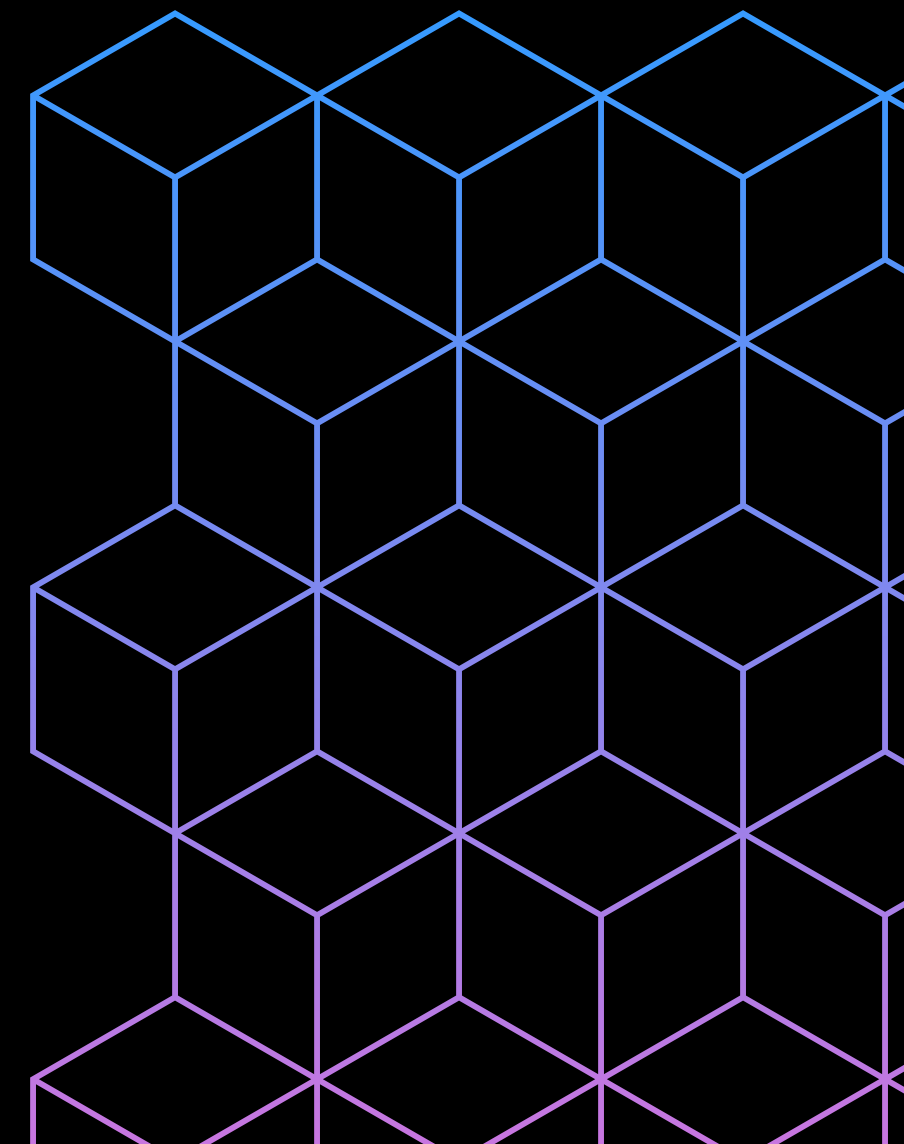


Earnings by *Gender* and Industry

Presented by:
Amelia, Brynn, Kimmy, and Niki

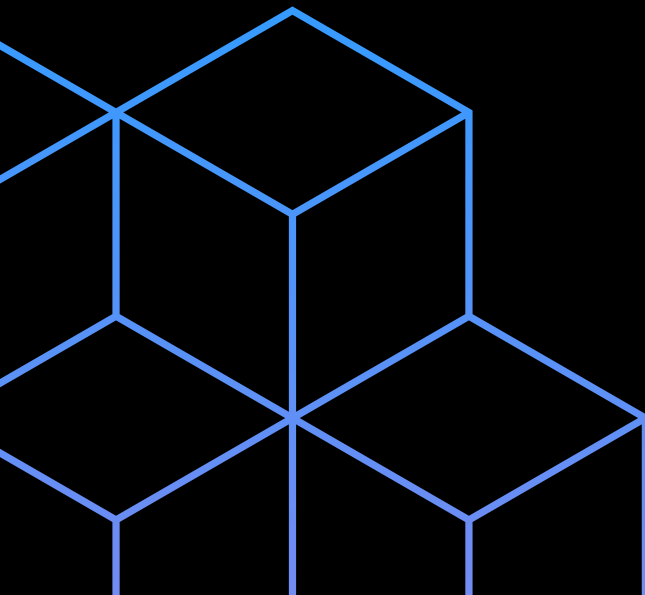
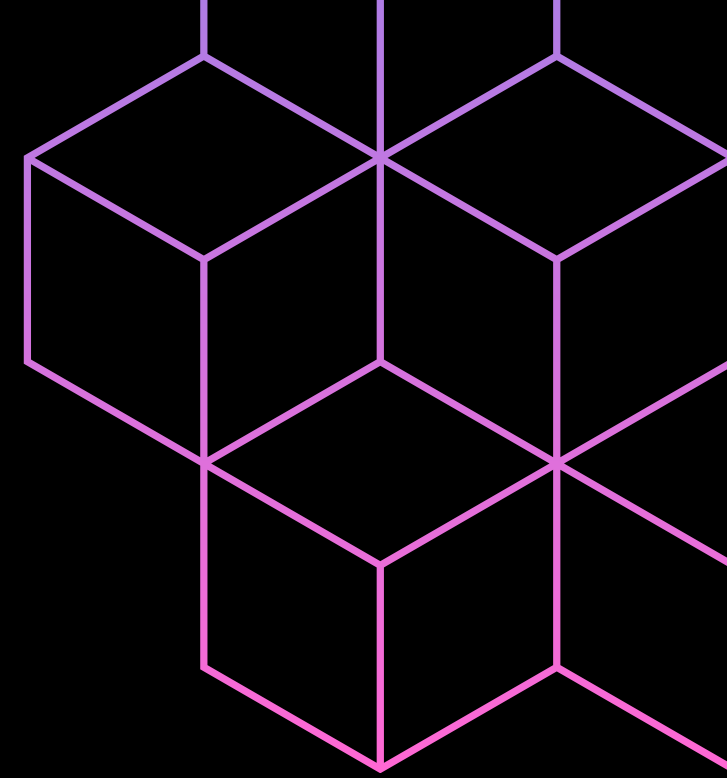


Motivation

As a group comprised of Women we cared to inquire about discrepancies in women earnings and consider the Gender pay gap

- Is there a statistical difference in average annual median salary between males and females across industries?
- When looking at positions of leadership (i.e Chief Executives) are females earning the same salary as their male counterparts?

- Do women have lower total earnings simply because some occupations are male dominated?



