Assessment 8 Project Report

Authors: Shervorn Mathews,
Janeel Abrahams,
Jin Hee Lee

Table Of Contents

Introduction

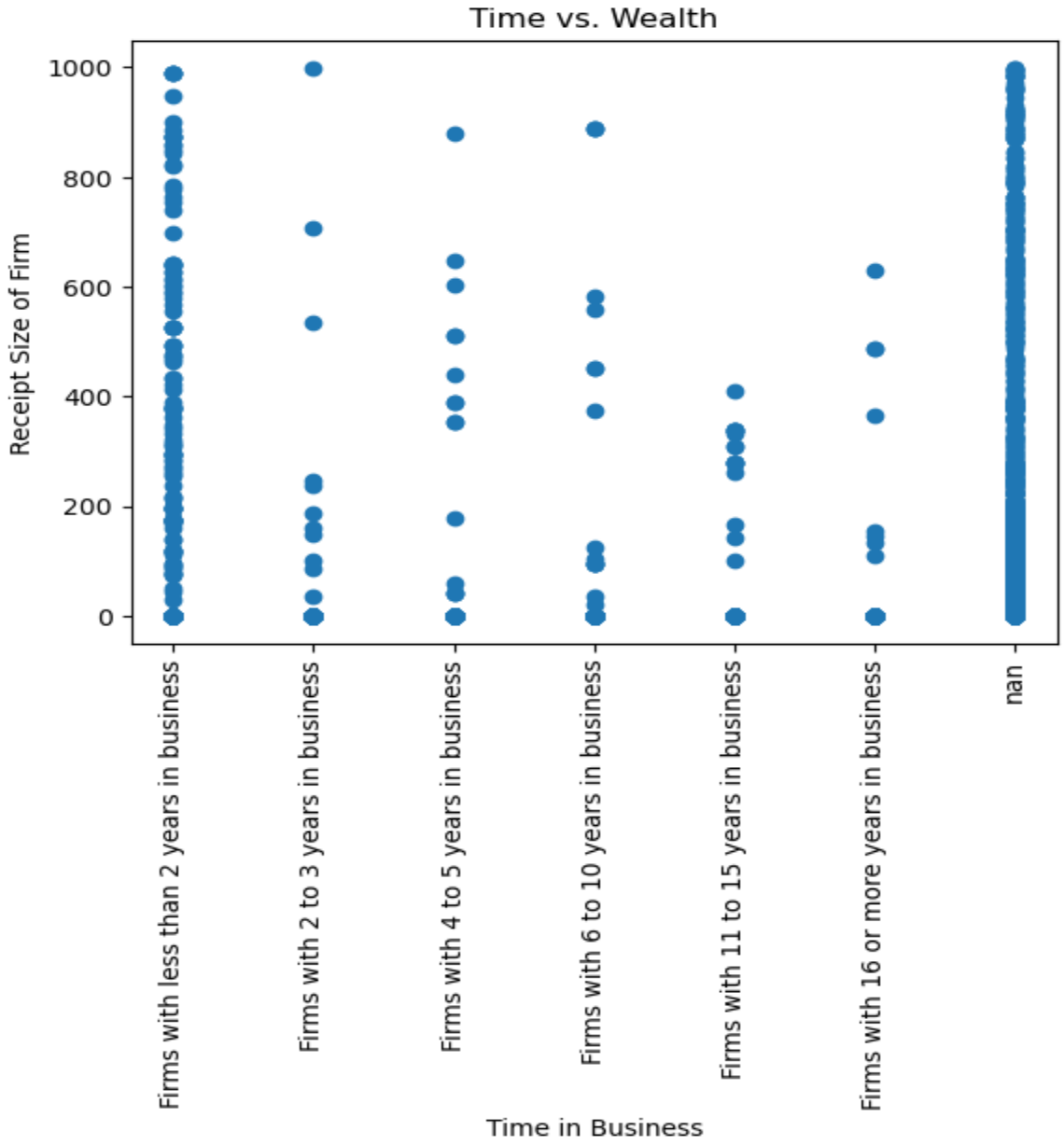
The following document contains results from a project conducted on data obtained from the Annual Business Survey (ABS) APIs for 2019 hosted on www.census.gov/. The data obtained from this API were used to answer the following questions:

- What is the relationship between the age of a business and its wealth?
- What is the relationship between the size of business and its wealth?
- What is the distribution of businesses by employee size?
- Does industry type affect a businesses wealth?
- What is the demographic of the employees within these businesses?
- Have businesses been improving or worsening over the years?

Process/Analysis

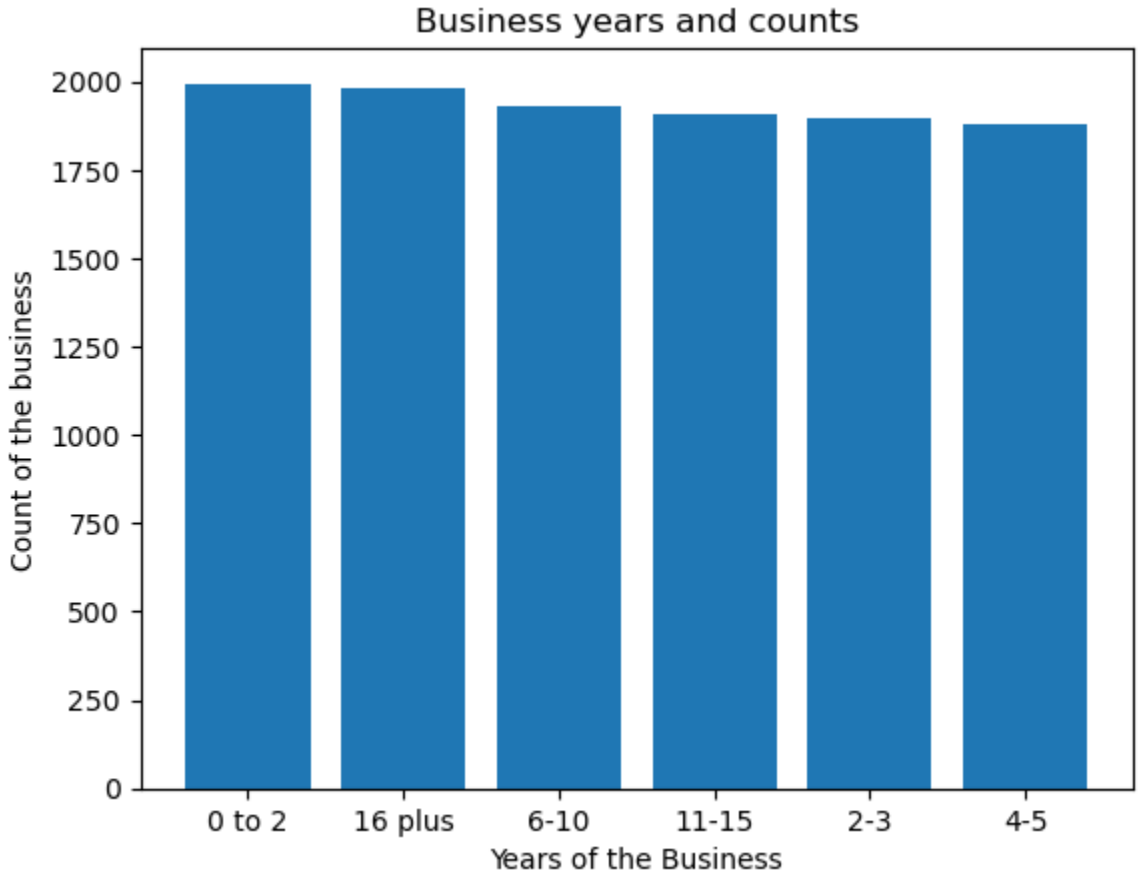
- What is the relationship between the age of a business and its wealth?

This question was answered by creating a scatterplot comparing the age of the businesses within the survey and the receipt size of the business (revenue).



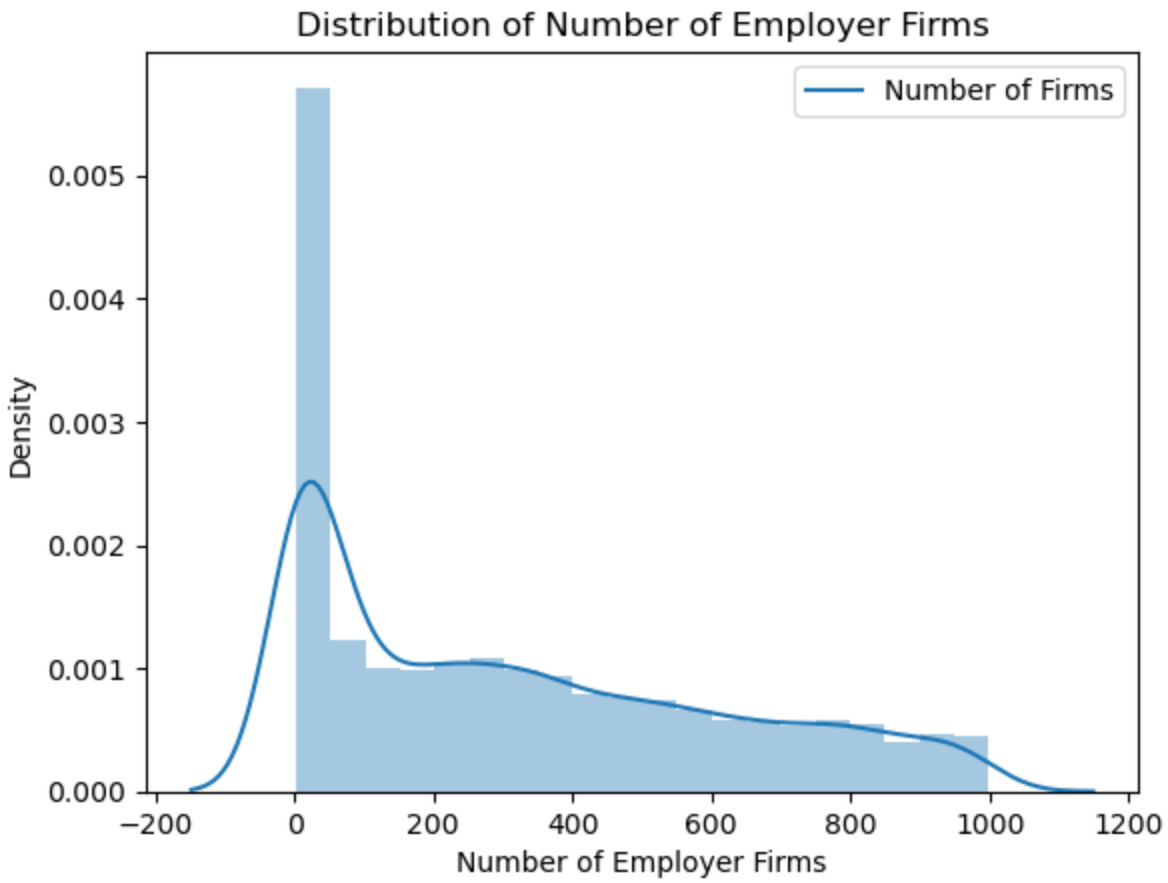
The data in this chart provides some interesting information. Businesses less than 2 years old seem to have revenue values that spread out across the whole spectrum of the receipt size of firm range; this warrants further analysis. This chart also shows that time in a business doesn't necessarily imply wealth will increase.

An additional bar chart was created by comparing the count of businesses to the amount of years they've spent in the business.



- What is the distribution of businesses by employee size?

This question was answered by plotting the number of employer firms by the density of entries in the survey data.



