



Report summary
**Determinants of Food Insecurity in
Canada**





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Title of the report: Determinants of Food Insecurity in Canada, A Machine Learning Approach

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Why this study

Food insecurity is the inability to acquire or consume food of sufficient quality or quantity in socially acceptable ways, or the uncertainty of being able to do so. Household food insecurity is often linked with the household's financial ability to access adequate food. According to Statistics Canada, this can range from worrying about running out of food to actually skipping meals or even going days without eating. It is a pressing concern that affects physical and mental health and well-being and can harm children's development.

In Canada, food insecurity has worsened in recent years. In 2018, 16.1% of the population lived in households that reported some form of food insecurity. By 2023 this had risen to 25.5%. While not having enough money is often the main cause, this study looks at whether other socio-economic factors—like housing conditions, health challenges, and family structure—can play an important role. The aim was to look at a wide range of factors to find out what else causes food insecurity beyond income. The findings could help inform policies designed to improve Canadians' access to food.

What we did

This study used data from the 2019 Canadian Income Survey to find out what factors are linked to food insecurity in Canada. The survey included a section called the Household Food Security Survey Module (HFSSM). This module asked 18 questions about people's food experiences over the past year. Based on their answers, we could work out which households had faced any form of food insecurity, and which had not. Then, we looked at over 100 different social and economic factors—like housing conditions, family type, financial situation, and health problems—to understand how each one might be linked to food insecurity.

We used machine learning along with traditional statistical techniques to help find patterns in the data. These methods helped us to reduce the initial list of 100 factors to the 10 most important. We then used these 10 factors to identify three specific groups of people who are most likely to face food insecurity.

What we found

Three groups of people in Canada are much more likely to face food insecurity:

- The group most affected includes households that face financial difficulties because of a disability. These households are between 5 to 11 times more likely to be food insecure compared to those without such challenges.
- The second most affected group includes people living in homes that need repairs—whether major or minor. These households are 2 to 3 times more likely to struggle with food insecurity.
- The third group includes single-parent families, who face more than twice the risk compared to couples without children.

In comparison, households with incomes below the regional poverty line, based on the Market Basket Measure (MBM) for their area, are only 1.35 times more likely to be food insecure than those above the poverty line.

What it means

This study helps us better understand who is most at risk of facing food insecurity in Canada. While low income is often seen as the main cause of food insecurity, the results show that other factors—like having a disability, living in homes in need of repairs, or being a single parent—can be even more important. These findings show that we need to look beyond just income when trying to help people who are struggling. For example, it may be more effective to target specific groups that are more vulnerable. This might include helping people with disabilities who face extra financial stress, improving housing conditions, or supporting single-parent families. These targeted actions could make a difference in reducing food insecurity.

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