

Harmful Anti-Foreign Sentiments based on Concern for Competition Should be Recognized and Addressed*

Jayden Jung, Finn Korol, Sofia Sellitto

February 17, 2023

Abstract

Globalization, immigration, and asylum seeking is a common topic of discussion, one which most people hold some personal opinion on accompanied by certain justifications. This paper analyzes data on what proportion of non-immigrant German men are likely to perceive refugees as threats to finding a romantic partner relative to the male-to-female ratio within their municipality and which of them support sentiments of anti-refugee violence. Results show that there can be argued an effect of these sentiments on actual rates of hate crime. We apply secondary research regarding Canadian rates of immigration and gender imbalances and raise concerns regarding the possibly generalizable nature of the findings in Germany. As this issue specifically affects minority groups experiencing prejudice and even furthers their marginalization, we place great emphasis on the weight of this discussion and propose that it should be considered to inform policies or initiatives intending to address racism and hate crimes, especially in breaking down the framing of refugees as a threat to non-immigrants, whether that's through education, public messaging, or other implementations.

1 Introduction

In Canada, hate crimes based on race and ethnicity increased by 80% in 2020, with the highest number of incidents targeting black individuals, followed by east and southeast Asians, indigenous individuals, and the lowest number of victims being South Asian individuals (Moreau and Wang 2022). Seeing that Canada is one of the most diverse countries in the world, welcoming 405,999 permanent immigrants in 2021 and 130,125 refugees in 2020, these statistics concerning the increase of hate crimes pose a real and visceral threat to a large proportion of Canadian residents “Canada Refugee Statistics 1960-2023” (n.d.).

There are many factors that contribute to the increase in hate crimes in Canada. However, with the rise of far-right discourse in the United States, anti-immigrant and anti-refugee rhetoric is becoming more prevalent in Canada. These negative attitudes and actions towards immigrants, refugees, and marginalized individuals can be the result of various structural and personal factors, including increased competition in the job and housing markets, resource scarcity, misguided beliefs about crime rates, illness, welfare dependency, and fears of losing national identity. Despite this, one factor that has received little attention until recently is the impact of competition in dating and marriage markets. A 2021 paper by Dancygier, Egami, Jamal, and Rischke published in the American Journal of Political Science delves into this important and often-overlooked area of research (Dancygier et al. 2021).

In studying the opinions of German males living in municipalities with excess male populations, they find that a portion of non-immigrant German men hold the belief that refugees pose a threat to their ability to pursue German women (Dancygier et al. 2021). This population of individuals, non-immigrant German males in highly male populated municipalities being the estimand of the study. Their finding suggests that hate crimes

*Code and data are available at: <https://github.com/jj-andj/mate-comp-hate> ; Replication on Social Science Reproduction platform available at: <https://doi.org/10.48152/ssrp-qg85-cb34>

increase where non-immigrant German men are disadvantaged in their local dating markets (Dancygier et al. 2021). Using ecological evidence and originally curated survey data, the paper concludes that competition in dating and marriage markets where men outnumber women increases anti-refugee sentiments and violence (Dancygier et al. 2021).

In studying the opinions of German males living in municipalities with excess male populations, they find that a portion of non-immigrant German men hold the belief that refugees pose a threat to their ability to pursue German women (Dancygier et al. 2021). This population of individuals, non-immigrant German males in highly male populated municipalities being the estimand of the study. Their finding suggests that hate crimes increase where non-immigrant German men are disadvantaged in their local dating markets (Dancygier et al. 2021). Using ecological evidence and originally curated survey data, the paper concludes that competition in dating and marriage markets where men outnumber women increases anti-refugee sentiments and violence (Dancygier et al. 2021).