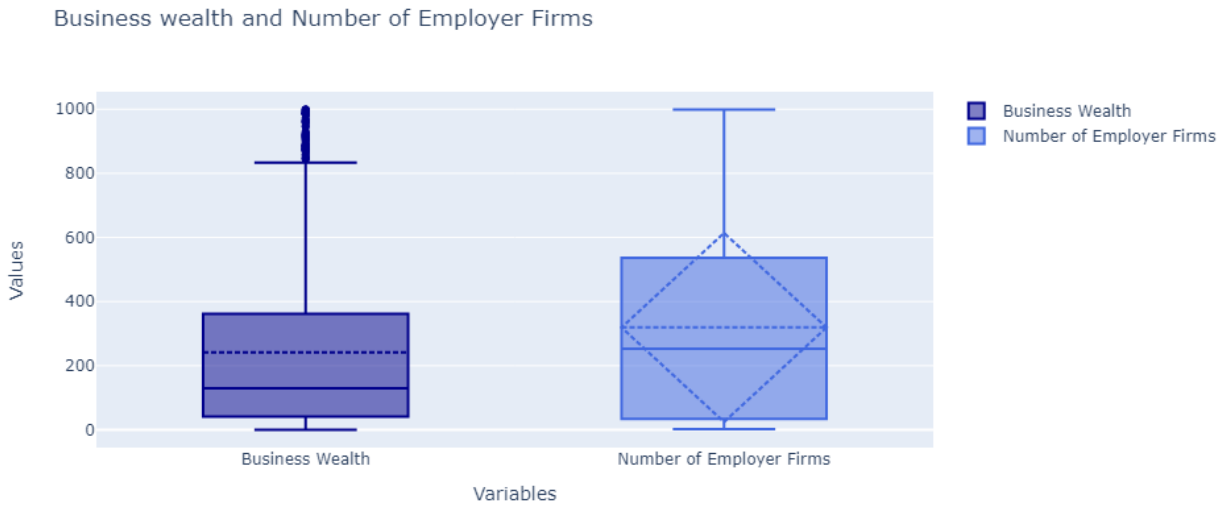
Note: There are vastly more businesses with employee sizes less than 200 than there are businesses with over 500 employees. This data will supplement another table further in the report.

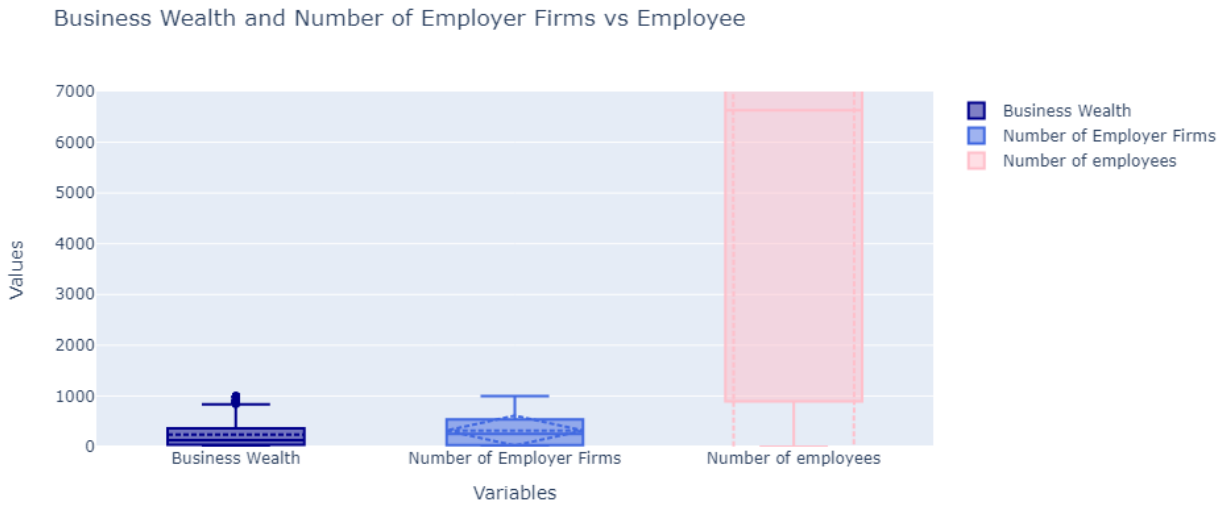
- What is the relationship between the size of business and its wealth?

This question was answered by creating a scatterplot comparing the size of the businesses in the survey data with the annual payroll of the business.

