Assignment 1
Ian Brandenburg and David Szabados

Wage Disparity Amongst Genders in the Health Practitioner Industry

Data Overview:

- Analysed occupation codes 3000-3540, focusing on health practitioners.
- Created variables: gender (numeric binary), weekly wages, log of wages.

Descriptive Analysis:

- Wage distribution: Initially right skewed, normalized after log transformation.
- Earnings histogram by gender: Indicates higher average weekly earnings for males and a higher number of females in the sample.

Unconditional Wage Gap Analysis:

- OLS regression model indicated a significant wage gap, with females earning lower wages (decrease of 0.132 in log wages, $p < 0.01$).
- Model's low R-Squared (0.8%) implies gender alone is not a comprehensive indicator of wage disparities.

Impact of Education Levels:

- Analysed BA, MA, Professional, and PhD degrees.
- Higher education correlated with increased weekly earnings.
- Males out-earned females across all education levels, but with overlapping ranges, indicating some uncertainty in the exact disparity.

Regression Models Summary:

- Conducted 11 regression models, but will reflect on the last three here, which explore education levels, gender, and wages.
- Model 10 (Females): Education level positively impacts log wages, explaining 13.8% of variance.
- