

Political Preferences and Support for Artificial Intelligence

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Studies of technology show that the best predictors of support for AI are measures of technological optimism, defined as attitudes or beliefs that technologies will produce positive societal outcomes (Clark et al., 2016; Edison & Geissler, 2003; Königs, 2022). Unfortunately, because technology optimism measures are tautological, explaining support for AI technology with positive sentiments about technology, they provide little insight into the causes of attitude variation about AI, e.g. why some people are optimistic (Hochschild et al., 2012; Kelley et al., 2021). While this problem is recognized by researchers, there remains limited research into the source of these variations (Hochschild & Sen, 2015; Kerschner & Ehlers, 2016; for exceptions see Cruz-Cárdenas et al., 2019; Chen et al., 2021; Danaher, 2022; Kleizen et al., 2023; Kreps et al., 2023).

Petrova et al. document that local exposure to factory robotics decreased employment and increased support for Trump in 2016, suggesting a connection between technology and political preferences. This discussion examines support for AI by political affiliation, as measured in a 2023 survey of residents of Toronto, Canada's largest city. The results suggest that support for AI varies with party identification and that it positively and significantly correlates with conservative orientation.

Methods

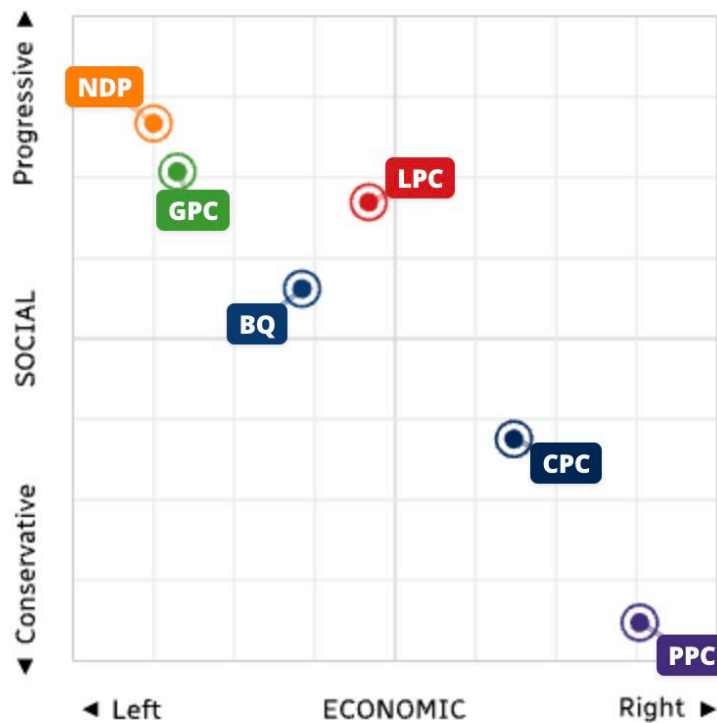
Sample: We use the Vox Pop Labs Toronto Post Election Study (PES) dataset. The PES is a non-probability survey of public attitudes and opinions administered June 26 - July 13th, 2023, following a Toronto mayoral election. Participants received no monetary compensation for their participation in the PES study. As the survey allows participants to skip questions the number of observations in statistical models changes slightly with adjustment of our independent or control variables. Given our large sample size, small changes in the number of observations are unlikely to meaningfully affect the outcomes. Consequently, we do not standardize the number of observations in our dataset. Approximately 5434 individuals completed the PES study. The number of observations ranges from 4911 to 619. The reduction in sample size occurs because not all questions are asked of all participants. Ethics approval for this study is obtained from McMaster University #6571.

Politics in Canada: Canada operates using a federal system of parliamentary government. Multiple political parties compete within this system, however, the five parties with the most popular support in the province of Ontario are: The New Democratic Party (NDP), The Green Party (GPC), The Liberal Party of Canada (LPC), The Progressive Conservative Party (CPC),

and The People’s Party of Canada (PPC). Ideologically, this party list is arranged from left to right with the NDP being the most ideologically left and the People’s Party the most ideologically right. The Liberal Party is currently the governing party of Canada. In the 2021 election parties received the following share of the popular vote: NDP (17.8%), Green (2.3%), Liberal (32.6%), CPC (33.7%), PPC (4.9%). Figure 1 visually represents these parties according to social and economic issues (Elections Canada).

