Study of French labour market and inequalities

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SNS

— Midterm results —

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Objectives

- Structure of French labour market
- Inequalities (in terms of salary):
  - ages
  - gender
  - job categories
  - spatial distribution
- Firms' distribution
- Exploratory analyses

Methodology

INSEE data

- Population: age, sex and cohabitation mode
- Salary: job categories, age and sex (mean net salary per hour in €)
- Firms: number of firms for each size
- Geography: GPS location

for different geographical levels (communes, departments, towns) in 2014

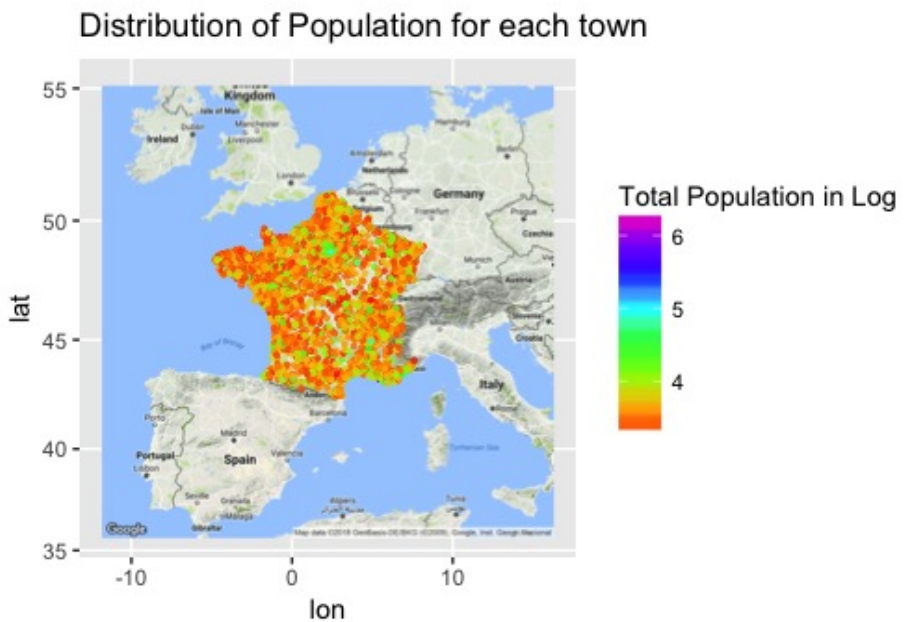
GitHub repo: https://github.com/LucaIns/TSL

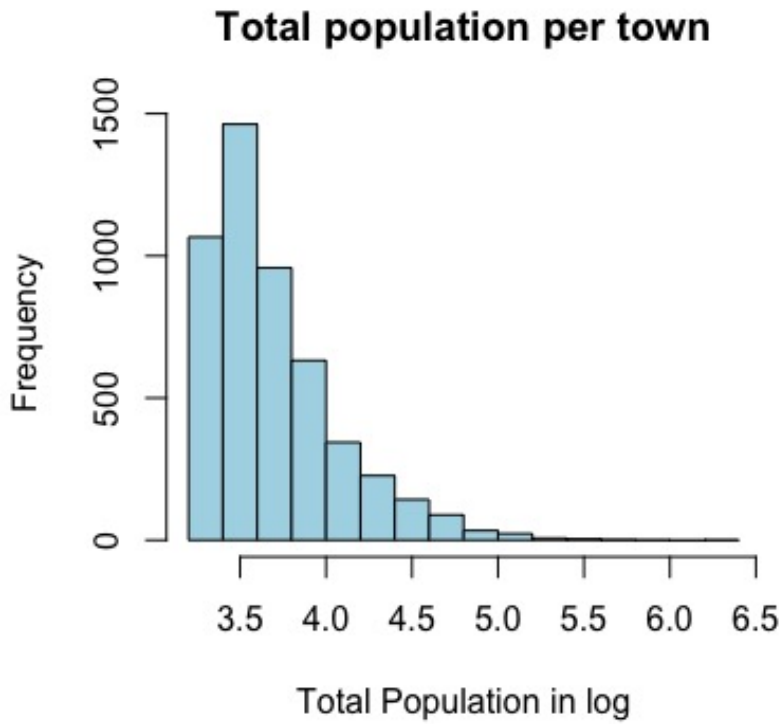
What has been done so far . . .

Pre-processing phase

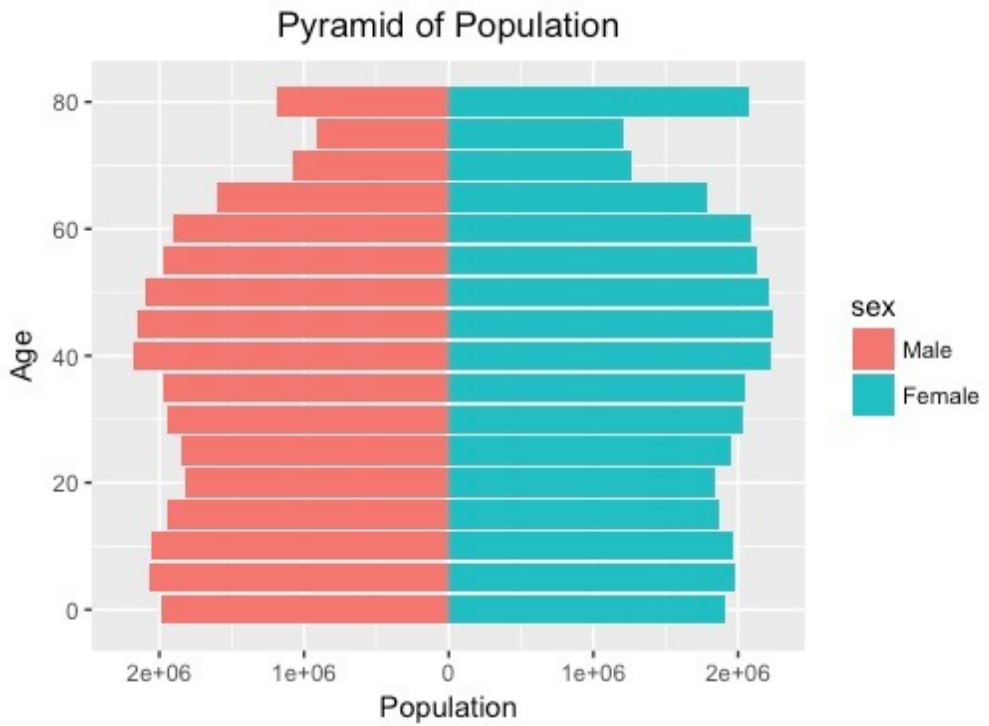
- Population: restructured the dataset and created new features
- Firms: categorized firms' sizes into 4 categories
- Geography: retrieved the missing data using Google API

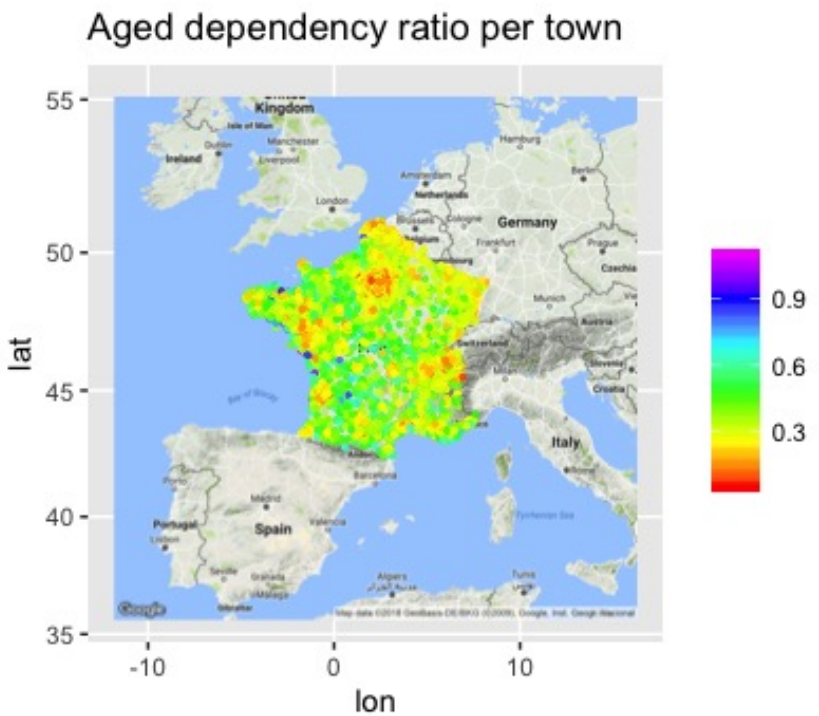
Distribution of population per town



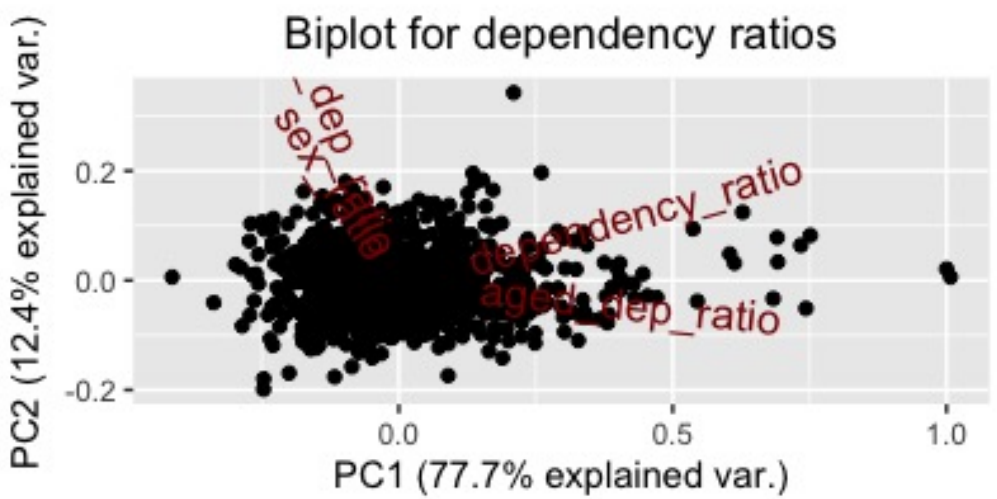


Population demographics





PCA


Biplot for dependency ratios
PC2 (12.4% explained var.)
PC1 (77.7% explained var.)
0.2
0.0
