



Women Entrepreneurs in Saskatchewan Economic Statistics

Prepared for WESK by PwC

May 20, 2020

Sponsored by:



Prepared by:



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Executive summary

Study objective, scope and methodology

Objective: Estimate economic statistics to understand women entrepreneurship in Saskatchewan

Scope of the study

PricewaterhouseCoopers LLP (“PwC”) was engaged by the Women Entrepreneurs of Saskatchewan (“WESK”) to estimate metrics that describe women entrepreneurship activity levels in Saskatchewan as it relates to:

- Number of businesses with employees
- Number of employees
- Revenues
- Sectors of operations/business activity
- City of location
- Ownership type (sole proprietorship, incorporated)
- Majority women-owned and women-led businesses
- Aggregate economic contribution

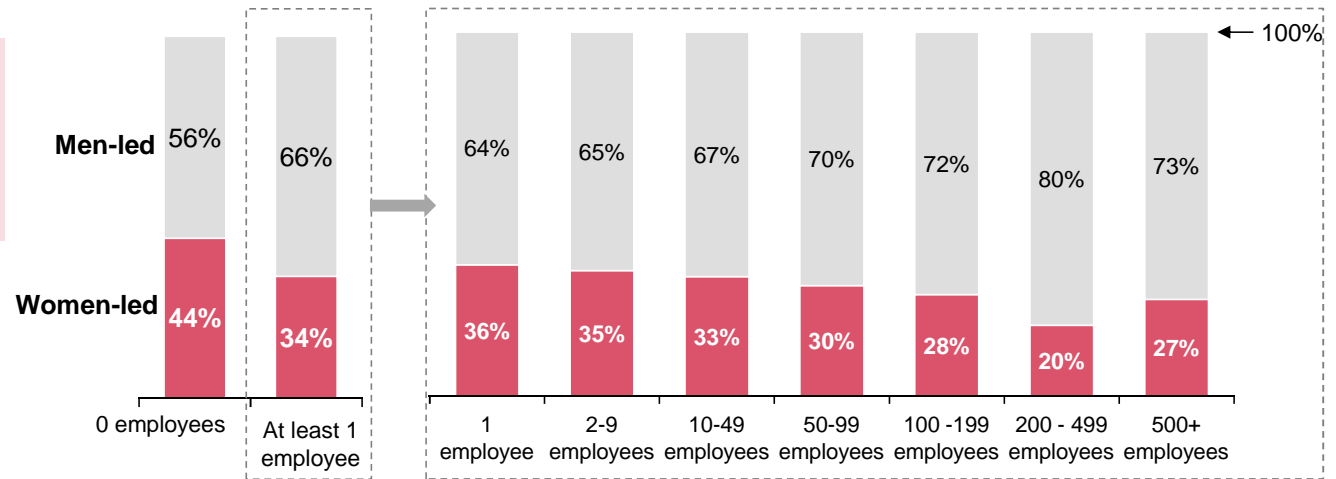
Study methodology

From a PwC proprietary data set of 70,874 businesses in Saskatchewan, we used a sample equal to 8.4% of the total businesses for which the CEO/owner/lead executive’s gender could be ascertained:

1. Data compilation
2. Data preparation and quality checks
3. Sampling
4. Sample preparation
5. Data analysis
6. Summarize findings

The case for scaling up women entrepreneurship

Across all business size categories, the total number/share of women-led businesses is lower than that of men-led businesses.



Women are less likely to lead a business as the size of the business increases.

Scaling up women-led businesses should be a key initiative in closing the women entrepreneurship gap.

Women Entrepreneurship Intensity Ratio:

Women-led businesses in the business size category as a % of all women-led businesses / Men-led businesses in the business size category as a % of all men-led businesses

Business size	1	2-9	10-49	50-99	100-199	200-499	500+
Number of employees			49	99	199	499	
Women Entrepreneurship intensity Ratio	1.08	1.00	0.93	0.83	0.74	0.46	0.74

- Higher women (than men) entrepreneurship concentration in this category
- Lower women (than men) entrepreneurship concentration in this category

Women led businesses tend to have a lower revenue and asset base

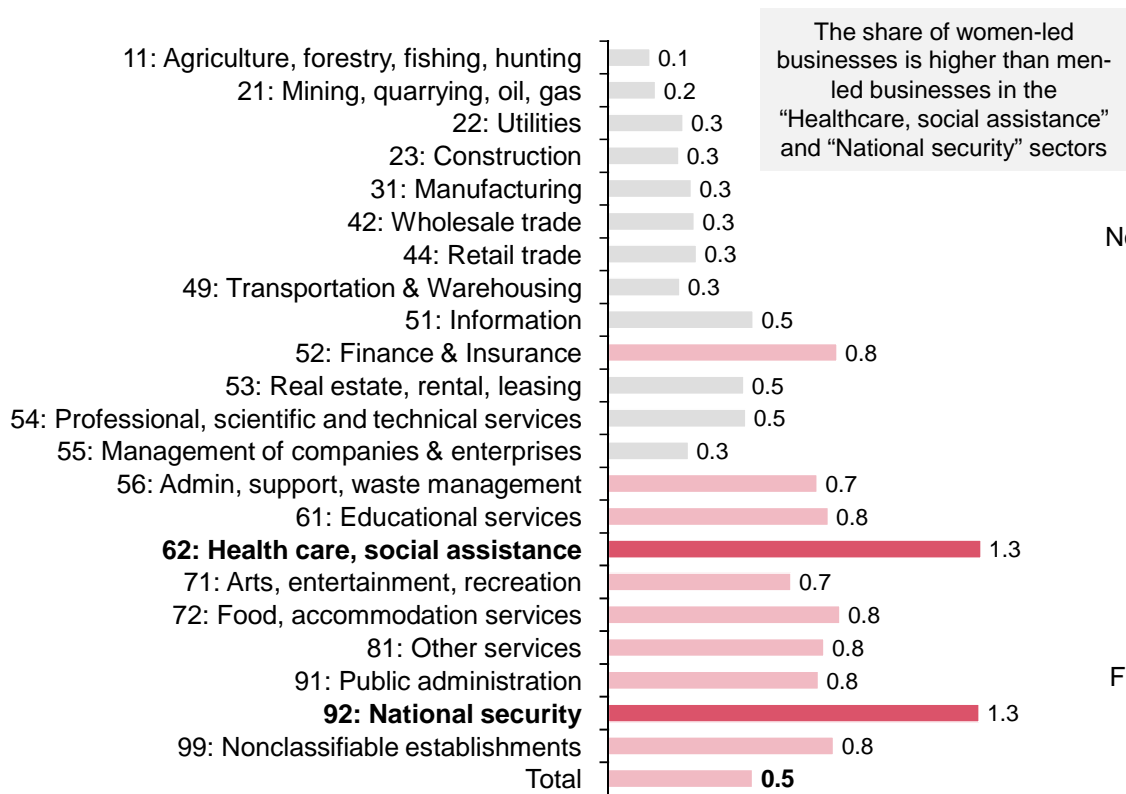
- **Employees:** For businesses with less than 500 employees, women-led businesses have a slightly greater average number of employees, and for businesses with 500+ employees, the average labour force size of men-led businesses is more than double that of women-led businesses.
- **Average revenue:** For businesses with 1-49 employees, women-led businesses have lower revenues. For businesses with 50-99 employees, women-led businesses have higher revenues. For larger businesses with 100+ employees, men-led businesses generally have larger revenues, but the difference is not statistically significant (due to high variance/extreme values).
- **Average assets:** Women-led businesses have a substantially lower asset base suggesting they are less capital intensive than men-led businesses.

Business size category (Number of employees)	Average number of employees (average)		Average revenue (USD*)		Average assets (USD*)	
	Women-led	Men-led	Women-led	Men-led	Women-led	Men-led
1 employee	1	1	\$ 214,977	\$ 225,692	N/A	N/A
2-9 employees	4	4	\$ 870,053	\$ 995,707	\$ 572,711	\$ 2,059,025
10-49 employees	18	18	\$ 4,404,236	\$ 5,470,239	\$ 15,800,118	\$ 51,744,224
50-99 employees	64	63	\$ 25,492,165	\$ 19,588,661	N/A	N/A
100-199 employees	129	129	\$ 54,384,155	\$ 50,666,394	N/A	N/A
200-499 employees	321	270	\$ 311,693,734	\$ 327,668,836	\$ 523,453,534	\$ 2,692,646,393
500+ employees	1,032	2,393	\$1,263,122,288	\$ 1,914,527,242	N/A	\$ 8,190,488,179

