

Effects of Job Training for Disadvantaged Workers

IDS702 Team Project Group Yellow

Duke

Data & Modeling Process

Data Set

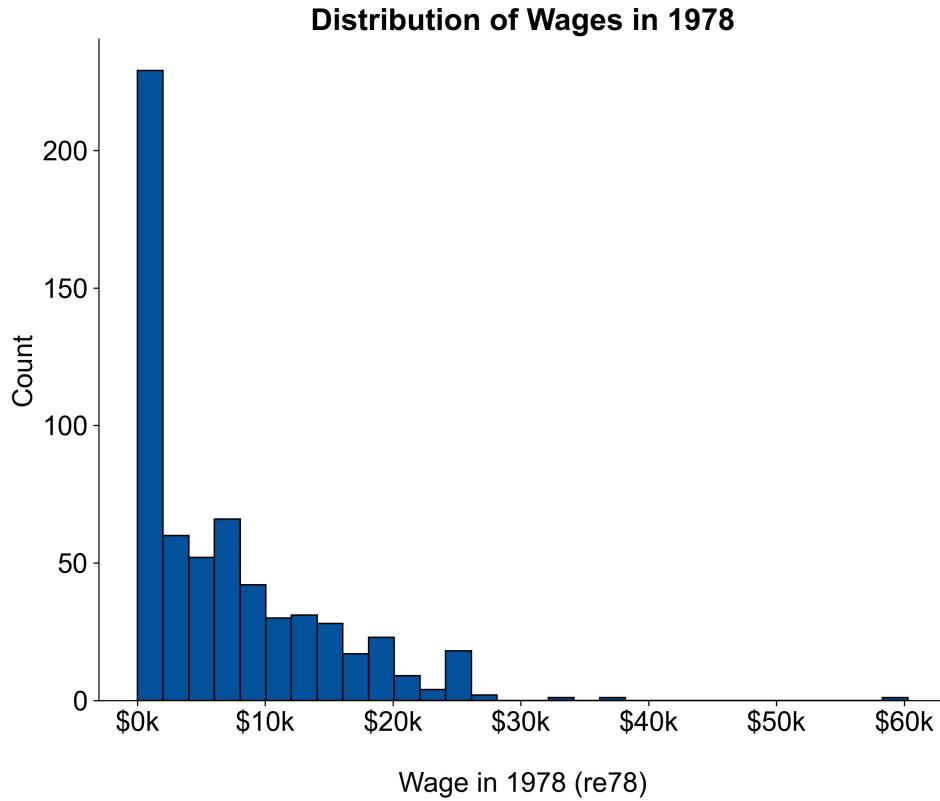
- Collected by Robert LaLonde [1] in the 1970s
- Studies effect of job training for disadvantaged workers on earnings
- Recorded information on demographics, education status and prior wages
- Only male participants

