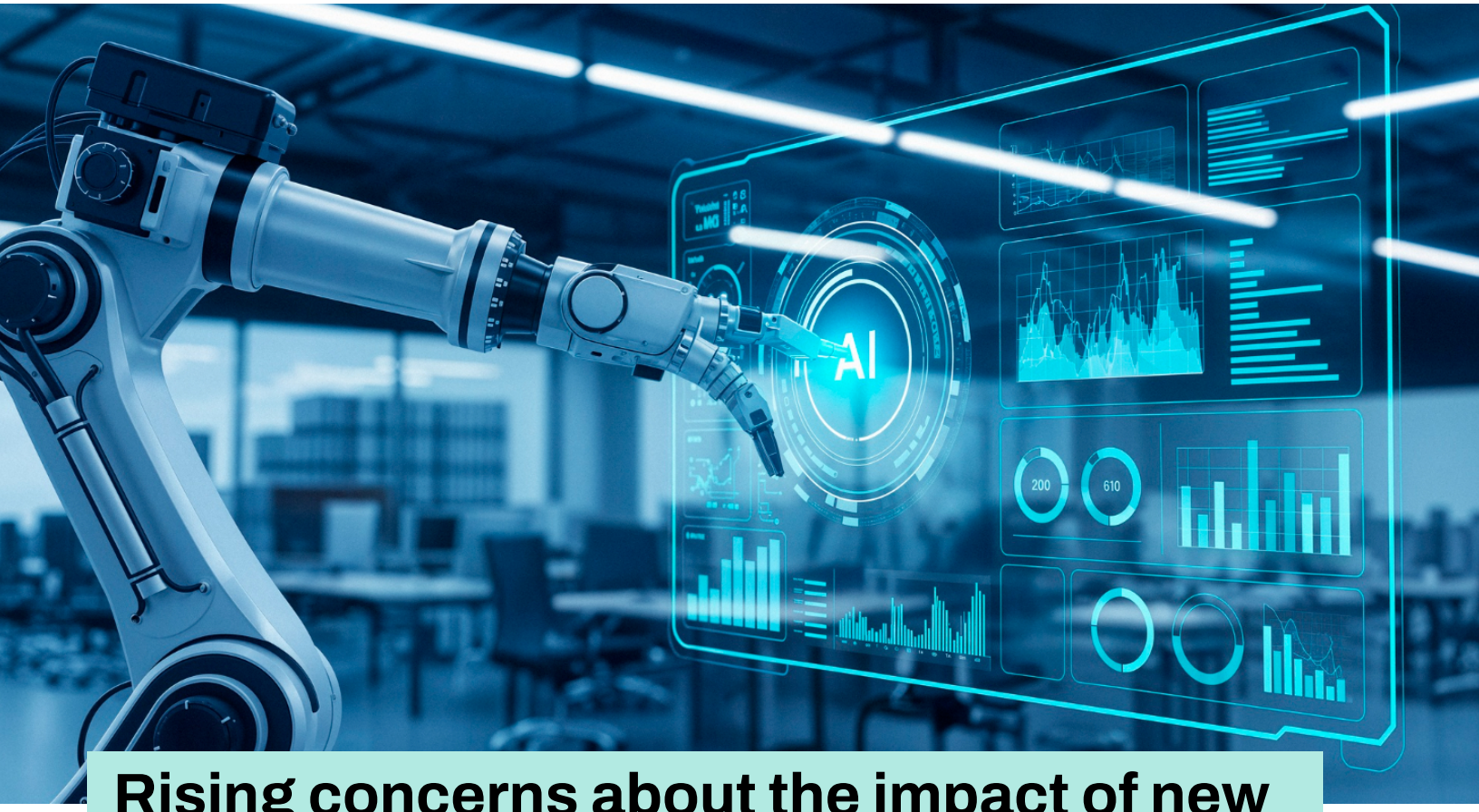
Environics Institute For Survey Research
Future Skills Centre | Centre des Compétences futures
TED ROGERS SCHOOL OF MANAGEMENT | DIVERSITY INSTITUTE



Rising concerns about the impact of new technologies on employment

This bulletin was prepared using research and analysis conducted by Hubert Cadieux and Alexandre Boullion, graduate students in the Department of Political Science at Université Laval.

Technological change is continually reshaping the Canadian workplace. The pace of change has only accelerated with the advent of information and computer technologies. Over the past several decades, Canadian workers have experienced sweeping transformations following the introduction of desktop computers, the Internet, smartphones, and – most recently – artificial intelligence programs.

One of the original goals of the Survey on Employment and Skills, launched in 2020, was to explore experiences with the changing nature of work in Canada, including technology-driven disruptions. Several of the findings have been reassuring. One of the first survey reports observed that:

> *"Most Canadians say that new information or computer technologies have changed the way they do their jobs. More notably, on the whole, this change is seen as being more positive than negative: majorities report that these changes have made their job more enjoyable and easier, and three in ten say it made them better paid and more secure. Only minorities indicate that these changes have made their job less enjoyable, more difficult, less well paid or less secure."*

Rising concern about job loss due to automation:

42% of Canadian workers are worried about losing their job in the coming years because the work they do will soon be done by computers or robots, up from 27% only two years ago.

Circumstances have evolved significantly since then, in view of both the disruptions caused by the COVID-19 pandemic and of the continuing fast pace of technological change, particularly in areas related to artificial intelligence. And in the past few years, evidence has appeared suggesting that concerns about the implications of technological change may be growing. According to the most recent survey waves, growing proportion of workers are now expressing concern with the pace of change in general, and more specifically with the prospect of automation leading to unemployment. This bulletin, based on the eighth survey wave conducted in the spring of 2025, documents this change and explores its possible causes.