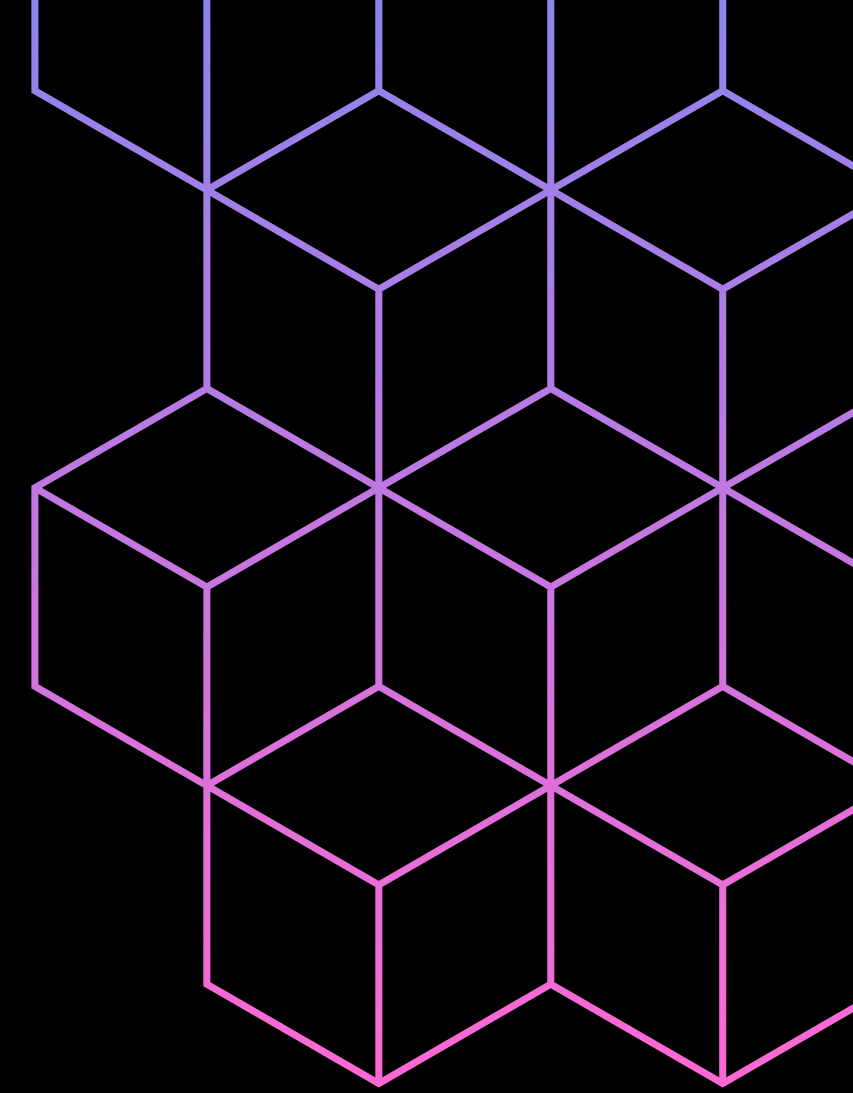
Variables

Type

Data

year	integer	Year
occupation	character	Specific job/career
major_category	character	Broad category of occupation
minor_category	character	Fine category of occupation
total_workers	double	Total estimated full-time workers > 16 years old
workers_male	double	Estimated MALE full-time workers > 16 years old
workers_female	double	Estimated FEMALE full-time workers > 16 years old
percent_female	double	The percent of females for specific occupation
total_earnings	double	Total estimated median earnings for full-time workers > 16 years old
total_earnings_male	double	Estimated MALE median earnings for full-time workers > 16 years old
total_earnings_female	double	Estimated FEMALE median earnings for full-time workers > 16 years old
wage_percent_of_male	double	Female wages as percent of male wages - NA for occupations with small sample size

Descriptions



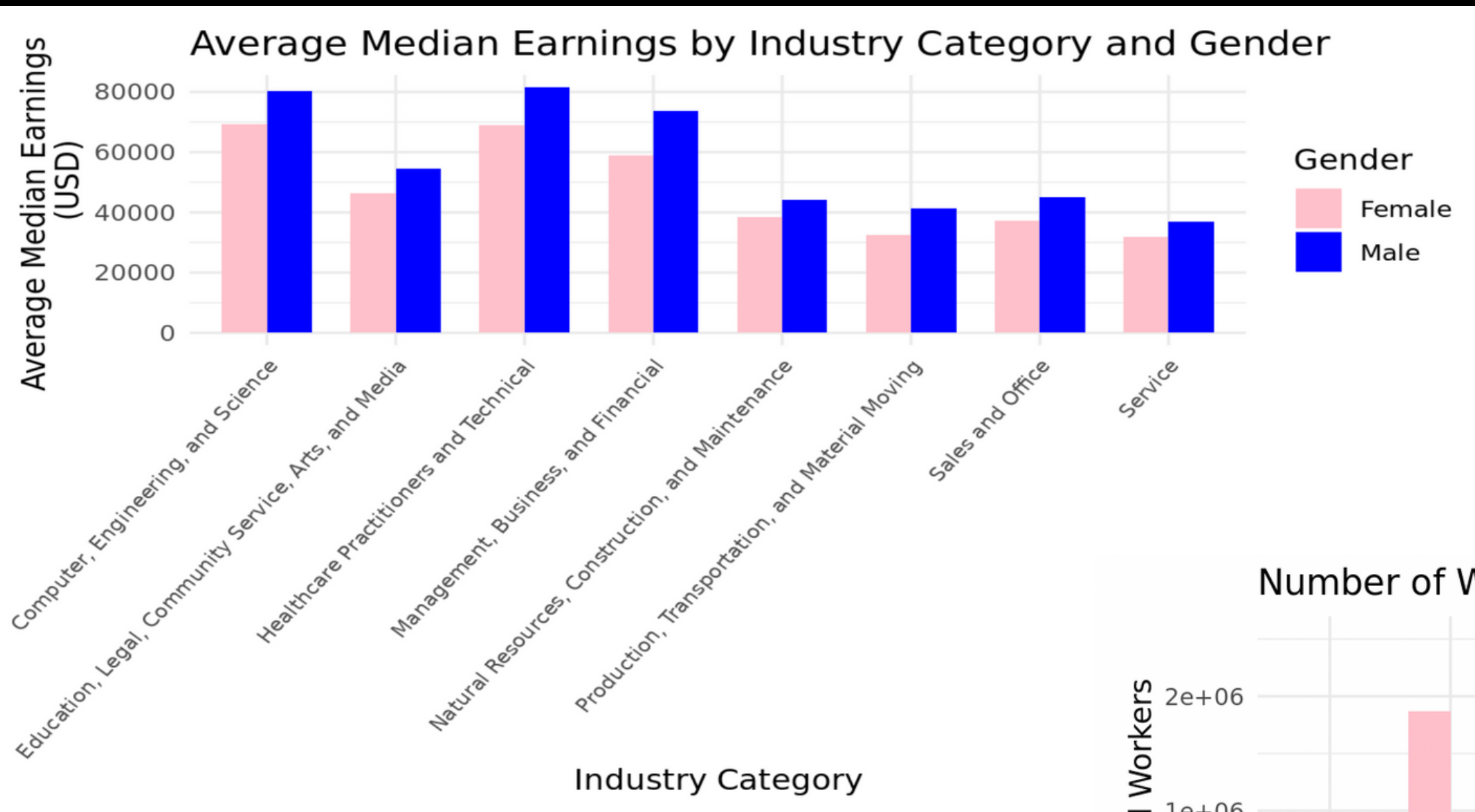
Data collected from US Bureau of Labor and Census Bureau (2013-2016). Looks at full-time & year-round workers, both male and female, & their earnings by occupation.

occupation	total_earnings_male	total_earnings_female	workers_male	workers_female
Chief executives	126142	95921	782400	241859
Chief executives	130830	101174	774838	239015
Chief executives	140057	101496	796280	244595
Chief executives	141108	103564	813898	254360

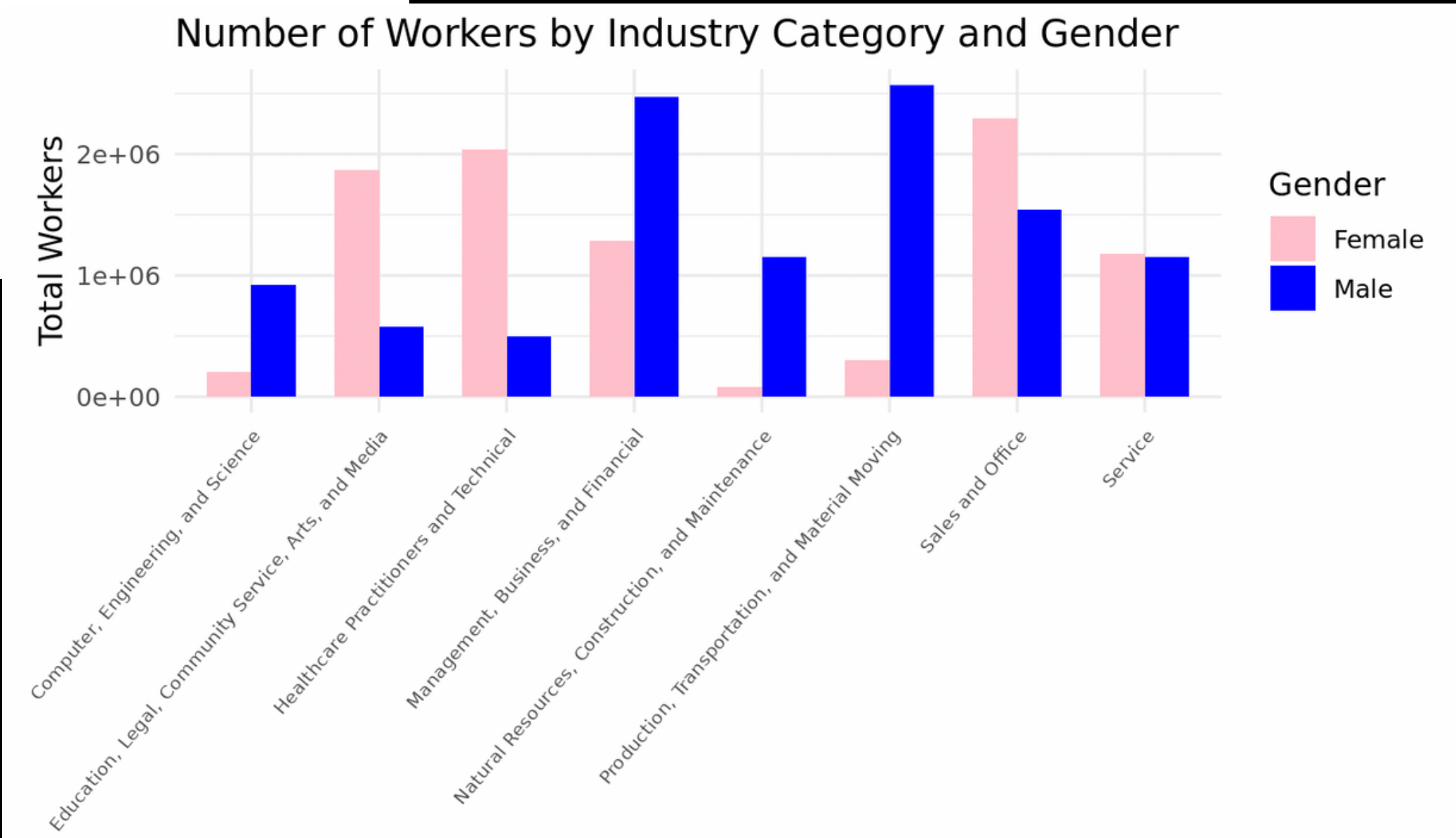
Across 2013-2016 women Chief executives earned less and were found in fewer numbers