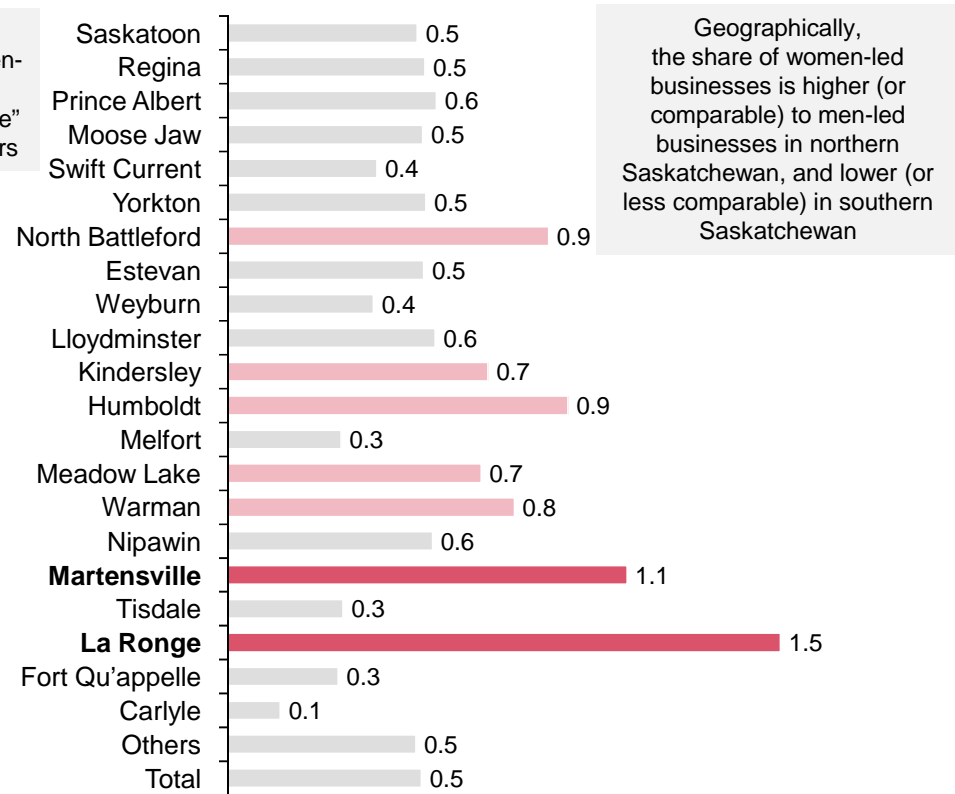
* The analysis relies on a global data source in which all figures are reported in the United States Dollars (USD)

Women-led businesses vs. Men-led businesses by sector and by city

Ratio of women-led businesses to men-led businesses by sector



Ratio of women-led businesses to men-led businesses by city



Other observations

- **Capital intensity:** Women-led businesses generally tend to be more labor-intensive and less capital intensive, especially in businesses with less than 500 employees. Combined with the types of business sectors they tend to concentrate in suggests that women-led businesses are more concentrated in the lower productivity and/or less technologically oriented sub-sectors of the economy. This is illustrated by the fact that women led businesses employ about 33% of the workforce but contribute only about 26% of GDP.
- **Business headquarters:** Women-led businesses are more often headquartered in Saskatchewan (i.e. women led businesses tend not to be subsidiaries of international companies).
- **Ownership type:** 95% of men-led businesses are incorporated (private/publicly traded), compared to 88% of women-led businesses. Women-led businesses are relatively more likely to be organized in the form of partnerships, public sector organizations, non-profit and unincorporated entities.

1

Introduction

Background and scope of the study

Objective: Augment the knowledge base regarding women entrepreneurship in Saskatchewan

Background

Women Entrepreneurs of Saskatchewan (“WESK”) and the Saskatchewan Advisory Committee (“SAC”) aim to address the gender gap in entrepreneurship in Saskatchewan. This is expected to advance economic growth in Saskatchewan through enhanced opportunities for women entrepreneurs and the scaling of their businesses.



Women entrepreneurs in Saskatchewan
PwC

Scope of the study

PricewaterhouseCoopers LLP (“PwC”) was engaged by WESK to identify and estimate a set of metrics that would support WESK and the SAC in their comprehensive overview of women entrepreneurship in Saskatchewan.

The following metrics were identified for comparative statistics on entrepreneurship by gender (“the identified metrics”):

- Number of businesses with employees
- Number of employees
- Revenues
- Sectors of operations/business activity
- City of location
- Ownership type (sole proprietorship, incorporated)
- Majority women-owned and women-led businesses
- Aggregate economic contribution

2

Methodology

Study approach and methodology



1. Data compilation



2. Data preparation and quality checks



3. Sampling



4. Sample preparation



5. Data analysis



6. Summarize findings

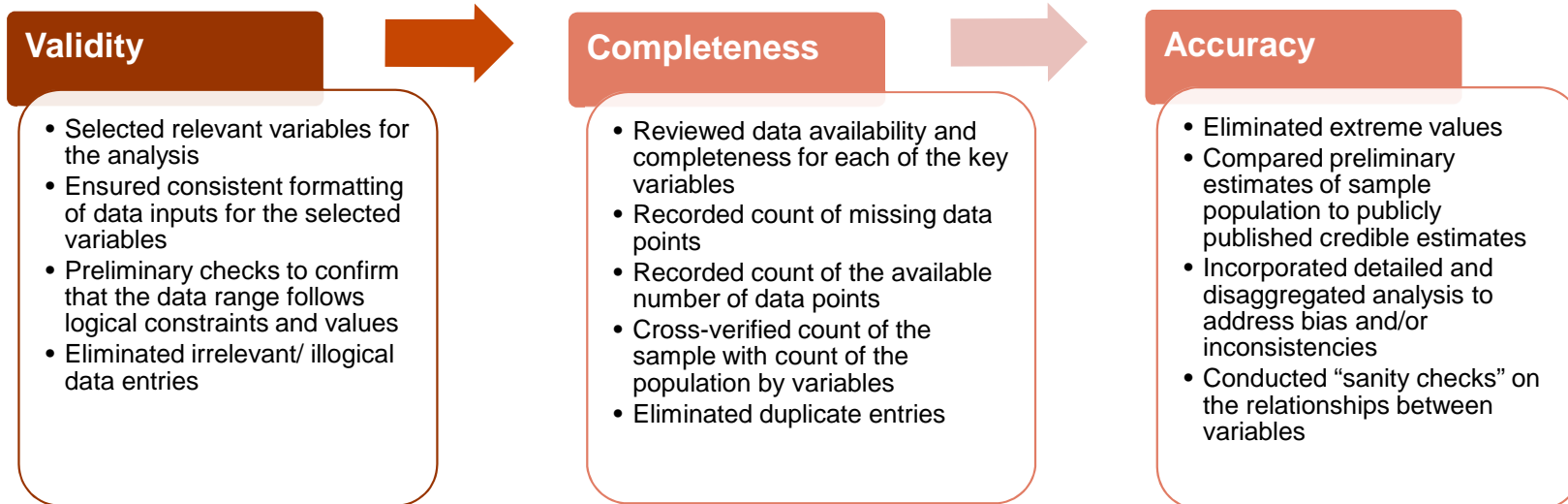
Data compilation, preparation and quality checks

1. Data compilation:

We compiled data on the identified metrics from a PwC proprietary data set of 70,874 businesses in Saskatchewan. We note that the analysis and estimates presented in this report rely on the accuracy of the underlying data.

2. Data preparation and quality checks:

The compiled data was thoroughly examined to ensure its validity, completeness and accuracy for analysis.



Sampling

3. Sampling – 8.4% of the total population

PwC proprietary data consisted of “First name” and “Last name” for the executives of 6,022 businesses. We used “R” statistical computing and graphics software, which has been trained through machine learning techniques for capabilities to determine gender based on name. Using this software, we determined the gender for the names of 95% of business executives with certainty. Through primary research, we determined the gender for a portion of the remaining business executives. The end result was a sample of 5,964 businesses (or 8.4% of the total population) for which we were able to determine whether the business is women-led or men-led.

Process used to determine which gender leads a business

A wide range of executive titles were reported across businesses. Some businesses reported names and titles of multiple executives and/or ownership. For the purpose of this study we took the following steps to determine whether a business is men-led or women-led:

1. The “CEO” title was selected as the first choice because:
 - Women ownership does not necessarily imply women entrepreneurship
 - Data on ownership was too limited to conduct a statistically significant analysis
2. The “Owner” title was selected where CEO title was not reported; and
3. The most senior title available (such as President, Chairperson etc.) was selected where neither CEO title or ownership were reported.

Sample preparation, data analysis and summarize findings

4. Sample preparation – sub-samples by business size to avoid “size bias”

Based on preliminary estimates of the key variables using population and sample data, we found a “size bias” in our sample. Our sample disproportionately captured data on large organizations. Thus, we have conducted our analysis on sub-samples defined by business size to control for the “size bias” in the total sample count.

5. Data analysis

Broadly, we followed a three-step approach in analyzing the data and arriving at final estimates:

- 1) Confirmed if the sample was representative of the population for each identified metric.
- 2) Estimated the average value or distribution of the identified metrics for women-led businesses and men-led businesses and measured the difference between the estimates.
- 3) Evaluated the statistical significance of the difference between the estimates.

6. Summarize findings

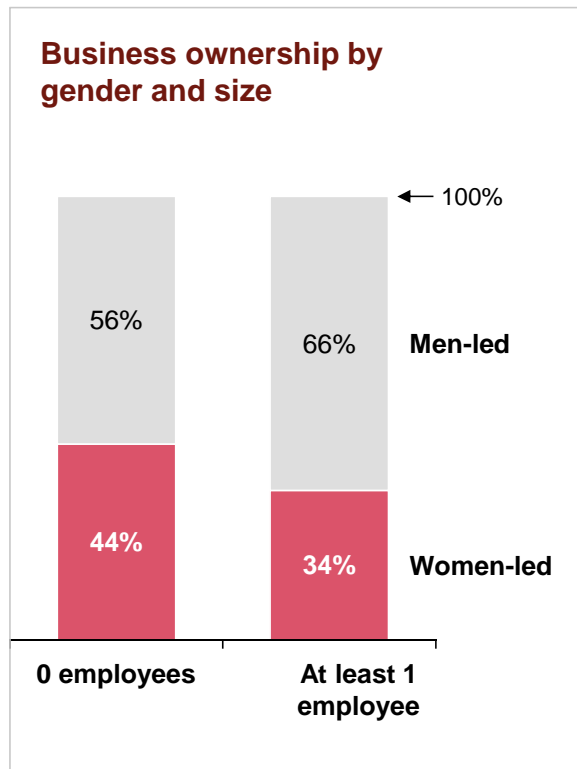
We summarized our findings inferred in this report using charts, tables, etc.