The growing concern about technological changes coincides with two main developments: a worsening economic outlook in general, and widening experiences with artificial intelligence. It is possible that workers are feeling more pessimistic about new technologies simply because they are feeling more pessimistic in general about their employment prospects as the economy slows. Our analysis suggests, however, that this is not the most important factor. Rather, there is a stronger relationship between familiarity with, and use of, artificial intelligence programs, and concern about the impact of new technologies on employment.

Growing concerns about technology in the workplace

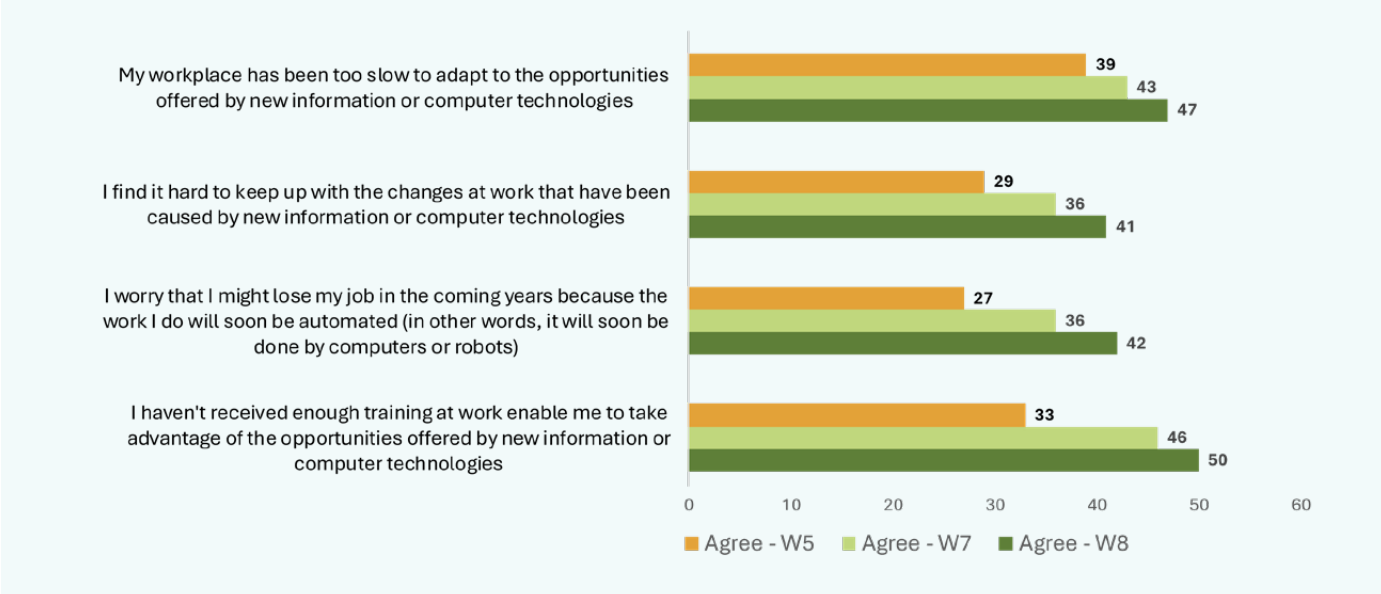
Between the spring of 2023 and the spring of 2025, there has been a noticeable shift in opinions about the impact of new technologies in the workplace in Canada.

- The proportion of employed Canadians who agree that “my workplace has been too slow to adapt to the opportunities offered by new information or computer technologies” has increased from 39% to 47%.
- The proportion that agrees that “I find it hard to keep up with the changes at work that have been caused by new information or computer technologies” has increased from 29% to 41%.
- The proportion that agrees that “I worry that I might lose my job in the coming years because the work I do will soon be automated (in other words, it will soon be done by computers or robots)” has increased from 27% to 42%.
- The proportion that agrees that “I haven’t received enough training at work to enable me to take advantage of the opportunities offered by new information or computer technologies” has increased from 33% to 50%.

FIGURE 1

Opinions about technology in the workplace (subsample: employed)