Our paper will follow a reproduction of Dancygier, Egami, Jamal, and Rischke’s findings and apply a Canadian-facing lens to discuss its implications on local Canadian populations and increased anti-refugee/immigrant sentiments and violence. Our paper seeks to address the two following research claims, (1) Non-immigrant German men who live in municipalities with excess male populations are more likely to perceive refugees as threats and (2) Non-immigrant German men who perceive mate competition are more likely to support violence as the only means to gain the attention of German politicians. Our reproduction was conducted using the statistical programming language R (R Core Team 2020). To further enable our analysis we employed the use of the following packages: readr (Wickham, Hester, and Bryan 2023), here (Müller 2020), readstata13 (Garbuszus and Jeworutzki 2021), MASS (Venables and Ripley 2002), sandwich (Zeileis 2006), lmtest (Zeileis and Hothorn 2002), dplyr (Wickham et al. 2022), tidyverse (Wickham et al. 2019), jtools (Long 2022), huxtable (Hugh-Jones 2022), list (Blair and Imai 2010), knitr (Xie 2014), kableExtra, (Zhu 2021).

We begin our paper with a discussion of the data source, the methodologies employed in the original paper and a review of the variables used for our reproduction. We will then conduct a reproduction of their results to better improve upon the accessibility of their findings. Our paper will conclude with a discussion of our findings where we conduct a case study to apply our findings to Alberta, Canada’s only Province with a greater population of males, a discussion of ethical biases, limitations and a push for future research.

2 Data

2.1 Source

The paper used for replication is from the American Journal of Political Science which follows a discussion on the correlation of perceived mate competition and its contributions to anti-refugee sentiments and higher crime rates in Germany (cite paper). Our reproduction seeks to address two claims made from the original paper and apply a Canadian facing lens. The two claims are as follows: (1) Are non-immigrant German men who live in municipalities with excess male populations more likely to perceive refugees as threats? (2) Are non-immigrant German men who perceive mate competition more likely to support violence as the only means to gain the attention of German politicians? To collect this data, the original paper uses four waves of online survey data collected in Germany that are representative of gender, age and state (geographic location) (Dancygier et al. 2021).

2.2 Methodology

This paper will replicate the survey data that was originally collected for the 2021 paper by Dancygier, Egami, Jamal, and Rischkes, as previously mentioned. Using the online survey platform “Respondi”, they conduct four waves of surveys which spanned from September 2016 to December 2017 (Dancygier et al. 2021). The researchers suggest that the anonymity provided by the online survey platform resulted in respondents

answering more truthfully. (Dancygier et al. 2021). To mitigate potential biases, the researchers employed list experiments in Waves 1 and 2, and in Wave 2, they randomly assigned 50% of the sample to either a control or treatment group. The treatment group was exposed to statements concerning their agreement with using violence against refugees as a means to get the attention of German politicians. However, no evidence was found to suggest that respondents were concealing their support for hate crimes when comparing the means of the control and treatment groups (Dancygier et al. 2021).

2.3 Features

The original survey data assessed participants on 53 variables, being representative of gender, age and state. The range of recorded age data from the survey occurs from 19-89 years old. Age was then categorized by group which is as follows: 18-29, 30-39, 30-49, 50-59, and 60 and older. Both male and female participants took part in the survey, but females were only involved in the second and fourth waves of surveys. The survey was distributed across 16 German states. Our reproduction, however, included removing variables that were not utilized in our final reproduction analysis and included only the necessary Waves 2 and 4. As a part of our reproduction, we also simplified the names of variables to make them easier to work with. From the original data, each variable correlates with a survey question asked to participants. To discuss the variables used in our reproduction I have grouped them in the following way and have listed each variable below.

