Assignment 1

Ghazal

DA3 Assignment 1

1.Introduction

This assignment presents earnings per hour of **this** occpuation for the ones who has more than associate degree or occupational /vocational

2. Data

3. Regressions

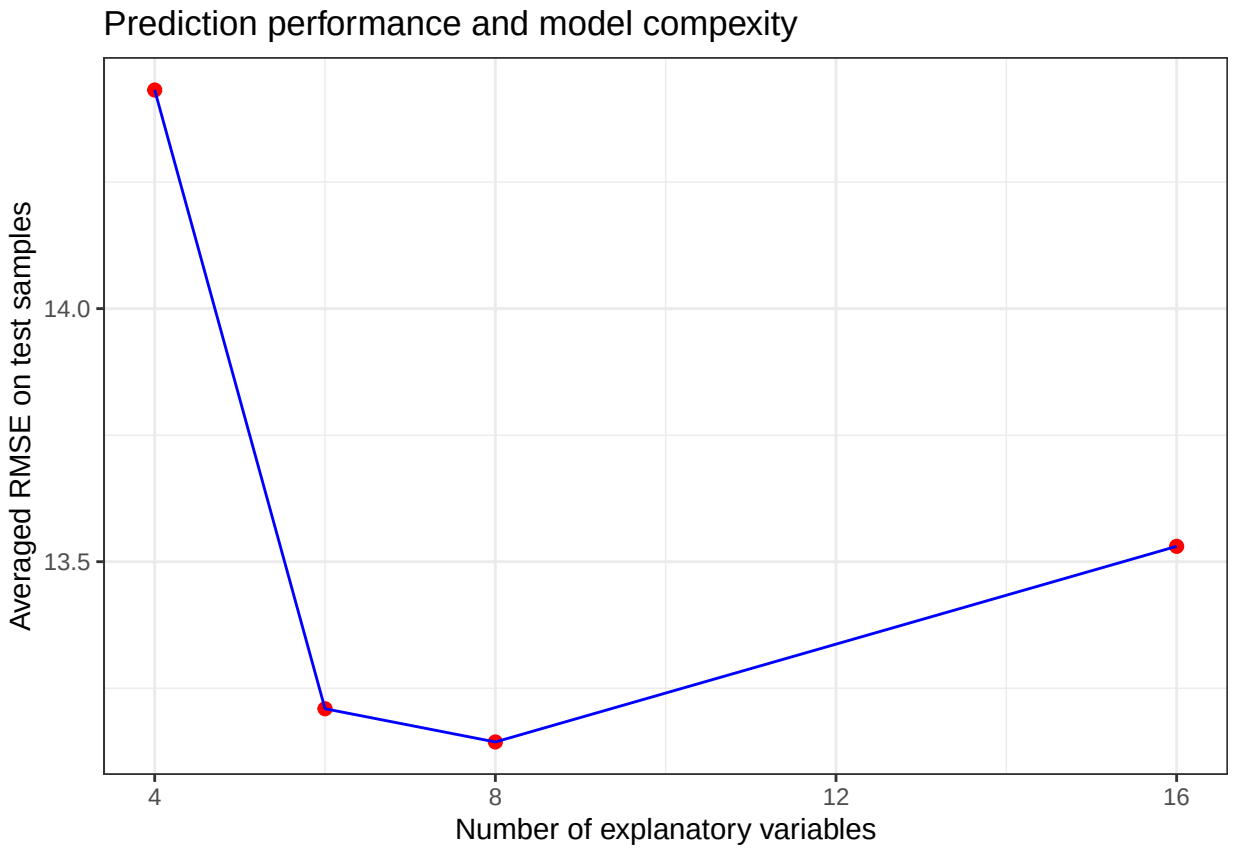
4. Performance of Models

5. Prediction

5. Summary

```
##                                          M1                  M2
## Dependent Var.:                  Hourly wage         Hourly wage
##
## Intercept                    28.70*** (0.8108)    -24.54** (8.281)
## MA Degree                        2.222 (1.747)      0.4542 (1.660)
## Professional Degree              1.416 (4.144)      -1.031 (3.957)
## PhD                            21.60** (6.878)      16.10* (6.392)
## Age                                               2.354*** (0.4605)
## Age Squared                                      -0.0229*** (0.0058)
## Female
## Private Sector
## Has Child
## MA Degree x Female
## Professional Degree x Female
## PhD x Female
## Age x Female
## Age Squared x Female
## Female x Private Sector
## Female x Has Child
## ---------------------------- ----------------- -------------------
## S.E. type                    Heteroskeda.-rob. Heteroskedast.-rob.
## AIC                                  3,376.2             3,304.9
## BIC                                  3,392.3             3,329.0
## RMSE                                  14.279              13.035
## R2                                   0.02453             0.18711
```

```
## Observations                              413                413
## No. Variables                               3                  5
##                                            M3                 M4
## Dependent Var.:                    Hourly wage        Hourly wage
##
## Intercept                     -28.94*** (8.432)   -53.89** (18.32)
## MA Degree                        0.6729 (1.671)     -3.948 (3.564)
## Professional Degree             -0.9115 (4.215)     -2.901 (5.534)
## PhD                              16.15* (6.392)   18.16*** (3.628)
## Age                            2.445*** (0.4536)  3.577*** (0.9333)
## Age Squared                 -0.0238*** (0.0058) -0.0362** (0.0110)
## Female                           -1.919 (1.604)     36.66. (21.28)
## Private Sector                  4.563** (1.733)     7.409* (3.262)
## Has Child                                           1.053 (3.091)
## MA Degree x Female                                  6.434 (4.040)
## Professional Degree x Female                        6.781 (9.584)
## PhD x Female                                       -2.192 (9.335)
## Age x Female                                       -1.836 (1.118)
## Age Squared x Female                             0.0206 (0.0135)
## Female x Private Sector                            -4.066 (3.891)
## Female x Has Child                                  1.304 (3.522)
## ---------------------------- ------------------- ------------------
## S.E. type                    Heteroskedast.-rob. Heteroskedas.-rob.
## AIC                                     3,299.9            3,307.3
## BIC                                     3,332.1            3,371.7
## RMSE                                     12.894             12.761
## R2                                      0.20461            0.22092
## Observations                                413                413
## No. Variables                                 7                 15
```




```
# Select Model 3

################
# 5C) Prediction
#   Compare model1 and model3 to predict our the hourly wage


dt <- dt %>% select(grade92, age, female, w, ed_BA, ed_MA, ed_Profess, ed_PhD, agesq, privt_sec, child)
```

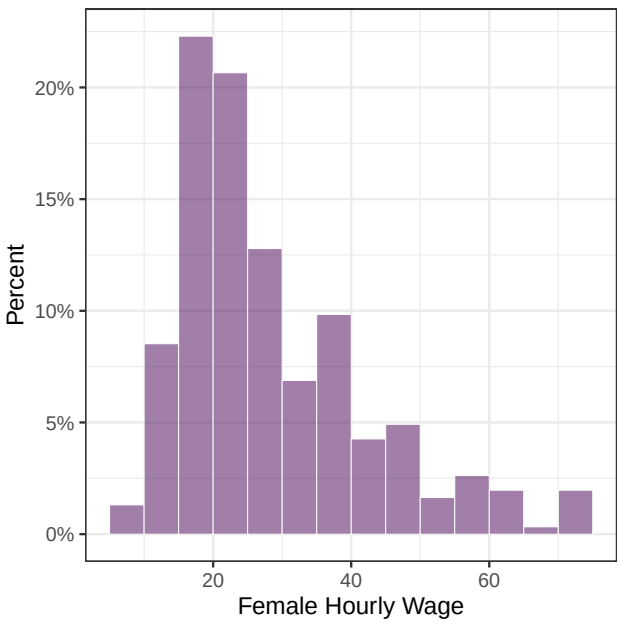
Appendix

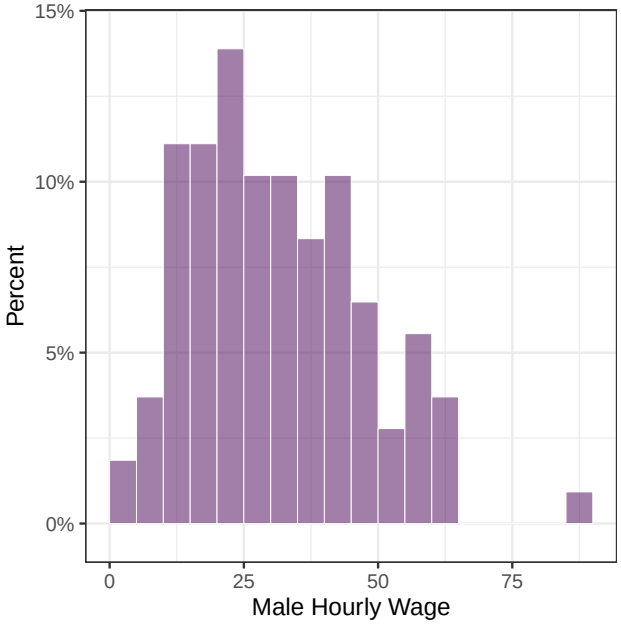
Descriptive Data Summary

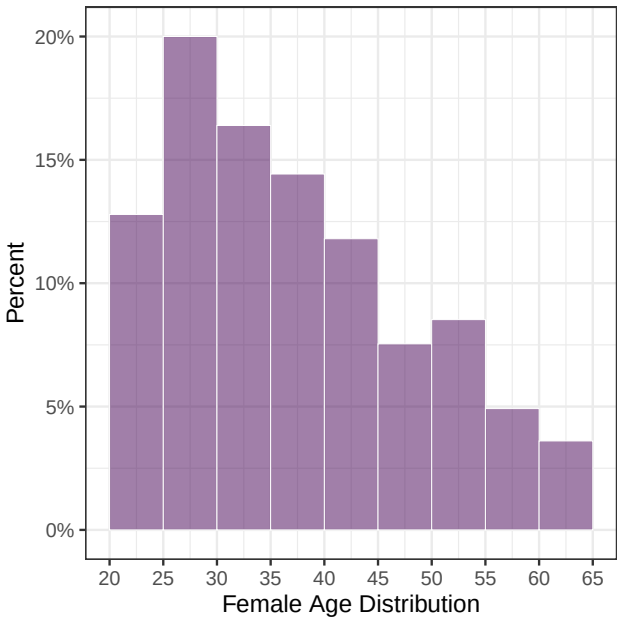
Table 1: Descriptive Summary Statistics

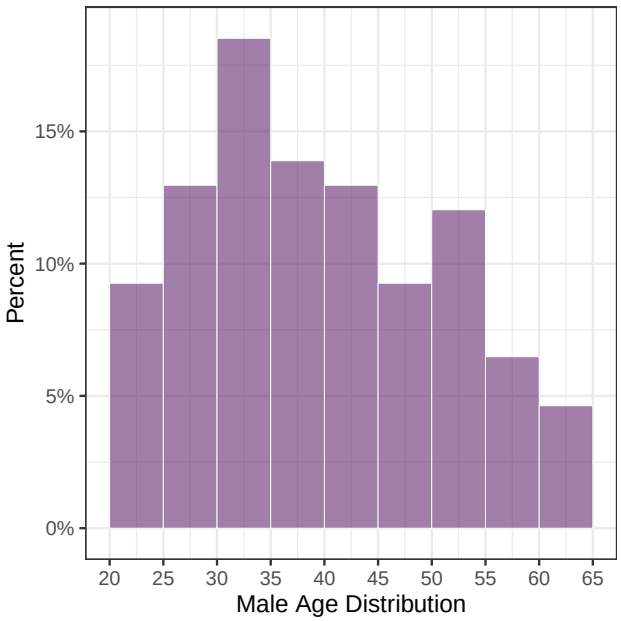
	Median	Mean	SD	Min	Max	P05	P95	N
Weekly earnings	1057.00	1219.28	637.91	96.00	2884.61	438.00	2515.38	413
Weekly hours worked	40.00	41.39	7.57	6.00	65.00	30.00	55.00	413
Earning per hour	25.00	29.44	14.47	2.31	85.26	12.59	58.55	413
Female	1.00	0.74	0.44	0.00	1.00	0.00	1.00	413
BA Degree	1.00	0.75	0.43	0.00	1.00	0.00	1.00	413
MA Degree	0.00	0.23	0.42	0.00	1.00	0.00	1.00	413
Professional Degree	0.00	0.02	0.13	0.00	1.00	0.00	0.00	413
PhD	0.00	0.01	0.10	0.00	1.00	0.00	0.00	413
Age	36.00	38.29	11.07	21.00	64.00	24.00	58.40	413
Work in Private Sector	1.00	0.79	0.41	0.00	1.00	0.00	1.00	413
Has child	0.00	0.39	0.49	0.00	1.00	0.00	1.00	413