Modeling Process

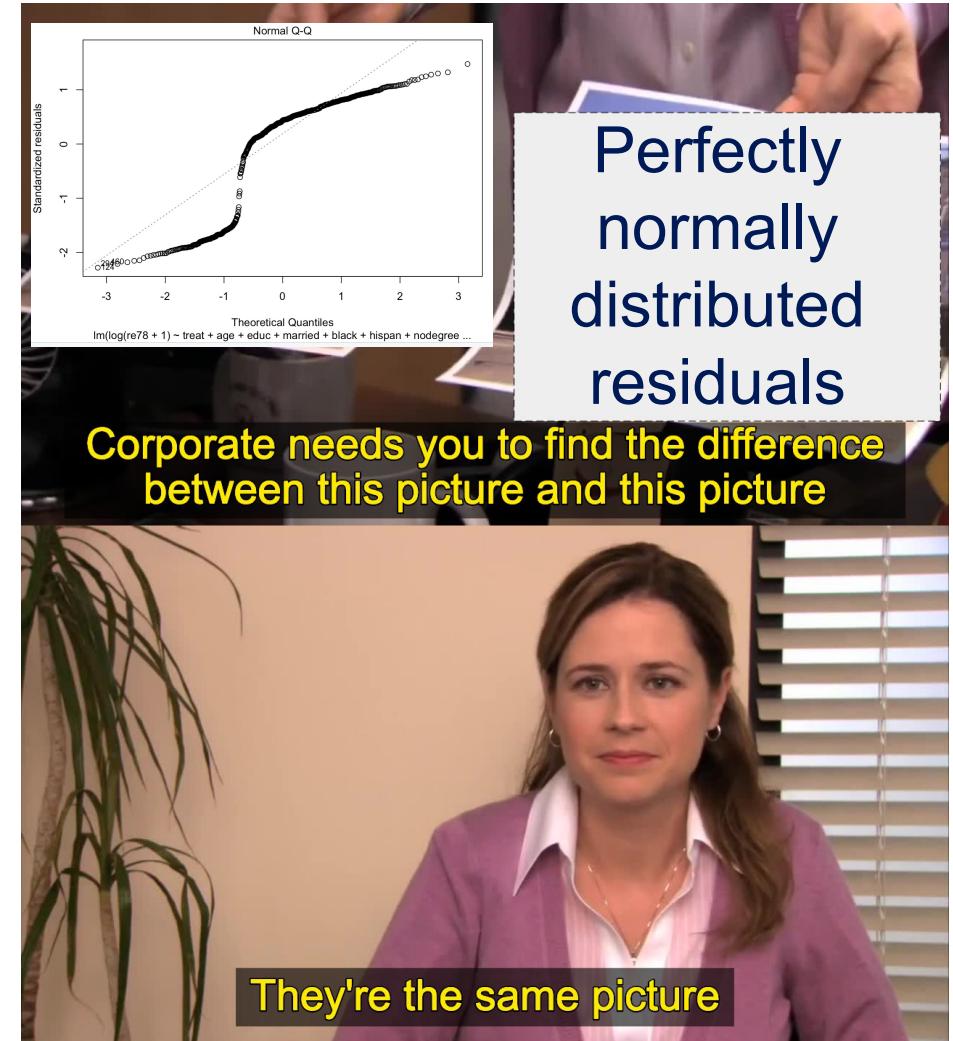
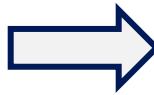