3

Metrics and insights

Women lead 34% of Saskatchewan businesses with at least 1 employee and 44% of businesses with no employees

Women are leading 21,427 of the 63,573 companies with at least 1 employee



Women entrepreneurs in Saskatchewan
PwC

Total number of businesses, by gender and size

Business size	Total	Women-led	Men-led
PwC proprietary data (used for the remaining analysis)			
0 employees	Limited coverage (only 6,585 businesses with 0 employees)		
At least 1 employee	63,573	21,427 (33.7%)	42,146 (66.3%)
Statistics Canada			
0 employees	105,974	46,852	59,122
At least 1 employee	43,417	14,634 (33.7%)	28,783 (66.3%)

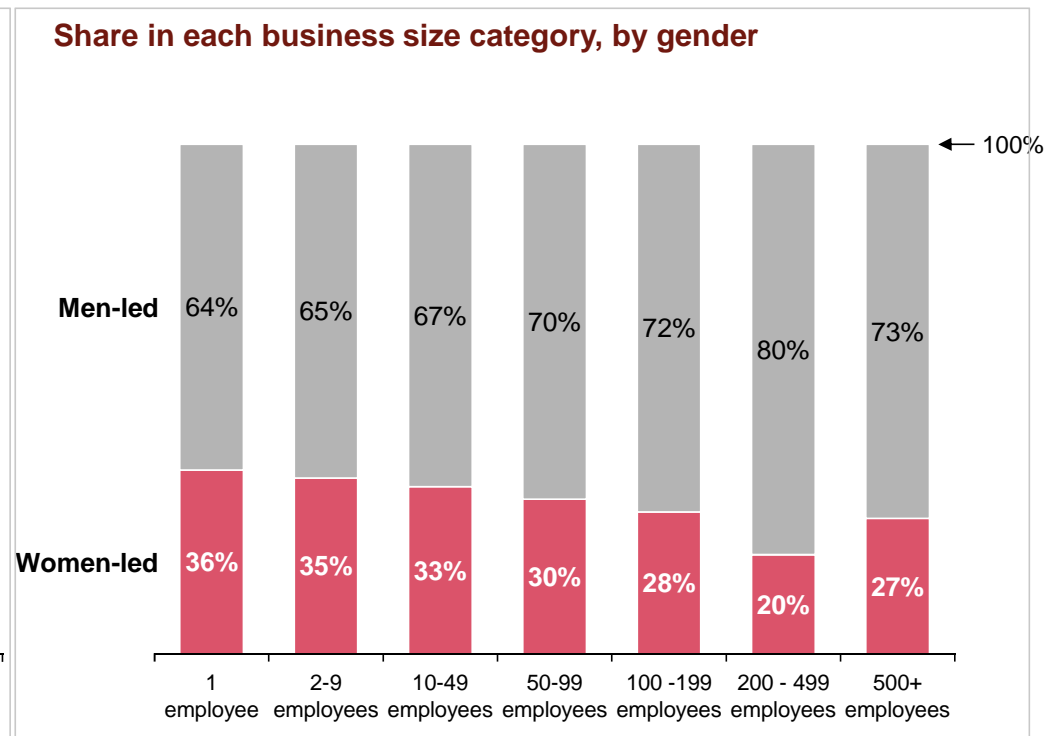
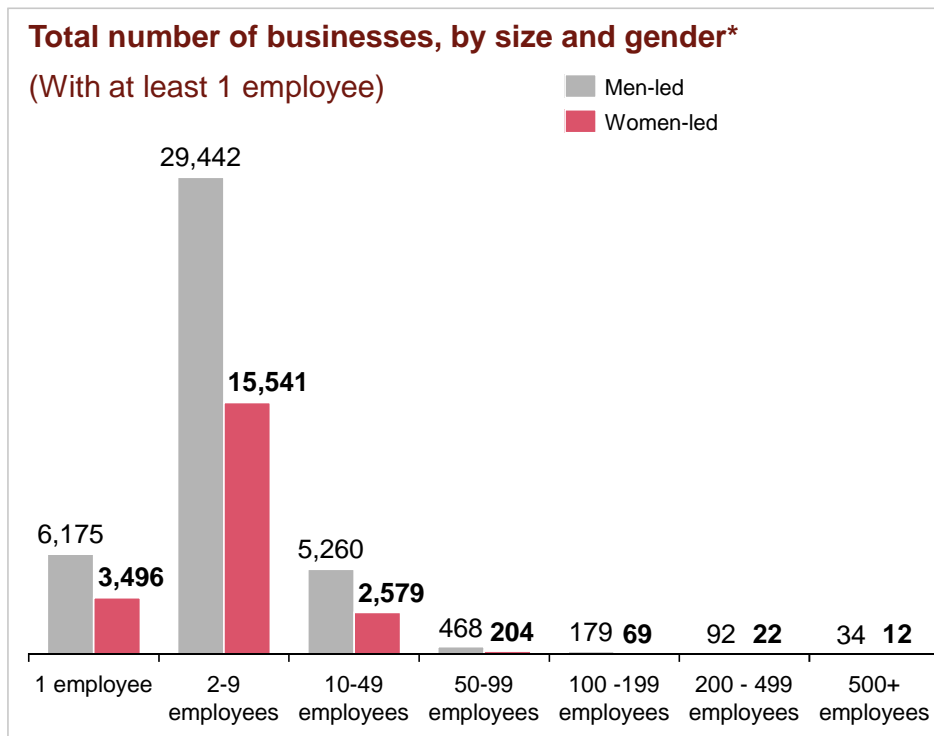
Note: Total number of businesses with at least 1 employee are significantly greater in PwC proprietary data than that reported by Statistics Canada. This is due to differences in the data collection methodology, primarily comprehensiveness of coverage. The reverse is true for total number of businesses with 0 employees.

Statistics Canada collects data from Business Registrars. PwC proprietary data focusses on operational organizations and covers all types of entities (including non-profit, non-corporates, subsidiaries)

Source: Statistics Canada. [Table 33-10-0214-01 Canadian Business Counts, June 2019](#), PwC proprietary data, PwC analysis and estimates

Women lead over 30% of small businesses (less than 99 employees), and close to 30% of larger businesses (over 99 employees)

Across all business size categories, total number & share of men-led businesses is greater. Share of men-led businesses increases as the business size category increases.



*Total numbers by size and gender are approximations derived from sample data so they do not add up to the numbers shown in the previous slide

Women are less likely to lead a business as the size of the business increases

	Business size (number of employees)							Total
	1	2-9	10-49	50-99	100-199	200-499	500+	
Women-led	15.94%	70.89%	11.76%	0.93%	0.32%	0.10%	0.06%	100.0%
Men-led	14.83%	70.69%	12.63%	1.12%	0.43%	0.22%	0.08%	100.0%
Women entrepreneurship intensity ratio*	1.08	1.00	0.93	0.83	0.74	0.46	0.74	

***Women entrepreneurship intensity ratio:** Women-led businesses in the business size category as a % of all women-led businesses / Men-led businesses in the business size category as a % of all men-led businesses

- Higher women (than men) entrepreneurship concentration in this category
- Lower women (than men) entrepreneurship concentration in this category

Scaling up women-led businesses should be a key initiative in closing the women entrepreneurship gap.

Women-led businesses have a slightly greater average number of employees across businesses with a size of less than 500 employees

The average workforce size of large businesses (with >499 employees) is more than double for men-led businesses compared to women-led businesses

Business size category (Number of employees)	Average number of employees		Difference (Women-led minus men-led)
	Women-led	Men-led	
1 employee	1	1	0
2-9 employees	4	4	0
10-49 employees	18	18	0
50-99 employees	64	63	1
100-199 employees	129	129	0
200-499 employees	321	270	51
500+ employees	1,032	2,393	(1,361)

Women-led businesses tend to have a lower revenue base

Business size category (Number of employees)	Average revenue (USD)		Difference (Women-led minus men-led) Actual \$,%	Probability of statistically significant difference
	Women-led	Men-led		
1 employee	\$ 214,977	\$ 225,692	(10,715) , (5%)	64%
2-9 employees	\$ 870,053	\$ 995,707	(125,654) , (13%)	100%
10-49 employees	\$ 4,404,236	\$ 5,470,239	(1,066,003) , (19%)	100%
50-99 employees	\$ 25,492,165	\$ 19,588,661	5,903,504 , 30%	86%
100-199 employees	\$ 54,384,155	\$ 50,666,394	3,717,761 , 7%	17%
200-499 employees	\$ 311,693,734	\$ 327,668,836	(15,975,102) , (5%)	4%
500+ employees	\$1,263,122,288	\$ 1,914,527,242	(651,404,954) , (34%)	24%

■ Lower revenue for women-led businesses/ Statistically significant difference

- For businesses with 1-49 employees, women-led businesses have relatively lower revenues.