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1.0
dependency_ratio
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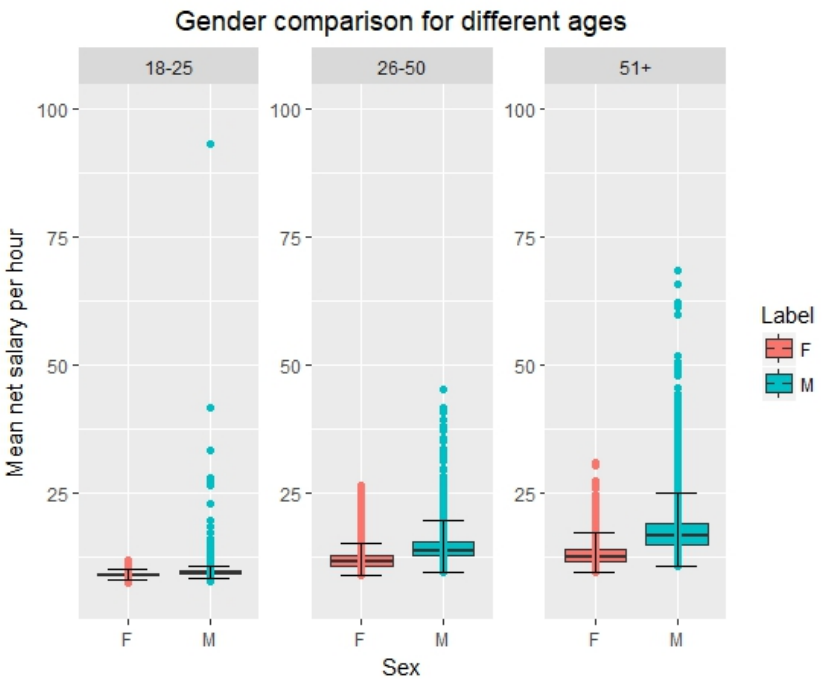
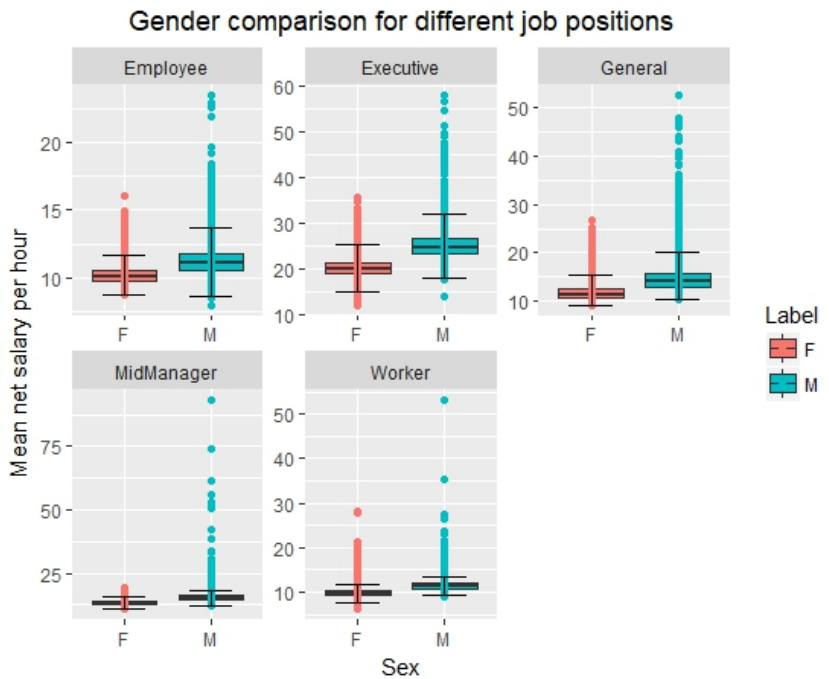
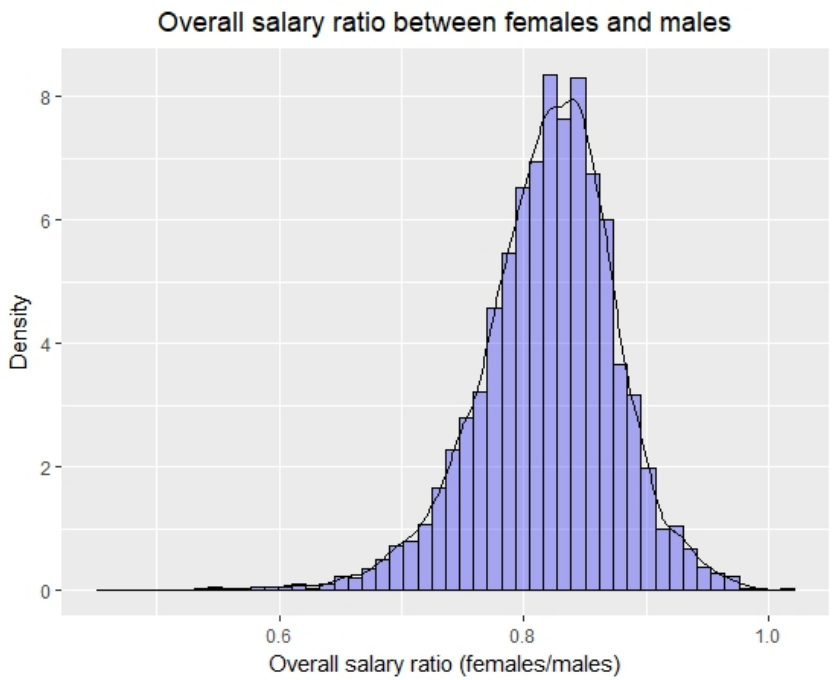
Inequality of salary