Figure 1: Visual representation of the ideological positions of Canadian political parties in the 2021 election.

Source: *Vote Compass*: <https://votecompass.com>



In terms of policies, the NDP, Green, and Liberal Party all favor progressive social and economic policies. While the three parties are ideologically similar, the NDP distinguishes itself as the most vocal advocate for social justice and policies to support the economically least well-off Canadians (Goodyear-Grant 2013; Olive 2015). The Green Party is the strongest advocate for environmental policies and protections (Olive 2015). The Liberal Party is often described as a “Big Tent” party, practicing brokerage policies which attempts to balance progressive policies with responsible economic stewardship (Bittner & Koop, 2013; Carty 2015). On the ideological right, the Conservative Party advocates for both socially and economically conservative policies (Gagnon & Tanguay 2017; Johnson 2016; Lewis & Everitt 2017; Smith 2014). In comparison, the People’s Party of Canada is often described in media as conservative with some right-wing populist and libertarian policies (Lévesque 2023; Vastal 2018).

Analysis: The analysis uses OLS regression models with 95% confidence intervals. Attitudes towards AI are assessed using two separate dependent variables: i) Do you support or oppose the use of artificial intelligence in general? ii) Should the use of artificial intelligence in general be encouraged or restricted? The response categories are described in Table 1. Both outcomes are recoded and then standardized, as set out in Table 1, so that negative responses take on negative values, Neither and Don't Know are zero, and positive responses take on positive values. All models include controls for *political interest, knowledge and familiarity with AI, frequency of internet use*, as well as *age, education, employment, income, and gender*. The question wordings are provided in Appendix D

(https://osf.io/sequn/?view_only=803d430607d749ca8e7e16820278afdd)

Table 1: Scales and distributions of the separate dependent variables measure 1) Support, and 2) Encouragement for the use of artificial intelligence.

<u>Likert Scale</u>	<u>Support</u>	<u>Likert Scale</u>	<u>Encourage</u>
Strongly oppose (1)	199 (3.6%)	Strongly restricted (1)	619 (11.3%)
Somewhat oppose (2)	958 (17.5%)	Somewhat restricted (2)	1,944 (35.67%)
Neither (3)	830 (15.2%)	Neither (3)	666 (12.2)
Don't know (3)	139 (2.5%)	Don't know (3)	175 (3.2%)
Somewhat support (4)	2783 (50.9%)	Somewhat encouraged (4)	1690 (30.9%)
Strongly support (5)	555 (10.2)	Strongly encouraged (5)	368 (6.7%)
Total	5464		5462

Political preferences are assessed using two measures: 1) party vote in the 2021 Canadian federal election, and 2) self-reported symbolic ideology. On the first independent variable, party vote, response options listed the five largest federal parties in the province of Ontario -- The New Democratic Party of Canada (NDP), The Green Party of Canada (Green), The Liberal Party of Canada (Liberal), Conservative Party of Canada (CPC), People’s Party of Canada (PPC) -- as well as the alternative response options of Other Party, Spoiled Ballot, and Did Not Vote. The second independent variable, symbolic ideology, is assessed on an 11-point sliding scale “In politics, people sometimes talk of left and right. Where would you place yourself on the scale below, where 0 is left and 10 is right?”

Table 2: Scales and distributions of party vote in 2021 Canadian federal election and symbolic ideology.