Histograms

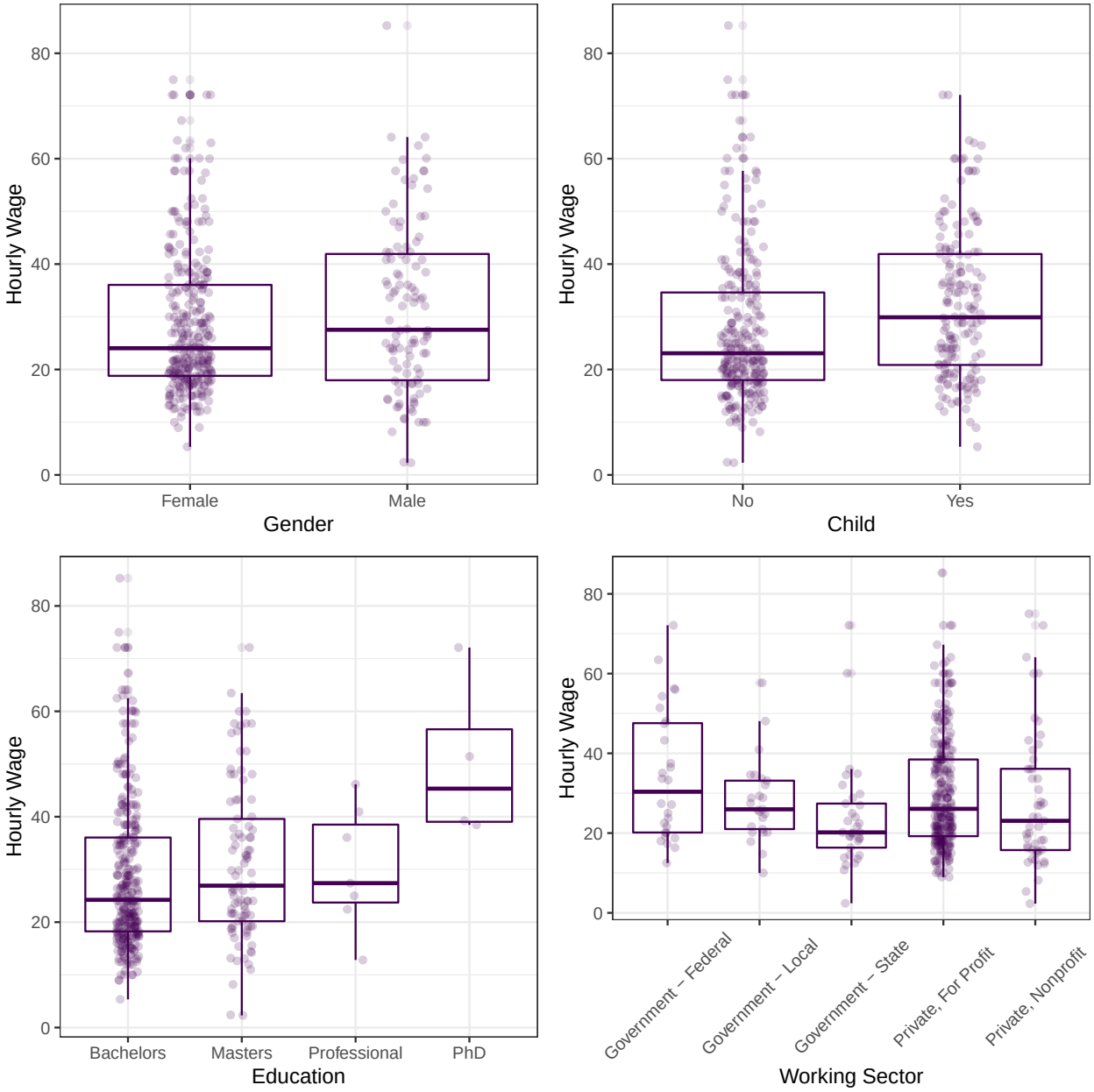

Percent
20%
15%
10%
5%
0%
20
40
60
Female Hourly Wage


Percent
15%
10%
5%
0%
0
25
50
75
Male Hourly Wage

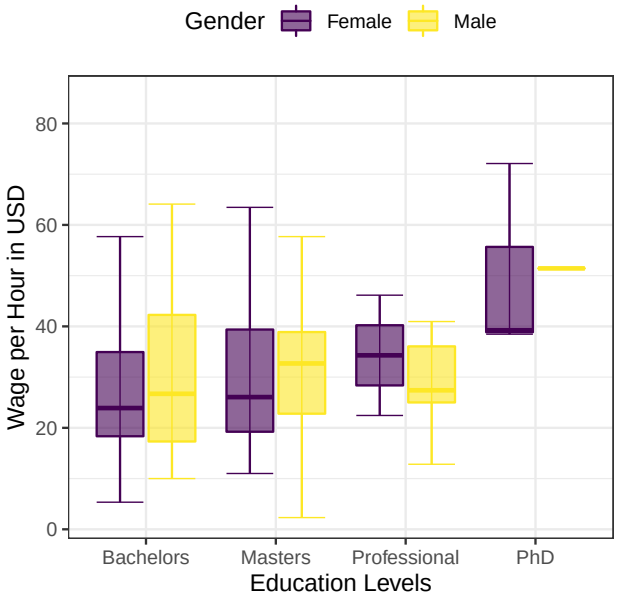

Percent
20%
15%
10%
5%
0%
20
25
30
35
40
45
50
55
60
65
Female Age Distribution

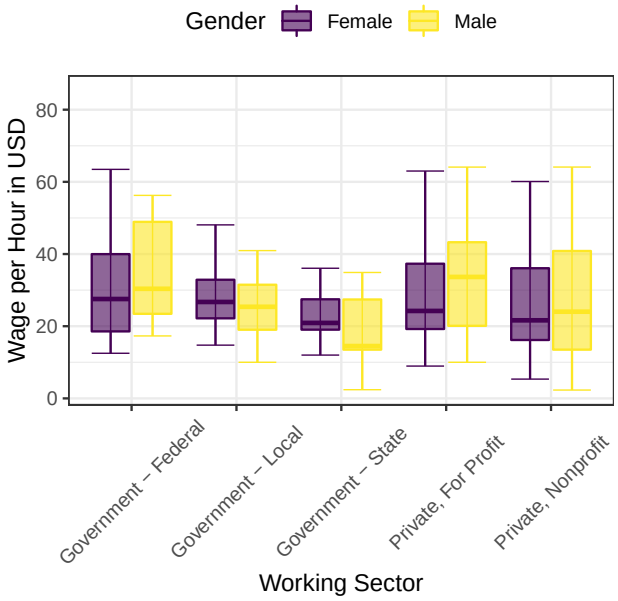

Percent
15%
10%
5%
0%
20
25
