Bartels, 'Issue Voting Under Uncertainty: An Empirical Test', *American Journal of Political Science*, 30 (1996), 709–28.

We argue that the relative salience of these two kinds of criteria depends on the voter's general psychological disposition toward risk-taking. Our analysis suggests that worst-case scenarios can, in some circumstances, partially override the assessment of costs and benefits in the decision of voters. This, we find, applies to people who are generally reluctant to take risks, while risk-acceptant individuals tend to decide more strictly on the basis of cost-benefit considerations.

INDIVIDUAL DECISION MAKING AND THE QUEBEC SOVEREIGNTY
ISSUE

In a referendum held on 30 October 1995, Quebec voters said 'No', in a proportion of 50.6 per cent to 49.4 per cent, to a proposal that could have turned the predominantly French-speaking Canadian province into a sovereign country. An earlier referendum held on a similar question in 1980 had brought a much more decisive rejection, by 59.6 per cent to 40.4 per cent, but the issue has remained on the political agenda ever since, and is likely to endure in the foreseeable future.

Studies of the determinants of support for sovereignty in Quebec emphasize two broad types of explanation. Sociological explanations focus upon the role of socio-demographic attributes and socialization variables.³ The most obvious cleavage in Quebec is language, as support for sovereignty is extremely limited among non-Francophones. Among Francophones, age, gender and socio-economic status are potential cleavages.⁴ Other attributes, such as self-identification to Canada or Quebec, are the result of a long-term socialization process. Many citizens in Quebec have come to define themselves as Quebecers rather than Canadians or French-Canadians.⁵ Not unlike party identification in voting theory, national identification is a crucial predisposition that tends to orient the decision calculus of Quebecers, but it does not eliminate the more instrumental dimension of the choice.⁶

³ André Blais and Richard Nadeau, 'La clientèle du OUI', in Jean Crête, ed., *Comportement électoral au Québec* (Chicoutimi: Gaëtan Morin éditeur, 1984), pp. 321–34; Maurice Pinard and Richard Hamilton, 'Motivational Dimensions in the Quebec Independence Movement: A Test of a New Model', *Research in Social Movements, Conflicts and Change*, 9 (1986), 225–80; Maurice Pinard, Robert Bernier and Vincent Lemieux, *Un Combat inachevé* (Sainte-Foy: Presses de l'Université du Québec, 1997).

⁴ Richard Nadeau, 'Le virage souverainiste des Québécois, 1980–1990', *Recherches sociographiques*, 33 (1992), 9–28; André Blais and Richard Nadeau, 'To Be or Not To Be a Sovereignist? Quebecers' Perennial Dilemma', *Canadian Public Policy*, 18 (1992), 89–103.

⁵ Maurice Pinard, 'The Quebec Independence Movement: A Dramatic Reemergence', Working Papers in Social Behaviour (unpublished, McGill University, Montreal, 1992).

⁶ On the relationship between national identity and the choice on sovereignty, see Blais and Nadeau, 'To Be or Not To Be a Sovereignist', pp. 95–6. Wattenberg notes that party identification serves 'as the primary source of orientation for an individual's political attitudes, just as religious denomination acts as an orientation on religious matters. Once one becomes psychologically attached to a party, one tends to see political matters as other party members do' (Martin P. Wattenberg, *The*

Once predispositions are taken into account, the decision-making approach emphasizes the more proximate determinants of the vote. Within this dimension, we consider two types of criteria. The first involves the perception of the likely costs and benefits of the contending options. Previous research has shown that Quebecers base their choice in large part on an evaluation of the likely costs and benefits of sovereignty in two major areas: the economy and the situation of the French language in Quebec.⁷ Thus, for each of these two dimensions, we include a measure of the perceived consequences of sovereignty as compared with the continuation of Quebec's status as a Canadian province. Although cost-benefit considerations play a central role in our decision model, we do not claim that the decision to support or oppose sovereignty is purely instrumental or that it meets the strictest requirements of rationality.⁸

Another type of consideration that can affect the decision-making process is the perception of the likelihood of worst-case scenarios. There is ample evidence that many individuals are guided in their decision making by the desire to avoid the potentially regrettable consequences attached to a given option.⁹ This is more likely to come into play when those consequences are extreme and widely discussed. For example, Ronald Inglehart has shown that the widespread fear of a 'Hiroshima-type' scenario strongly influenced American opinion on nuclear

(Footnote continued)

Decline of American Political Parties (Cambridge, Mass.: Harvard University Press, 1990), p. 12). For a statement on how instrumental considerations add to identity-based factors, see Hudson Meadwell, 'The Politics of Nationalism in Quebec', *World Politics*, 45 (1993), 203-41. Other authors have noted that leaders' popularity independently affects the choice on sovereignty: Harold D. Clarke and Allan Kornberg, 'Choosing Canada? The 1995 Quebec Sovereignty Referendum', *PS: Political Science and Politics*, 29 (1996), 676-82. We cannot account for this effect here, but we used two datasets collected during the 1993 federal and 1994 provincial elections to test the hypothesis that leaders' evaluation might alter the effects of cost-benefit variables. We found that including leadership variables does not alter the effects of cost-benefit variables. Tests based on data collected during the 1993 federal election campaign also show that including party identification as a control variable does not alter the effect of cost-benefit variables.

