

Online Appendix

Title: Revisiting the gap between the willingness to pay and willingness to accept for public goods

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Table A1. Specification 1: unconditional

Dependent variable: latent WTA (WTP)		
	WTA	WTP
Intercept	1191.31 ^{***} (74.90)	355.17 ^{***} (18.47)
σ	757.62 ^{***} (39.70)	251.55 ^{***} (13.04)
Observations	514	534
Log-L	-405.428	-580.815

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The parameter σ is the standard deviation of the WTA (or WTP) distribution.

Table A2. Specification 2: conditional

Dependent variable: latent WTA (WTP)		
	WTA	WTP
Intercept	1160.13 ^{***} (157.35)	238.28 ^{***} (28.26)
Somewhat unlikely	291.78 (201.65)	97.81 ^{***} (37.80)
Somewhat/very likely	-404.56 ^{***} (184.71)	237.10 ^{***} (62.16)
Standard deviations		
σ (Very unlikely)	766.59 ^{***} (83.50)	211.51 ^{***} (25.11)
σ (Somewhat unlikely)	860.17 ^{***} (61.03)	244.79 ^{***} (17.22)
σ (Somewhat/very likely)	523.55 ^{***} (63.91)	310.69 ^{***} (32.60)
Observations	514	534
Log-L	-392.814	-565.519

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The intercept is an estimate of WTA (or WTP) conditional on “very unlikely”.

Table A3. Specification 3: control variables

Dependent variable: latent WTA (WTP)		
	WTA	WTP
Intercept	1194.18*** (140.74)	248.80*** (27.23)
Somewhat unlikely	309.80 (193.08)	80.09** (35.46)
Somewhat/very likely	-414.75** (164.29)	246.38*** (61.68)
Scope	-148.11 (91.32)	31.80 (25.24)
Charity	252.97*** (89.55)	74.61** (27.96)
Env org	-33.03 (196.75)	41.65 (61.05)
Male	-27.78 (82.57)	-84.14*** (26.32)
College	169.42* (92.89)	16.26 (25.42)
Homeowner	-118.88 (107.83)	-56.58* (31.54)
HH size	-65.34* (38.21)	16.34 (11.33)
Retired	537.82*** (185.43)	101.12* (61.80)
Student	-187.90* (108.38)	-94.17*** (29.04)
Quebec	-355.81*** (113.26)	15.33 (38.83)
Montreal	-70.16 (98.86)	18.02 (27.53)
Standard deviations		
σ (Very unlikely)	679.26*** (83.76)	199.57*** (22.74)
σ (Somewhat unlikely)	867.80*** (73.28)	227.63*** (16.25)
σ (Somewhat/very likely)	472.60*** (66.37)	318.47*** (34.29)
Observations	514	534
Log-L	-375.127	-544.172

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Control variables are demeaned. The intercept is an estimate of WTA (or WTP) conditional on “very unlikely”.

Table A4. Specification 4: regression adjustment
(Coefficients on interactions with controls omitted for convenience)

Dependent variable: latent WTA (WTP)		
	WTA	WTP
Intercept	1498.59 ^{***} (176.45)	237.86 ^{***} (27.39)
Somewhat unlikely	-37.21 (217.43)	90.61 ^{**} (36.03)
Somewhat/very unlikely	-733.27 ^{***} (196.76)	245.51 ^{***} (63.50)
Standard deviations		
σ (Very unlikely)	679.77 ^{***} (85.60)	193.56 ^{***} (21.71)
σ (Somewhat unlikely)	812.05 ^{***} (60.98)	227.03 ^{***} (16.00)
σ (Somewhat/very likely)	440.79 ^{***} (56.63)	307.19 ^{***} (32.92)
Observations	514	534
Log-L	-363.177	-537.784

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Control variables are demeaned. The intercept is an estimate of WTA (or WTP) conditional on “very unlikely”.