This chart shows two interesting pieces of information. First, smaller business sizes cover the entire range of the annual payroll spectrum; this warrants additional analysis. Second, there appears to be a positive trend between business size and annual payroll.

Two additional charts were created to supplement the data.





- Does industry type affect a businesses wealth?

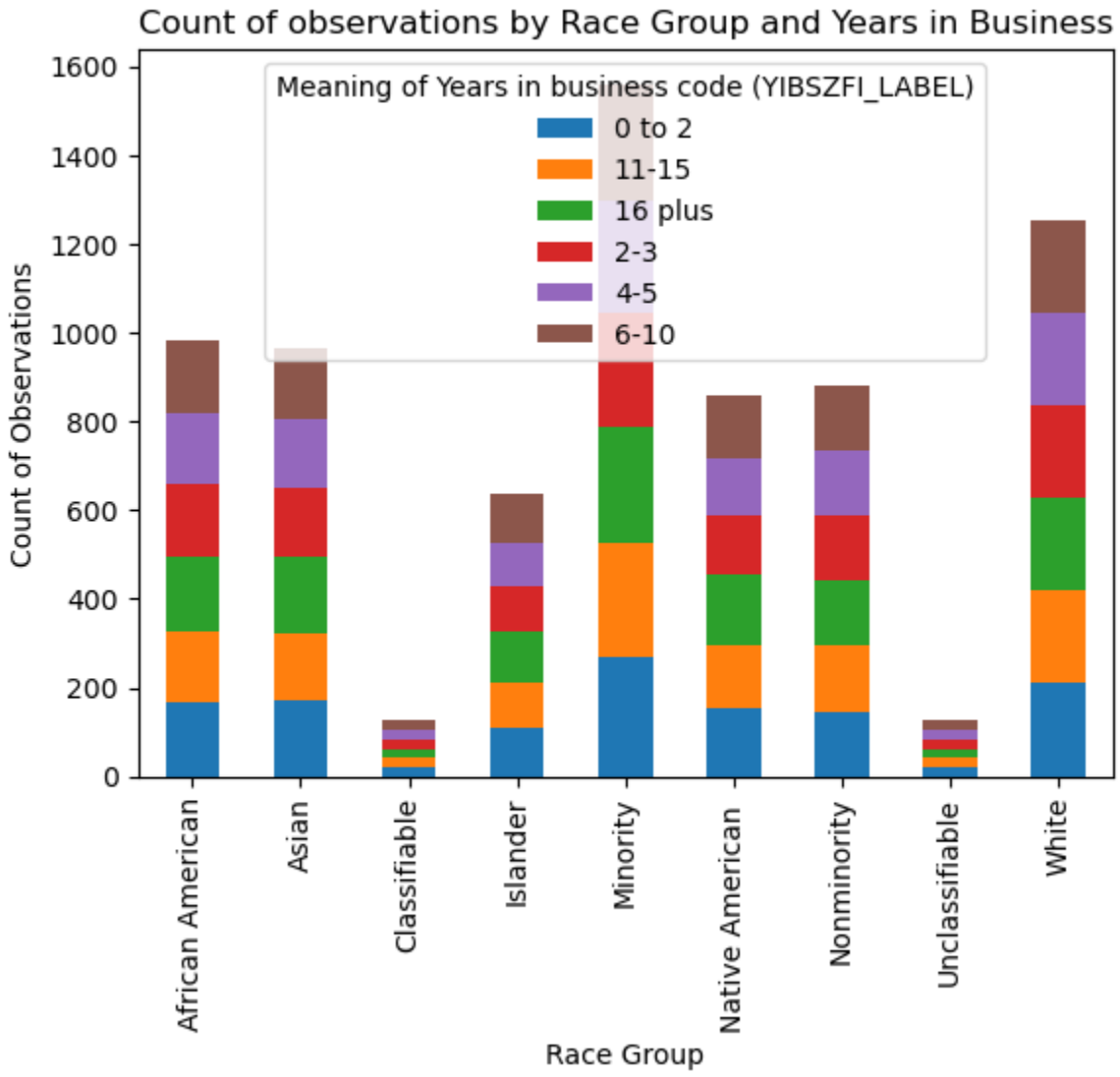
This question was answered by creating a treemap based on the industries in the survey data and the total annual payroll of each employee in said industry.