⁷ André Blais, Pierre Martin and Richard Nadeau, 'Attentes économiques et linguistiques et appui à la souveraineté du Québec: Une analyse prospective et comparative', *Canadian Journal of Political Science*, 28 (1995), 637-57; Richard Nadeau and Christopher Fleury, 'Gains linguistiques anticipés et appui à la souveraineté du Québec', *Canadian Journal of Political Science*, 28 (1995), 35-50; Pierre Martin, 'Génération politiques, rationalité économique et appui à la souveraineté au Québec', *Canadian Journal of Political Science*, 27 (1994), 345-59; Blais and Nadeau, 'To Be or Not To Be a Sovereignist'; Pinard, 'The Quebec Independence Movement'.

⁸ We do not assume, for instance, that the voter's perception of the probability that his or her vote might be decisive is a determinant factor in this decision. For empirical studies showing the relatively unimportant role of the 'P term' in explaining voting choices, see notably Carroll B. Foster, 'The Performance of Rational Voter Models in Recent Presidential Elections', *American Political Science Review*, 78 (1984), 678-90; André Blais and Robert A. Young, 'Why Do People Vote? An Experiment in Rationality', *Public Choice* (1999), 39-55.

⁹ For a presentation of the concept of regret avoidance and a review of the relevant literature, see William Samuelson and Richard Zeckhauser, 'Status Quo Bias in Decision Making', *Journal of Risk and Uncertainty*, 1 (1988), 7-59, p. 38.

energy, in spite of available information stressing the economic advantages of the nuclear option and the extremely small probability of a catastrophe.¹⁰

When we consider the two sides of the Quebec sovereignty debate, two potential worst outcomes seem particularly relevant. The first is the possibility of a serious economic crisis during the transition period leading to sovereignty.¹¹ The second is related to the fate of linguistic communities, and it is perceived differently across communities. For the French-speaking majority, the fear is that the French language might one day practically disappear in Quebec if it remains a Canadian province. For the Anglophone minority, however, the worst outcome is the fear that the English-speaking community would practically disappear in a sovereign Quebec. We wish to determine whether concern with these potential catastrophes has an independent effect on voting behaviour, even after controlling for perceptions of the most likely consequences of the two options on the economy and on the fate of the two linguistic communities in Quebec.

We expect perceptions of the possibility of a worst-case scenario to have an independent effect on the vote but we do not expect this effect to be homogeneous across all voters. There are good reasons to believe that the salience of such perceptions should depend on an individual's psychological disposition towards risk-taking.¹² Although a given individual's attitude towards risk-taking may vary somewhat across different types of decisions, the psychological literature gives some support to the notion that attitude towards risk-taking is a fairly stable and reliable personality trait, which can serve as a basis for differentiating individuals.¹³ This attitude, as Dahlbäck points out,

¹⁰ Ronald Inglehart, 'The Fear of Living Dangerously: Public Attitudes Toward Nuclear Power', *Public Opinion*, 6 (1984), 41–4.

¹¹ Meadwell, 'The Politics of Nationalism in Quebec', p. 216.

¹² This prediction is consistent with MacCrimmon, Wehrung and Stanbury's contention that 'risk averters tend to look at worst-case scenarios' (see Kenneth R. MacCrimmon, Donald A. Wehrung, and W. T. Stanbury, *Taking Risks: The Management of Uncertainty* (New York: The Free Press, 1986), pp. 34–5. We define risk itself as the exposure to an eventuality of loss. The classic statement in the psychological literature is found in Paul Slovic, 'Assessment of Risk-Taking Behavior', *Psychological Bulletin*, 61 (1964), 220–33, p. 220.

¹³ In general, the psychological literature has mostly focused on the intrapersonal sources of differences in risk-taking attitudes; see Clyde H. Coombs, Robyn M. Dawes and Amos Tversky, *Mathematical Psychology: An Elementary Introduction* (Englewood Cliffs, N.J.: Prentice-Hall, 1970). Nevertheless, psychologists have observed 'some generality of willingness to take risks over both the material and interpersonal areas' (Eugene Weinstein and Jerald Martin, 'Generality of Willingness to Take Risks', *Psychological Reports*, 24 (1969), 499–501, p. 499; see also Eric S. Knowles, Henry S. G. Cutter, David H. Walsh and Nancy A. Casey 'Risk-Taking as a Personality Trait', *Social Behavior and Personality*, 1 (1973), 123–36). Others note that risk-taking or 'venturesomeness' can be considered a 'primary factor of personality', S. B. G. Eynsenck and H. J. Eynsenck, 'Impulsiveness and Venturesomeness: Their Position in a Dimensional System of Personality Description', *Psychological Reports*, 43 (1978), 1247–55, p. 1252; for the perspective of psychological economics, see Olaf Dahlbäck, 'Personality and Risk-Taking', *Personality and Individual Differences*, 11 (1990), 1235–42, p. 1239.

plays a key role under uncertainty, particularly when decisions are important, and when they are processed in a non-impulsive manner.¹⁴

The preceding discussion leads us to consider the possibility that attitude towards risk-taking might be a significant variable in determining the relative importance of different decision criteria. Our hypothesis is that voters who are generally less hesitant to take risks rely more or less exclusively on an assessment of the relative costs and benefits of contending options, while voters who are generally more reluctant to take risks are also influenced by the perceived possibility of a worst outcome.