Table A5. Specification 5: instrumental variables
(Coefficients on interactions with controls omitted for convenience)

	WTA	WTP
Valuation equation (dep. var. is latent WTP or WTA)		
Intercept	1629.44*** (187.39)	251.44*** (76.97)
Somewhat unlikely	-308.43* (186.55)	79.64 (75.87)
Somewhat/very likely	-810.87*** (314.45)	176.17 (146.51)
Consequentiality equation (dep. var. is latent consequentiality)		
Date IV	-0.071*** (0.007)	-0.045*** (0.007)
Scope	0.056 (0.102)	-0.103 (0.099)
Charity	0.100 (0.116)	0.049 (0.110)
Env Org	0.152 (0.249)	0.112 (0.242)
Male	-0.006 (0.103)	0.047 (0.098)
College	-0.155 (0.109)	0.081 (0.103)
Homeowner	-0.059 (0.124)	-0.241** (0.121)
HH size	-0.028 (0.046)	0.016 (0.046)
Retired	0.050 (0.168)	0.060 (0.169)
Student	0.183 (0.144)	0.112 (0.152)
Quebec	-0.281* (0.158)	0.023 (0.169)
Montreal	-0.034 (0.116)	0.097 (0.108)
ρ	0.116 (0.173)	-0.002 (0.246)
Observations	514	534
Log-L	-830.562	-1073.346

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Control variables are demeaned. The intercept is an estimate of WTA (or WTP) conditional on “very unlikely”. Estimated threshold parameters from the ordered probit model of consequentiality: -1.352 (0.93) and 0.367 (0.078) for WTA; -1.117 (0.090) and 0.313 (0.081) for WTP.

Table A6. Tests for differences in covariate means across “somewhat/very likely” and combined “very unlikely” and “somewhat unlikely” subsamples: WTA

	Somewhat/very likely	Very unlikely or somewhat unlikely	<i>p</i> -value
Scope	0.52 [0.50]	0.52 [0.50]	0.898
Charity	0.66 [0.48]	0.68 [0.47]	0.642
Environmental Organization	0.06 [0.23]	0.04 [0.20]	0.558
Male	0.59 [0.49]	0.54 [0.50]	0.413
College	0.62 [0.49]	0.66 [0.47]	0.491
Homeowner	0.73 [0.44]	0.73 [0.44]	0.949
HH size	2.68 [1.21]	2.84 [1.25]	0.313
Retired	0.10 [0.30]	0.10 [0.30]	0.947
Student	0.24 [0.43]	0.19 [0.39]	0.213
Quebec	0.12 [0.33]	0.16 [0.37]	0.314
Montreal	0.50 [0.50]	0.52 [0.50]	0.726

Notes: Standard deviations in []. Reported *p*-values correspond with Pearson’s chi-square tests.

Table A7. Tests for differences in covariate means across “somewhat/very likely” and combined “very unlikely” and “somewhat unlikely” subsamples: WTP

	Somewhat/very likely	Very unlikely or somewhat unlikely	<i>p</i> -value
Scope	0.49 [0.50]	0.48 [0.50]	0.873
Charity	0.74 [0.44]	0.71 [0.46]	0.511
Environmental Organization	0.05 [0.22]	0.04 [0.20]	0.687
Male	0.60 [0.49]	0.52 [0.50]	0.131
College	0.66 [0.48]	0.61 [0.49]	0.350
Homeowner	0.66 [0.48]	0.72 [0.45]	0.161
HH size	2.82 [1.22]	2.80 [1.21]	0.907
Retired	0.06 [0.24]	0.08 [0.28]	0.349
Student	0.20 [0.40]	0.16 [0.36]	0.268
Quebec	0.17 [0.38]	0.13 [0.33]	0.218
Montreal	0.50 [0.50]	0.50 [0.50]	0.998

Notes: Standard deviations in []. Reported *p*-values correspond with Pearson’s chi-square tests.