Although there seems to be a massive amount of industries that aren't classified the industries that seem to have generated the most payroll are Manufacturing and Utilities. Some possible usage of this data is shifting focus of projects currently occurring within our business to ones more aligned with manufacturing and utilities; further analysis is required. Possibly obtaining a visual of employee size by industry would provide more information.

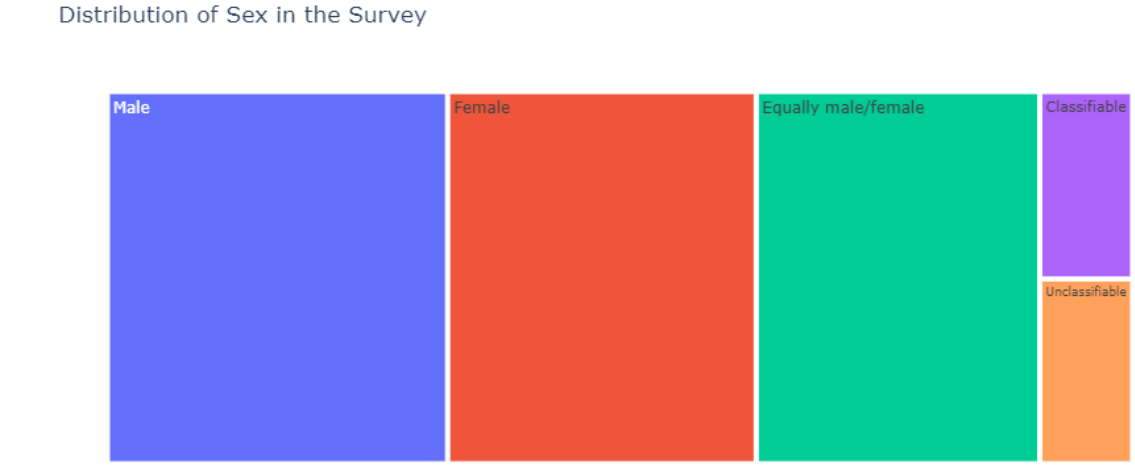
- What is the demographic of the employees within these businesses?

This question was answered by creating various charts based on the demographic of employees that took the survey.

This chart was created by making a stacked bar chart of the count of employees separated by race.



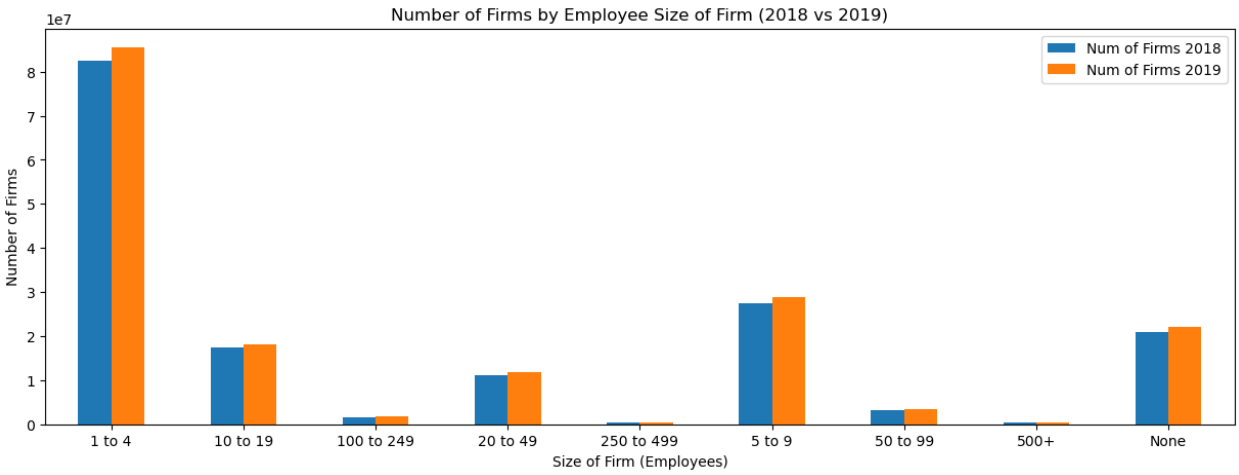
This chart was created by making a treemap of the count of the sexes of the employees that took the survey.