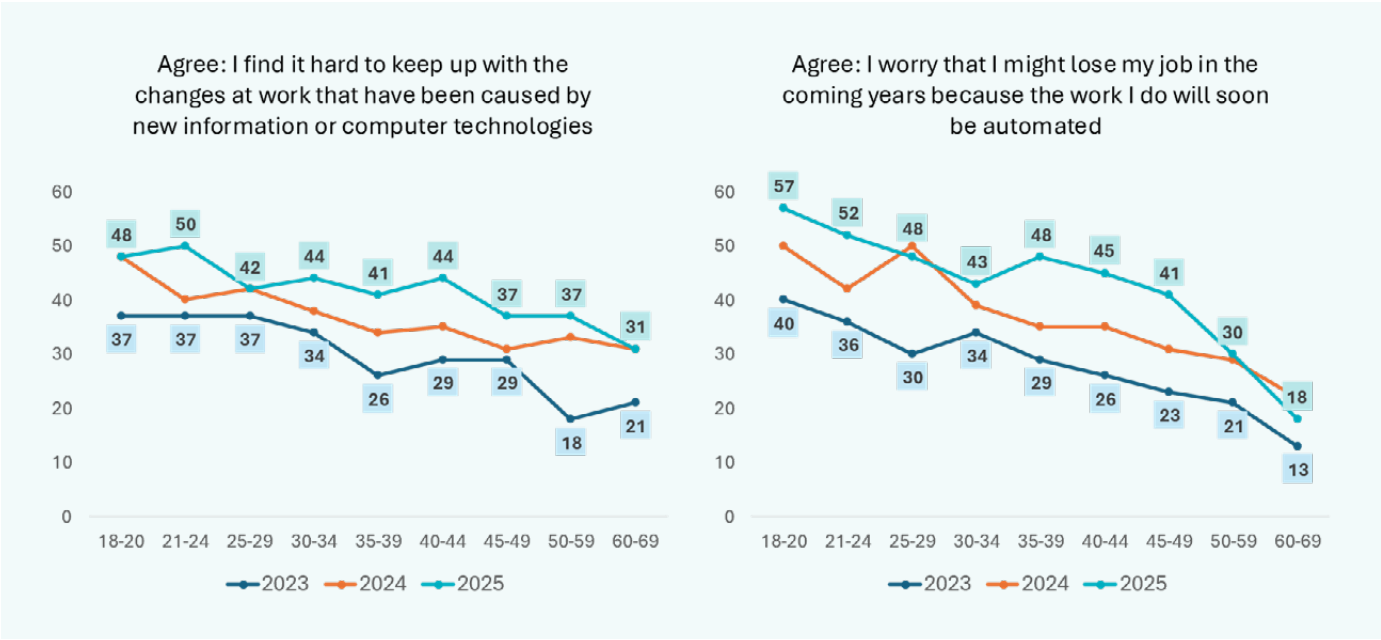
Do you strongly agree, somewhat agree, somewhat disagree or strongly disagree with each of the following statements:



Currently, these concerns about the impact of technology at work are higher among younger people, and decline steadily with age. For instance, in 2025, 50 percent of employed 21 to 24 year-olds feel that it is hard to keep up with technological changes at work, and 52 percent are worried about losing their jobs to automation; the figures for those age 60 to 69 are 31 percent and 18 percent for the two questions respectively. However, the level of concern has increased since 2023 across all age groups.

FIGURE 2

Concerns about technological change in the workplace, by age 2023 to 2025



The level of concern also tends to be somewhat higher among men compared to women, and this is the case across all age groups. Concern is highest among younger men. Concern is higher in 2025 than in 2023 for both men and women, both in general and across all age groups.

FIGURE 3

Agree: I find it hard to keep up with the changes at work that have been caused by new information or computer technologies

2023 to 2025, by age and gender

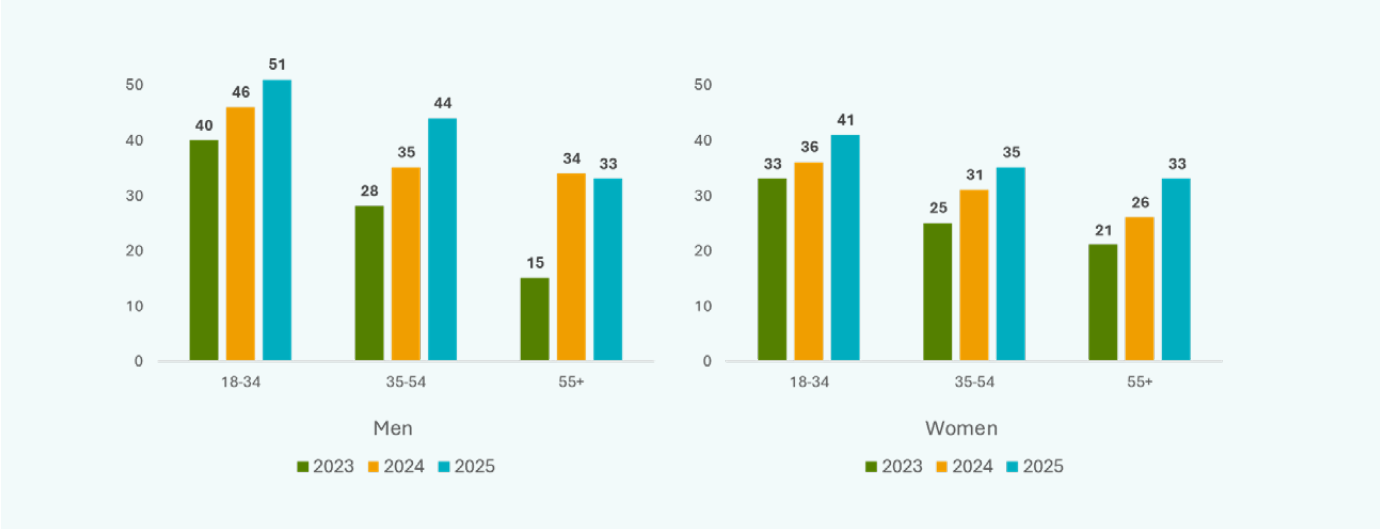
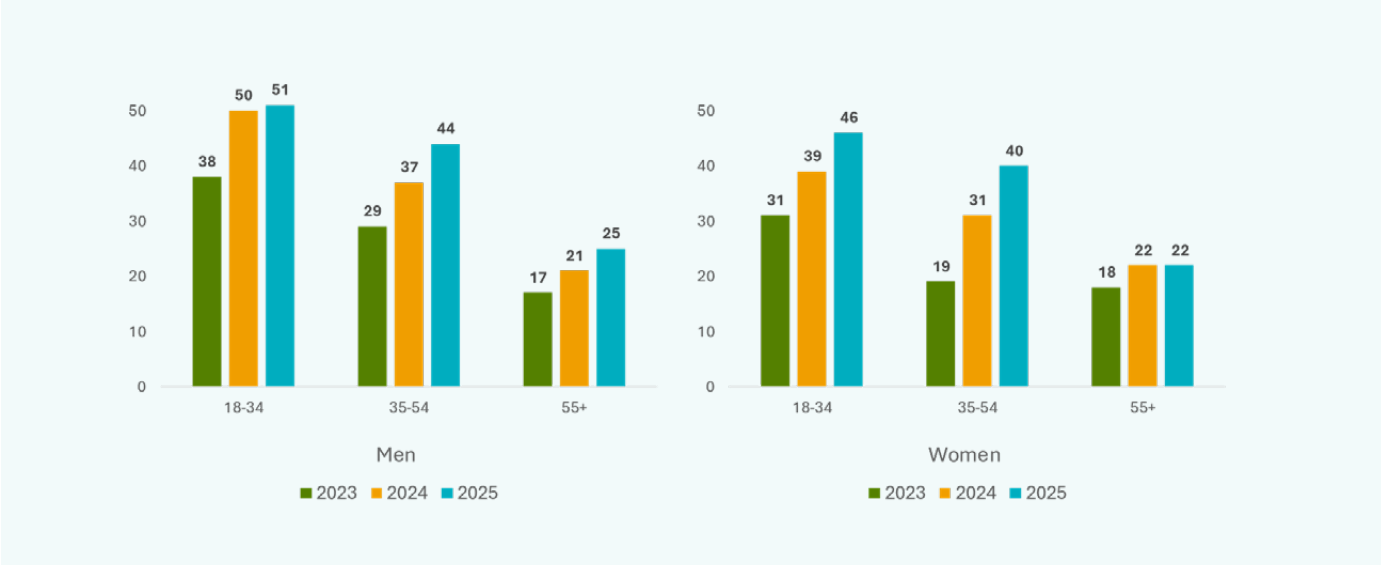