30
35
40
45
50
55
60
65
Male Age Distribution

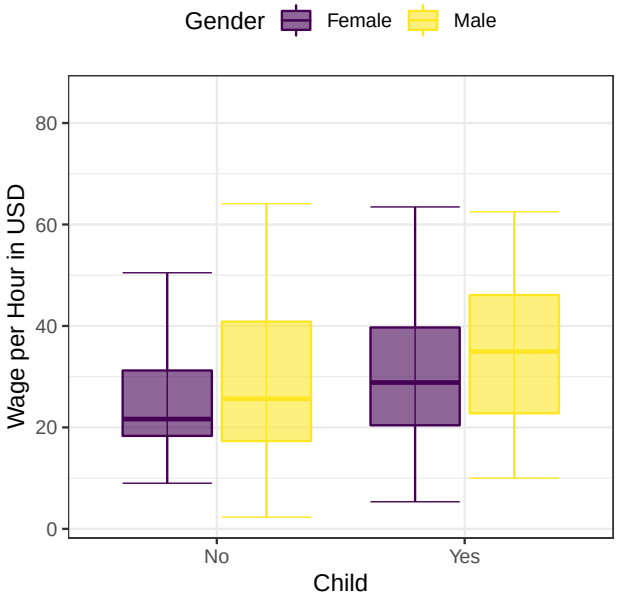
Boxplots

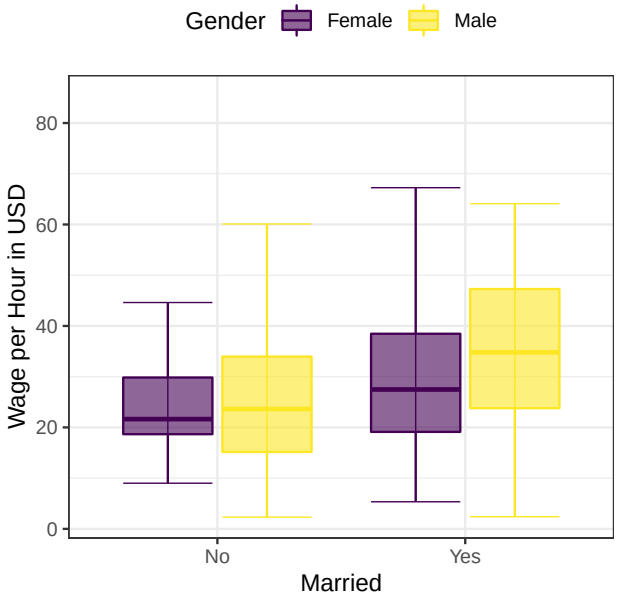

Hourly Wage
0
20
40
60
80
Female
Male
Gender
No
Yes
Child
Bachelors
Masters
Professional
PhD
Education
Government – Federal
Government – Local
Government – State
Private, For Profit
Private, Nonprofit
Working Sector