■ Higher revenue / Statistically significant difference

- For businesses with 50-99 employees, women-led businesses have higher revenues.
- For larger businesses, men led businesses have a larger revenues base, but the difference is not statistically significant.

Small women-led businesses may have relatively lower revenues because of:

- Women unique motivational factors (e.g. need for work hours flexibility)
- Accessibility constraints like financing problems, gender discrimination by suppliers/customers

Women-led businesses are less capital intensive than men-led businesses

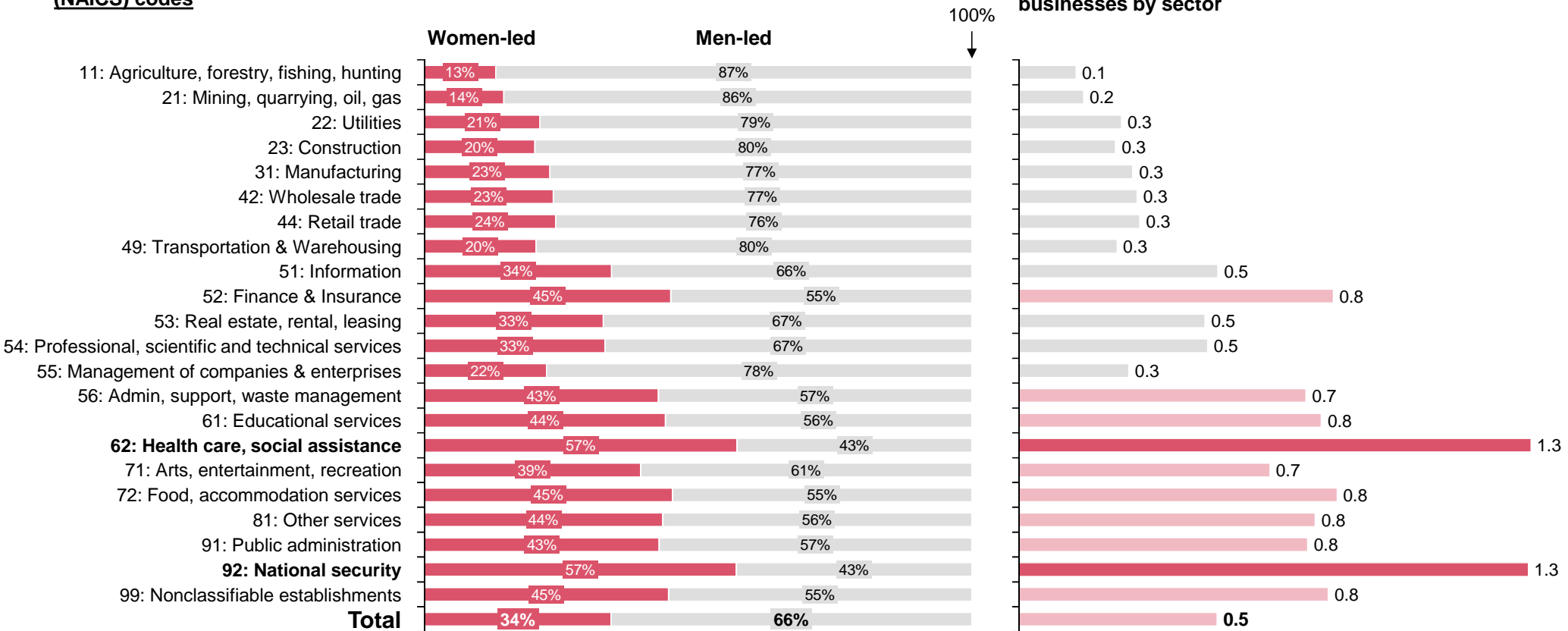
Business size category (Number of employees)	Average assets (USD)		Difference (Women-led minus men-led)	Probability of statistically significant difference
	Women-led	Men-led		
Data only available for select business size categories				
5-9 employees	\$ 572,711*	\$ 2,059,025	(1,486,314) , (72%)	NA*
10-49 employees	\$ 15,800,118	\$ 51,744,224	(35,944,106) , (69%)	62%
200-499 employees	\$ 523,453,534	\$ 2,692,646,393	(2,169,192,859), (81%)	4%
500+ employees	Small sample, not representative	\$ 8,190,488,179	Directionally negative	N/A

*Based on one data point, thus not valid from a statistical standpoint

In the 'Health care, social assistance' and 'National security' sectors, the share of women-led businesses appears to be greater than men-led businesses

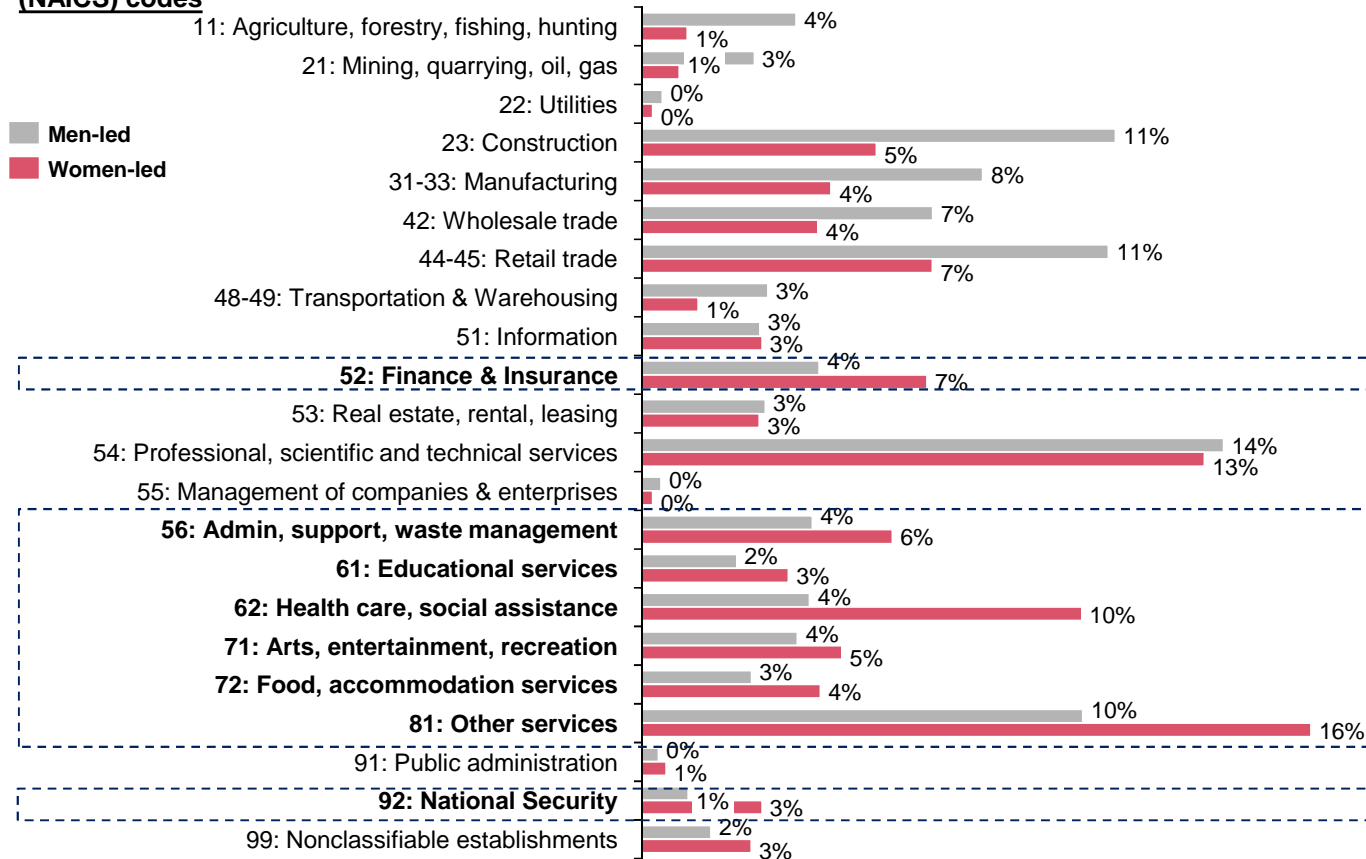
North American Industry Classification System (NAICS) codes

Ratio of women-led businesses to men-led businesses by sector



Gender led businesses in a sector as a percentage of total businesses led by that gender – across all businesses