The following equation summarizes the decision model whose terms are operationalized in the next section.

$$v = f[\text{PR}, \text{CBE}^{\text{S-F}}, \text{CBL}^{\text{S-F}}, \text{P}(\text{W}_\text{E}), \text{P}(\text{W}_\text{L}), \text{R} \cdot \text{P}(\text{W}_\text{E}), \text{R} \cdot \text{P}(\text{W}_\text{L})], \quad (1)$$

where v is the vote, for or against sovereignty; PR represents predispositions in favour or against sovereignty, including identity considerations, the relevant socio-economic factors, and language; $\text{CBE}^{\text{S-F}}$ is the anticipated cost–benefit differential of sovereignty compared to federalism on the economic dimension; $\text{CBL}^{\text{S-F}}$ is the anticipated cost–benefit differential of sovereignty compared to federalism on the linguistic dimension; $\text{P}(\text{W}_\text{E})$ is the perceived likelihood of a worst-case scenario on the economic dimension if Quebec becomes a sovereign country; $\text{P}(\text{W}_\text{L})$ is the perceived likelihood of a worst-case scenario affecting linguistic communities if Quebec remains in Canada (for Francophones) or if Quebec becomes sovereign (for Anglophones); R is a dichotomous variable for attitude towards risk-taking, which is coded 1 for risk-reluctant voters and 0 for risk-acceptant voters.

THE STUDY

We use data collected from a telephone survey conducted by the polling firm Léger & Léger, between 17 and 25 June 1995, on a random sample of 1,008 adult Quebecers. The response rate was 62 per cent. Our questions were included in an omnibus survey, along with other questions unrelated to politics. All figures and analyses reported are based on respondents who indicated how they would vote and who provided valid answers on all components of our model. The total number of valid cases thus defined was 756.¹⁵

To measure perceptions of the likely economic and linguistic consequences of the two options, we designed questions that were explicitly prospective and comparative. In a preamble, we invited respondents to think about what would happen if Quebec became a sovereign country, as compared to what would

¹⁴ Dahlbäck, 'Personality and Risk-Taking'; Olof Dahlbäck, 'Saving and Risk Taking', *Journal of Economic Psychology*, 12 (1991), 479–500.

¹⁵ Among the 1,008 persons interviewed, 860 provided a valid (For or Against) answer to the question asked about the upcoming sovereignty vote. Our subsample of 756 respondents with measures on all indicators is roughly similar to the sample of the population as a whole.

happen if Quebec remained a province of Canada.¹⁶ In a first question, we asked respondents to evaluate whether the economic situation would be better, worse or the same under sovereignty compared to federalism. We then asked a second question to allow respondents to give a more precise assessment. We used a similar method to probe Francophones about the effects of sovereignty on the status of the French language in Quebec, while Anglophones were probed about its effects on the status of the English language.

These questions allow us to measure, on a seven-point scale, each respondent's degree of optimism or pessimism regarding both the economic and linguistic consequences of sovereignty. Of all respondents in our sample, 49 per cent (44 per cent among Francophones) believe the economic situation would be worse in a sovereign Quebec, while 29 per cent (32 per cent among Francophones) think it would be better. Francophone respondents are more sanguine about the linguistic consequences of sovereignty: 56 per cent predict that the situation of French would be better in a sovereign Quebec, while only 9 per cent believe it would be worse than under federalism. The vast majority (80 per cent) of Anglophones anticipate that sovereignty would have negative consequences on the status of the English language in Quebec.

Perception of worst outcomes is measured by questions asking respondents whether a given worst-case scenario is possible, and to what extent. As already indicated, we probed perceptions about two potential worst outcomes: the possibility of an economic crisis if Quebec became sovereign and the possibility of the disappearance of the French language if Quebec remains in Canada (or, in the case of Anglophones, the possibility that the English-speaking community would disappear in a sovereign Quebec). A sizeable number of Quebeckers are unwilling to dismiss these worst-case scenarios: 60 per cent of respondents (57 per cent of Francophones and 95 per cent of Anglophones) believe that an economic crisis would be either very or somewhat likely after a Yes vote. By contrast, only 35 per cent of Francophones believe that French might eventually disappear should Quebec stay a Canadian province. It is worth noting that, in the English-speaking subsample, both types of worst-case scenarios are associated with a Yes vote; 70 per cent of them see the disappearance of the English-speaking community as somewhat or very likely in a sovereign Quebec.

We hypothesize that voters give different weights to the two types of decision criteria depending upon their general attitude towards risk-taking. To measure this attitude, we relied on a direct question asking respondents to indicate how easy or difficult it is for them to accept taking risks.¹⁷ Our sample is almost

¹⁶ This preamble and all the questions used in this study are shown in the Appendix.