Table A8. Tests for differences in covariate means across “somewhat/very likely” WTA and WTP subsamples

	WTA	WTP	<i>p</i> -value
Scope	0.52 [0.50]	0.49 [0.50]	0.597
Charity	0.66 [0.48]	0.74 [0.44]	0.191
Environmental Organization	0.06 [0.23]	0.05 [0.22]	0.891
Male	0.59 [0.49]	0.60 [0.49]	0.857
College	0.62 [0.49]	0.66 [0.48]	0.591
Homeowner	0.73 [0.44]	0.66 [0.48]	0.194
HH size	2.68 [1.21]	2.82 [1.22]	0.894
Retired	0.10 [0.30]	0.06 [0.24]	0.215
Student	0.24 [0.43]	0.20 [0.40]	0.432
Quebec	0.12 [0.33]	0.17 [0.38]	0.284
Montreal	0.50 [0.50]	0.50 [0.50]	0.898

Notes: Standard deviations in []. Reported *p*-values correspond with Pearson’s chi-square tests.

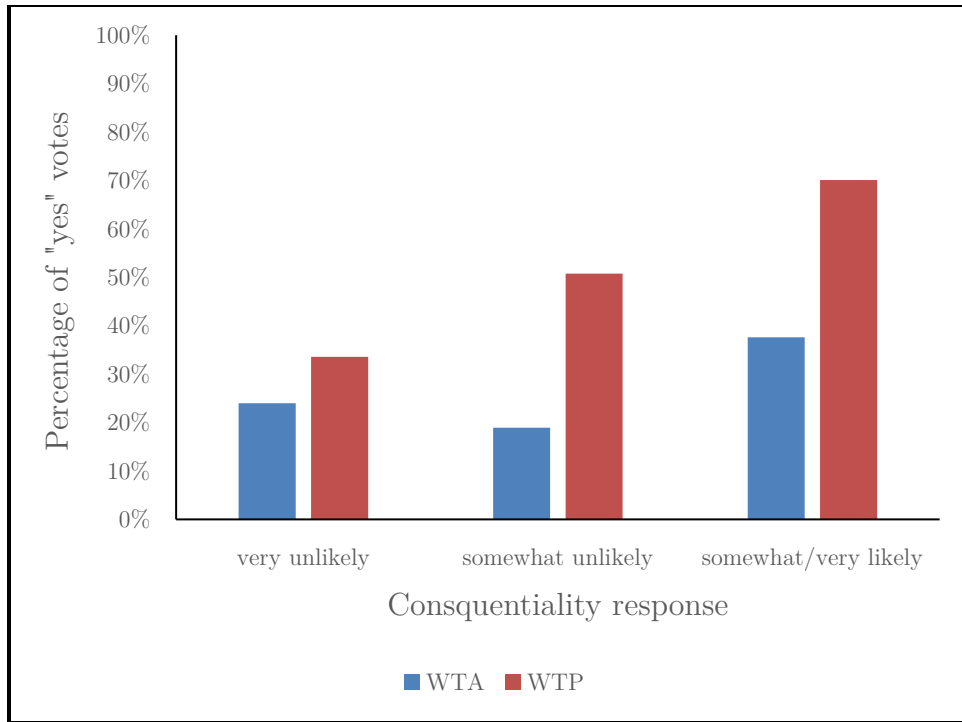


Figure A1. Percentage of “yes” votes by consequentiality level

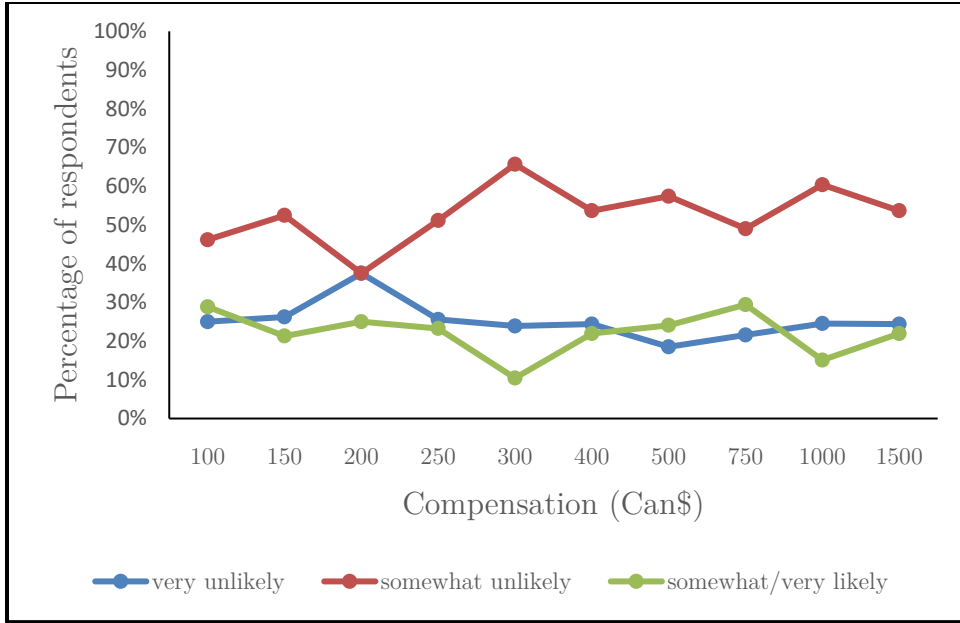


Figure A2. Consequentiality responses by compensation amount (WTA)

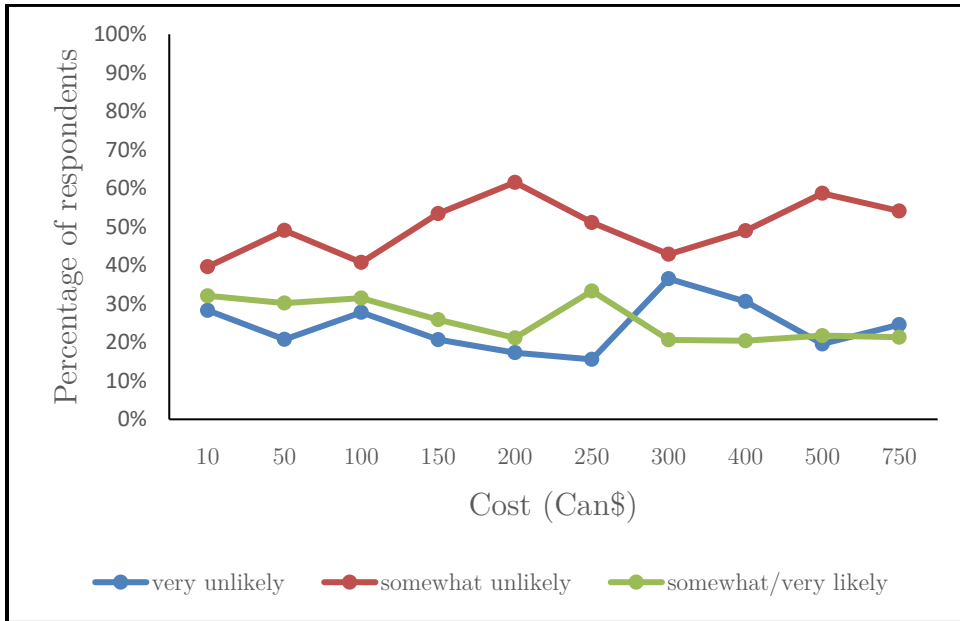


Figure A3. Consequentiality responses by cost amount (WTP)

Survey instrument / codebook

(translated from French and reformatted from online version)

Q_BI Welcome and thank you for taking a few minutes to participate in this study on water protection in the Nord-du-Québec territory.

Q_1 Before starting, we ask you to take a few minutes to watch a background video that will allow you to fully understand the issues as well as the themes addressed in this study. The duration of the video is approximately five minutes. Listening to it is required for the continuation of the questionnaire.

Q_VIDEO1 Please view the following content * Please listen to the full video * * You can activate full screen mode *

* A link to the video (in French) can be accessed here:

<https://volweb.utk.edu/~cvossler/files/plan-nord-2.mp4>

* The following questions are specific to the WTA scenarios *

Q_FONDWTA1 / **The Nord-du-Québec Water Conservation Fund**

Q_FONDWTA2

The protection will be funded by the *Nord-du-Québec Water Conservation Fund*. There are discussions to increase the levels of protection of wetlands in the Nord-du-Québec to **35% [50%]**. On the other hand, according to experts, not increasing the protection targets from **14% to 35% [50%]** would increase government revenues by promoting the development of industrial projects.