Trend followed for many other occupations --> Physicians and surgeons, Registered nurses, Engineers, Managers, etc.

**highlights
from EDA**

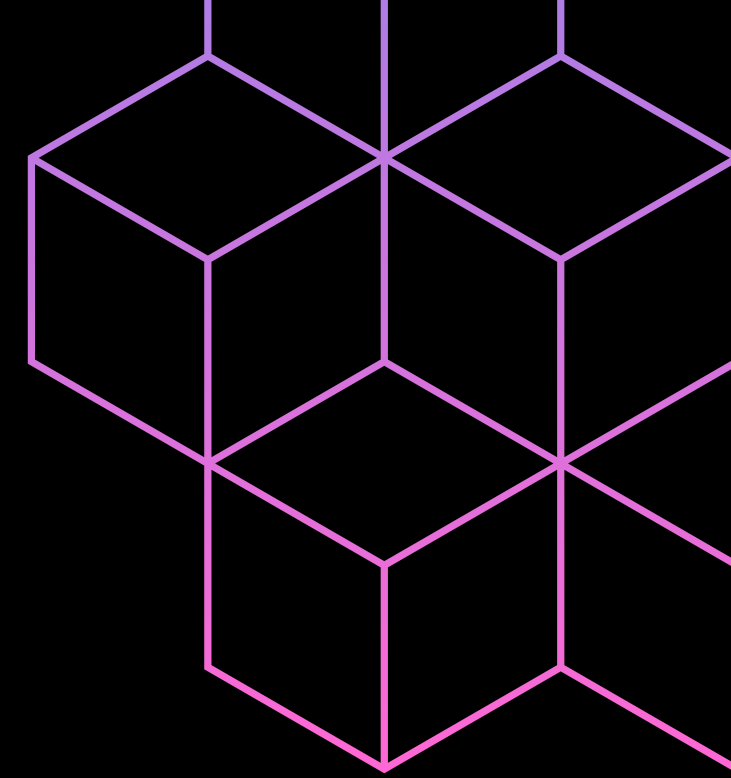


The graph below represents what occupations, under their assigned category, are dominated by males vs. females



The graph above showcases that across all industry categories, women average a lower median salary than men