¹⁷ Note that we do not equate risk acceptance with risk seeking. In fact, risk seeking tends to be mostly recreational and individuals generally do not seek risk for its own sake. This is particularly true of voters. For example, Benjamin Page argued that voters tend not to be risk seekers with respect to public policy alternatives: 'The Theory of Political Ambiguity', *American Political Science Review*, 70 (1976), 742–52, p. 745. Shanto Iyengar also notes that 'voters are generally found to be risk averse' (Iyengar, 'Information and Electoral Attitudes: A Case of Judgement Under Uncertainty', in Shanto Iyengar and William J. McGuire, eds, *Explorations in Political Psychology*

evenly split between those who find risk-taking easy and those who find it difficult.¹⁸ This simple measure has strong internal and external validity. Its formulation is very similar to items that obtain the highest loadings in self-declared risk-taking¹⁹ and in the 'venturesomeness' scales.²⁰ Our indicator also bears close resemblance to a self-rating scale measuring the willingness of business executives to undertake risky projects, which proved to be the best attitudinal measure of risk-taking propensities in a study by MacCrimmon, Wehrung and Stanbury.²¹ Furthermore, our measure is significantly related to age, gender, education and income,²² which is entirely consistent with findings in several studies of attitudes towards risk-taking.²³

Our analysis also includes a number of control variables, which reflect predispositions towards sovereignty or federalism. Language is an important variable, because many of the arguments in favour of sovereignty revolve around the distinctness of Quebec as a predominantly French-speaking society.²⁴ We account for self-identification with Quebec or Canada by including two dichotomous variables: Quebecker first/only (52 per cent); Canadian first/only (18 per cent). The reference category is composed of respondents who share both identities equally (30 per cent) or claim neither identity as their own (2 per cent). We also include as controls four socio-demographic variables which have been shown to affect support for sovereignty: age, gender, education and income.²⁵

(Footnote continued)

(Durham, NC: Duke University Press, 1993), p. 322. Iyengar cites a variety of authors who found 'that voters are consistently risk averse in primary and general elections' (p. 329).

¹⁸ Responses were distributed as follows: 10 per cent said they found taking risks 'very easy'; 45 per cent found it 'somewhat easy'; and 35 per cent and 10 per cent found it, respectively, somewhat or very difficult. We use a dichotomised version of this variable in our analyses to simplify the presentation of results, and because the distinction between 'easy' and 'difficult' far outweighs that between 'very' and 'somewhat'. Using a multi-category variable produces virtually identical results and does not affect our conclusions.

¹⁹ Dahlbäck, 'Personality and Risk-Taking', p. 1240; 'Saving and Risk Taking', p. 488.

²⁰ Eynsenck and Eynsenck, 'Impulsiveness and Venturesomeness'.

²¹ MacCrimmon, Wehrung and Stanbury, *Taking Risks*, p. 305.

²² Our measure of attitude towards risk-taking is correlated with measures of age (six categories; $r = 0.20$), gender (woman = 1; $r = 0.18$), education (seven categories; $r = -0.15$) and income (five categories; $r = -0.14$) (all are significant at the 0.001 level). We find, however, no correlation with language ($r = -0.02$). Except for income, these variables remain significant in a multiple regression: Risk = 0.42 (14.93) + 0.15*Age (4.62) + 0.09*Woman (4.55) - 0.11*Scol (-2.24) - 0.05*Income (-1.44) + 0.004*Anglo (0.12). We have tested for possible interactions between these socio-demographic variables and found none. In a further step, we tested for more complex interactions between language, the risk variable, and the various outcome variables. None was found significant.

²³ For example, see MacCrimmon, Wehrung and Stanbury, *Taking Risks*, pp. 49-50; Dahlbäck, 'Saving and Risk Taking', p. 491.

²⁴ Anglophones (coded 1) are people who use English at home, or use neither English nor French at home, and chose to answer the survey in English. Francophones (coded 0) are those who use French at home, or a third language, and chose to answer in French.

²⁵ Blais and Nadeau, 'La clientèle du OUI'; 'To Be or Not To Be a Sovereignist'; Martin, 'Génération politiques'; Pinard, Bernier and Lemieux, *Un Combat inachevé*.

To test our hypotheses, we use a logistic regression model summarised in the following equation:

$$\begin{aligned}
 P(v) = f[\beta_0 + \beta_1 \cdot CBE^{S-F} + \beta_2 \cdot CBL^{S-F} + \beta_3 \cdot P(W_E) + \beta_4 \cdot P(W_L) \\
 + \beta_5 \cdot R \cdot CBE^{S-F} + \beta_6 \cdot R \cdot CBL^{S-F} + \beta_7 \cdot R \cdot P(W_E) + \beta_8 \cdot R \cdot P(W_L) \\
 + \beta_9 \cdot R + \beta_{10} \cdot QF + \beta_{11} \cdot CF + \beta_{12} \cdot Language + \beta_{13} \cdot Age \\
 + \beta_{14} \cdot Gender + \beta_{15} \cdot Education + \beta_{16} \cdot Income], \quad (2)
 \end{aligned}$$

where $P(v)$ is the estimated probability of voting Yes to sovereignty; f is a logarithmic function; $P(v) = 1/(1 + e^{-z})$ and z equals the content of the brackets; β_0 is a constant term; CBE^{S-F} , CBL^{S-F} , $P(W_E)$, $P(W_L)$ and R are defined in Equation 1. QF is a dichotomous variable which equals 1 if the respondent considers herself or himself a ‘Quebecker first’ or a ‘Quebecker only’, and 0 otherwise; CF is a dichotomous variable which equals 1 if the respondent considers herself or himself a ‘Canadian first’ or a ‘Canadian only’, and 0 otherwise; *Language* is a dichotomous variable which equals 1 for Anglophones and 0 for Francophones; *Age* is the respondent’s age (six categories, 0 to 1); *Gender* is coded 1 for women, 0 for men. *Education* is the respondent’s level of education (seven categories, 0 to 1); *Income* is the respondent’s household income (five categories, 0 to 1).

In the following section, we test five general hypotheses. First, we expect cost–benefit assessments to have a major effect on the referendum decision ($H_1: \beta_1, \beta_2 > 0$). More importantly, we hypothesize that general attitude towards risk-taking influences choice through the different emphasis that some individuals might place on certain decision criteria. The key parts of the model thus pertain to the interaction between risk-taking attitude and the cost–benefit and worst-outcome components. For risk-acceptant individuals, we expect worst-case scenarios to have no significant impact ($H_2: \beta_3, \beta_4 = 0$), since these individuals would tend to incorporate worst outcomes into their general assessment of costs and benefits. Compared with the risk-acceptant group, risk-reluctant voters should give less weight to the cost–benefit component ($H_3: \beta_5, \beta_6 < 0$) and more weight to the possibility of a worst outcome ($H_4: \beta_7 < 0; \beta_8 > 0$). Finally, if attitude towards risk-taking only acts indirectly by leading individuals to give more weight to considerations of worst-case scenarios, it should have no independent effect in the presence of the interactive variables ($H_5: \beta_9 = 0$).

THE FINDINGS

Before we test these hypotheses, we need to establish that cost–benefit assessments and perceptions of worst-case scenarios are somewhat independent. If these two sets of variables were very strongly correlated, we might not be able to disentangle their separate effect. As Table 1 shows, the relationships go in the expected direction, but they are far from perfect. On the economic side,

TABLE 1 *Relationships Between Cost–Benefit and Worst–Outcome Assessments*

	Anticipated effects of sovereignty on the economy or language			
	Worse %	About same %	Better %	Total %
<i>Economic crisis</i>				
Not at all possible	3	13	19	10
A little possible	10	45	49	30
Somewhat possible	41	32	27	35
Very possible	45	10	5	25
Percentage of total (N: all respondents)	45% (342)	37% (280)	18% (134)	100% (756)
<i>French disappearance</i>				
Not at all possible	44	48	18	34
A little possible	22	31	30	30
Somewhat possible	22	17	29	23
Very possible	11	4	23	13
Percentage of total (N: Francophones only)	7% (45)	51% (345)	43% (292)	100% (682)
<i>English disappearance</i>				
Not at all possible	8	29		14
A little possible	8	33	100	16
Somewhat possible	44	29		39
Very possible	40	10		31
Percentage of total (N: Anglophones only)	70% (52)	28% (21)	1% (1)	100% (74)

those who are more optimistic about the consequences of sovereignty are predictably less likely to believe in the possibility of a crisis, but the correlation is not overwhelming ($r = -0.52$). Most tellingly, 32 per cent of those who expect the economic situation to improve after sovereignty think an economic crisis is nevertheless very or somewhat likely. An individual can thus believe that sovereignty is most likely to lead to an improved economy, without ruling out the possibility of a serious crisis.

We observe a similar pattern for language among Francophones. Those who think the linguistic situation would improve with sovereignty are more likely to believe that French would eventually disappear if Quebec remains in Canada, but the relationship is weaker ($r = 0.35$). Even among Francophones who expect the linguistic situation to improve under sovereignty, only 52 per cent see the disappearance of French as very or somewhat likely if Quebec remains in

Canada. Among Anglophones, who were asked to assess the fate of their linguistic community in the event of sovereignty, the relationship is similar but inverse ($r = -0.35$).²⁶

In short, we can be reasonably confident that these two sets of indicators measure two distinct types of perceptions, and we can proceed with the general test of the hypotheses delineated above. Table 2 presents the results of the logistic regression model summarized in Equation 2. Among the controls, identity and income are significant. Although Anglophones are nearly all opposed to sovereignty, language does not quite reach statistical significance ($p = 0.051$), mostly because this group also tends to have very negative assessments of the effects of sovereignty. Self-identification as a 'Quebecker First/Only' is strongly related to the referendum decision. Identification as 'Canadian First/Only' is not strongly related, mostly because individuals who think of themselves equally as Quebecker and Canadian are naturally less attracted to the sovereignty option. We also find that, other things being equal, support for sovereignty tends to be slightly lower among high-income voters than among low-income voters.

We now turn to the five general hypotheses outlined in the previous section. Our results offer considerable support for these hypotheses.²⁷ As expected, the effect of cost-benefit assessments in the reference group (the risk acceptant) is very strong (H_1). The stronger effect of economic expectations compared to expectations about language mirrors the results of earlier studies of opinion on sovereignty.²⁸ The results also suggest that risk-acceptant voters react entirely on the basis of their cost-benefit assessment, since the 'worst-outcome' variables ('Economic crisis if Yes' and 'French/English could disappear if No/Yes') have no independent effect in that group (H_2).

The key feature of the model concerns the interactive effect of attitude towards risk-taking on the cost-benefit and worst-outcome variables. Indeed, in the risk-reluctant group, other things being equal, the impact of cost-benefit assessment on the vote is significantly lower. This effect is similar for the economic assessments ($b = 3.11 - 1.32 = 1.79$) and the linguistic assessments ($b = 1.39 - 1.16 = 0.23$). Worst-outcome variables have no significant impact in the risk-acceptant group ($b = 0.61$ and 0.50). Among risk-reluctant voters, however, the effect of the worst-outcome variables is significantly higher (for the economy, $b = -0.61 - 1.70 = -2.31$; for language, $b = 0.50 + 1.62 = 2.12$). Hypotheses H_3 and H_4 are thus supported by the

²⁶ Because the logical relationship between this variable and the vote is inverse among Anglophones, the coding of the linguistic worst-outcome variable was reversed for this group in the multivariate equation.

²⁷ Excluding socio-demographic variables or identification does not affect any of our conclusions. We also tested indirectly (using education as a proxy variable) whether levels of political sophistication or information affected our conclusions. Our results were essentially the same among highly educated respondents as in the less-educated group.

²⁸ Blais, Martin and Nadeau, 'Attentes économiques et linguistiques'.

TABLE 2 *Logistic Regression for Voting Intention on Sovereignty*

Variables [†]	<i>b</i>	(Error)
Intercept	0.46	(0.59)
Cost–Benefit (<i>Economy</i>)	3.11***	(0.42)
Cost–Benefit (<i>Language</i>)	1.39***	(0.39)
Economic Crisis if Yes	– 0.61	(0.68)
French (English) Could Disappear if No (Yes)	0.50	(0.60)
Risk Reluctance * Cost–Benefit (<i>Economy</i>)	– 1.32**	(0.53)
Risk Reluctance * Cost–Benefit (<i>Language</i>)	– 1.16*	(0.54)
Risk Reluctance * Economic Crisis if Yes	– 1.70*	(0.94)
Risk Reluctance * Language Could Disappear	1.62*	(0.82)
Risk Reluctance	– 0.25	(0.61)
Identity: Quebecker First/Only	1.82***	(0.28)
Identity: Canadian First/Only	– 0.37	(0.45)
<i>Language</i> (English = 1; French = 0)	– 1.47	(0.90)
<i>Age</i> (0–1)	0.10	(0.44)
<i>Gender</i> (Man = 0; Woman = 1)	– 0.35	(0.26)
<i>Education</i> (0–1)	0.12	(0.64)
<i>Household Income</i> (0–1)	– 1.10**	(0.46)
Adjusted pseudo- R^2 ‡	0.77	
Percentage Correct Prediction	87.6%	
<i>N</i>	756	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$ (one-tailed test)

† See the Appendix for a detailed description of variables.

‡ The pseudo- R^2 is obtained with the formula: $R^2 = \chi^2 / (\chi^2 + n)$, in which χ^2 represents the chi-square measure for the model as a whole (615) and n the sample size (John H. Aldrich and Forrest D. Nelson, *Linear Probability, Logit, and Probit Models* (Beverly Hills: Sage, 1984), p. 57). Here we use the adjustment (1.72) to the pseudo- R^2 proposed by Timothy Hagle and Glenn E. Mitchell II, ‘Goodness of Fit Measures for Probit and Logit,’ *American Journal of Political Science*, 36 (1992), 762–84, p. 776.

analysis, both on the economic and linguistic dimensions. Among risk-reluctant voters, we note that the effect of cost–benefit variables is still significant on the economic dimension, which suggests that the cost–benefit model is an important part of the decision process for all voters.

Finally, the effect of attitude towards risk-taking itself drops out of significance in the presence of the interactive terms (H_5). This is remarkable in view of the fact that risk-reluctant voters are significantly less supportive of sovereignty than risk-acceptant voters,²⁹ and that we observe no correlation between attitude towards risk-taking and the four basic cost–benefit and

²⁹ There is a small but significant correlation of -0.09 between attitude towards risk-taking and support for sovereignty. Among those who find it very difficult or somewhat difficult to take risks, support for sovereignty stands at 44 per cent. It stands at 52 per cent among those who find it somewhat easy or very easy.

worst-outcome variables included in the model.³⁰ This finding brings strong support to the argument that attitude towards risk-taking affects the decision indirectly, as those who are more reluctant to take risks tend to give more weight to the probability of worst-outcomes in their decision. This holds even after we control for overall anticipation of costs and benefits. As a consequence, even though there is no correlation between attitude towards risk-taking and the different measures of expectations about the effects of sovereignty, risk-reluctant voters tend to be less supportive of this option because they put more weight on the worst-outcome components of the decision, which tend to favour the federalist option.

These effects can be illustrated by a simple simulation exercise. In our sample, support for sovereignty stands at 43 per cent in the risk-reluctant group and 52 per cent in the risk-acceptant group (48 per cent overall). What would happen if respondents maintained the same measures for the other components of the model, but were either all risk reluctant or all risk acceptant? If we apply the risk-reluctant group's equation to each of the 411 risk-acceptant respondents, their predicted level of support for sovereignty drops from 52 per cent to 46 per cent and the overall support drops to 44 per cent. Conversely, if we apply the risk-acceptant group's equation to each of the 345 risk-reluctant respondents, the predicted level of support in this latter group increases from 43 per cent to 49 per cent and the overall level rises to 51 per cent. These variations may appear relatively small but, considering the razor-thin majority by which the 1995 referendum was decided, it is arguable that attitude towards risk-taking was a contributing factor – albeit one of many – in the victory of the federalist side.

CONCLUSION

Citizens are often faced with risk in the most important decisions they have to make as members of the polity, when they are called in to vote in a high-stakes election or referendum. In spite of this, the empirical literature has not adequately addressed how voters react in such situations. In this study we have tried to fill some of this gap by examining political choice in the context of the 1995 referendum on Quebec sovereignty, a real decision with potentially huge consequences. The simple model we have developed could apply to similar decisions such as the European referendums on the Maastricht treaty, the Irish referendum of 1998, or any other referendum or election that engages a polity in a fundamentally new direction.