The additional revenues would come mainly from royalties and corporate taxes. In this case, the Government of Quebec intends to distribute a portion of the additional economic revenues to the citizens of Quebec. That is, every individual who files a tax return in Quebec would receive a tax refund of a fixed amount, identical for all.

Note that in all cases, companies will have to meet current environmental standards. However, a smaller protected area (**14% instead of 35% [50%]**) reduces the area of wetlands protected. Recall that wetlands play an important role in the regulation and filtration of water and ensure the renewal of lakes and rivers as well as the purification of wastewater.

Q_2A

Taking into account the economic and environmental impacts, the government, with the help of experts, has established two conservation possibilities: 14% and 35% [50%]. We therefore ask you to vote on the following proposal.

Would you vote for the area of protected wetlands in northern Quebec to be established at 14% of the territory instead of 35% [50%] which would allow you to receive <AFF1 > \$ annually via your tax return?

1 = YES, I would vote for the protection of wetlands to be established at 14% of the territory instead of 35% [50%] and therefore receive a payment via my tax return of <AFF1> \$ annually

2 = NO, I would vote for the protection of wetlands to be increased from 14% to 35% [50%] knowing that I will not then receive <AFF1> \$ annually via my tax return

Q_2X

When the Quebec government decides whether or not to implement the land conservation proposal you just voted on, how likely do you think it is that the government will take into account your vote and that of the other respondents to this study in its decision?

1 = Very likely

2 = Somewhat likely

3 = Somewhat unlikely

4 = Very unlikely

*** Question to respondents who gave a rating of 3 or 4 to Q_2X ***

Q_2WTA

You indicated that you believed that your response to the conservation proposal would have little or no influence on whether or not it was implemented. To help us better understand your answer, choose from the following statements the one or more that best reflects what you believe.

1 = If a weaker conservation policy is in place, it will not allow me to receive \$ <AFF1> on my tax return

2 = If a weaker conservation policy is put in place, it will not aim to achieve a level of 14% conservation

3 = I do not believe that the government of Quebec will use the results of this survey to help it make decisions about the level of territory protected in Nord-du-Quebec

4 = I do not believe that the government of Quebec is considering
implementing a land conservation policy in Nord-du-Quebec
9 = I don't know / I prefer not to answer

*** Question to respondents if they voted YES ***

Q_3A You answered that you were willing to **receive a payment** via your tax
return. How certain are you that you want to accept this amount which will
not be available to increase the percentage of wetlands under protection?

1 = Very certain
2 = Somewhat certain
3 = Not sure
9 = I don't know / I prefer not to answer

*** Question to respondents if they voted NO ***

Q_3B You answered that you were willing to **forego a payment** via your tax
return. How certain are you that you want to give up this amount that will
be used to increase the percentage of wetlands under protection?

1 = Very certain
2 = Somewhat certain
3 = Not sure
9 = I don't know / I prefer not to answer

/* The following questions are specific to the WTP scenarios */

Q_FONDWTP1 / **The Nord-du-Québec Water Conservation Fund**

Q_FONDWTP2

The protection will be funded by the *Nord-du-Québec Water Conservation Fund*. According to experts, increasing the protection targets from **14% to 35% [50%]** will reduce government revenues (royalties and corporate taxes) from industrial projects and increase protection costs.

The Quebec government is therefore considering the option of introducing a uniform tax to supplement the financing of this fund and to compensate for the shortfall in terms of revenues. This is to say that each individual who files a tax return in Quebec would pay a fixed amount, the same for everyone. However, there will be exceptions for people with very low incomes.

Note that in all cases, companies must respect the environmental standards in force. Nonetheless, the increase in the area of the protected territory, i.e. the passage of **14% to 35% [50%]** of the territory, favors the protection of a larger area of wetlands. Remember that wetlands play an important role in the regulation and filtration of water and ensure the renewal of lakes and rivers as well as the purification of wastewater.

Q_2B

Taking into account the economic and environmental impacts, the government, with the help of experts, has established two conservation possibilities: 14% and 35% [50%]. We therefore ask you to vote on the following proposal.