FIGURE 4

Agree: I worry that I might lose my job in the coming years because the work I do will soon be automated

2023 to 2025, by age and gender



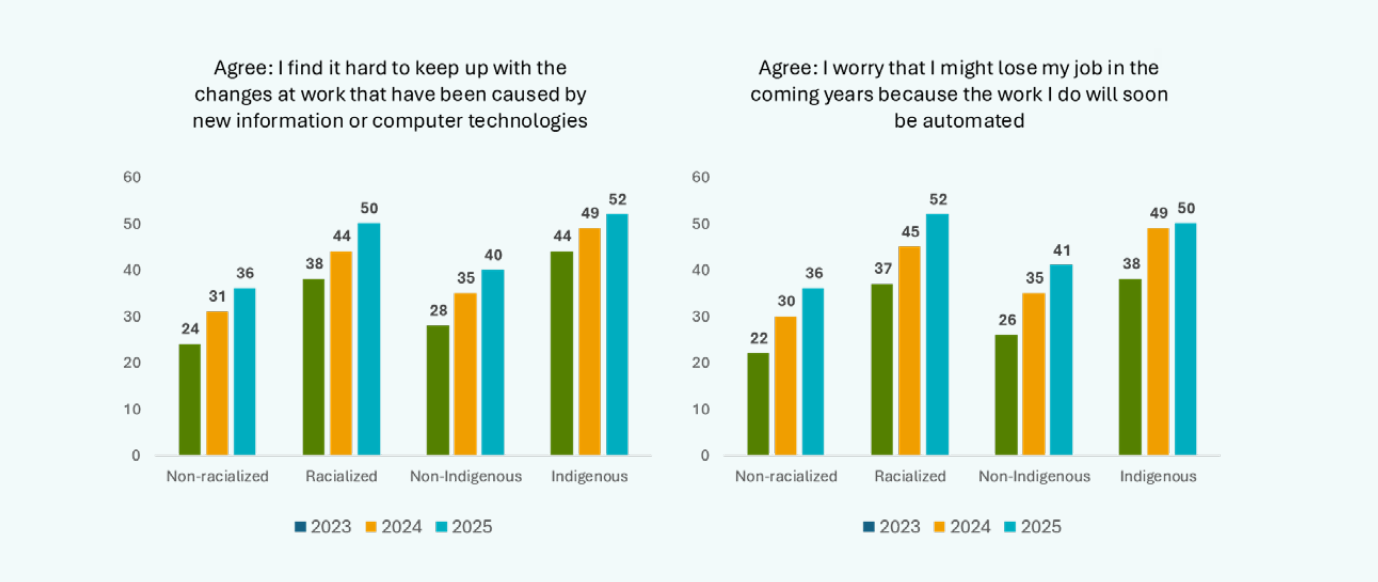
Since 2023, concern about the impact of technology at work has increased among workers across all major occupational categories, educational backgrounds, and levels of household income.

Concern about the impact of technology at work is higher for racialized compared to non-racialized workers, and for Indigenous compared to non-Indigenous workers. But the level of concern has increased since 2023 across all major identity groups. The same pattern holds for immigrants compared with non-immigrants: levels of concern are somewhat higher among immigrants, and especially among recent immigrants, but have increased since 2023 for all workers regardless of immigration background.

FIGURE 5

Concerns about technological change in the workplace, by identity

2023 to 2025



The changing context

The circumstances facing employed Canadians have changed in two important ways over the past few years. First, perceptions of the state of the economy have worsened. Second, exposure to artificial intelligence technologies has increased.

Changing perceptions of the state of the Canadian economy were reported in the first Bulletin in this series. A growing proportion of Canadians expect their personal financial situation to get worse over the next six months, say that now is a bad time to find a job, and are worried about job security for themselves and their families. This raises the question of whether workers have become more pessimistic about the impact of technology mainly because they are growing more worried about the economy and the job market in general.

