DSCI 522: Individual Assignment 3: Historical Horse Population in Canada

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2025-12-07

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GitHub Repository

https://github.com/arubc/dsci-522-ia3

Aim

The purpose of this report is to explore the historical population of horses in Canada between 1906 and 1972 and to identify which provinces experienced the greatest variability in horse population levels over time.

Data

The horse population dataset used for this analysis originates from the Government of Canada's Open Data Portal (@govcan2017a; @govcan2017b).

The dataset contains annual horse population counts for each province from 1906–1972.

Methods

All analyses were conducted using the Python programming language (@vanrossum2009) along with the following libraries:

- **pandas** (@mckinney2010)
- **altair** (@vanderplas2018)
- **click** (@click2020)
- **Quarto** (@allaire2022)

The script `generate_figures.py` was used to preprocess the data, generate figures, and compute summary statistics for each province.

Results

Horse populations peaked in the early 1900s and declined sharply after 1940.
Ontario, Saskatchewan, and Alberta consistently reported the highest counts, reflecting agricultural demand prior to the growth of the automotive industry.

Overall Horse Populations

As shown in Figure 1, overall horse populations varied greatly across provinces during the 1906–1972 period.

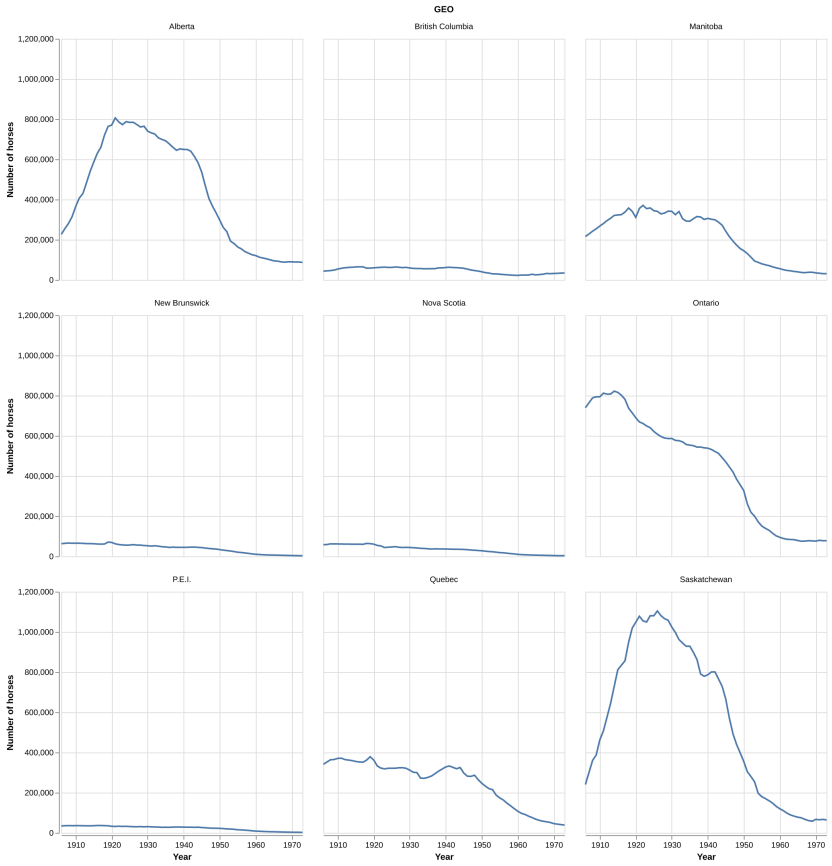

Figure 1: Historical horse population across provinces

Summary Table of Variability

The variability (standard deviation) in horse populations across years for each province is summarized in Table Table 2.

	Province	Std
0	Saskatchewan	377265.575896
1	Ontario	266435.317269
2	Alberta	266063.191824
3	Manitoba	122403.871037
4	Quebec	111411.104370
5	New Brunswick	22019.494316
6	Nova Scotia	19879.253759
7	British Columbia	14945.664171
8	P.E.I.	11355.747559

Table 2

Table 1: Standard deviation of horse populations across provinces.

Province With Highest Variability

As shown in Figure 2, horse population trends fluctuated substantially over the 1906–1972 period.

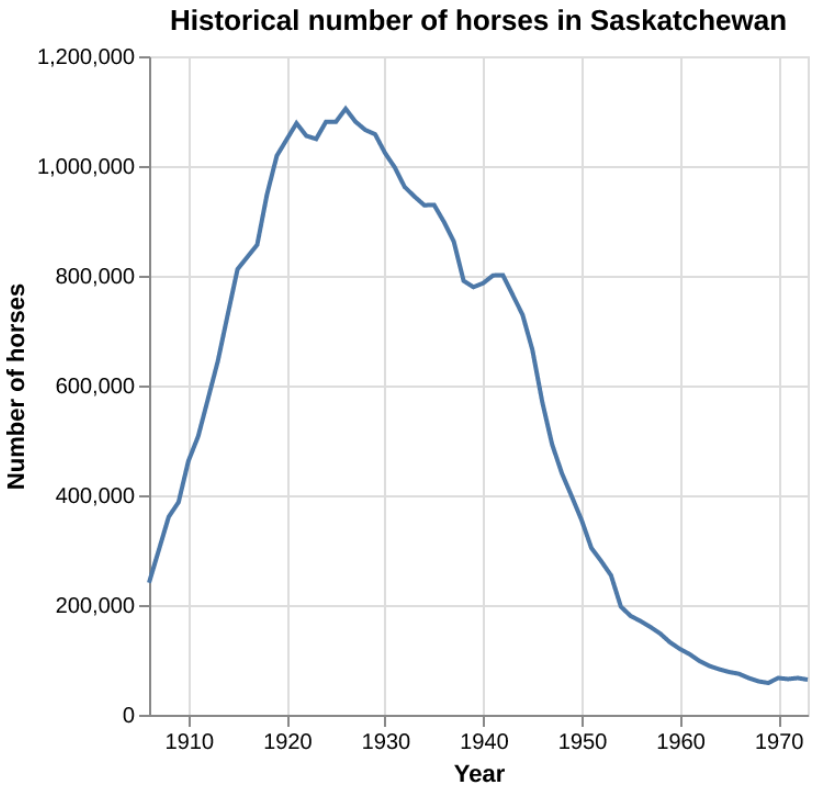

Figure 2: Historical horse population for the province with the largest standard deviation

References

This dataset was obtained from @canada2017a and @canada2017b.