<u>Scale</u>	<u>Frequency</u>	<u>Scale</u>	<u>Frequency</u>
NDP	1525 (28.1%)	Left - 0	397 (7.8%)
Greens	310 (5.7%)	1	494 (9.7%)
Liberal	2804 (51.6%)	2	1049 (20.7%)
CPC	536 (9.9%)	3	1269 (25.0%)
PPC	76 (1.4%)	4	770 (15.2%)
Other	33 (0.6%)	5	246 (4.9%)
Spoiled	24 (0.4%)	6	370 (7.3%)
Didn’t Vote	126 (2.3%)	7	258 (5.1%)
		8	142 (2.8%)
		9	36 (0.7%)
		Right - 10	42 (0.8%)
Total	5434	Total	5073

We report on three groups of statistical models. *Model 1* examines how political preferences predict attitudes towards AI. *Model 2* examines whether the relationship between political preferences and attitudes towards AI are independently mediated by four variables: i) openness to experience, ii) future optimism, iii) technology optimism, and iv) AI optimism. Openness to experience is included because past studies demonstrate that it is a significant predictor of attitudes towards technology (Park & Woo, 2022). Openness to experience is assessed using scale items from Gosling et al. (2003). The three measures of optimism are assessed using a 5-point Likert scale and the following question “In general, I am optimistic about [the future, technology, artificial intelligence]. Participants were randomly assigned to answer one of the three optimism measures. *Model 3* examines the correlations between political preferences and the four mediating variables.

Results: The results of Model 1 are summarized in Figure 2 & Table 3. We report the post-estimation standardized predicted marginal means for each party vote category; for ideology, which is treated as continuous, we simply report the coefficient from the standard OLS regression. We find that voting NDP, CPC, PPC, or Other Party is negatively and significantly associated with support for AI, while voting Liberal is positively and significantly associated with support for AI. Voting for the NDP or Other Party is negatively and significantly associated with encouragement of AI use, while voting for Liberal and CPC is positively and significantly associated with encouragement. Looking at symbolic ideology, there is a positive and significantly correlation between conservative orientation and support for AI and encouragement of AI.

Figure 2: The effect of party vote on support and encouragement for AI by party vote as estimated in Model 1.

For clarity we omitted values from respondents who stated their party vote as “other”, who spoiled their ballot, or who did not vote. Each party’s left (L), center-left (C-L), and right (R) ideological orientation is listed in brackets. The figure displays the predicted marginal means.