Socio-demographics

- Age Group
- Gender
- State
- German Citizen
- Marital Status
- Relationship status, single
- Religious Affiliation
- Education
- Occupation
- Income
- Household Size
- Subjective Social Status
- Male population: determining states with access to males by dividing the number of women by men aged 14 and 44 for each municipality
- Politics: left and right-leaning
- Politics: affiliated parties

Mate Competition: using a scale of agree or disagree

- Does the influx of male refugees make it difficult for non-immigrant german men to find female partners
- Job Competition: using a scale of agree or disagree
- The inflow of young make refugees make it more difficult for young non-immigrant German men to find work/ jobs

Life Satisfaction: scale of 0-10

- Satisfaction with life

Encountering Refugees

- How many KM is the closest refugee reception center from your home
- How many refugees do you believe have settled in your municipality in the last year
- In the last month, how many refugees have you encountered in the following locations

Attitudes Toward Refugees (national and local scale): using a scale of agree or disagree

- Violence is sometimes the only means that citizens have to get the attention of German politicians - Attitudes towards Muslims
- Hostility against refugees is justified
- Politicians should condemn attacks against refugees
- Racist violence is defensible if it leads to fewer refugees settling in a town
- Attacks against refugee homes are sometimes necessary to make garner the attention of politicians
- Refugees are integrating well into Germany
- German refugees should be entitled to German citizenship
- The number of refugees should be reduced
- Refugees are receiving more than non-immigrant Germans
- Refugees should give up their culture to adopt that of Germany
- Refugees are good for the economy
- Refugees increase crime
- Increased refugees increase the risk of terrorism
- Will additional refugees in your town increase the influence of Islam (local)
- Will additional refugees in your town be a challenge for local schools (local)
- Will additional refugees in your town increase competition for housing (local)
- Will additional refugees in your town change the way of life in your town (local)

Operational category

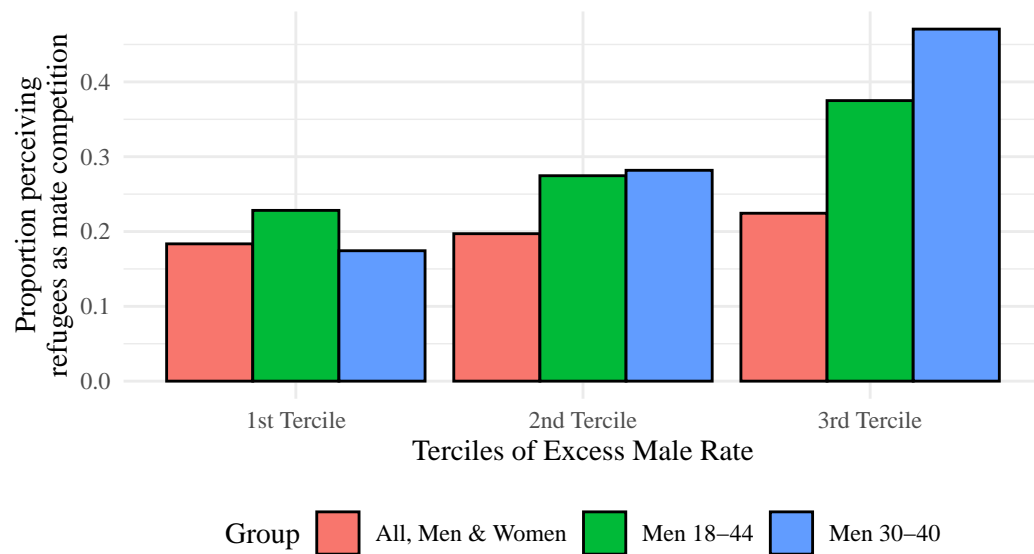
- Experiment lists
- Treatment lists
- Outcome lists
- Waves: out of 4

3 Results

===== ##Figure 1 not including p value, percentage bar graph, detailed explanation of tercile meanings
 ===== ##Figure 1 not including p value, percentage bar graph, detailed explanation of tercile meanings