Inference/modeling/ other analysis



Linear regression between differences in salaries and industry category



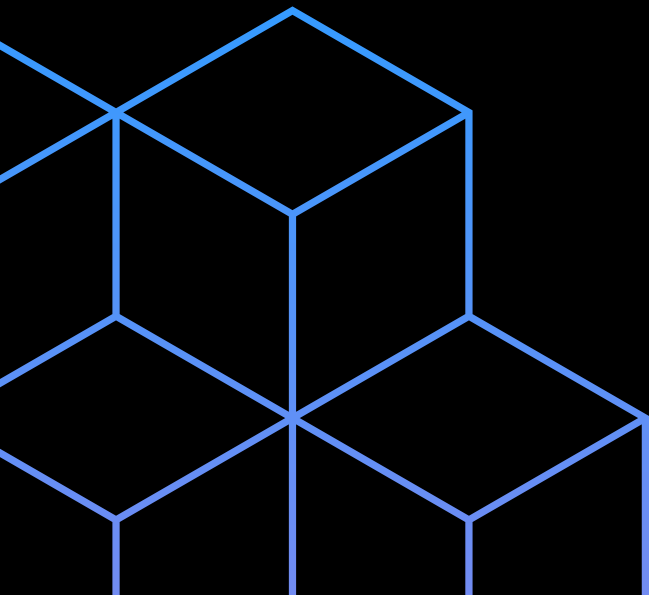
0.08743798

Additive model between differences in salaries, industry category, and percent of female workers



0.09650435

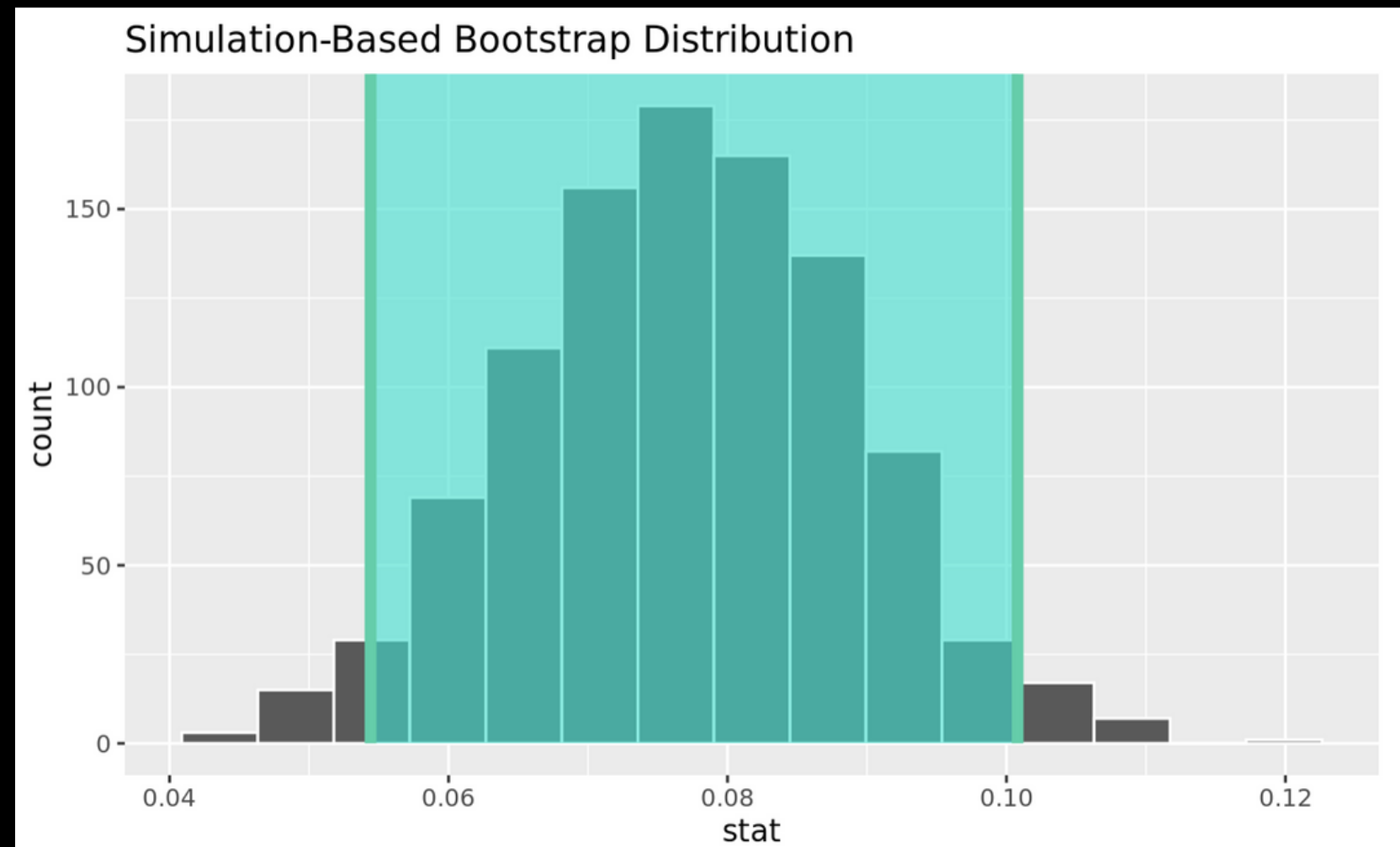
Adjusted R squared values:
the additive model with occupation and percent of women in the field accounts for more of the variability between the difference in salaries than the model only using occupation as a predictor or explanatory variable