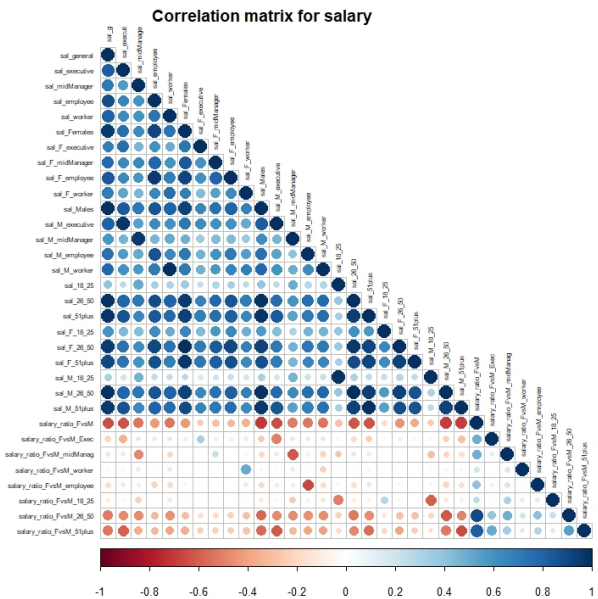
Inequality of salary

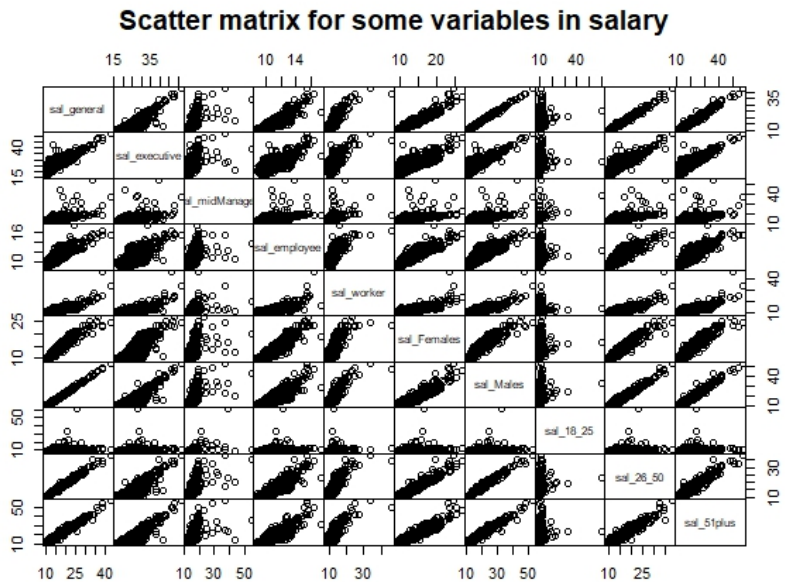


Inequality of salary

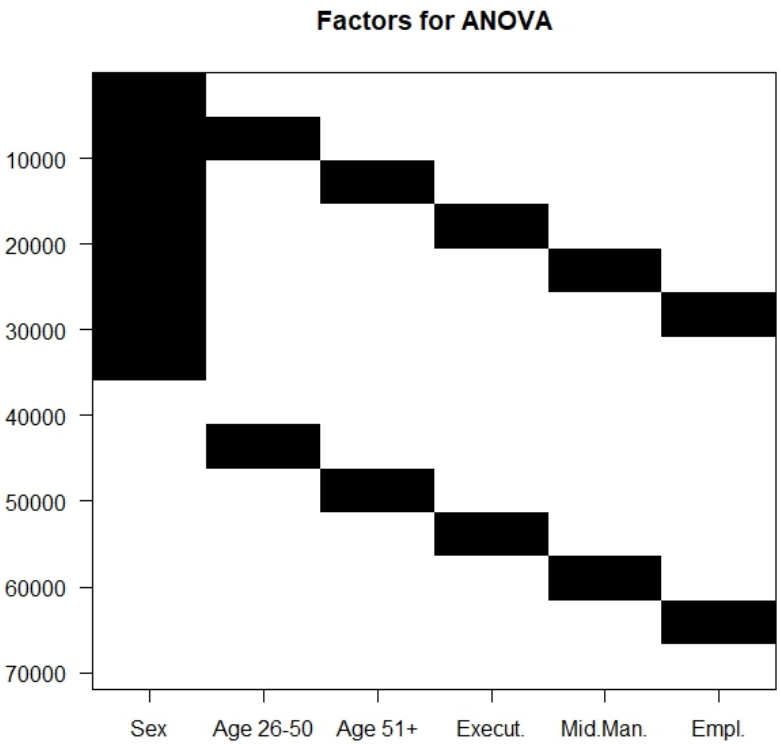
Inequality of salary

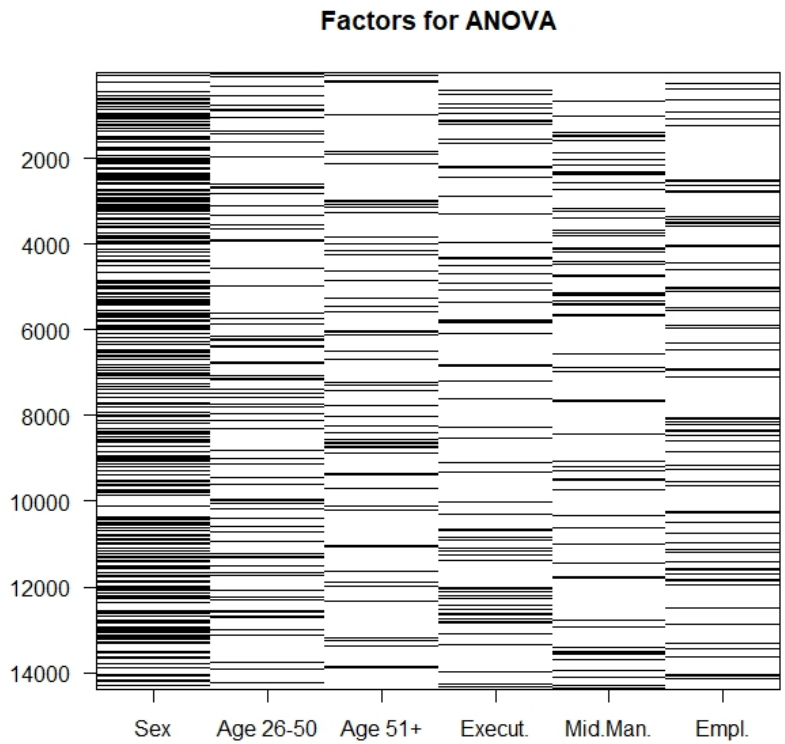
Bivariate relations