The initial evidence to support this conclusion, however, is not very strong; in other words, it appears that the rise in pessimism about the impact of technology on employment is not that strongly related to Canadians' perceptions of the strength of the economy. For instance, combining results across the three waves of the survey that included these questions, concern about losing one's job to automation is only slightly higher among those who think that it is currently a bad time to find a job in their community (40%) compared to those who say it is a good time to find a job (35%).

On the other hand, there does appears to be a strong relationship between exposure to AI technologies

and concerns about the impact of technology at work. At the same time as the economic situation has been changing, familiarity with artificial intelligence technologies has grown. The survey only asked about these technologies in the most recent two waves (in 2024 and 2025). In that short time, familiarity with artificial intelligence (AI) programs that people can use in the workplace among employed Canadians increased from 56 to 63 percent. The proportion of those employed using AI programs for personal enjoyment increased from 47 to 56 percent, while the proportion using them to help with tasks at work increased from 29 to 37 percent.

The survey points to a connection between use of AI programs and concerns about the impact of technology at work. Among those who are employed (combining the last two waves of the survey):

- 48% of those who have used AI to help with tasks at work agree that they find it hard to keep up with the changes at work that have been caused by new information or computer technologies, compared to 33% of those who have not used AI;

- 50% of those who have used AI to help with tasks at work agree that they worry that they might lose their job in the coming years because the work they do will soon be automated, compared to 33% of those who have not used AI.

On this basis, it seems that growing familiarity with artificial intelligence is a more important factor, compared to increased concern about the economy, in accounting for the increase in concern about the impact of technology at work.

AI and rising concerns technology at work

It is important to test this conclusion and to rule out alternative explanations. For instance, opinions on issues such as technology and the state of the economy can vary among age groups or among those with different levels of incomes or education, and it could be possible that these differences could shape some of the other patterns seen in the survey results. The particular circumstance at the time each survey wave could also make a difference – again, thinking in particular about

the shifting economic mood. And the analysis also faces the challenges that questions about AI familiarity and workplace usage were not asked in the first of the three survey waves covered here (Survey Wave 5 in 2023), creating a gap in the data.

To account for all this, and so as to be sure of our overall conclusion, several additional analyses were conducted to examine factors driving concerns about automation, focusing specifically on respondents' worry about losing their job to automation. All these analyses account for any possible effect of key demographic characteristics including age, gender, household income, education level, and province of residence, to isolate the effects of economic pessimism and AI exposure on automation concerns.

As mentioned, the primary challenge is the absence of questions about AI in the first of the three survey waves creating a gap in the data. Missing data always introduces some uncertainty, requiring careful interpretation of results. This limitation required us to use multiple analytical approaches, including data imputation and comparing models with and without Wave 5, to ensure the reliability of the findings.

The first test conducted (which is called a "cluster-robust standard error analysis") is designed to address potential correlations among respondents within the same survey wave (since people surveyed at the same time are exposed to similar context and events). This analysis reveals that economic pessimism shows no

statistically significant association with concerns about automation (once conservative standard errors are applied). In contrast, exposure to AI demonstrates a strong and consistent relationship with concern about automation. The results also confirm that there has been significant increases in concern about automation over time, with particularly notable growth from Wave 5 to Wave 8 (2023 to 2025). These temporal patterns persist even when accounting for economic pessimism and exposure to AI, suggesting that factors beyond these two variables contribute to rising automation anxiety.