Would you vote for the introduction of an annual additional tax of <AFF2> \$, to increase the surface area of protected wetlands in northern Quebec from 14% to 35% [50%]?

1 = YES, I would vote to have the percentage of wetlands protection increased from 14% to 35% [50%] and therefore pay into the Nord-du-Québec Water Conservation Fund annually the amount of <AFF2> \$

2 = NO, I would vote so that the percentage of wetlands protection is not increased from 14% to 35% [50%] and therefore not to pay annually <AFF2> \$

Q_2X

When the Quebec government decides whether or not to implement the land conservation proposal you just voted on, how likely do you think it is that the government will take into account your vote and that of the other respondents to this study in its decision?

- 1 = Very likely
- 2 = Somewhat likely
- 3 = Somewhat unlikely
- 4 = Very unlikely

*** Question to respondents who gave a rating of 3 or 4 to Q_2X ***

Q_2WTP

You indicated that you believed that your response to the conservation proposal would have little or no influence on whether or not it was implemented. To help us better understand your answer, choose from the following statements the one or more that best reflects what you believe.

- 1 = A conservation policy, if implemented, will not require me to pay <AFF2> \$ on my tax return
- 2 = A conservation policy, if implemented, will not aim to achieve a conservation level of <AFF2> conservation
- 3 = I do not believe that the government of Quebec will use the results of this survey to help it make decisions about the level of territory protected in Nord-du-Quebec
- 4 = I do not believe that the government of Quebec is considering implementing a land conservation policy in Nord-du-Quebec
- 9 = I don't know / I prefer not to answer

/ * Question to respondents if they voted YES * /

Q_3C You answered that you were willing to make a payment for the amount of <AFF2>\$ on your next tax return. How certain are you that you want to pay this amount?

- 1 = Very certain
- 2 = Somewhat certain
- 3 = Not sure
- 9 = I don't know / I prefer not to answer

/ * Question to respondents if they voted NO * /

Q_3D You answered that you were not prepared to make a payment to increase protection levels, how certain of are you with this decision?

- 1 = Very certain
- 2 = Somewhat certain
- 3 = Not sure
- 9 = I don't know / I prefer not to answer

*** The rest of the questionnaire is identical for WTA and WTP respondents ***

Q_6 If the Quebec government sets the level of protection for wetlands at <AFF3>, what is the probability, in your opinion, that this level of protection will be reached?

- 1 = High probability
- 2 = Low probability
- 3 = It is impossible
- 9 = I do not know / prefer not to answer

Q_7 How concerned are you about environmental and nature conservation issues?

- 1 = Very strong concern
- 2 = Fairly high concern
- 3 = Moderate concern
- 4 = Low concern
- 5 = Very low concern
- 9 = I do not know / prefer not to answer

Q_8 In your opinion, how important is the development of the Nord-du-Québec to stimulating the economy of the province of Quebec?

- 1 = Very important
- 2 = Fairly important
- 3 = Not at all important
- 9 = I do not know / prefer not to answer

Q_9 If Quebec establishes the amount of wetland protection at 14%, with what probability do you believe that Quebec will achieve this level of protection?

- 1 = High probability
- 2 = Low probability
- 3 = Zero probability
- 9 = I do not know / prefer not to answer

Q_10 During the **last 12 months**, have you made any donations to charities or non-profit organizations?

- 1 = Yes
- 2 = No
- 9 = I don't remember / I prefer not to answer

Q_11 **This question measures your risk tolerance. In the following table, we present 6 lotteries. Each lottery uses a coin to determine the amount won; one amount for heads and one amount for tails (there is a 50% chance to win each of the amounts).**

If you actually participated in only one of the following lotteries, which would you choose?