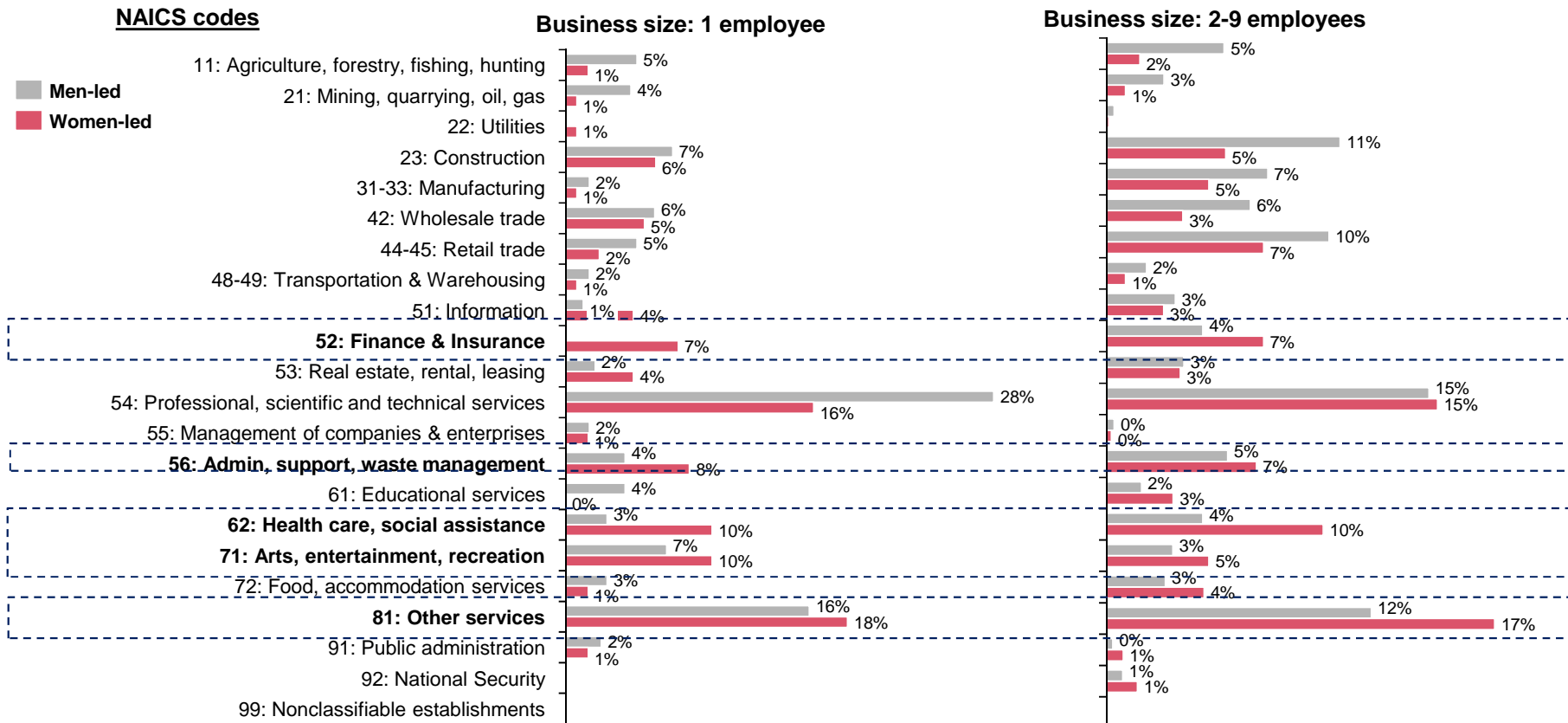
North American Industry Classification System (NAICS) codes



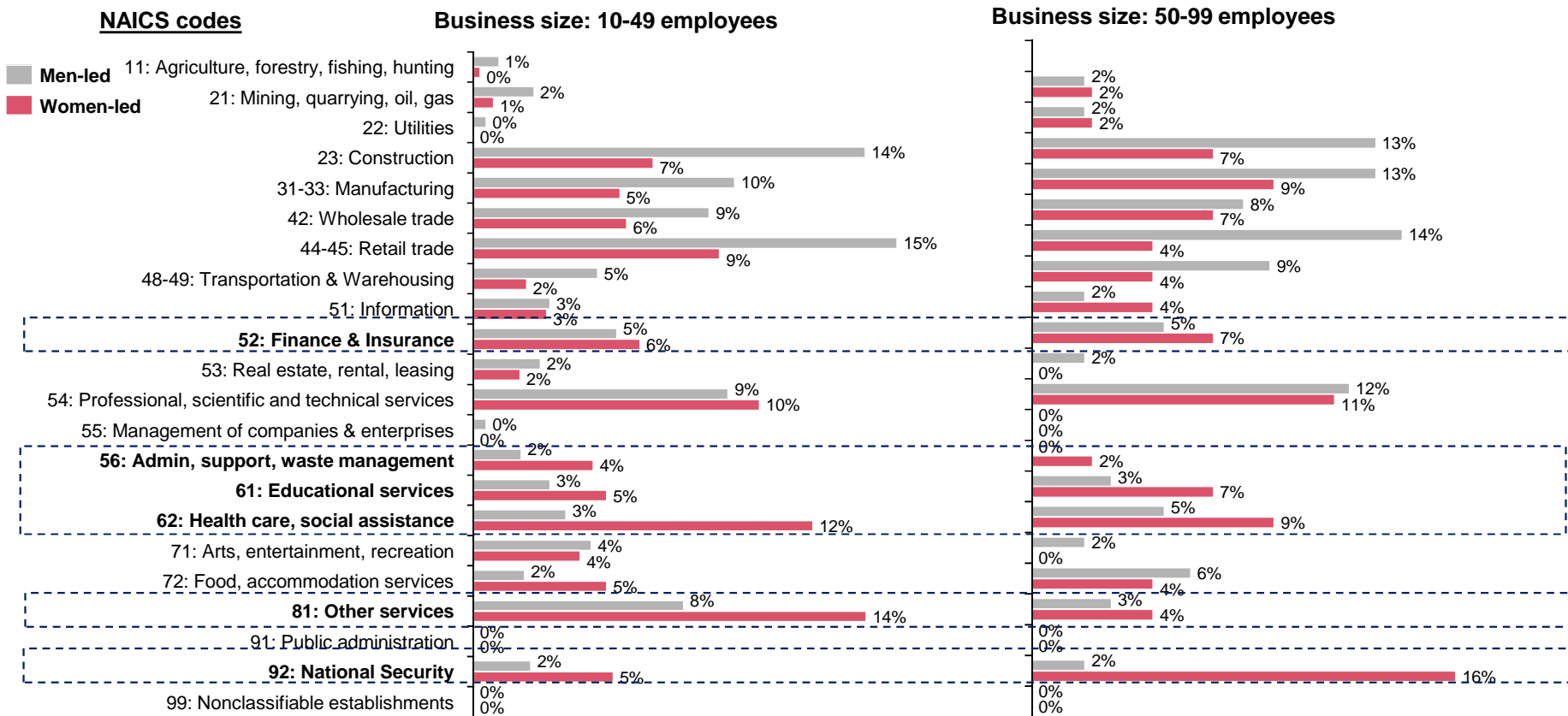
Women-led businesses tend to be biased towards the following sectors:

- Finance and insurance
- Admin, support, waste management
- Educational services
- Health care, social assistance
- Arts, entertainment, recreation
- Food, accommodation services
- National security
- Other services

Gender led businesses in a sector as a percentage of total businesses led by that gender – small businesses (1-9 employees)



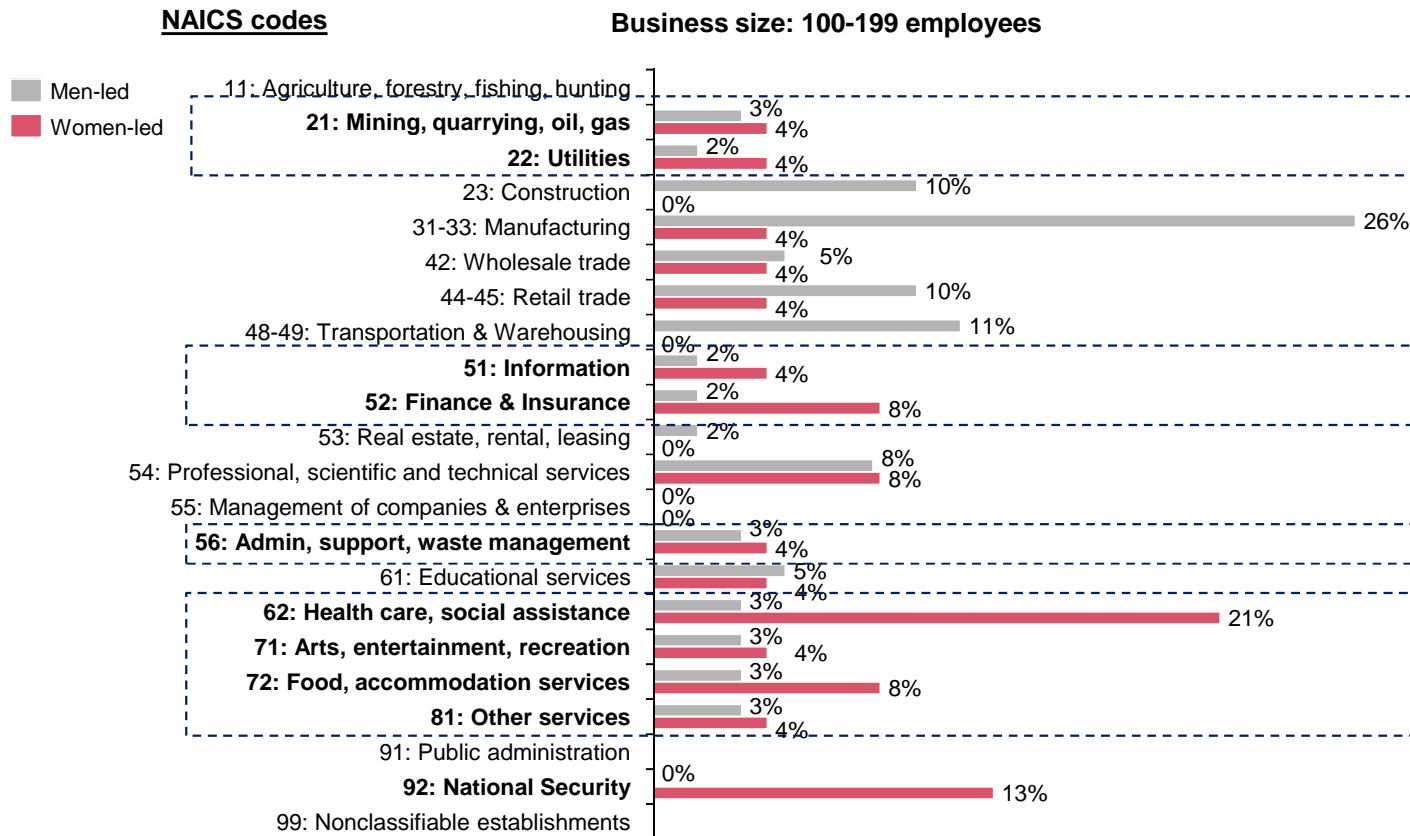
Gender led businesses in a sector as a percentage of total businesses led by that gender – 10-99 employee businesses



Women entrepreneurs in Saskatchewan
PwC

Note: 'Educational services' sector is underrepresented in our sample, and 'Construction', 'Professional, scientific, and technical services' are overrepresented relative to the population.