EDA & Experiments

Univariate

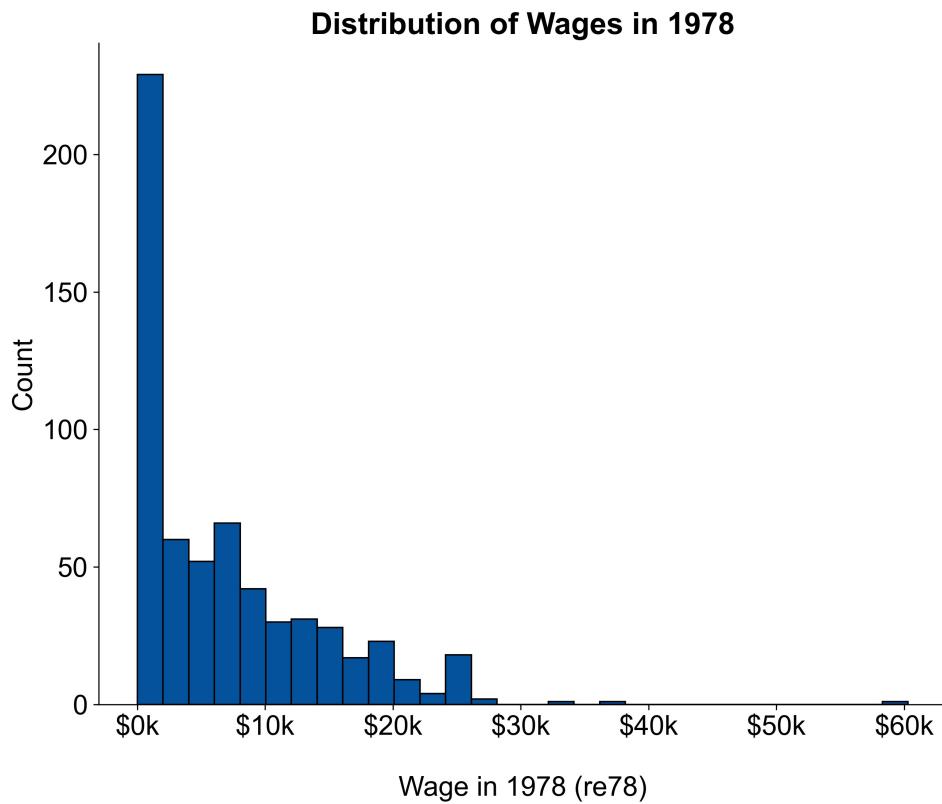


Zero inflation → model $re78 - re74$ instead

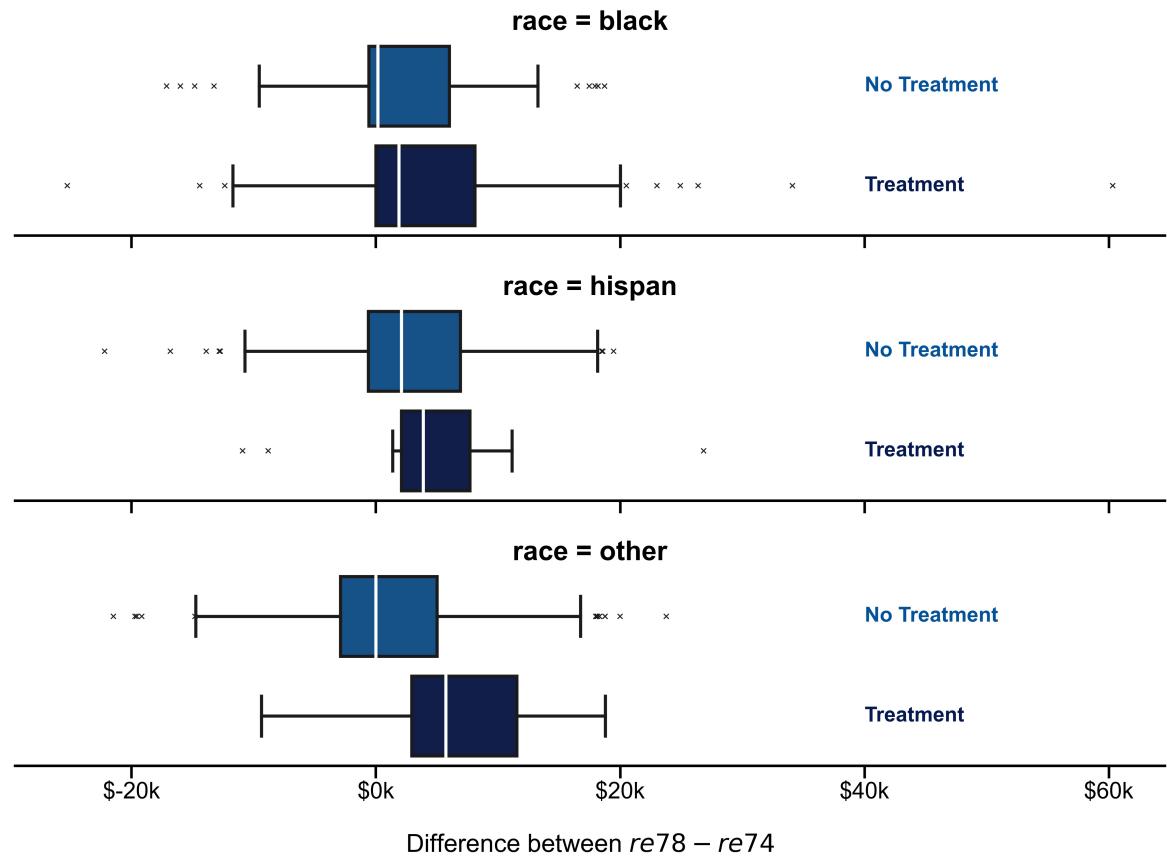


EDA & Experiments

Univariate



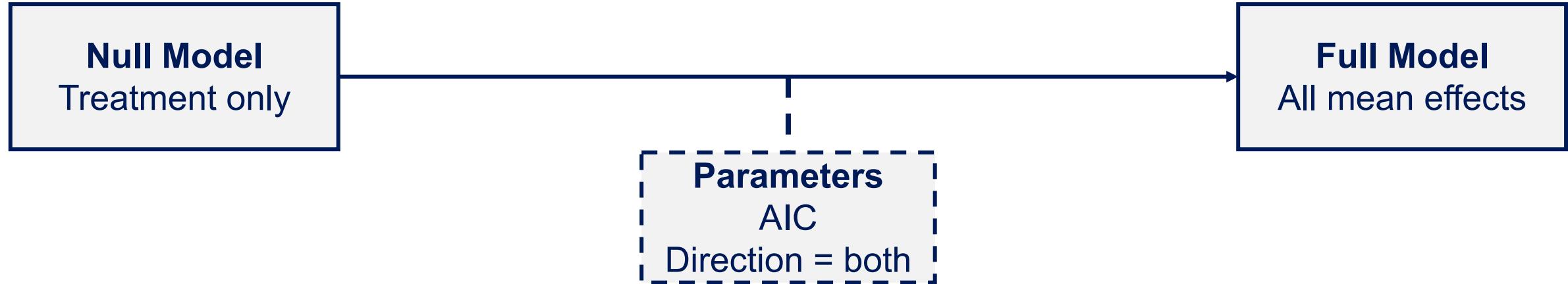
Interactions



Zero inflation → model $re78 - re74$ instead

No interaction between treatment and race