We find that risk-acceptant voters decide in a way that conforms to the standard model based on a prospective and comparative evaluation of the

³⁰ Of the four measures of cost–benefit and worst-outcome perceptions included in the regression equation, none exhibits a significant correlation with attitude towards risk. The largest correlation is -0.04 . Indeed, the means on each of the four indicators are virtually identical between the risk-acceptant and the risk-reluctant groups.

options at stake. For their part, individuals who are more reluctant to accept taking risks, although they do weigh the expected costs and benefits, also consider the possibility that things could go terribly wrong. Our central message is thus that attitude towards risk-taking is a promising variable which ought to be taken into account by those who seek to understand how voters make important political decisions. Indeed, the relative weights given to key factors such as the anticipation of costs and benefits and the apprehension of worst outcomes hinges markedly on one's attitude towards risk-taking.

This observation is relevant for theories of political decision making. Recent studies have indicated that the more and the less informed voters construct their opinions differently.³¹ Our findings suggest that attitude towards risk-taking plays a role similar to knowledge and information in shaping the decision-making process. Moreover, the effects we measure are comparable to the effects of information uncovered by Bartels in a recent study of presidential elections in the United States.³² Perhaps the next step is to explore how information and attitudes towards risk-taking jointly affect the way people make decisions.

Our findings also remind us of the importance of catastrophic scenarios as persuasive arguments.³³ The fact that worst-case scenarios play a significant role in the decision calculus of voters who dislike taking risks offers politicians an incentive to exploit these scenarios and to wage campaigns of fear mongering. This apparently has happened in the case of nuclear energy.³⁴ The debates over North American free trade also offered many examples of the use of catastrophic scenarios as persuasive arguments.³⁵ The rhetorical technique which consists of emphasizing the potentially disastrous outcomes of an opponent's proposal, even if these outcomes are unlikely,³⁶ appears well targeted to risk-reluctant individuals. All this indicates that worst-case scenarios and catastrophic

³¹ Sniderman, Brody and Tetlock, *Reasoning and Choice*; Bartels, 'Issue Voting Under Uncertainty'; Delli Carpini and Keeter, *What Americans Know About Politics and Why It Matters*.

³² In six elections, Bartels finds that information has an effect, on average, of about 3 percentage points. He qualifies effects ranging from 2.7 to 5.6 points as 'large and significant' (Bartels, 'Issue Voting Under Uncertainty', p. 218).

³³ Gregory Andrade Diamond and Michael D. Cobb also stress the importance of extreme scenarios as persuasive arguments when they observe that 'In terms of political persuasion ... the battle is not to convince citizens that one's policy is right, but simply that it is not unreasonable: that a favored candidate's election (or incumbent's policy proposal) does not portend catastrophe' (see Diamond and Cobb, 'The Candidate as Catastrophe: Latitude Theory and the Problems of Political Persuasion', in Diana C. Mutz, Paul M. Sniderman and Richard A. Brody, eds, *Political Persuasion and Attitude Change* (Ann Arbor: University of Michigan Press, 1996), pp. 225–47, at p. 242).

³⁴ Inglehart, 'The Fear of Living Dangerously'; Stanley Rothman and S. Robert Lichter, 'Elite Ideology and Risk Perception in Nuclear Energy Policy', *American Political Science Review*, 81 (1987), 383–404.

³⁵ Richard Johnston, André Blais, Henry E. Brady and Jean Crête, *Letting the People Decide: Dynamics of a Canadian Election* (Montreal and Kingston: McGill–Queen's University Press, 1992).

³⁶ William H. Riker, *The Art of Political Manipulation* (New Haven, Conn.: Yale University Press, 1986).

discourse should be an integral part of the renewed interest in the study of political persuasion.³⁷

In practical terms, our findings show that political arguments which make catastrophic visions linger in the voters' minds can strike a sensitive chord in a substantial part of the electorate. Our analysis also suggests that this strategy is mostly beneficial to defenders of the status quo, although it can be used with some success by proponents of major political change.

Finally, if we consider the Quebec sovereignty referendum itself, we cannot claim to have found the one variable that made the difference – with such a narrow margin, anything could have made the difference – but the impact of attitude towards risk is none the less substantial. This does not mean, however, that any scare tactics can win votes. During the referendum campaign, for example, Federal Finance Minister Paul Martin claimed that no less than one million jobs (nearly one in every three jobs) were threatened in Quebec if Yes predominated, but this did not seem to affect his opponents' progress in opinion polls. This episode suggests that catastrophic claims may, if they are perceived as vastly exaggerated, undermine the credibility of more realistic assessments of potential losses. In sum, although politicians may gain from campaigns of fear, they still have more to gain by making sure that their accounts of the costs and benefits of contending options remain credible.

APPENDIX: DESCRIPTION OF VARIABLES AND WORDING OF SURVEY QUESTIONS

Dependent Variable

Voting Intention in Referendum on Quebec Sovereignty: Dichotomous variable = 1 if respondent intends to vote for sovereignty; 0 if respondent intends to vote against sovereignty.

Q.11 If a referendum were held today, would you vote FOR or AGAINST Quebec's sovereignty?