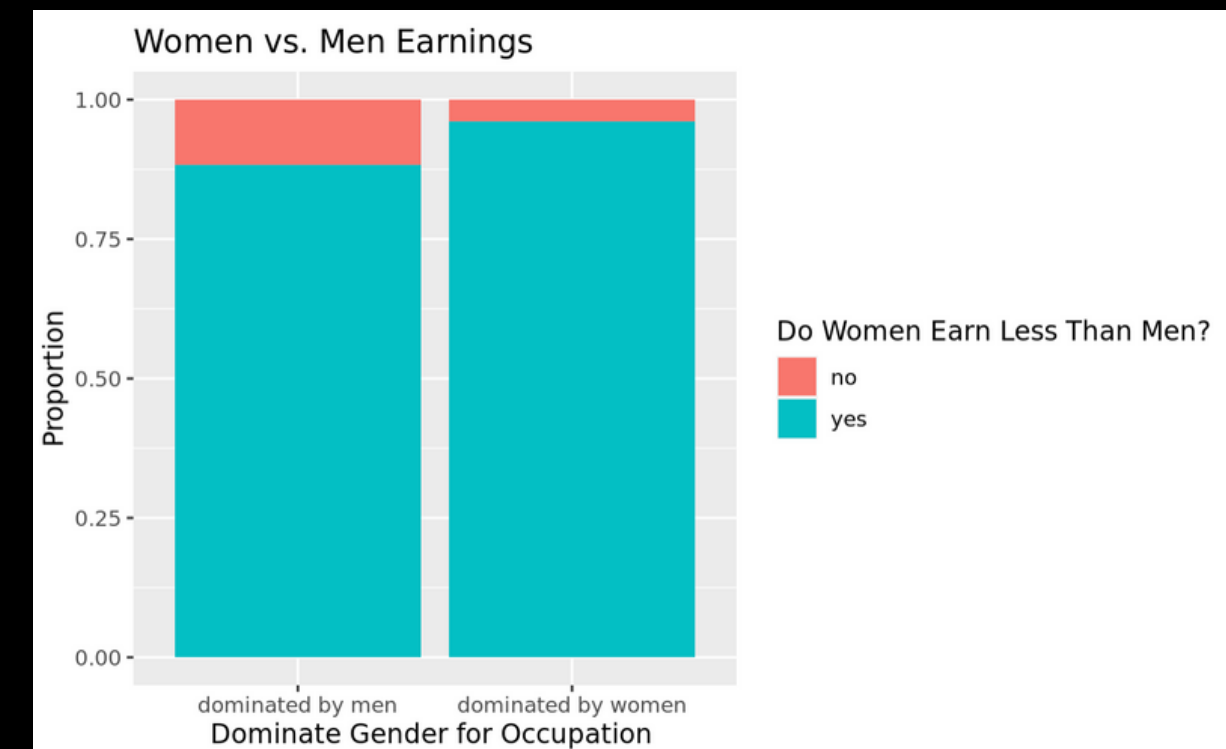
Conclusions

Bootstrap Distribution

- We are 95% confident that the proportion of occupations dominated by women have women earning less than men by 5.54 % to 10.08 % lower than occupations dominated by men where women are still earning less



- The model suggests, regardless of gender domination in a field, women earn significantly less than men.



dominating_gen... <chr>	female_less_earn... <chr>	n <int>	p <dbl>
dominated by men	no	155	0.11619190
dominated by men	yes	1179	0.88380810
dominated by wo...	no	27	0.03941606
dominated by wo...	yes	658	0.96058394