Stepwise Regression



Resulting Model

$$\hat{y} = \widehat{\beta}_0 + \widehat{\beta}_1 \cdot treat + \widehat{\beta}_2 \cdot age + \widehat{\beta}_3 \cdot married$$

| | Estimate | Std. Error | t value | $Pr(> t)$ | |
|-------------|----------|------------|---------|-------------|-----|
| (Intercept) | 4933.27 | 974.81 | 5.06 | 0.00 | *** |
| treat1 | 2085.12 | 719.90 | 2.90 | 0.00 | ** |
| age | -93.59 | 34.43 | -2.72 | 0.01 | ** |
| married1 | -1842.51 | 719.56 | -2.56 | 0.01 | * |

Testing Interactions

Testing stepwise model against....

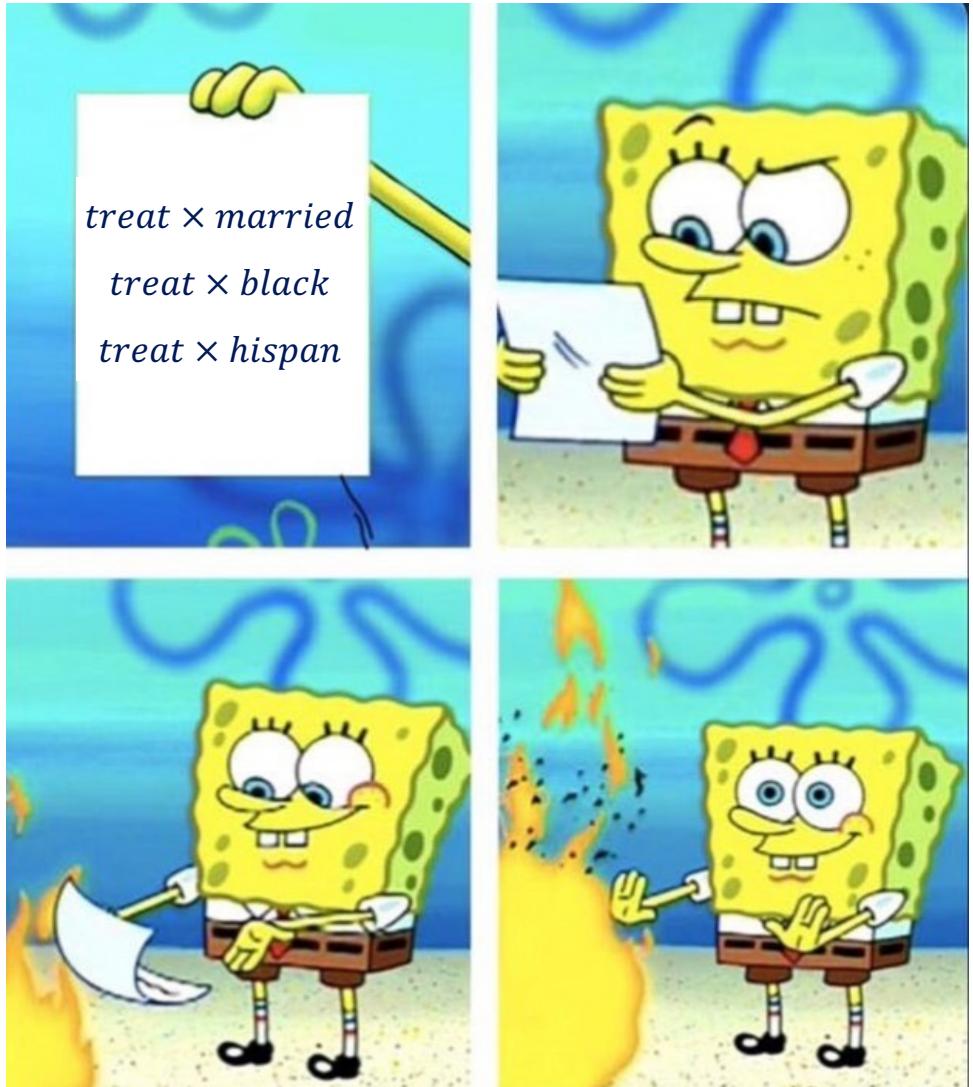
- Stepwise + *treat* × *married*
- Stepwise + *treat* × *black*
- Stepwise + *treat* × *hispan*
- Stepwise + *treat* × *age*