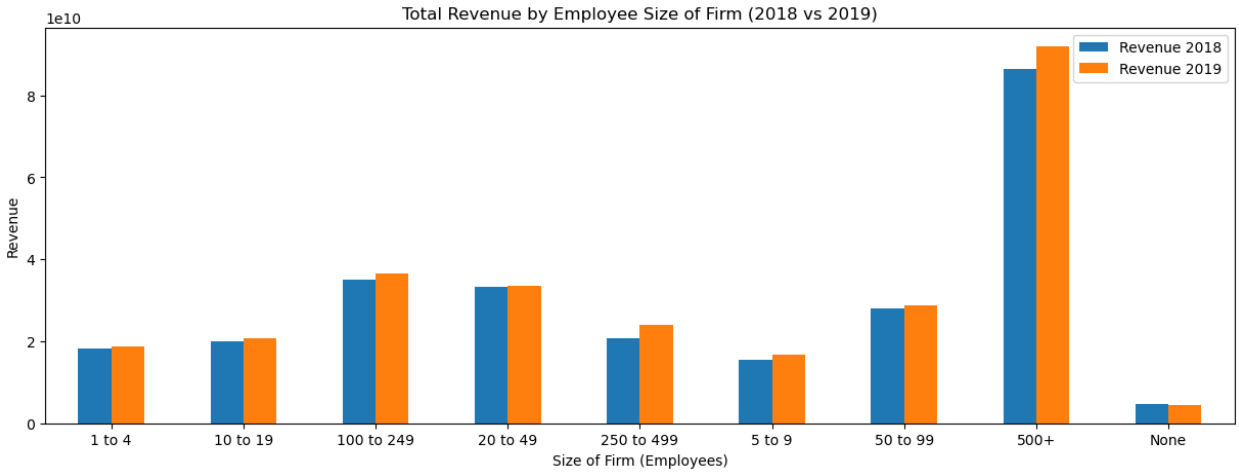
There seems to be an equal spread of male and female employees.

- Have businesses been improving or worsening over the years?

This question was answered by comparing the sum of Number of Firms by Size of Firm, Total Revenue by Size of Firm, Total Number of Employees by Size of Firm and Total Annual Payroll by Size of firm for the years 2018 and 2019. Any significant changes between the two values should indicate whether or not businesses have been increasing or decreasing. These data sets could be improved by incorporating a wider range of years.