Boxplots

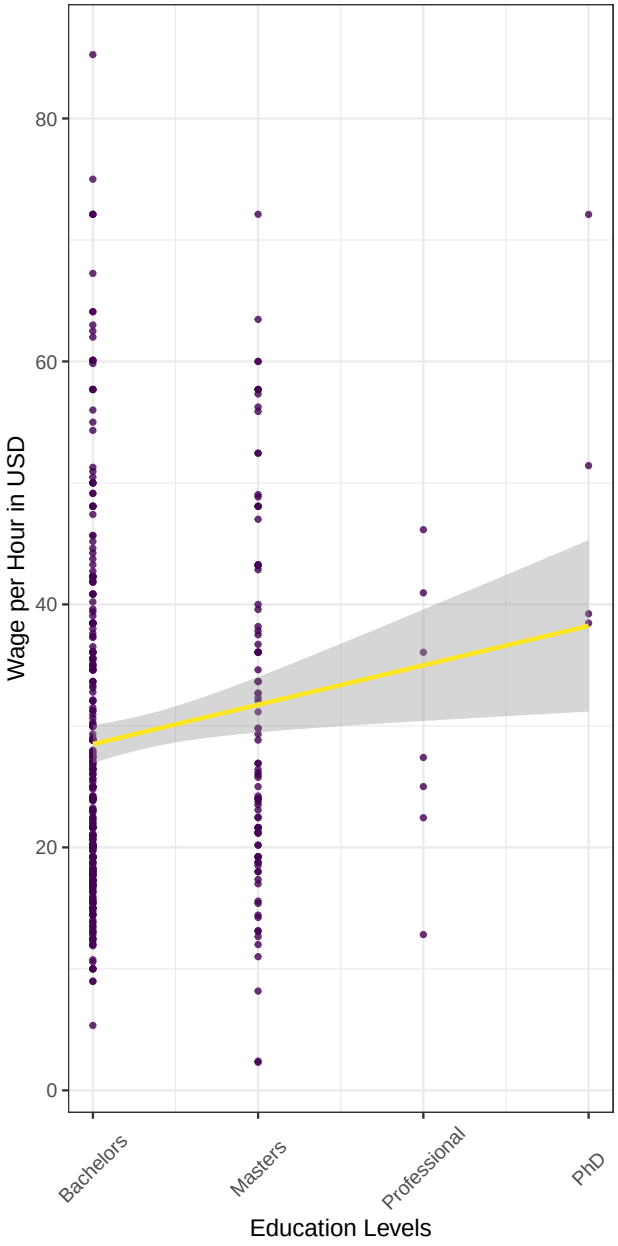

Gender
Female
Male
Wage per Hour in USD
0
20
40
60
80
Bachelors
Masters
Professional
PhD
Education Levels

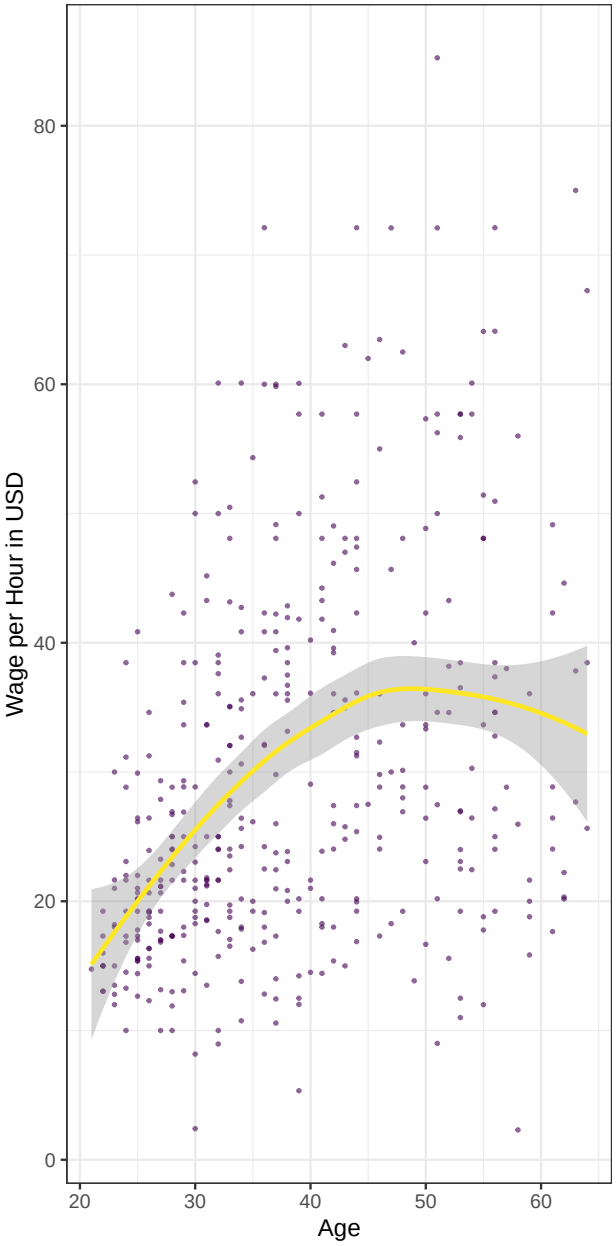

Gender
Female
Male
Wage per Hour in USD
0
20
40
60
80
Government – Federal
Government – Local
Government – State
Private, For Profit
Private, Nonprofit
Working Sector


Gender
Female
Male
Wage per Hour in USD
0
20
40
60
80
No
Yes
Child


Gender
Female
Male
Wage per Hour in USD
0
20
40
60
80
No
Yes
Married

Boxplots


Wage per Hour in USD
80
60
40
20
0
Bachelors
Masters
Professional
PhD
Education Levels


Wage per Hour in USD
80
60
40
20
0
20
30
40
50
60
Age