| | Res.Df | RSS | Df | Sum of Sq | F | Pr(>F) |
|---|--------|-----------|----|-----------|------|--------|
| 1 | 610 | 3.715e+10 | | | | |
| 2 | 609 | 3.663e+10 | 1 | 5.178e+8 | 8.61 | 0.0035 |

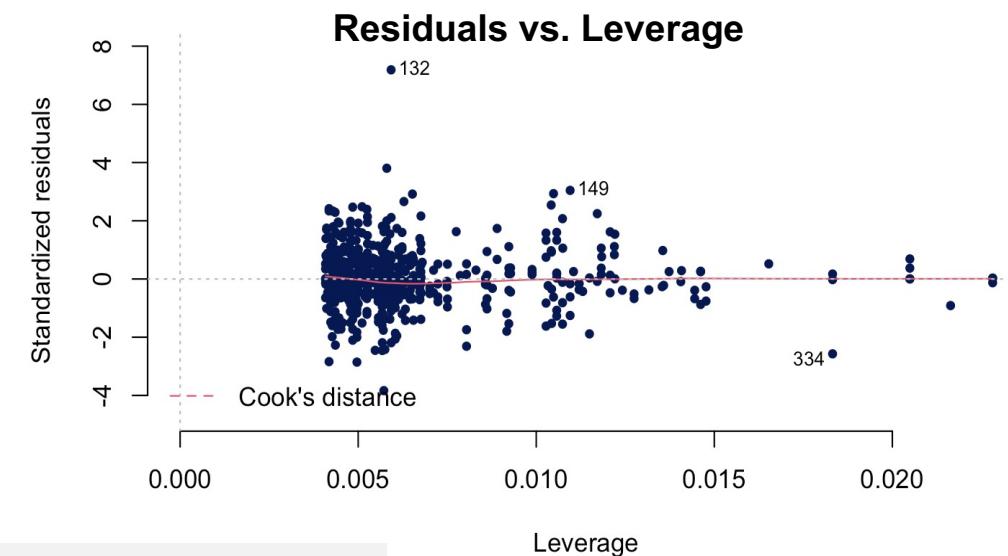
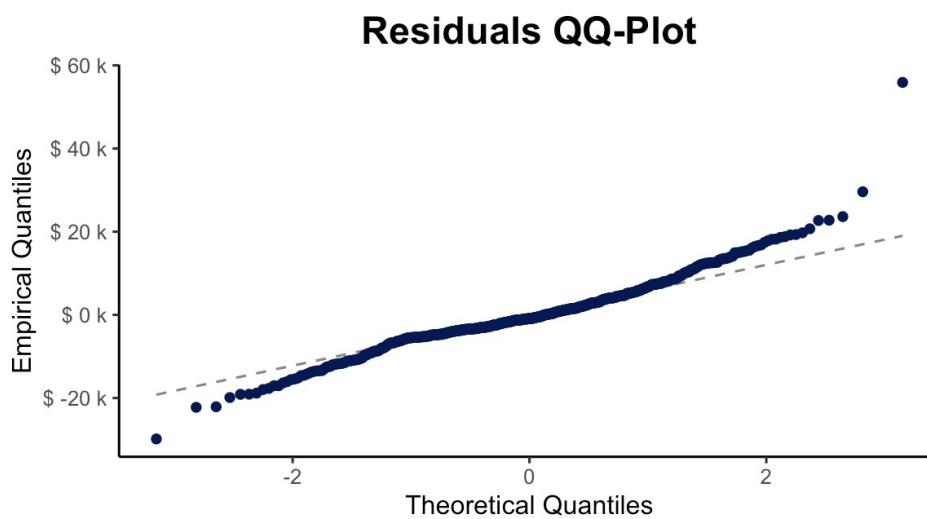
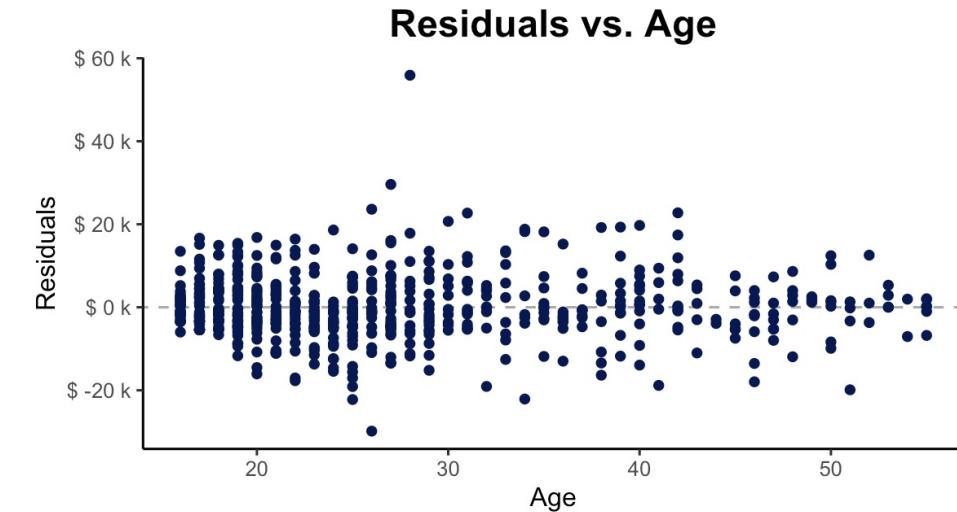
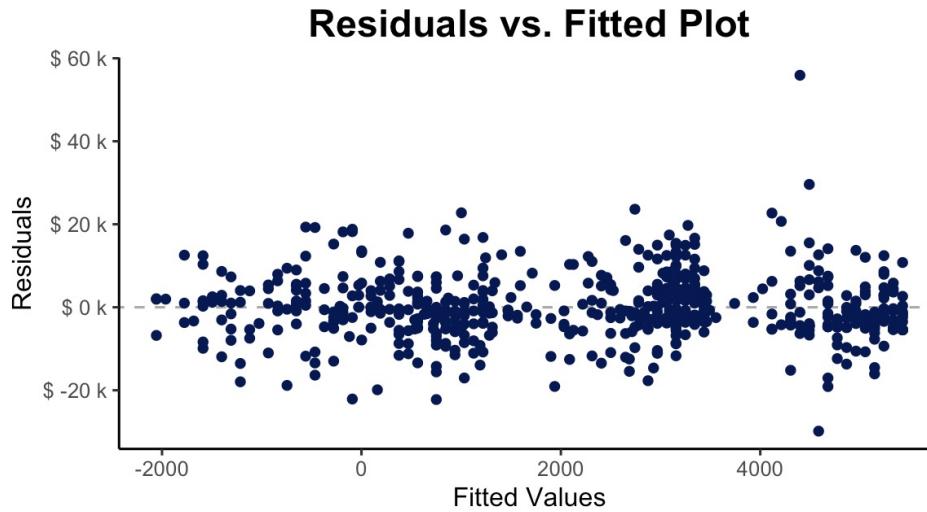
F Test for *treat* × *age* interaction