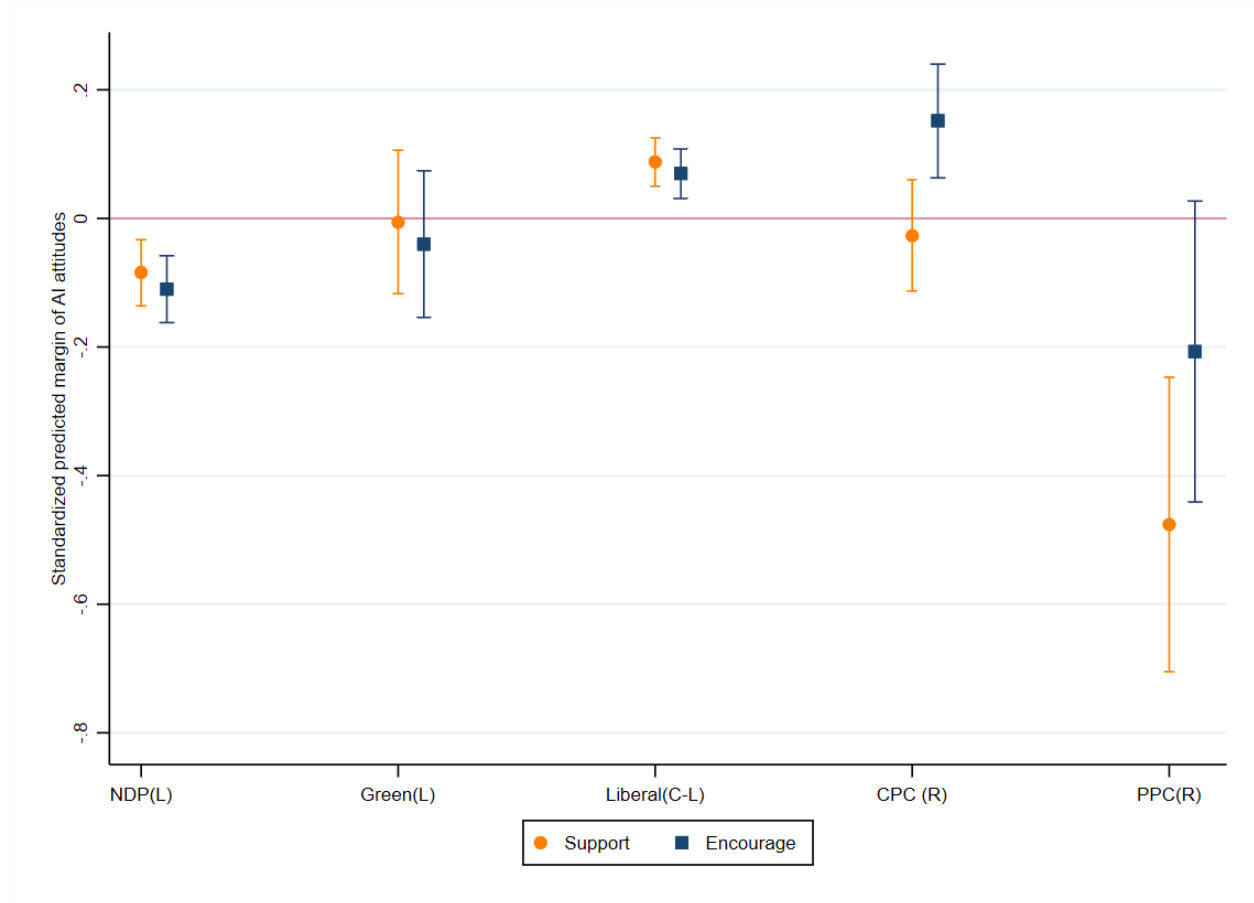


Table 3: Model 1 summary statistics. Separate correlations between Party Vote in the 2021 federal election or symbolic ideology on Support or Encouragement of AI.