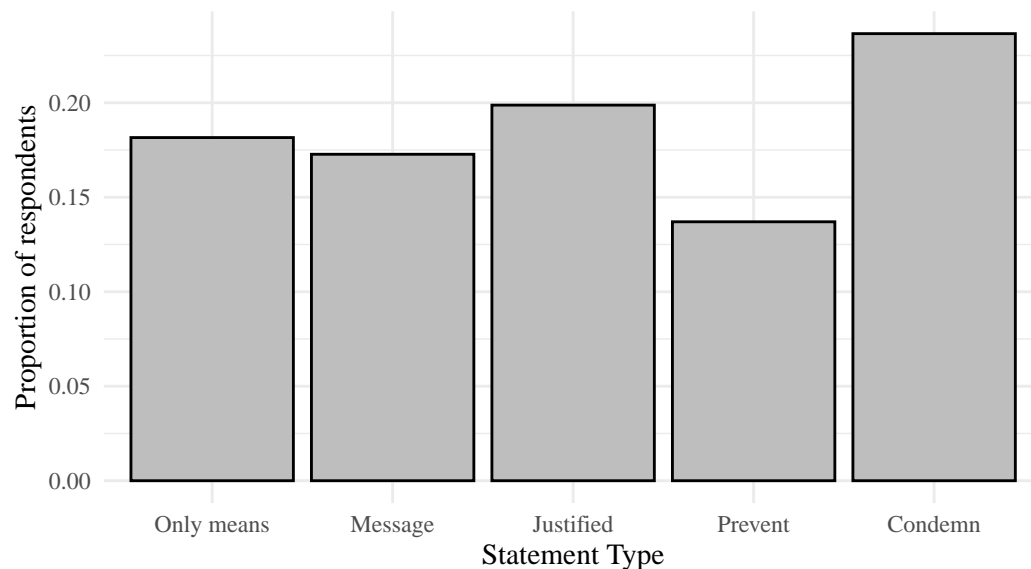
Tercile	Municipality's Male to Female Ratio
1st Tercile	Less than 1.04
2nd Tercile	More than 1.04, Less than 1.12
3rd Tercile	More than 1.12

Nearly half of mating-aged men living in excess male areas perceive refugees as a threat to finding a partner



Type	Statement
Only means	When it comes to the refugee problem, violence is sometimes the only means that citizens have to get the attention of German politicians.
Message	Attacks against refugee homes are sometimes necessary to make it clear to politicians that we have a refugee problem.
Justified	Hostility against refugees is sometimes justified, even when it ends up in violence.
Prevent	Xenophobic acts of violence are defensible if they result in fewer refugees settling in town.
Condemn	Politicians should condemn attacks against refugees more forcefully. (For this statement, the results were reversed such that we are looking at respondents who Disagreed or Strongly Disagreed)

13% to 25% of respondents agree with statements supporting or not condemning violence against refugees



Finally, we reconstructed Dancygier et al. (2021)'s battery of linear models to predict respondents' sentiments toward refugee-directed hate crime. 6 Models were trained with increasing numbers of factors weighted using Ordinary Least Squares **tbl-hatemodel**. The first model used solely mate competition (measured by proportion of excess males). Our models grew in complexity such that the second version was inclusive of job competition and life satisfaction. In the next four models, one at a time, sociodemographic factors, attitudes toward refugees (local first, then national), and last, additional factors (including perceptions of refugee settlements and political groups, and their affiliations) were added. Despite the addition of additional factors, across all models, the predictive weight of mate competition remains high. Job competition, on the other hand, was introduced in model 2 with larger weight than mate competition, but it rapidly fell off with the introduction of more factors. Life satisfaction's weight remains low across all inclusive models. Increasing R Squared indicates that model fit increases with additional factors in our model. These findings are consistent with Dancygier et al. (2021).