The treatment effect differs by age group, but not by any of the other demographics

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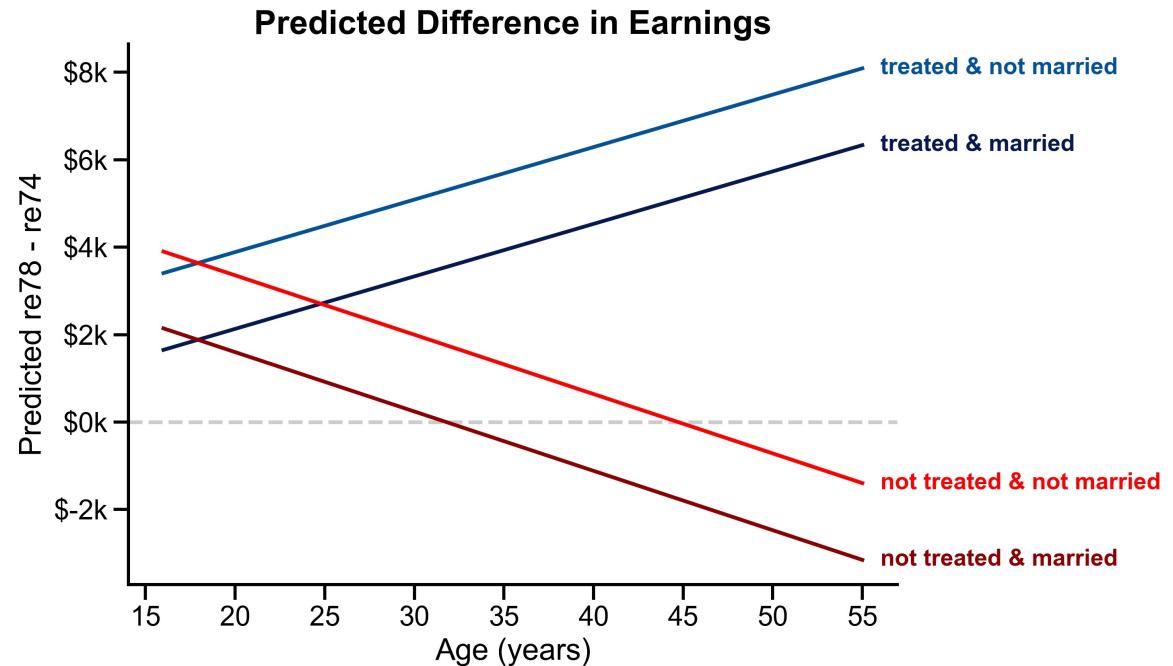
Model Assessment



No major assumption violations

Interpretation

| | Estimate | Std. Error | t value | Pr(> t) | |
|-------------|----------|------------|---------|-----------|-----|
| (Intercept) | 6072.02 | 1043.64 | 5.82 | 0.00 | *** |
| treat1 | -4586.31 | 2383.74 | -1.92 | 0.05 | . |
| age | -135.79 | 37.11 | -3.66 | 0.00 | *** |
| married1 | -1756.52 | 715.72 | -2.45 | 0.01 | * |
| treat1:age | 255.88 | 87.21 | 2.93 | 0.00 | ** |



References

1. Lalonde, R. J. (1986), Evaluating the econometric evaluations of training programs with experimental data, *The American Economic Review*, 76, 604 - 620.