ANOVA using sex, job, age and interaction effects





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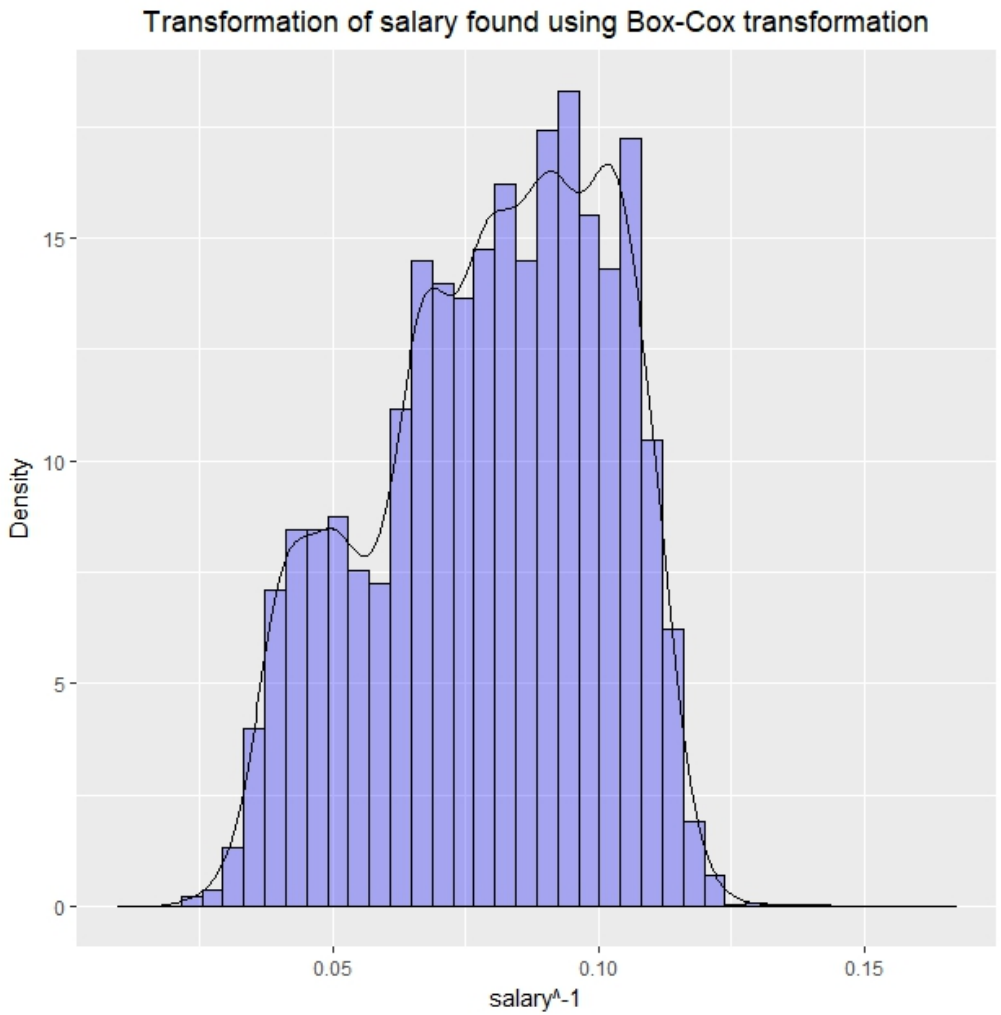
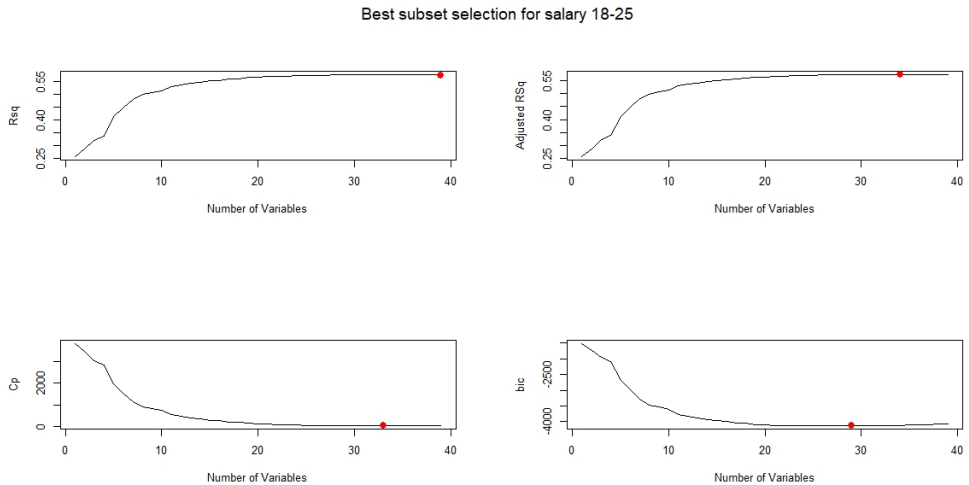
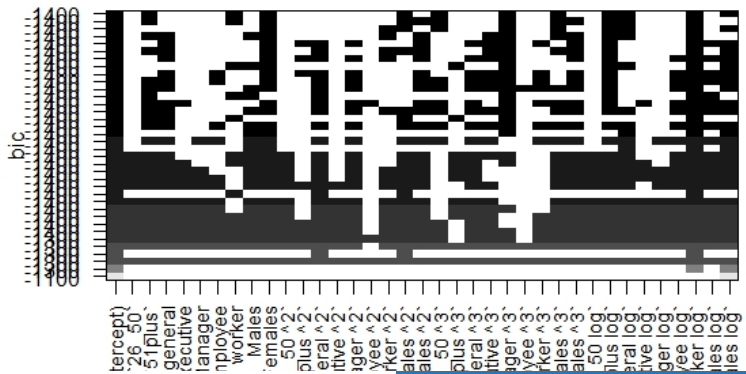