Table 1: (#tab:unnamed-chunk-6)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
mate competition	0.389 *** (0.015)	0.234 *** (0.018)	0.210 *** (0.018)	0.183 *** (0.017)	0.164 *** (0.017)	0.138 *** (0.017)
job competition		0.243 *** (0.018)	0.229 *** (0.018)	0.075 *** (0.019)	0.063 *** (0.019)	0.054 ** (0.018)
life satisfaction		-0.033 * (0.014)	-0.031 (0.016)	-0.008 (0.015)	-0.004 (0.015)	-0.000 (0.014)
sociodemographics			X	X	X	X
national attitudes toward refugees				X	X	X
local attitudes toward refugees					X	X
additional controls						X
N	3019	3019	3008	3008	3008	3008
R2	0.191	0.240	0.288	0.394	0.410	0.459

All continuous predictors are mean-centered and scaled by 1 standard deviation. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

4 Discussion

4.1 Findings

In this paper, we have replicated the results found by Dancygier, Egami, Jamal, and Rischke. Their analysis sought to explore the correlation between perceived mate competition in municipalities with excess males and its contributions to anti-refugee sentiments and higher crime rates in Germany. Our paper has replicated two of their major claims.

- (1) Non-immigrant German men who live in municipalities with excess male populations are more likely to perceive refugees as threats.
- (2) Non-immigrant German men who perceive mate competition are more likely to support violence as the only means to gain the attention of German politicians.

By replicating their results, we hope to apply a Canadian-facing lens to gain insights into Canadian dating markets, the geographical distribution of males and females and their potential impacts on anti-refugee sentiments.

4.2 Alberta: Investigating its population ratios, dating markets and anti-refugee sentiments

To investigate the relevance of Dancygier, Egami, Jamal, and Rischke’s discoveries in a Canadian context, we will now explore Canada’s only Province with a higher ratio of males than females. Alberta is a Province in Canada with a total population of 4,543,111 individuals. It is the only Canadian Province that is more heavily populated by males, with a male population of 2,282,040 compared to 2,261,071 females, thus having a ratio of approximately 1.01, which is comparable to that of the 1st tercile in Figure 1 (Jeudy 2022). This means that there are about 11,000 more men than women residing in this Province. Part of the population gap can be explained by age, as Alberta has a primarily young population, we typically see that as populations age they exhibit a higher female population (Wakefield 2017). Its trades centric economy also attracts male migrants from across Canada (Wakefield 2017). Concerning the original paper, Alberta’s population growth can be largely attributed to international immigration which has typically brought equal numbers of both males and females (Wakefield 2017). However, according to the 2021 census, 101,650 more males are single (not married or living common law and never married) than women (Government of Canada 2023). Due to Alberta’s young population, highly concentrated with men of working age, a comparison can be made to the term ‘mating-aged’ used in the original paper to describe higher tensions of dating competition. We thus believe that similar conditions for dating and marriage markets can be made between Alberta and the German municipalities of that the 1st Tercile from Figure 1. While population demographics are comparable between that of Alberta and the 1st tercile of German municipalities in the original paper, it is difficult to suggest that potential competition in Albertan dating and marriage markets correlates to anti-refugee sentiments and violence. However, in addressing Albertan immigrant and refugee statistics we will aim to illustrate how these patterns found in Germany can manifest in the context of Alberta. Based on the 2021-2022 Annual Population Report, Alberta welcomed 12,603 immigrants and 21,434 non-permanent residents, which include refugees (“Population Statistics” 2023). While previous accounts have suggested that immigration has brought an equal number of males and females, it is safe to assume that Alberta is a growing population, subject to a population with a higher concentration of males (Wakefield 2017). According to a 2018 paper, at the time 6 in 10 Canadians disagreed when asked if immigration levels were too high, with 35% believing that Canada accepts too many immigrants (Perreux 2018). However, sentiments appear less than positive in Alberta, with Albertans expressing harsher attitudes towards immigrants and refugees (Perreux 2018). 48% of Albertans at the time agreed that refugee claims are not filed from real refugees, with 62% stating that immigrants do not adopt Canadian values, about 10% higher than the national average of 51% (Perreux 2018). The globe and mail suggest that part of Alberta’s higher anti-refugee attitudes can

be attributed to its economy and fears of competition. We also see that in Dancygier, Egami, Jamal, and Rischke’s paper, they find that in areas where men significantly outnumber women, there are higher levels of anti-refugee hate crimes (Dancygier et al. 2021). Based on these statistics, we believe that it is possible that Alberta can be experiencing a similar effect of anti-refugee sentiments in part as a result of increased immigrants/ refugees and competition in a young male-dominated population. However, as stated in their original paper, far more research has to be conducted on this effect to get a better understanding of its implications on non-German countries.