Gender led businesses in a sector as a percentage of total led businesses by that gender – 100-199 employees businesses



Women-led businesses tend to be biased towards:

- Health care, social assistance
- National security
- Food, accommodation
- Finance and insurance

Men-led businesses appear to be concentrated in:

- Construction
- Manufacturing
- Retail trade
- Transportation and warehousing

Sector bias for women and men-led large businesses (with 200+ employees)

Women-led businesses

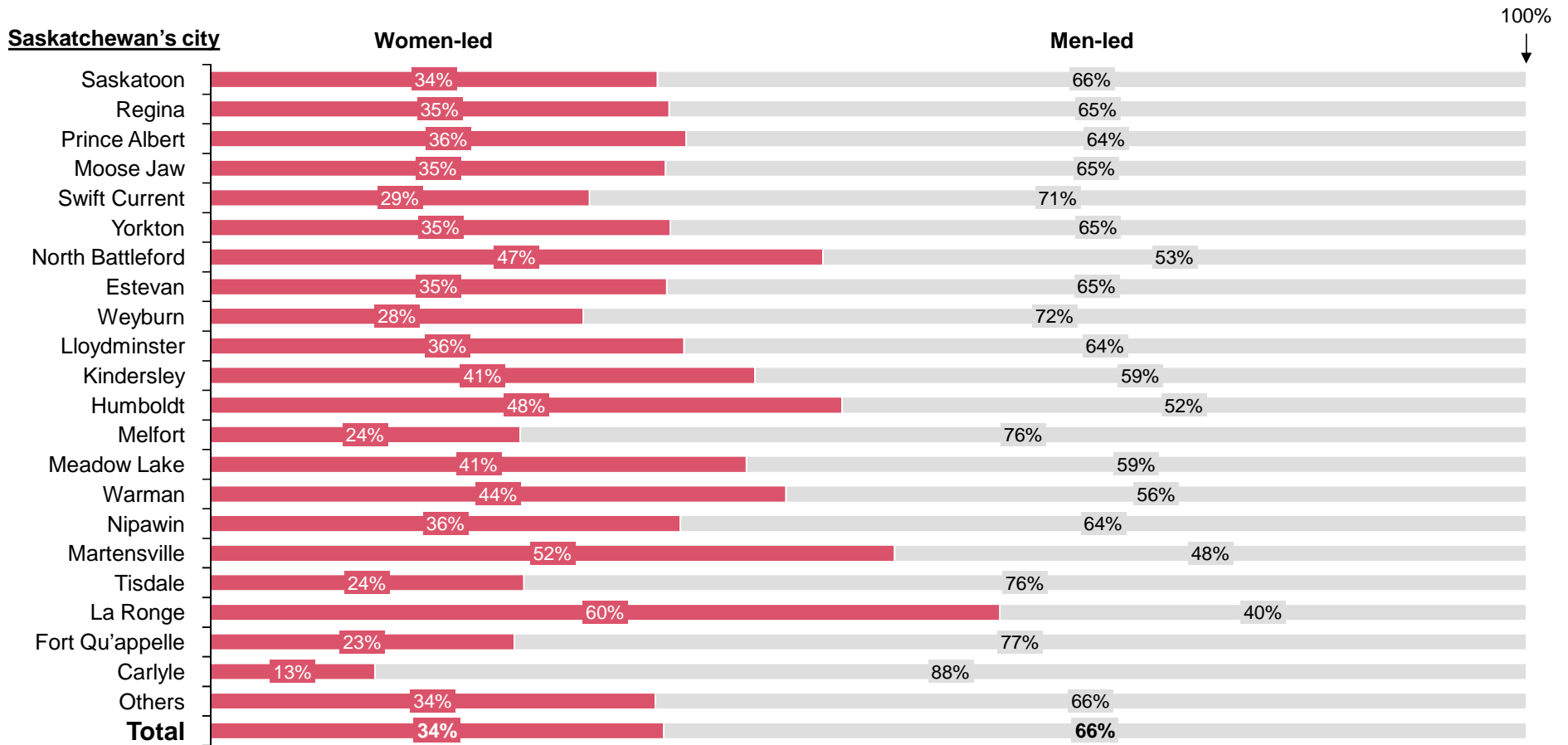
- 51: Information
- 61: Educational services
- 62: Health care, social assistance
- 71: Arts, entertainment, recreation

Men-led businesses

- 21: Mining, quarrying, oil, gas
- 22: Utilities
- 23: Construction
- 31-33: Manufacturing
- 54: Professional, scientific and technical services
- 72: Food, accommodation services

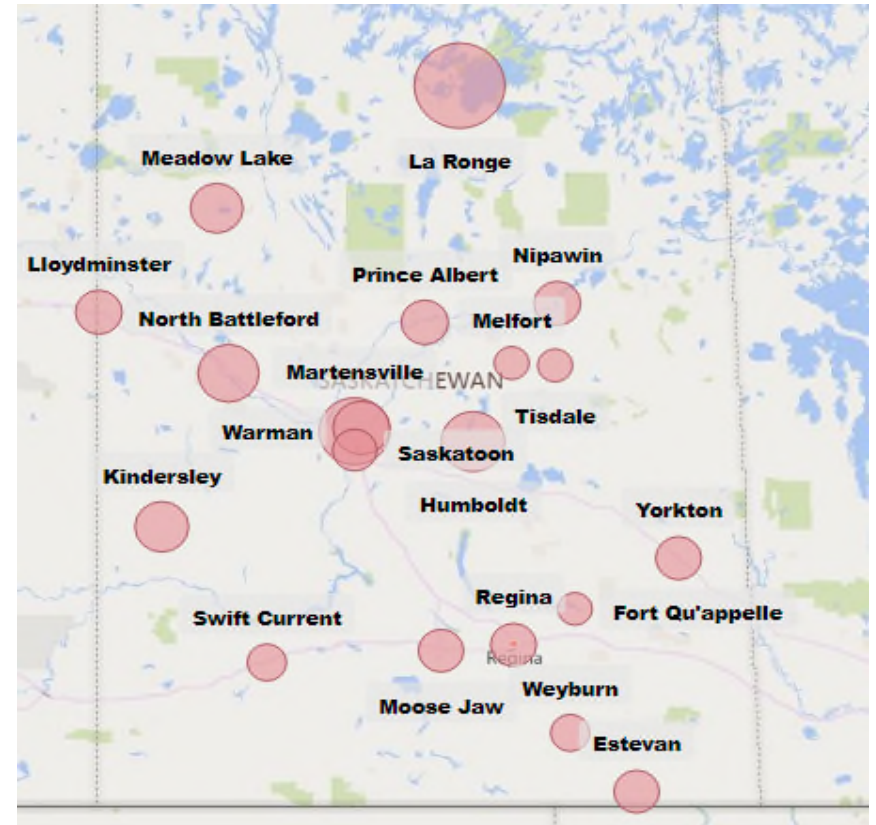
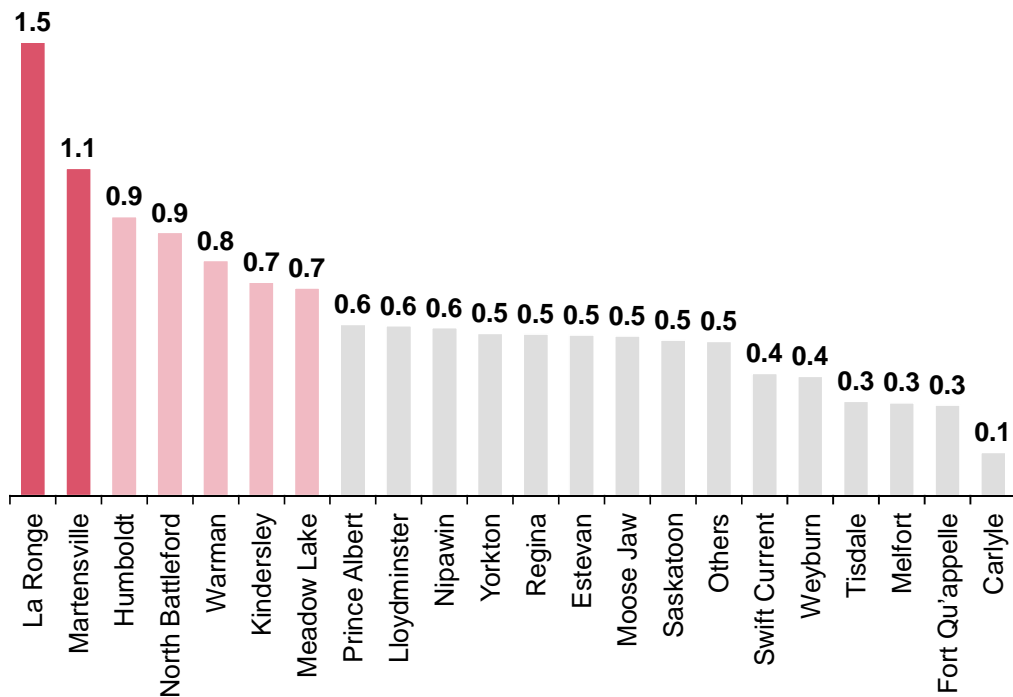
Note: It is difficult to develop credible estimates of the proportion of men- and women-led businesses by sector due to small sample size.