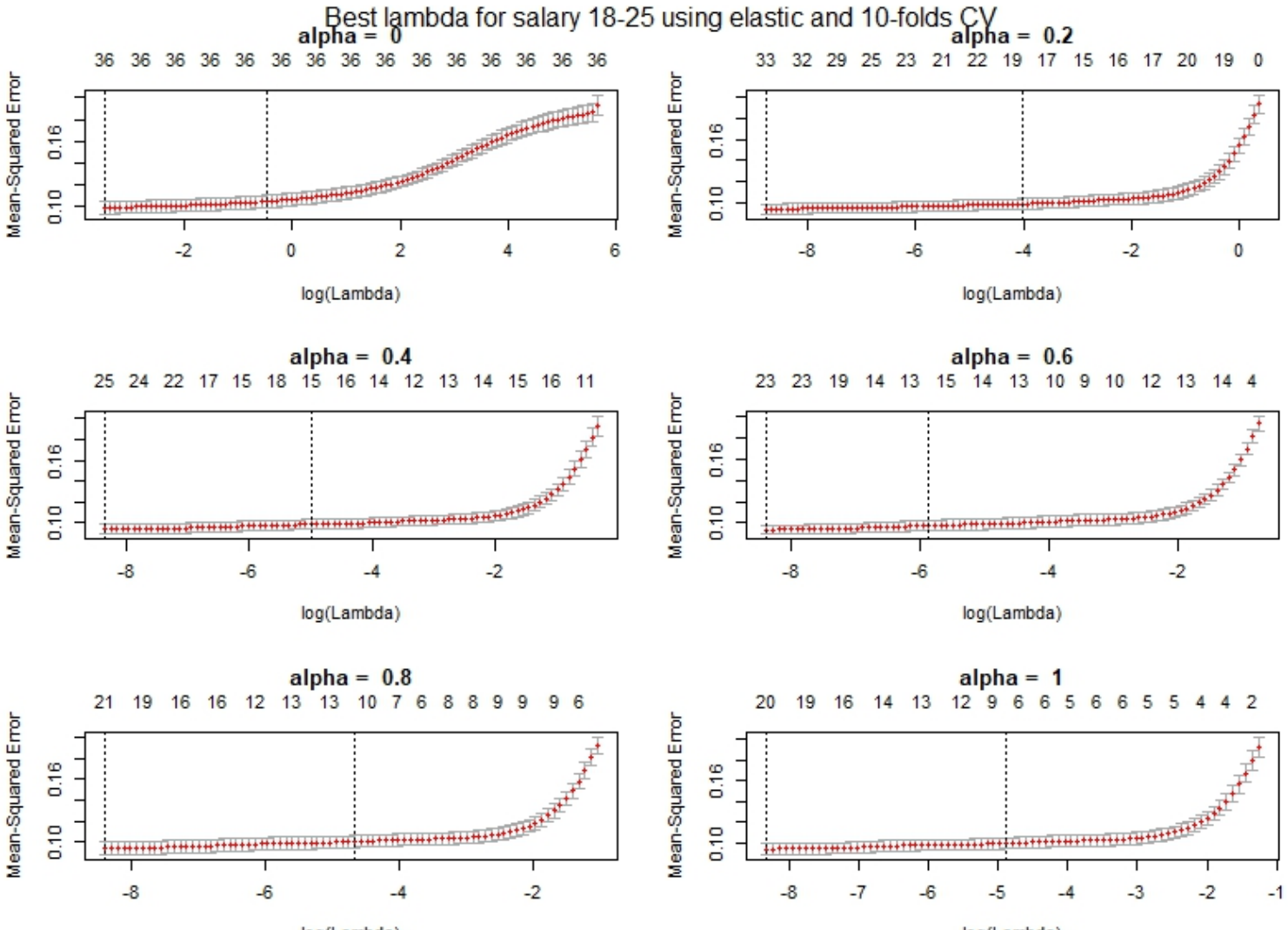
Prediction for young people using BSS



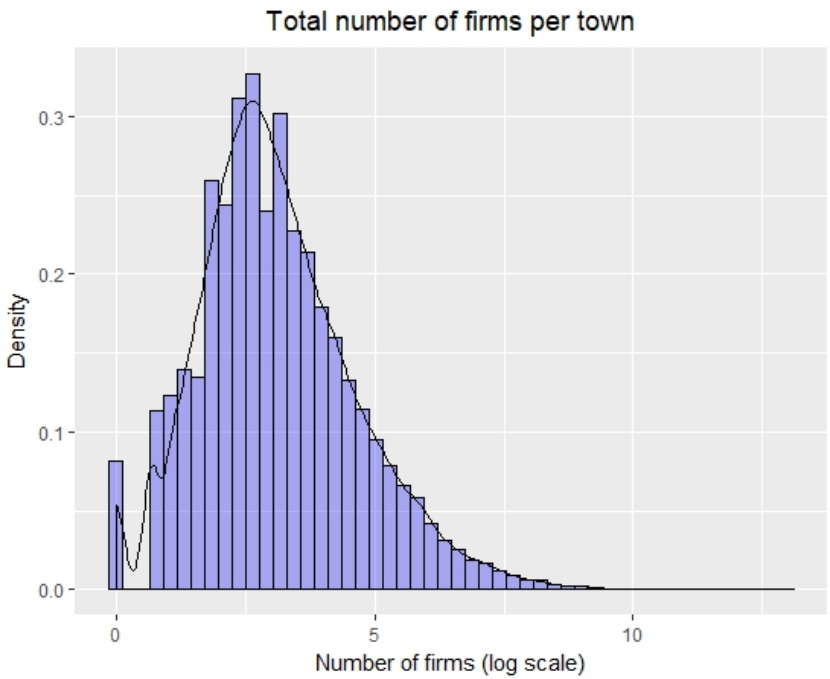
Best subset selection for salary 18-25 using BIC