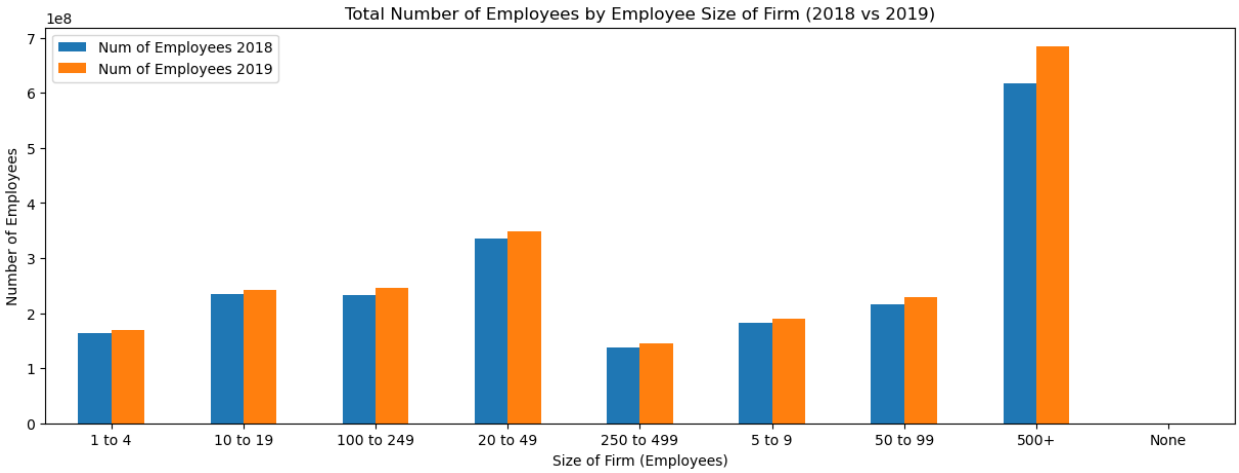


The number of firms have increased in all categories between 2018 and 2019; initially it shows an improvement between the two years but ultimately what is actually shown is that the number of firms opened between 2018 and 2019 is greater than the number of firms closed between 2018 and 2019.

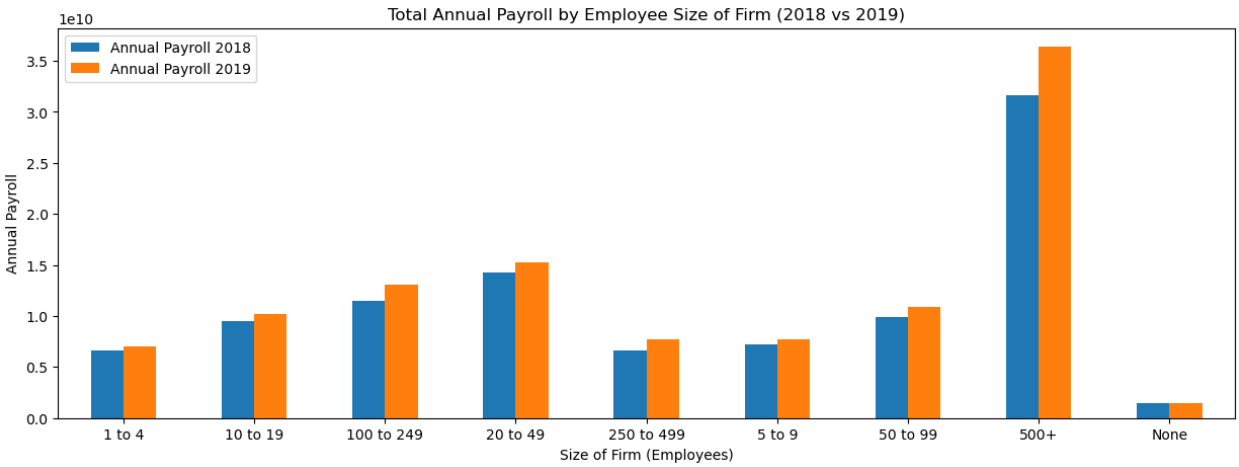


The total revenue has increased in all categories between 2018 and 2019. Note: the y-axis values are based on an exponential scale. The increase in revenue in firms with over 500 employees and between 250 to 499 employees is significant and warrants further analysis.

Note: The amount of businesses with over 500 employees is vastly outnumbered by the number of firms with less than 50 employees yet it generates much more revenue.



The total number of employees has increased in all categories between 2018 and 2019. Similarly



The total annual payroll has increased in all categories between 2018 and 2019. With this final piece of data, it is safe to say that businesses seem to be improving over the years based on the survey data; increasing the range of years would provide more information that would strengthen this claim.

Data Sources

The datasets used for this project were accessed from April, 19th, 2023 to April, 23rd, 2023 and obtained from the following locations:

Bureau, U.S. Census. *Explore Census Data*, https://www.census.gov/data/tables/2019/econ/abs/2019-abs-company-summary.html

Bureau, U.S. Census. *Explore Census Data*, https://data.census.gov/table?tid=ABSCS2018.AB1800CSA02&hidePreview=true.

Bureau, U.S. Census. *Explore Census Data*, https://data.census.gov/table?tid=ABSCS2018.AB1800CSA03&hidePreview=true

Bureau, U.S. Census. *Explore Census Data*, https://data.census.gov/table?tid=ABSCS2018.AB1800CSA04&hidePreview=true