Gender led businesses by city: In La Ronge and Martensville women-led businesses are the majority



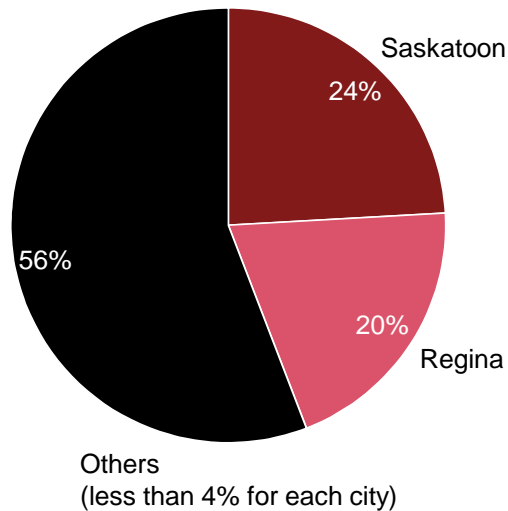
The share of women-led businesses tends to be lower in Southern Saskatchewan

Ratio of women-led businesses to men-led businesses

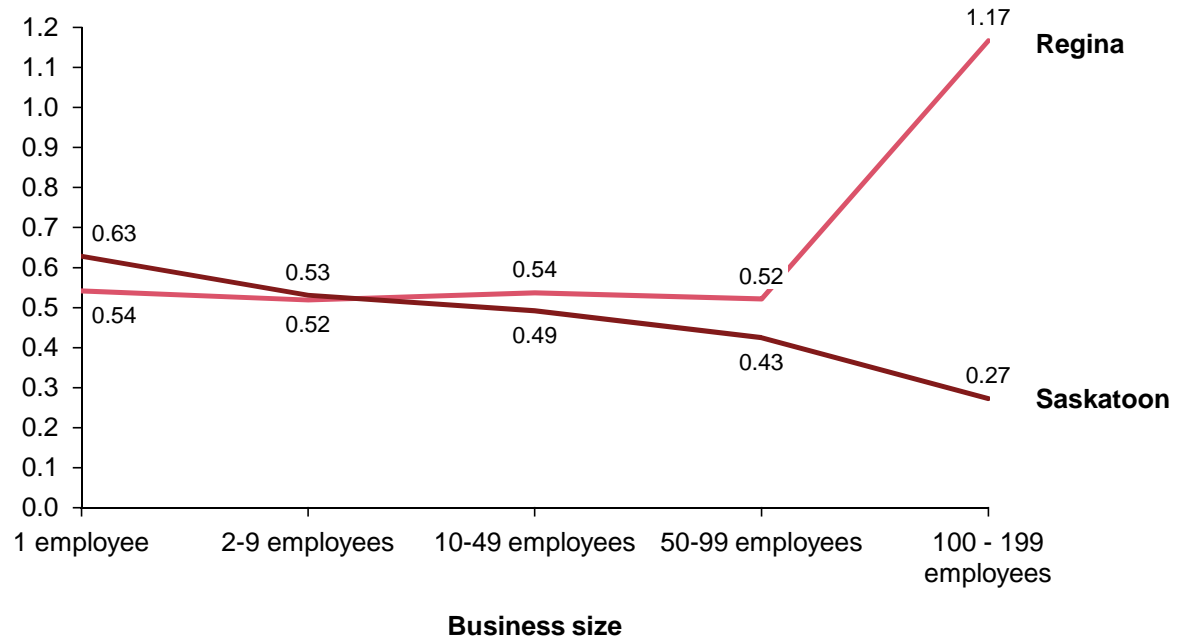


Women-led businesses in Regina appear to be of larger scale than those in Saskatoon

Share in total Saskatchewan businesses, by city

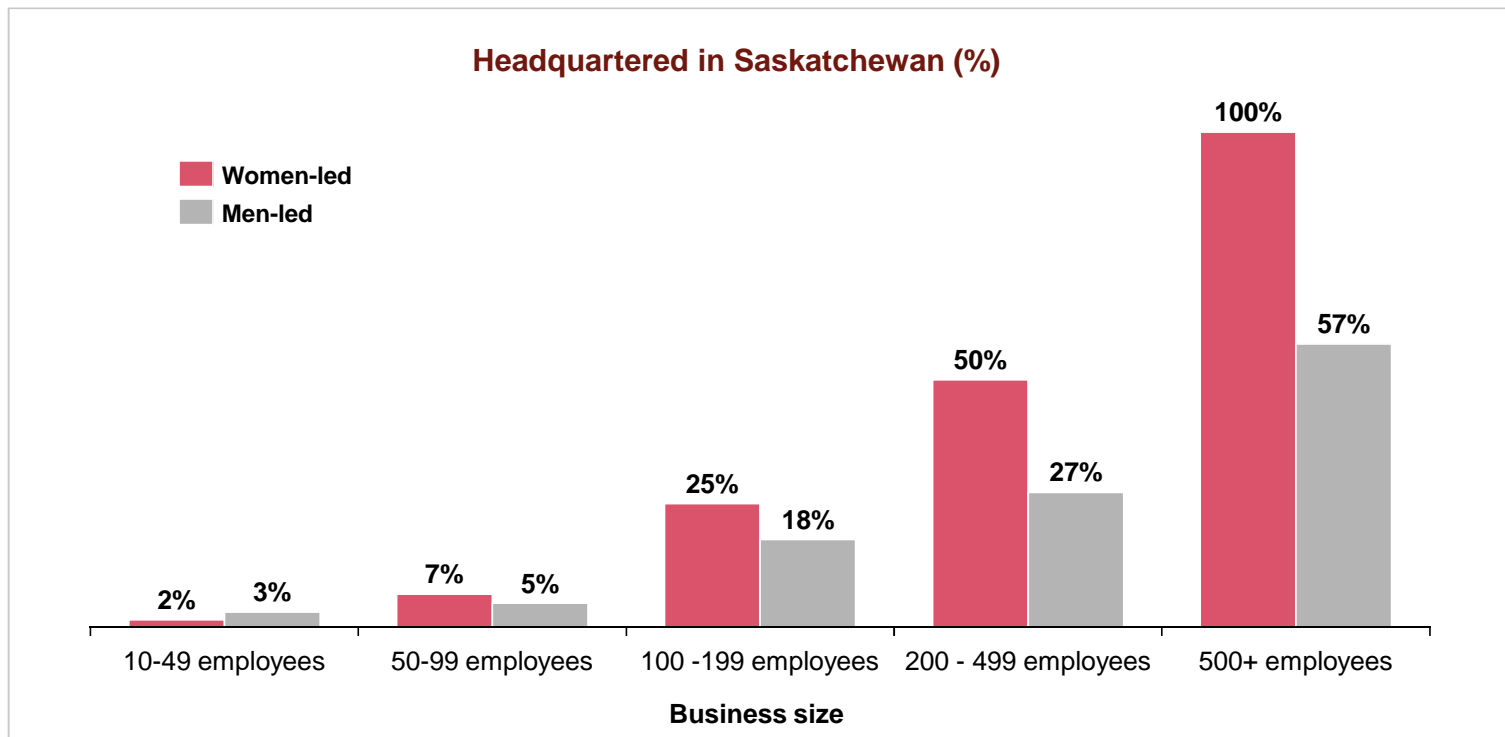


Ratio of women-led businesses to men-led



Women-led businesses are more often headquartered in Saskatchewan

All of the women-led large businesses (with >500 employees) are headquartered in Saskatchewan compared to 57% of the men-led large businesses