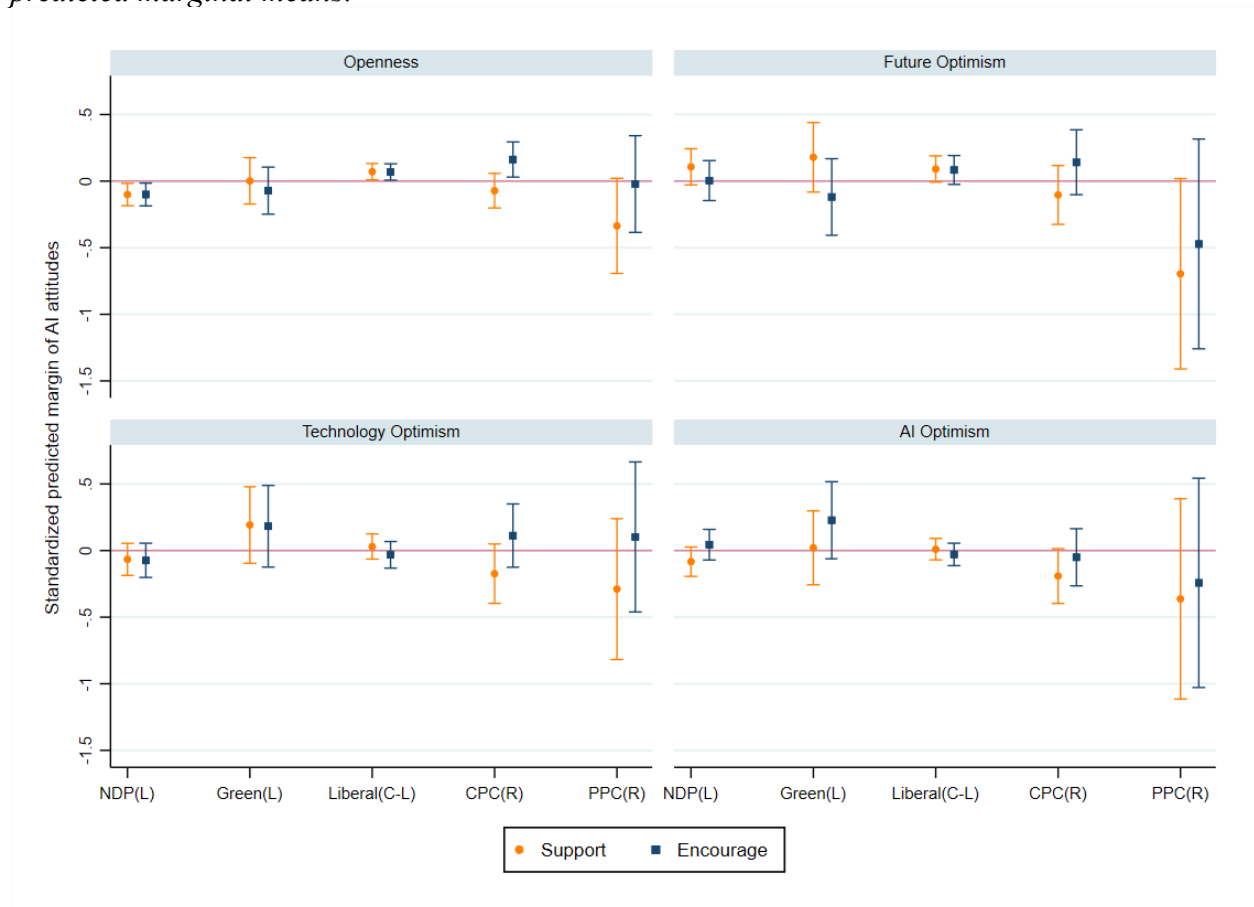
Dependent Variables	A) Support For AI Use	B) Support For AI Use	C) Belief that AI should be Encouraged	D) Belief that AI should be Encouraged
<u>Predicted Marginal Means</u>				
NDP (L)	-0.084** 0.026		-0.110** 0.027	
Greens (L)	-0.006 0.057		-0.040 0.058	
Liberal (C-L)	0.088** 0.019		0.070** 0.020	
CPC (R)	-0.027 0.044		0.152** 0.045	
PPC (R)	-0.476** 0.117		-0.207 0.119	
Other Party	-0.496* 0.176		-0.373* 0.180	
Spoiled Ballot	-0.295 0.203		-0.401 0.207	
Didn't Vote	0.135 0.090		0.151 0.092	
<u>Linear Regressions</u>				
Ideology		0.039* 0.015		0.079** 0.015
<i>F</i>	23.34	25.85	15.95	18.66
<i>Adj R²</i>	0.095	0.084	0.066	0.061
<i>N</i>	4911	4589	4910	4588

Table 1 lists the summary statistics from Model 1 regressions, tables 1-6 in Appendix A. Columns A & C display the standardized predictive marginal means of vote choice in the 2021 Canadian federal election. Columns B & D show the linear effect of symbolic ideology. The dependent variables are the *Support for the use of AI* (Columns A & B) and the *Belief that the use of AI should be encouraged*. Both dependent variables and the measure of symbolic ideology are standardized.

* $p < 0.050$; ** $p < 0.001$

In Model 2, we find that the Future Optimism, Technology Optimism, and AI Optimism mediate the effect of party vote and symbolic ideology on AI support and encouragement. After controlling for openness to experience, however, the predicted margin of voting for the NDP, Liberal, or Other party remain significant for AI support and encouragement. After controlling for openness to experience, symbolic ideology also significantly correlates with attitudes for AI encouragement, but not AI support. The results are summarized in Figure 3, the full results are available in Appendix B: Tables 7-30.

Figure 3: The Mediated Effect of Party Vote on Support and Encouragement of AI. Mediators: Openness, Future, Technology, and AI Optimism in Model 2. The left (L) and right (R) ideological orientation of parties are listed in brackets. The figure displays the predicted marginal means.



In Model 3, as summarized in Figure 4 and Table 4, voting for the ideologically left NDP positively correlates with openness, while voting for the ideologically right CPC negatively correlates with openness. Symbolic ideology also negatively correlates with openness. This is consistent with the psychological literature about ideological behavior (Fatke, 2017). Looking at the measures of optimism, neither party vote nor symbolic ideology correlate with future optimism. Technology optimism negatively and significantly correlates with voting for the NDP or spoiling the ballot, but positively and significantly correlates with voting Liberal. AI optimism negatively and significantly correlates with voting NDP or spoiling the ballot but positively and significantly correlates with voting Liberal. AI optimism also positively and significantly correlates with symbolic ideology, indicating that a more conservative ideological orientation is generally associated with more favourable views of artificial intelligence.