Q.12 (if Q.11 = 'don't know') Even if your choice is not already made, if a referendum were held today, would you be more likely to vote FOR or AGAINST Quebec's sovereignty?

Variables Related to Cost–Benefit Assessment

Cost–Benefit (Economy): Scale from -1 to $+1$. -1 = Economy much worse after sovereignty; -0.67 = Somewhat worse; -0.33 = About the same/a little worse; 0 = Exactly the same; 0.33 = About the same/a little better; 0.67 = Somewhat better; 1 = Economy much better after sovereignty. (Q28 and Q29)

Cost–Benefit (French/English): Scale from -1 to $+1$. -1 = Situation of the French/English language much worse after sovereignty; -0.67 = Somewhat worse; -0.33 = About the same/a little worse; 0 = Exactly the same; 0.33 = About the same/a little better; 0.67 = Somewhat better; 1 = Situation of the French/English language much better after

³⁷ The growing interest in political persuasion is reflected in the contributions assembled by Mutz, Sniderman and Brody, eds, *Political Persuasion and Attitude Change*. See also Michael D. Cobb and James H. Kuklinski, 'Changing Minds: Political Arguments and Political Persuasion', *American Journal of Political Science*, 41 (1997), 88–121.

sovereignty. (Q31 and Q32; questions refer to the French language in the French version and to the English language in the English version.)

Survey Questions Related to Cost–Benefit Assessment

Preamble to Cost–Benefit Questions: In the following questions, we ask you to evaluate what would happen if Quebec becomes a sovereign country, as compared to what would happen if Quebec remains in Canada.

(N.B. One half of the sample was asked questions 31–32 first, and then questions 28–29)

Q28 In your opinion, if Quebec became a sovereign country, would the economic situation be (rotate answers 1, 2, 3)? 1. Better, 2. About the same, 3. Worse, 8. Don't know, 9. Refusal.

Q29a (if Q28 = 1, 3) Would it be a little or a lot (better/worse)? 1. A little, 2. A lot, 8. Don't know, 9. Refusal.

Q29b (if Q28 = 2, 8) Would you rather be inclined to think that the economic situation might be ... ? 1. Better, 2. Worse, 3. Or exactly the same, 8. Don't know, 9. Refusal.

Q31 In your opinion, if Quebec became a sovereign country, would the situation of French (the English language) in Quebec be (rotate answers 1, 2, 3)? 1. Better, 2. About the same, 3. Worse, 8. Don't know, 9. Refusal.

Q32a (if Q31 = 1, 3) Would it be a little or a lot (better/worse)? 1. A little, 2. A lot, 8. Don't know, 9. Refusal

Q32b (if Q31 = 2, 8) Would you rather be inclined to think that the situation of the French (English) language might be ... ? 1. Better, 2. Worse, 3. Or exactly the same, 8. Don't know, 9. Refusal.

Variables Related to Worst-Outcome Perceptions

Economic Crisis if Yes: Assessment of possibility that Quebec sovereignty could lead to a serious economic crisis. Scale from 0 to 1: 0 = Not at all possible; 0.33 = A little possible; 0.67 = Somewhat possible; 1 = Very possible.

French Disappear if No: Assessment of possibility that Quebec's continuing status as a province of Canada could lead in the long run to the disappearance of the French language in Quebec. Scale from 0 to 1: 0 = Not at all possible; 0.33 = A little possible; 0.67 = Somewhat possible; 1 = Very possible.

English Community Disappear if Yes: Assessment of possibility that Quebec sovereignty could lead in the long run to the disappearance of the English-speaking community in Quebec. Note that because the theoretical relationship between this variable and the dependent variable is the opposite from the French version, its coding is reversed: Scale from 1 to 0: 1 = Not at all possible; 0.67 = A little possible; 0.33 = Somewhat possible; 0 = Very possible.

Survey Questions Related to Worst-Outcome Perceptions

Q38a If Quebec remains in Canada, do you think that the French language could one day disappear in Quebec? Do you think that it is very likely, somewhat likely, not very likely or not at all likely? (question asked in the French questionnaire) 1. Very likely (1), 2. Somewhat likely (0.67), 3. Not very likely (0.33), 4. Not at all likely (0), 8. Don't know, 9. Refusal.

Q38b If Quebec becomes a sovereign country, do you think that the English-speaking community could one day disappear in Quebec? Do you think that it is very likely, somewhat likely, not very likely or not at all likely? (question asked in the English questionnaire; coding reversed) 1. Very likely (0), 2. Somewhat likely (0.33), 3. Not very likely (0.67), 4. Not at all likely (1), 8. Don't know, 9. Refusal.

Q39 In your opinion, could Quebec sovereignty lead to a serious economic crisis? Do you think that it is very likely, somewhat likely, not very likely or not at all likely? 1. Very likely (1), 2. Somewhat likely (0.67), 3. Not very likely (0.33), 4. Not at all likely (0), 8. Don't know, 9. Refusal.

Survey Question Used to Measure Attitude Towards Risk-Taking

Q19 In general, how easy or difficult is it for you to accept taking risks. Is it very easy, somewhat easy, somewhat difficult or very difficult? 1. Very easy (0), 2. Somewhat easy (0), 3. Somewhat difficult (1), 4. Very difficult (1), 8. Don't know, 9. Refusal.