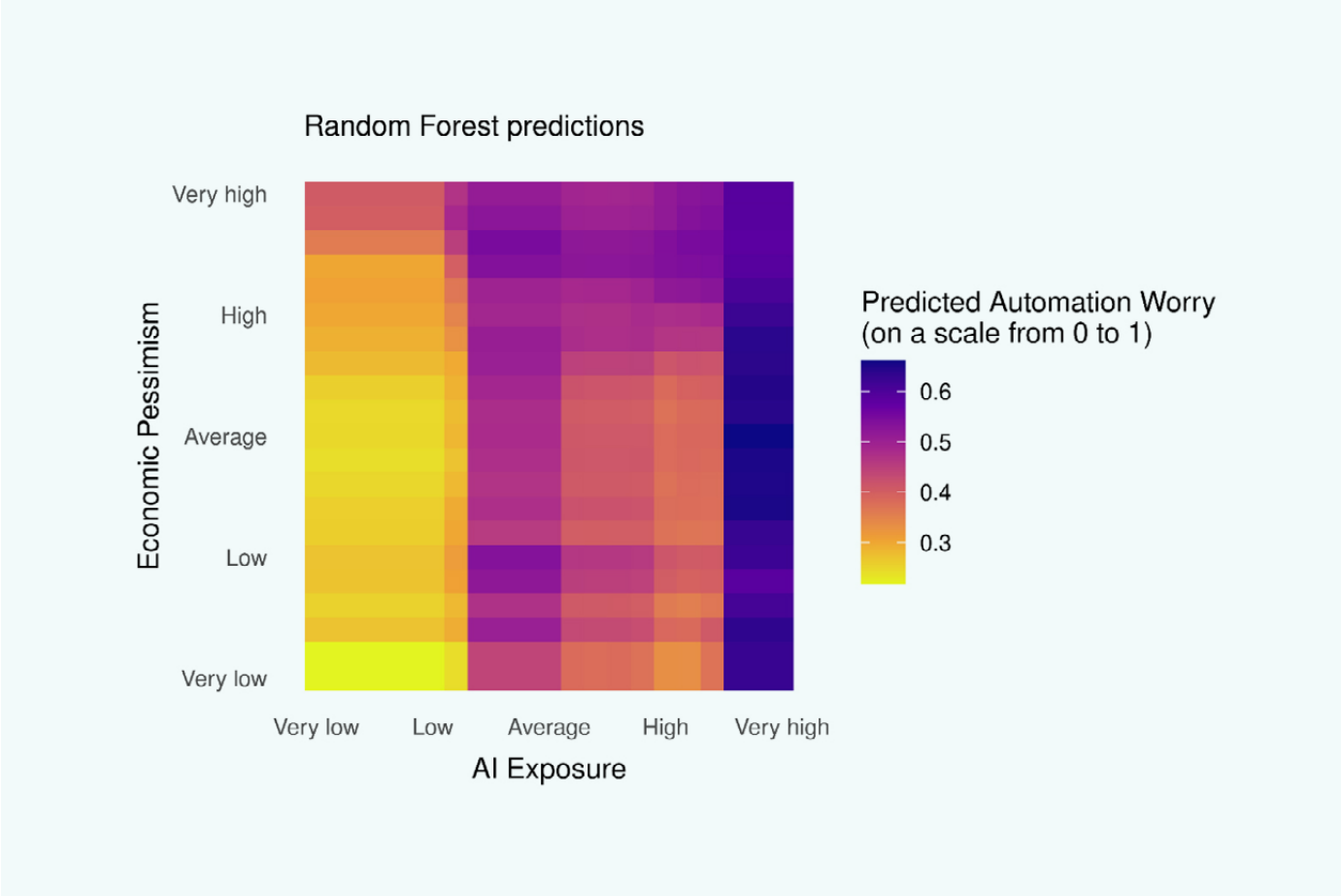
However, the previous models assume that the effects of economic pessimism and exposure to AI exposure remain constant across survey waves. To test whether these relationships evolved over time, interaction models were estimated that allow predictor effects to vary by wave. This analysis shows that exposure to AI maintains positive and significant associations with concern about automation across both waves where it can be measured. Economic pessimism shows inconsistent patterns over time: a small negative association in Wave 5, a moderate positive association in Wave 7, and no significant effect in Wave 8. The different model specifications demonstrate that the conclusions about the limited effect of economic pessimism remain unchanged regardless of how missing AI exposure in Wave 5 is handled.

Finally, the differing relationships can be illustrated using a heat map, displaying how concern about automation rises with both pessimism about the economy and familiarity with AI programs, but more so with the latter. The map shows that concern about automation remains relatively low (lighter shading) when familiarity with AI is also low, even as pessimism about the economy increases. Conversely, concern about automation is much higher (darker shading) when familiarity with AI is also high, even if pessimism about the economy remains low[1].

[1] Both scales are standardized factor scores derived from principal axis factor analysis. AI Exposure combines AI familiarity, workplace AI usage, and AI training. Economic Pessimism combines reversed perceptions of past/future financial situation, job market conditions, income adequacy, and worry about job stability.

FIGURE 6

AI Exposure x Economic Pessimism Interaction



Implications

Concerns about the potential impact of new technologies in the workplace on employment are nothing new. But the ongoing changes and disruptions sparked by the introduction and growing use of artificial intelligence programs at work appear to be having an unsettling effect. The proportion of Canadian workers who are worried about losing their job in the coming years because the work they do will soon be done by computers or robots has increased, and this cannot be accounted for simply by pointing to growing pessimism about the economy in general. Rather, there is a more direct relationship between concerns about the impact of automation on employment, and the use of AI programs at work.

One way for policymakers and employers can address these concerns is through better training and guidance. The survey also shows that only one in three (34%) of those using AI to help with tasks at work received training from their employer to help them learn how to use these programs, and fewer (27%) have received a lot of guidance from their employer in this area – and these proportions do not appear to be rising as fast as AI adoption itself. The disruptive effects of new technologies are difficult to avoid, but they can be better managed. However, the nature and impact of the training or guidance that comes to be implemented should be carefully monitored, including though future waves of this survey, since it cannot be taken for granted that it will eventually be associated with better outcomes for workers.

Appendix: Additional details on the analysis

The first test conducted was a cluster-robust standard error analysis to address potential correlation among respondents within the same survey wave. Standard regression models assume that all individual observations are independent, but this assumption is likely violated when respondents from the same survey wave share common experiences—such as identical economic conditions, media coverage, or policy environments. For example, since all Wave 5 respondents experienced the same macroeconomic context in 2023, their automation concerns may be more similar to each other than to respondents from other waves. Cluster-robust models account for this by allowing errors to be correlated within survey waves while maintaining independence across waves, producing more conservative and reliable statistical inference.

To handle the missing AI data in Wave 5, we tested two model specifications: first, imputing AI exposure as zero (the mean value) for all Wave 5 respondents, which effectively removes any meaningful variation in AI exposure for that wave; and second, restricting the analysis to only Waves 7 and 8 where AI measures were actually collected. Comparing these approaches helps assess whether our findings are robust to different treatments of missing data. The results of these models are presented below.

