Does gender make a difference?
A labor demand analysis from an online job board

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Motivation

Motivation

Data

Gender classification

The firm is hiring an:

Actress $\longrightarrow$ Feminine

Actor $\longrightarrow$ Masculine

Acting person $\longrightarrow$ Gender neutral

Data handling

- We took all the words based on the description of ads.
- Stopwords (words like: "the", "is" and "and")eliminated based on a standard library. This allows more information to be obtained from the data.
- We take the 100 most common words.
- We take the proportion in which each of those words appears in each job ad.
- Run regressions

Methodology

We use the Lasso method and Logit Lasso as a robustness test.
Lasso:

$$\hat{\beta}_{lasso} = \min_{\beta} \sum_{n=1}^{N}(y_n - \beta x_n)^2 + \lambda \sum_{i=1}^{p} |\beta_i|$$

Logit Lasso

$$\max_{\beta_0,\beta}\left\{ \sum_{i=1}^{N} \left[y_i(\beta_0 + \beta^T x_i) - log(1 + e^{\beta_0 + \beta^T x_t}) \right] - \lambda \sum_{j=1}^{p} |\beta_j| \right\}$$

Methodology

When it comes to cross validation, we use 5-k fold cross validation. This implies that the sample is divided into 5 parts and each of the parts is used as testing and training.
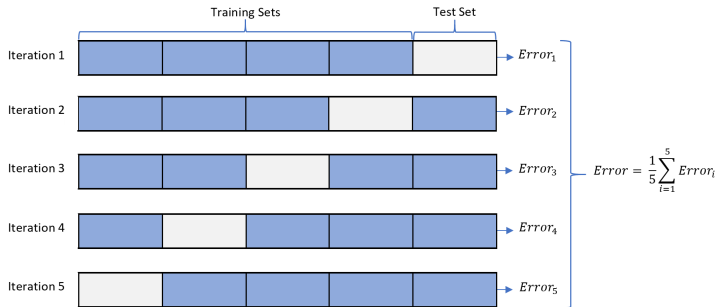

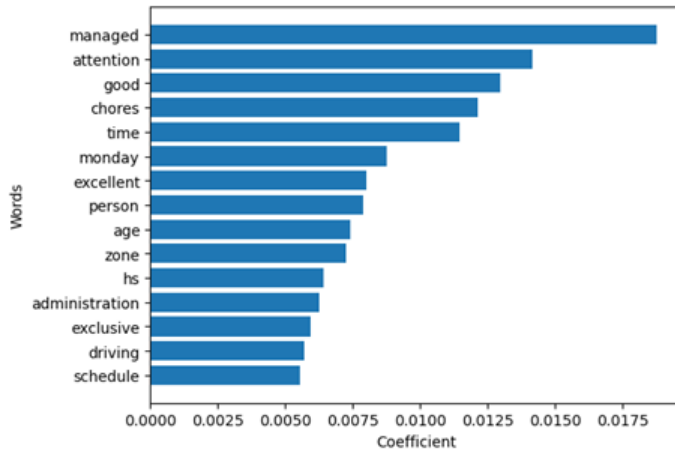Figure: Cross Validation

Lasso results

Figure: Lasso positive coefficients
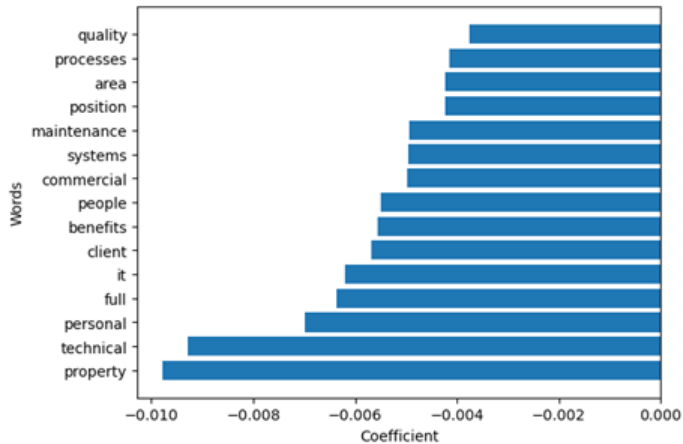
Lasso results

Figure: Lasso negative coefficients
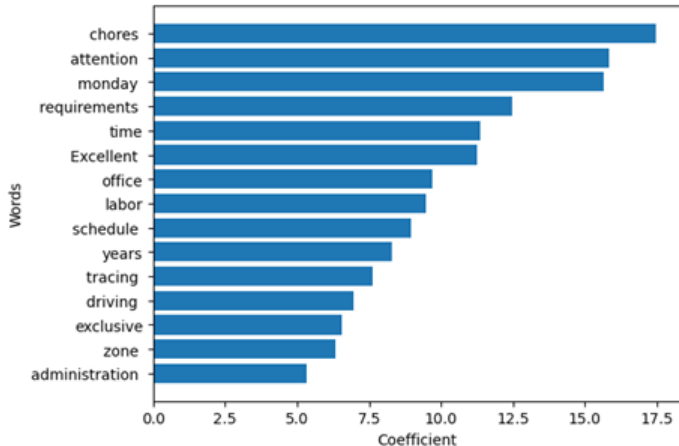
Logit Lasso results

Figure: Logit Lasso positive coefficients
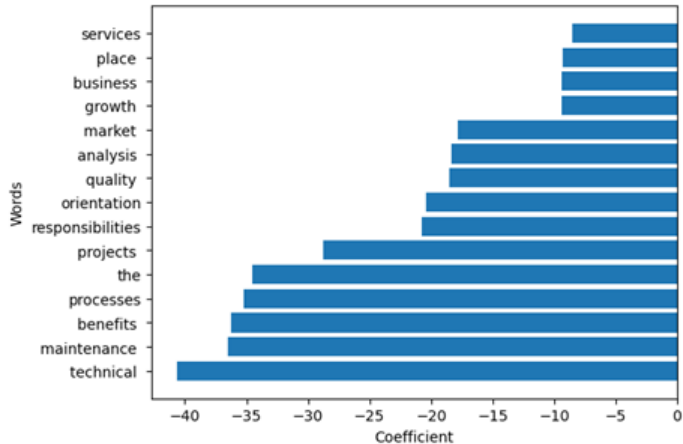
Logit Lasso results

Figure: Logit Lasso negative coefficients

Discussion

- The words of the ads directed towards women differ significantly from those directed towards men
- Words used in job advertisements aimed at women can help to understand or explain part of the gender pay gap

Thank you!

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