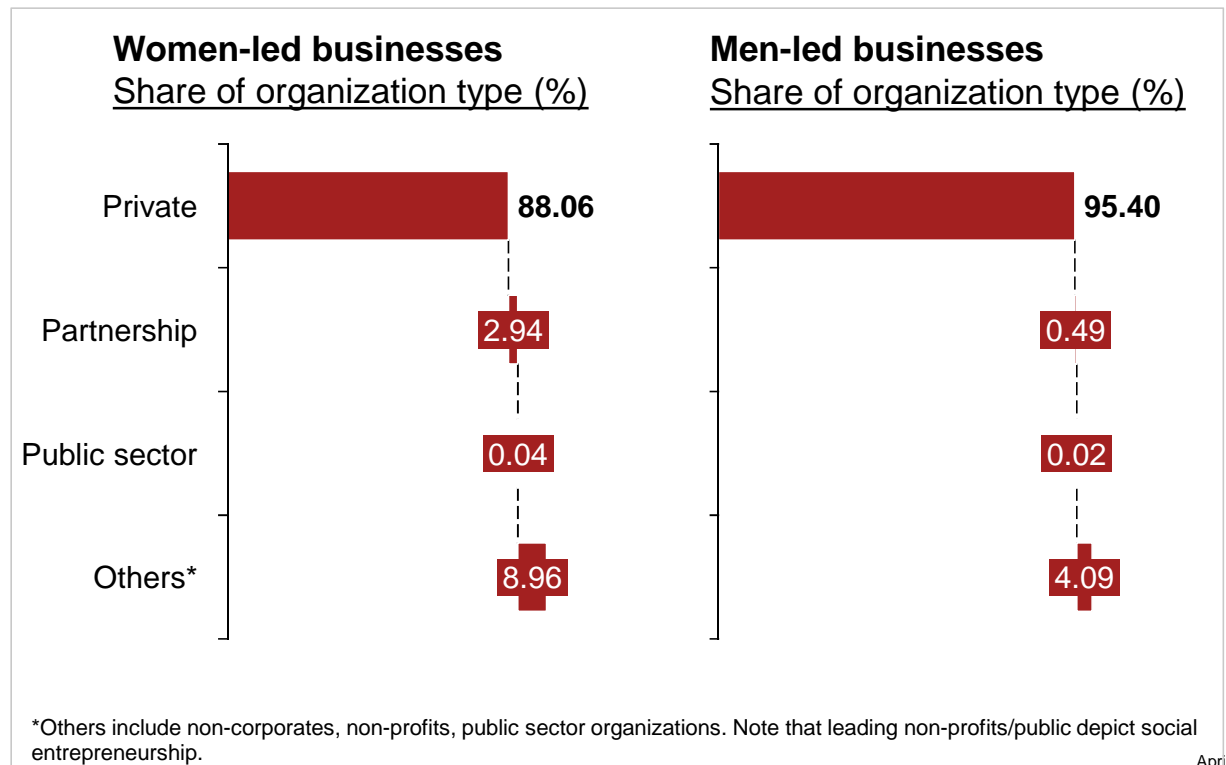


Women-led businesses' is less likely to be private owned in comparison to men-led businesses

Ownership type:

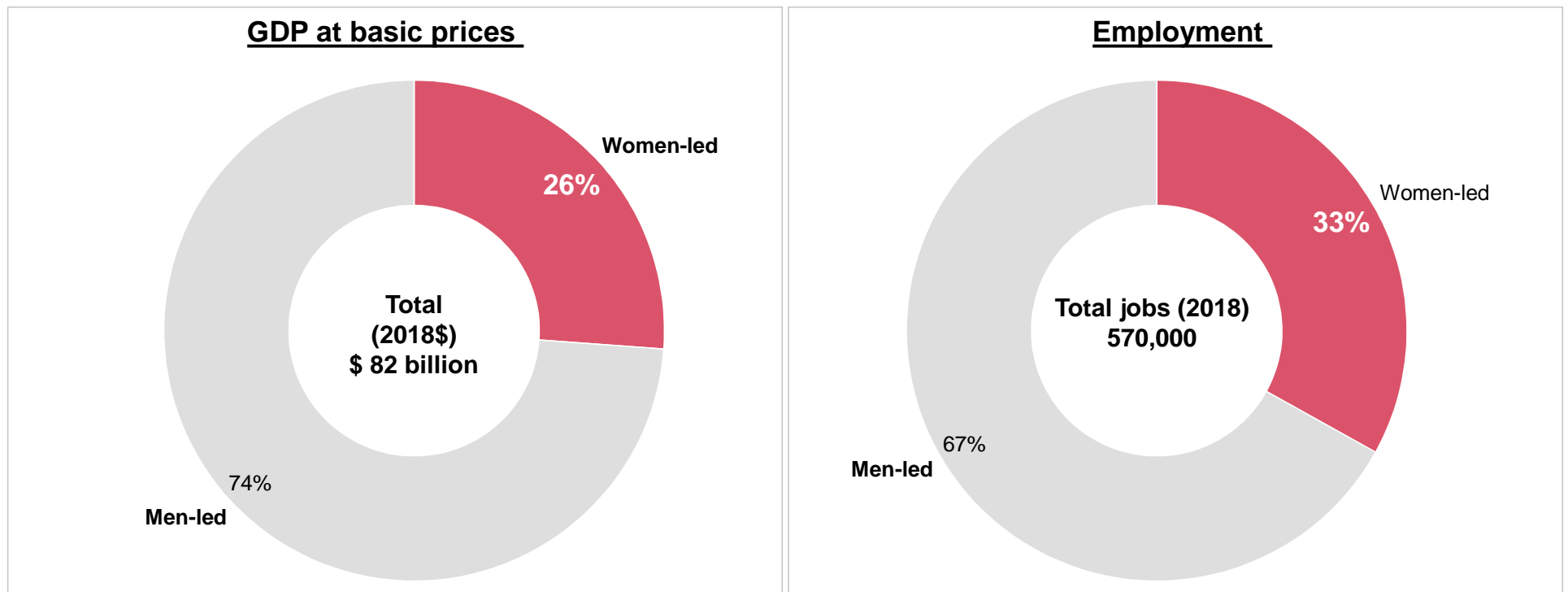
95% of men-led businesses are incorporated (private/publicly traded), compared to 88% of women-led businesses

Women-led businesses are relatively more likely to be organized in the form of partnerships, public sector organizations, non-profit and unincorporated entities



Women-led businesses are relatively more labor intensive, thus have greater propensity to increase employment in Saskatchewan

Aggregate economic contribution in Saskatchewan, by gender



Note: The above estimates do not account for revenue differential due to gender of the entrepreneur. Thus, women-led businesses' GDP is a slight overestimation and the difference between employment and GDP contribution is likely to be larger. See Appendix for further comments on GDP and aggregate economic contribution.

4

Summary of findings

Findings based on gender analysis of Saskatchewan businesses

1. Share/size of women-led businesses

- Women lead 34% of the businesses with at least 1 employee and 44% of businesses with no employees.
- 88.4% of women-led businesses in Saskatchewan have up to 10 employees.
- Across all business size categories, the share of men-led businesses is greater.
- Women are less likely to lead a business as the size of the business increases.
- Women-led businesses, on average, have slightly greater number of employees across businesses with less than 500 employees.
- The average number of employees in large businesses (with >500 employees) is more than double for men-led businesses compared to women-led businesses.

2. Financial metrics of women-led businesses

- For small businesses with 1 to 49 employees, women-led businesses have lower revenues than men-led businesses.
- For businesses with 50 to 99 employees, women-led businesses have higher revenues than men-led businesses.
- For larger businesses, men-led businesses have higher revenues, but the difference is not statistically significant.
- Women-led businesses are less capital intensive than men-led businesses.

Findings based on gender analysis of Saskatchewan businesses

3. Sectoral composition of women-led businesses

- In the 'Health care, social assistance' and 'National security' sectors, the number/share of women-led businesses appear to be greater than men-led businesses.
- The share of men and women-led businesses is comparable for the following sectors: Finance & insurance, Educational services, Food and accommodation services, Public administration, Other services, Arts entertainment and recreation, Administration support and Waste management.
- The above findings mostly hold true across all business size categories.

4. Women-led businesses by city of location

- All cities except La Ronge and Martensville have a greater share of men-led businesses than women-led businesses.
- The share of women-led businesses tends to be lower in Southern Saskatchewan.
- Of the total Saskatchewan businesses, 24% are in Saskatoon, 20% are in Regina and less than 4% are in each of the remaining cities. Women-led businesses in Regina are larger in comparison to Saskatoon.
- Women-led businesses are more often headquartered in Saskatchewan.

Findings based on gender analysis of Saskatchewan businesses

5. Contribution of women-led businesses to the Saskatchewan economy in 2019

- \$23.1 billion in GDP
- 191,836 employees

6. Other findings

- 95% of men-led businesses are incorporated (private/publicly traded) as compared to 88% of women-led businesses. Women-led businesses are relatively more likely to be organized in the form of partnerships, public sector organizations, non-profit and unincorporated entities.
- Women-led businesses tend to be more labor-intensive and less capital-intensive, which in combination with the types of business sectors they tend to concentrate in suggests that women-led businesses are more concentrated in the lower productivity and/or less technologically oriented sub-sectors of the economy.

Appendices

Statistical significance calculation

Step 1: Calculate pooled standard deviation (s)

$$s = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

Where s1 and s2 are the standard deviations of the two samples with sample sizes n1 and n2

Step 2: Calculate standard error of the difference between the two means

$$se(\bar{x}_1 - \bar{x}_2) = s \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$$

Step 3: Calculate the significance level, or P-value, using the t-test, with the value t calculated as:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{se(\bar{x}_1 - \bar{x}_2)}$$

Source: 2020 MedCalc Software Ltd. Accessed at https://www.medcalc.org/calc/comparison_of_means.php

Aggregate economic contribution

Approach

1. We compiled Statistics Canada's estimates of Saskatchewan's GDP and employment by sector.
2. We disaggregated sectoral GDP and employment between men- and women-led businesses based on the share of men- and women-led businesses in each sector.
3. Sectoral GDP and employment estimates by gender were then aggregated to arrive at the cumulative GDP and employment by gender.

Thank you

[pwc.com/ca](https://www.pwc.com/ca)

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