4.3 Ethical Implications

In their paper, Dancygier, Egami, Jamal, and Rischke examine the ethical implication of using experimental methodologies to investigate their research topic. By using descriptive data in the form of surveys they are able to investigate the opinions of non-immigrant German males and their perception of mate competition and its translation to anti-refugee violence. By avoiding experimental trials, they were able to explore their topic without provoking anti-refugee sentiment, which might have been a possible outcome had trials been conducted (Dancygier et al. 2021). While conducting experimental trials on this topic of research is considered unethical, surveys and questionnaires may have a tendency to give respondents the impression that their opinions are commonly shared or even accurate. By being presented with a platform to express their perception of mate competition and if they agree that violence towards refugees is the only way to garner the attention of German politicians, respondents may feel that their opinions are incorrectly justified. This then has the potential to translate to violence towards German refugees.

4.4 Accounting for Bias

Ethical implications and biases arise naturally when collecting quantitative and qualitative data. In their paper, Dancygier, Egami, Jamal, and Rischke use online survey platforms to assess if Germans living in areas with greater populations of men who experience turmoil in the mating market are more likely to perceive competition between themselves and refugees, moreover, does this ideology predict hate crime support (Dancygier et al. 2021). The authors attempted to address ethical concerns and statistical biases by utilizing control groups and replicating their study with different samples and polling firms. However, one potential bias that is challenging to control for is the presence of sampling bias (Dancygier et al. 2021). Sampling bias occurs when participants in a study are not representative of the estimand or the ideal population of interest. One method to control for this bias is simple random sampling, where participants are chosen by chance. Meaning that every individual in the population/ estimand has an equal chance of being selected. However, in their study, they were unable to utilize simple random sampling. Instead attempted to make their survey results representative by conducting four waves of surveys meant to be representative of age, gender and state/ geographical region [Dancygier et al. (2021)]. Despite their effort, their survey results may not be entirely representative as individuals who have a strong interest in the subject matter are more likely to participate, meaning they do not reflect the views of all non-immigrant German males (Dancygier et al. 2021).

4.5 Limitations

4.6 Future Research

As suggested in their original paper, Dancygier, Egami, Jamal, and Rischke call for future research to investigate how their findings apply to less ethnically distinct groups, with less aggressive media attention and under non-heteronormative roles (cite paper). They further call for tests in ethnonational countries and in regions where females overpopulate males to see if their findings apply to women (cite paper). As Global migration and refuge continue to increase, we anticipate that this field of study will become increasingly significant. It is thus crucial to expand on their findings to assess how they apply in varying nations. This

is in hopes to create policy changes and account for preventative measures to avoid increased anti-refugee sentiments and hate crimes caused by sex-driven competition. We further hope for this field of research to be applied under less heteronormative circumstances and work to account for queer-identifying individuals.