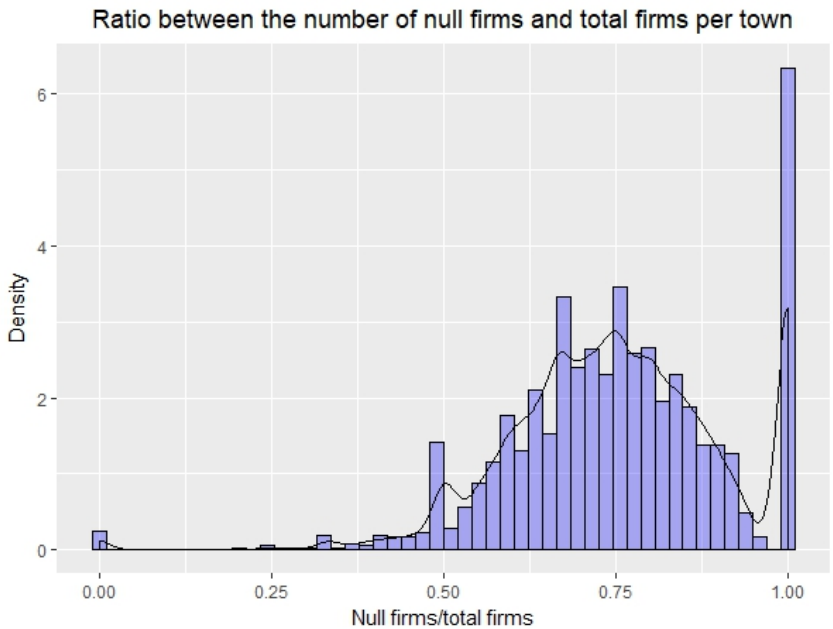


Elastic net and and 10-folds CV

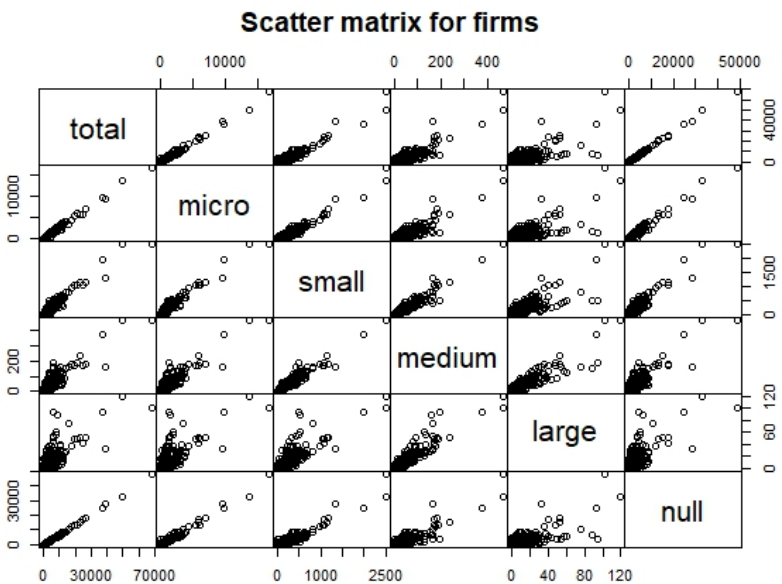


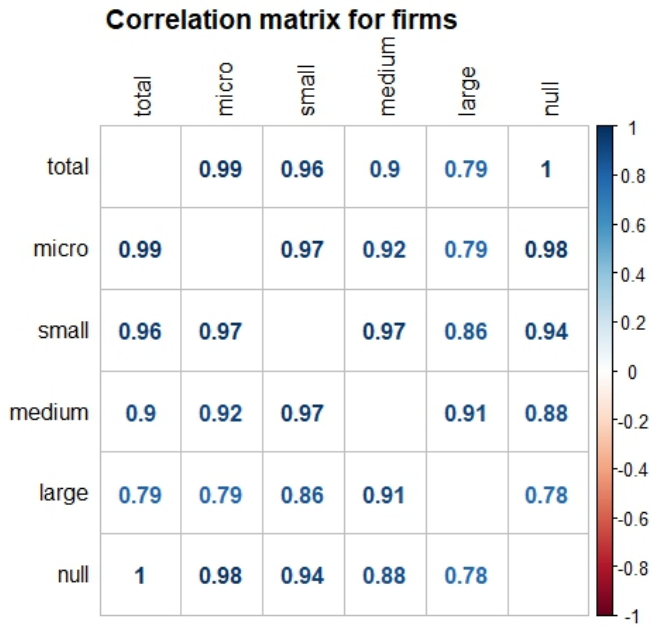
Distribution of firms per town





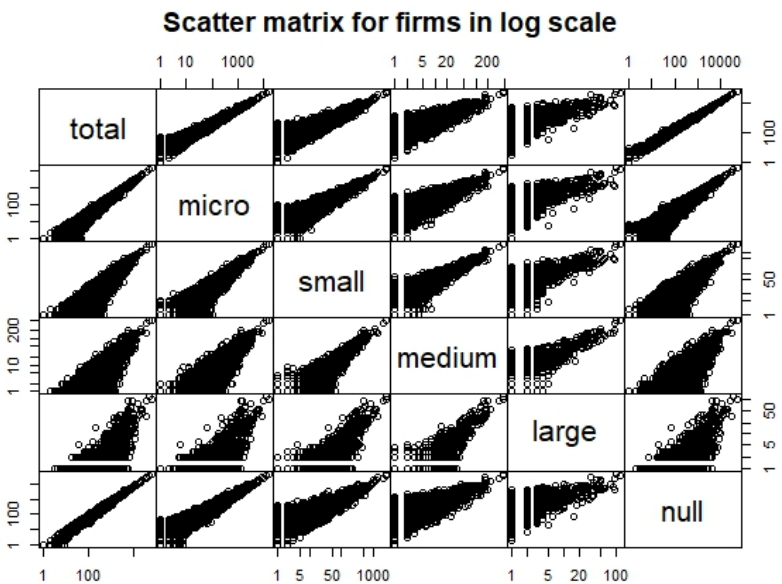
Bivariate relations

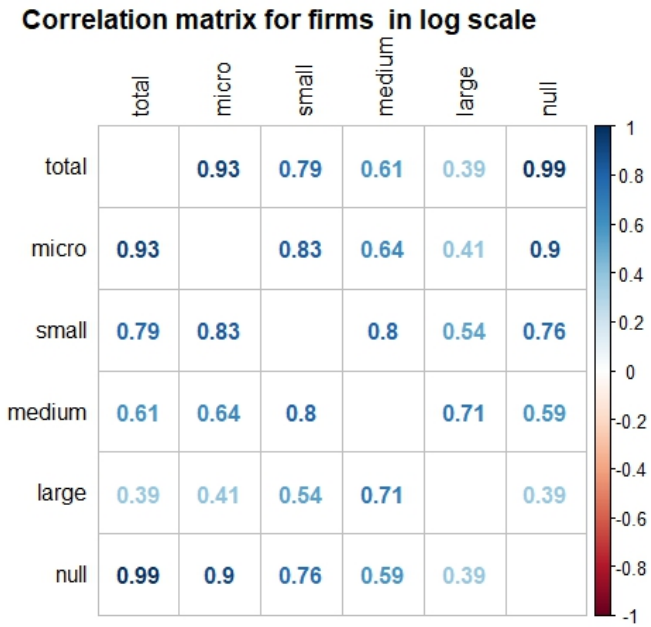




Excluding Paris

Bivariate relations

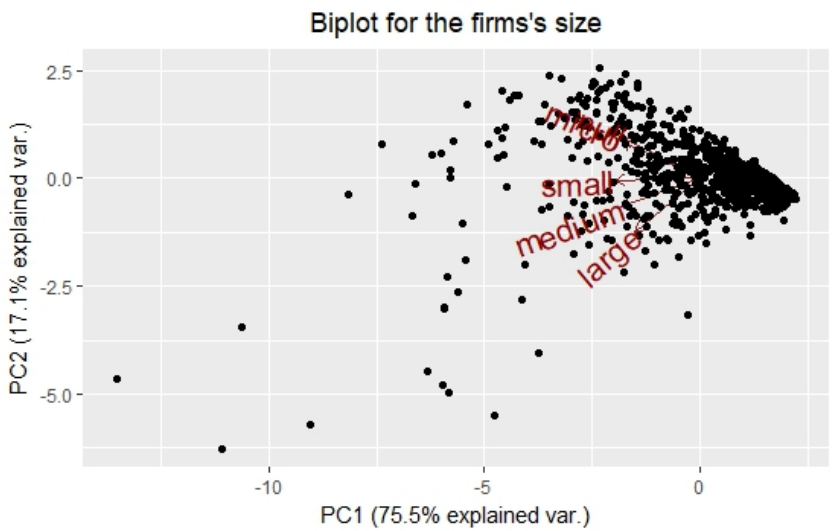


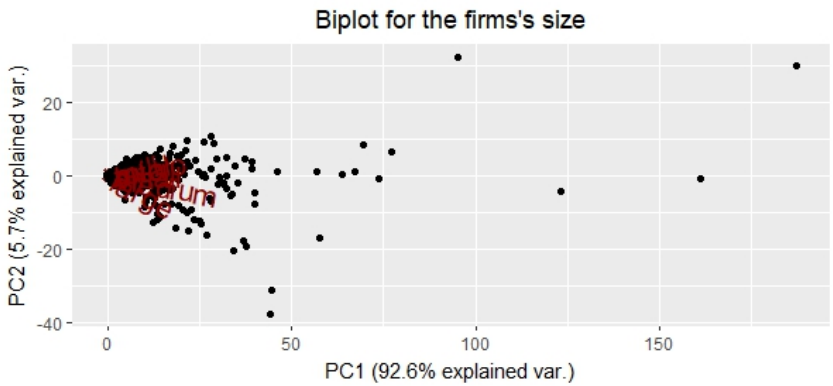


Including Paris

PCA

Using original data scaled (not logs)
Most typical vs. Excluding just Paris





Issues

- Unique code for salary data 1/7 of the total
- Loss of information when combining the separated datasets
- Missing additional information
- French DOM-TOM regions
- Outliers and spatial correlation

Future works

- Create meaningful indicators
- Take correlation into account (especially spatial)
- Perform clustering techniques to identify geographical clusters
- Perform groupwise lasso to predict salary data
- Verification/improvement of the obtained results
- Compare the methodologies used with robust ones
- Find complementary datasets

– Thank you –