Table 4: Model 3 summary statistics. Separate correlations between Party Vote in the 2021 federal election or symbolic ideology and four dependent variables assess openness to experience and optimism.

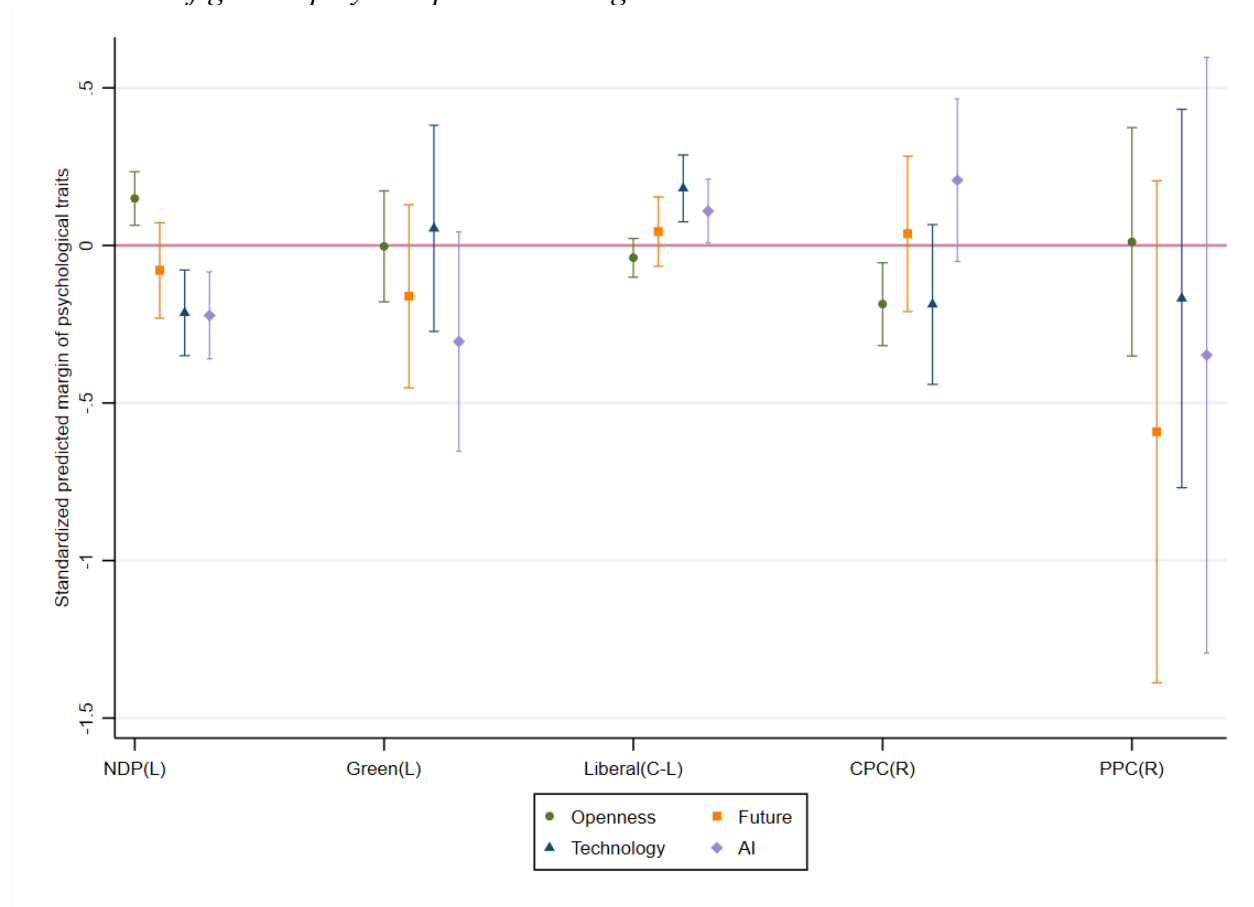
Dependent Variables	A) Openness	B) Future Optimism	C) Technology Optimism	D) AI Optimism
<u>Predicted Marginal Means</u>				
NDP (L)	0.149** 0.043	-0.079 0.077	-0.214* 0.069	-0.222* 0.070
Greens (L)	-0.003 0.090	-0.161 0.148	0.054 0.167	-0.305 0.177
Liberal (C-L)	-0.039 0.031	0.044 0.056	0.181** 0.054	0.109* 0.051
CPC (R)	-0.186* 0.067	0.037 0.126	-0.187 0.129	0.207 0.132
PPC (R)	0.011 0.185	-0.591 0.405	-0.168 0.306	-0.348 0.482
Other Party	0.195 0.294	-0.902 0.985	-0.616 0.393	1.234* 0.556
Spoiled Ballot	-0.614 0.310	-0.299 0.712	-1.169** 0.568	-0.359 0.441
Didn't Vote	0.189 0.166	0.411 0.243	0.357 0.262	0.115 0.236
<i>F</i>	8.04	1.77	4.06	3.78
<i>Adj R²</i>	0.076	0.028	0.096	0.088
<i>N</i>	1965	623	666	665
<u>Linear Model</u>				
Ideology	-0.161** 0.023	0.071 0.046	0.016 0.042	0.158** 0.043
<i>F</i>	11.95	2.03	3.77	4.01
<i>Adj R²</i>	0.092	0.030	0.070	0.077
<i>N</i>	1846	577	631	619