TABLE 1

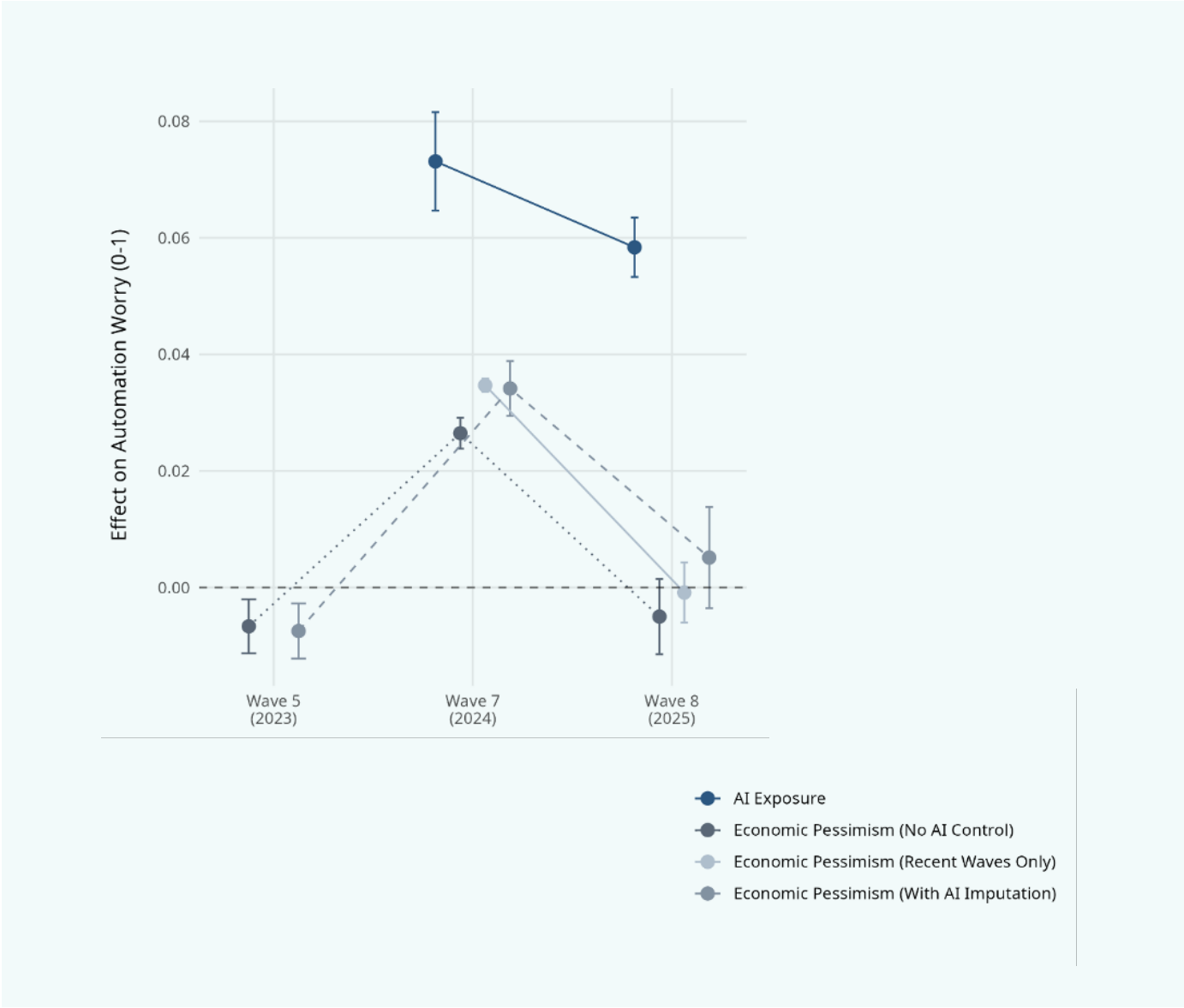
Testing model specifications for missing AI data

Factor	All Survey Waves (2023–2025)	Recent Waves Only (2024–2025)
Economic Pessimism	0.0112 *No significant effect on automation worry*	0.0181 *No significant effect on automation worry*
AI Exposure	0.0614*** *Strong positive effect: Higher AI exposure increases worry*	0.0656*** *Strong positive effect: Higher AI exposure increases worry*
Time Trend (Wave 7 vs 5)	0.0990*** *Moderate increase in worry compared to 2023*	– *Reference category*
Time Trend (Wave 8 vs 5)	0.1304*** *Strong increase in worry compared to 2023*	0.0333*** *Moderate increase compared to 2024*

*** p<0.001, ** p<0.01, * p<0.05. Coefficients show change in automation worry (0-1 scale).

FIGURE 7

Comparing cluster-robust specifications for missing AI data



However, the previous models assume that the effects of economic pessimism and exposure to AI exposure remain constant across survey waves. To test whether these relationships evolved over time, interaction models were estimated that allow predictor effects to vary by wave. Four cluster-robust specifications address the missing AI data problem: Economic Pessimism × Wave with no AI control; Economic Pessimism × Wave with AI imputed at zero in Wave 5; Economic Pessimism × Wave restricted to Waves 7-8 with observed AI data; and AI Exposure × Wave for Waves 7-8. This approach reveals how automation worry is explained by economic pessimism and AI exposure over the different waves while showing how missing data affects conclusions about temporal trends in predictor effects.

About the Survey on Employment & Skills

The Survey on Employment and Skills is conducted by the Environics Institute for Survey Research, in partnership with the Future Skills Centre and the Diversity Institute at Toronto Metropolitan University. Wave 8 of the recurring survey of 5,603 adult Canadians was conducted online (in the provinces) and by telephone (in the territories) between March 12 and April 15, 2025.

For more details on the survey methodology as well as detailed results, visits the website of the Environics Institute at https://www.environicsinstitute.org/projects/listing/-in-tags/type/survey-on-employment-and-skills.