References

- “2022 Annual Report to Parliament on Immigration.” 2022. *Government of Canada*, November. <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/annual-report-parliament-immigration-2022.html>.
- Blair, Graeme, and Kosuke Imai. 2010. “list: Statistical Methods for the Item Count Technique and List Experiment.” Available at The Comprehensive R Archive Network (CRAN). <https://CRAN.R-project.org/package=list>.
- “Canada Refugee Statistics 1960-2023.” n.d. *MacroTrends*. <https://www.macrotrends.net/countries/CAN/canada/refugee-statistics>.
- Dancygier, Rafaela, Naoki Egami, Amaney Jamal, and Ramona Rischke. 2021. “Hate Crimes and Gender Imbalances: Fears over Mate Competition and Violence Against Refugees.” *American Journal of Political Science* 66 (2): 501–15. <https://doi.org/10.1111/ajps.12595>.
- Garbuszus, Jan Marvin, and Sebastian Jeworutzki. 2021. *Readstata13: Import 'Stata' Data Files*. <https://CRAN.R-project.org/package=readstata13>.
- Government of Canada, Statistics Canada. 2023. “Census Profile, 2021 Census of Population profile Table.” *Statistics Canada*, February. <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Alberta&DGUIDlist=2021A000248&GENDERlist=1%2C2%2C3&STATISTIClist=1&HEADERlist=0>.
- Hugh-Jones, David. 2022. *Huxtable: Easily Create and Style Tables for LaTeX, HTML and Other Formats*. <https://CRAN.R-project.org/package=huxtable>.
- Jeudy, Lucie. 2022. “Canada: Resident Population by Gender and Province 2022.” *Statista*, October. <https://www.statista.com/statistics/444783/canada-resident-population-by-gender-and-province/>.
- Long, Jacob A. 2022. *Jtools: Analysis and Presentation of Social Scientific Data*. <https://cran.r-project.org/package=jtools>.
- Moreau, Gregory, and Jing Hui Wang. 2022. “Police-Reported Hate Crime in Canada, 2020.” *Government of Canada, Statistics Canada*, March. <https://www150.statcan.gc.ca/n1/pub/85-002-x/2022001/article/00005-eng.htm>.
- Müller, Kirill. 2020. *Here: A Simpler Way to Find Your Files*. <https://CRAN.R-project.org/package=here>.
- Perreaux, Les. 2018. “Canadian Attitudes Toward Immigrants, Refugees Remain Positive: Study.” *The Globe and Mail*, March. <https://www.theglobeandmail.com/canada/article-canadian-attitudes-toward-immigrants-refugees-remain-positive-study/>.
- “Population Statistics.” 2023. *Alberta*, January. <https://www.alberta.ca/population-statistics.aspx>.
- R Core Team. 2020. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.
- Schulz, Andreas. 2021. *pBrackets: Plot Brackets*. <https://CRAN.R-project.org/package=pBrackets>.
- Venables, W. N., and B. D. Ripley. 2002. *Modern Applied Statistics with s*. Fourth. New York: Springer. <https://www.stats.ox.ac.uk/pub/MASS4/>.
- Wakefield, Jonny. 2017. “Alberta Is Canada’s Only Majority-Male Province.” *Edmonton Journal*, May. <https://edmontonjournal.com/news/local-news/census-2016s-odd-man-out-alberta-canadas-only-majority-male-province/>.
- Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D’Agostino McGowan, Romain François, Garrett Grolemond, et al. 2019. “Welcome to the tidyverse.” *Journal of Open Source Software* 4 (43): 1686. <https://doi.org/10.21105/joss.01686>.
- Wickham, Hadley, Romain François, Lionel Henry, and Kirill Müller. 2022. *Dplyr: A Grammar of Data Manipulation*. <https://CRAN.R-project.org/package=dplyr>.
- Wickham, Hadley, Jim Hester, and Jennifer Bryan. 2023. *Readr: Read Rectangular Text Data*. <https://CRAN.R-project.org/package=readr>.
- Xie, Yihui. 2014. “Knitr: A Comprehensive Tool for Reproducible Research in R.” In *Implementing Reproducible Computational Research*, edited by Victoria Stodden, Friedrich Leisch, and Roger D. Peng. Chapman; Hall/CRC.
- Zeileis, Achim. 2006. “Object-Oriented Computation of Sandwich Estimators.” *Journal of Statistical Software* 16 (9): 1–16. <https://doi.org/10.18637/jss.v016.i09>.
- Zeileis, Achim, and Torsten Hothorn. 2002. “Diagnostic Checking in Regression Relationships.” *R News* 2

(3): 7–10. <https://CRAN.R-project.org/doc/Rnews/>.
Zhu, Hao. 2021. *kableExtra: Construct Complex Table with 'Kable' and Pipe Syntax*. <https://CRAN.R-project.org/package=kableExtra>.