Table 4 lists the summary statistics from Model 3 regressions, tables 31-42 in Appendix C. The table summarizes the predicted marginal means of vote choice in the 2021 Canadian federal election and the effect of ideology on four dependent variables: A) Openness to Experience, B) Future Optimism, C) Technology Optimism, and D) AI optimism. Ideology and each of the four dependent variables are standardized.

* $p < 0.050$; ** $p < 0.001$

Figure 4: The effect of party vote on the four mediating traits in Model 3

For clarity we omitted values from respondents who voted for another party, spoiled a ballot, or who did not vote. The left (L) and right (R) ideological orientation of parties is listed in brackets. The figure displays the predicted marginal means.



Discussion: Contrary to stereotypes that ideologically left leaning individuals are more progressive and accepting of change, we find—in the Canadian context—that AI support is lower on both the populist left (NDP) and the populist right (PPC) compared to the more established left (Liberal) and right (CPC) parties—though the small sample size of the PPC makes its estimates more uncertain. This result adds important nuance to Petrova et al., which finds—in the American context—that support for automation is lower among Trump supporters.

While the current study cannot explain this pattern, one possible explanation is that left- and right- leaning populist voters are more concerned about job loss from automation. Such an explanation is consistent with studies in Europe that find an association between workers' self-assessed vulnerability to automation and support for left-leaning parties as well as increases in business digitization and support for right leaning populism (Borwein et al., 2023; Güvercin 2022; Milner, 2021).

Additionally, studies by Magistro et al. (2024) demonstrate that, while voters' preferences on automation policies are stable, they are open to political messages about worker protection from candidates across the political spectrum. This suggests that owning the political issue of protecting workers from automation may depend on parties' messages and strategies to court voters (Borwein et al., 2024). Accordingly, the results of Petrova et al. may be explained by public perceptions of Trump's positions on the protection of American jobs (Lamont et al., 2017). Consequently, we believe that researchers should pay closer attention to the effects of party and candidate messaging and strategies regarding technology issues, particularly in multiparty political systems, as this may significantly impact future economic policies about artificial intelligence or automation.

Conclusion: Using data from the Toronto PES, we investigated the relationship between political preferences and attitudes toward artificial intelligence. We find several significant correlations between vote choice and symbolic ideology, on the one hand, and support and encouragement for the use of AI, on the other. We further find that these same political preferences significantly correlate with three measures of technological optimism, some of the best-known predictors of attitudes towards AI.

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