PSIV-4 Determinants of red meat exclusion from diets in Canada

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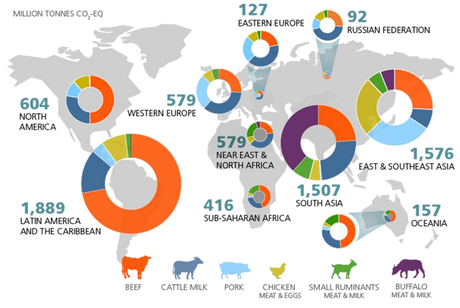
Introduction

- Production of red meat including beef, pork, and lamb, has been associated with climate change and high intakes of these foods have been linked to risks of several leading chronic diseases (Searchinger et al., 2019).
- Reducing red meat consumption has been suggested as an option to address important health and sustainability challenges (Anderson et al., 2017).
- Characterizing the sociodemographic factors associated with red meat consumption is an important first step in identifying strategies to translate information regarding sustainable food choices into policy and public education (Hawkes et al., 2015).
- **Research question:** Which factors determine consumer food choice and red meat exclusion from Canada?
- **Objective**: The objective of this study was to characterize the sociodemographic factors associated with the exclusion of red meat from consumer diets in Canada.



(MacLeod et al., 2018)

Methods

- **Data**
  - Data (n=10,117 respondents) was sourced from the 2015 Canadian Community Health Survey dataset (Health Canada, 2017).
- **Variables**
  - Age, gender, marital status, highest level of education, smoked 100 or more cigarettes in life time, body mass index, household size, household type, country of birth, immigrant status and total household income.
- **Model**
  - Mixed-effect probit regression that accounts for the hierarchical structure of individuals clustered in ten provinces was used to identify factors associated with dietary choices (Smith et al., 2017).
- Binary mixed effect model can be generated by assuming:

$$Y=X\beta+Zu+\varepsilon,$$

- where X and Z are known matrices, u~N (0,D), and ε~N (0,I), independently of u. Y represents an unobserved continuous variable, X is a vector of fixed covariate variables; Z is a vector of random effects, and ε is a vector of disturbances.

Results

Variables	Probit	Mixed-effect probit
Age	0.01(0.01)	0.01(0.01)
If a respondent is male, 2 otherwise	0.32(0.08)***	0.25(0.05)***
Bachelor's degree	0.34(0.15)**	0.26(0.10)**
University certificate, diploma, degree above the BA level	0.26(0.17)	0.32(0.10)***
In your lifetime, have you smoked a total of 100 or more cigarettes	0.14(0.09)	0.11(0.05)**
Body mass index	-0.01(0.01)	-0.01(0.001)**
Couple, all children >= 25	-0.72(0.25)***	-0.24(0.21)
Female lone parent, all children >=25	-0.92(0.33)***	-0.74(0.31)
Born in South, central America and Caribbean	0.50(0.32)	0.41(0.18)**
Born in Africa	0.88(0.34)***	0.61(0.19)***
Born in Asia	0.87(0.29)***	0.51(0.15)***
Born in Oceania	1.20(0.52)***	1.02(0.37)**
Total household income - best estimate	-0.01(0.01)	-2.75E-07(0.01)
Constant	-2.72(0.54)	-1.79448(0.26)***
Goodness of Fit Tests		
Log-likelihood	-3,203,542.00	-1780.46
Wald χ^2	171.90	276.89
Prob > χ^2	0.00	0.00
Between-group variance (Province)		1.51E-35(3.48E-19)

*** p<0.01, ** p<0.05, * p<0.1

- Fewer than 5% of Canadians reported excluding red meat from their diet.
- Sex, education level, and race/ethnicity had a significant effect on red meat exclusion with single females, individuals with at least a Bachelor's degree, and individuals who self-identified as African, Asian, and Oceanian origin more likely to eliminate red meat.
- In contrast, households with children under age 25 were less likely to eliminate red meat.

Conclusions

- The disparities in consumption patterns of red meat by gender, race/ethnicity, education, and family status can inform public education and policy initiatives using science-based information to improve the health and environmental sustainability associated with Canadian diets.

References

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