- 1 = Lottery 1 (50% chance of \$28, 50% chance of \$28)

- 2 = Lottery 2 (50% chance of \$24, 50% chance of \$36)
- 3 = Lottery 3 (50% chance of \$20, 50% chance of \$44)
- 4 = Lottery 4 (50% chance of \$16, 50% chance of \$52)
- 5 = Lottery 5 (50% chance of \$12, 50% chance of \$60)
- 6 = Lottery 6 (50% chance of \$2, 50% chance of \$70)
- 9 = I do not know / prefer not to answer

Q_12

Select the statement that best represents your opinion

- 1 = The water quality in the Nord-du-Québec is important, because clean water is becoming a scarce resource
- 2 = The water quality in the Nord-du-Québec is important for maintaining the quality of nature and biodiversity
- 3 = Water protection in Nord-du-Québec is not important, because we already have a lot of it in Quebec
- 4 = The economic development of Nord-du-Québec is more important than the protection of water in Nord-du-Québec
- 9 = I do not know / prefer not to answer

Q_SD1

Do you live as a couple?

- 1 = Yes
- 2 = No
- 9 = I prefer not to answer

Q_SE6

In total, how many people live in your home including you? * Also count the children who live with you, whether permanently or from time to time (e.g.: in shared custody). *

- 1 = 1
- 2 = 2
- 3 = 3
- 4 = 4
- 5 = 5 or more
- 9 = I prefer not to answer

Q_SE7

How many of these people are children **under** 18 years old?

- 95 = None
- 1 = 1
- 2 = 2

- 3 = 3
- 4 = 4
- 5 = 5
- 6 = 6
- 7 = 7
- 8 = 8 or more
- 99 = I prefer not to answer

Q_SE5

What is the highest diploma, certificate or degree that you **have** or **have completed**?

- 1 = None
- 2 = High school certificate or equivalent (D.E.S., high school diploma)
- 3 = Certificate or diploma from a trade school (D.E.P., vocational studies diploma)
- 4 = College certificate or diploma (other non-university certificate or diploma obtained from a CEGEP, community college, technical institute, etc.)
- 5 = University certificate or diploma below the baccalaureate
- 6 = Bachelor's degree (e.g.: B.A., B.Sc., LL.B.)
- 7 = University certificate or diploma above baccalaureate
- 8 = Masters (e.g.: M.A., M.Sc., M.Ed.)
- 9 = Degree in medicine, dentistry, veterinary medicine or optometry (M.D., D.D.S., D.M.D., D.V.M., O.D.)
- 10 = Doctorate acquired (e.g.: Ph.D., D.Sc., D.Ed.)
- 90 = Other (Please specify in the space provided below)

99 = I prefer not to answer

Q_SE1X

Which of the following best describes your **primary current occupation**?

If you have more than one occupation (example: retired and part-time work or student and part-time work), check the one that requires the most time in the week. *If you are on sabbatical leave, maternity leave, sick leave or work accident leave, indicate if you usually work full time or part time.*

- 1 = I work full time (30 hours or more per week)
- 2 = I work part time (less than 30 hours per week)
- 3 = I am retired
- 4 = I am a student
- 5 = I am unemployed (employment insurance, social assistance)
- 6 = I do not work by choice (at home, at home)
- 90 = I am in another situation (Please specify in the space provided below)

99 = I prefer not to answer

Q_ORG Are you a member of an environmental organization?

1 = Yes

2 = No

9 = I do not know / prefer not to answer

Q_SE10 What is your **annual gross family income** (before taxes)?

1 = Less than \$15,000

2 = Between \$15,000 and \$24,999

3 = Between \$25,000 and \$34,999

4 = Between \$35,000 and \$54,999

5 = Between \$74 999 and \$55,000

61 = Between \$75,000 and \$99,999

62 = \$100,000 and higher

99 = I prefer not to answer

Q_OUV Please provide any comments and questions you have in the space below.

Q_FIN That's it, it's over. Thank you very much for your cooperation!

*** Additional information provided by survey research firm ***

Q_AGE Age

1 = 18 to 24 years

2 = 25 to 34 years

3 = 35 to 44 years

4 = 45 to 54 years

5 = 55 to 64 years

6 = 65 years or more

Q_SE12 Sex

1 = Male

2 = Female

Q_SE13

Residence

1 = Owner

2 = Tenant

9 = Refusal

Q_STRR

Region

1 = Quebec Census Metropolitan Area

2 = Montreal Census Metropolitan Area

3 = Elsewhere in Quebec