For more information please contact:

Dr. Andrew Parkin, Executive Director

Environics Institute

andrew.parkin@environics.ca

905-464-3853

Environics Institute For Survey Research

Environics Institute for Survey Research conducts relevant and original public opinion and social research related to issues of public policy and social change. It is through such research that organizations and individuals can better understand Canada today, how it has been changing, and where it may be heading.

Future Skills Centre | Centre des Compétences futures

The Future Skills Centre (FSC) is a forward-thinking centre for research and collaboration dedicated to driving innovation in skills development so that everyone in Canada can be prepared for the future of work. We partner with policymakers, researchers, practitioners, employers and labour, and post-secondary institutions to solve pressing labour market challenges and ensure that everyone can benefit from relevant lifelong learning opportunities. We are founded by a consortium whose members are Toronto Metropolitan University, Blueprint, and The Conference Board of Canada, and are funded by the Government of Canada's Future Skills Program.

TED ROGERS SCHOOL OF MANAGEMENT | DIVERSITY INSTITUTE

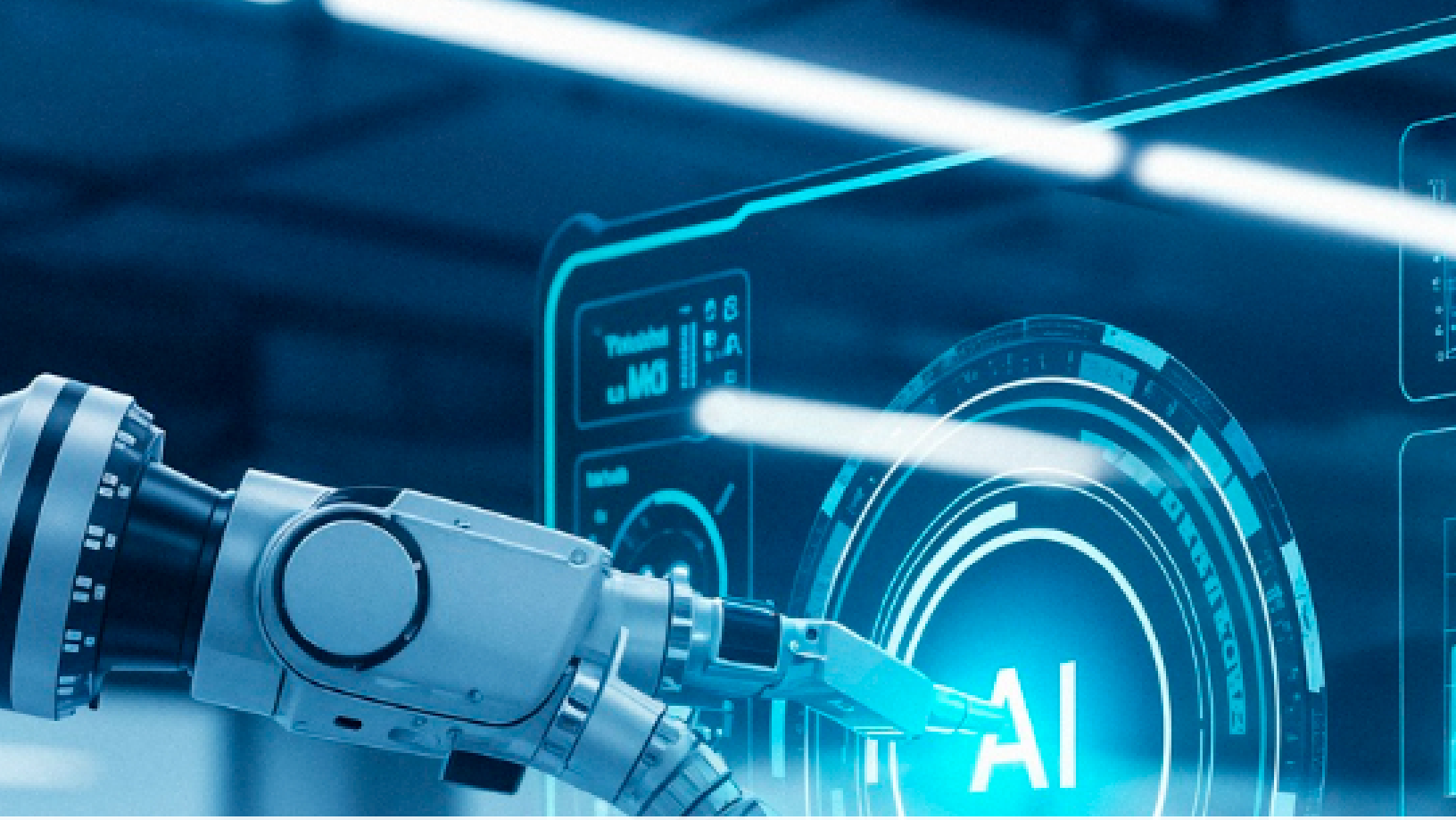
The Diversity Institute conducts and coordinates multi-disciplinary, multi-stakeholder research to address the needs of diverse Canadians, the changing nature of skills and competencies, and the policies, processes and tools that advance economic inclusion and success. Our action-oriented, evidence-based approach is advancing knowledge of the complex barriers faced by underrepresented groups, leading practices to effect change, and producing concrete results. The Diversity Institute is a research lead for the Future Skills Centre.

Canada

The Survey on Employment and Skills is funded by the Government of Canada's Future Skills Program.

The opinions and interpretations in this publication are those of the author and do not necessarily reflect those of the Government of Canada.

Publication Date:
December 2025



Environics Institute
For Survey Research

Future Skills Centre | Centre des Compétences futures

TED ROGERS SCHOOL OF MANAGEMENT | DIVERSITY INSTITUTE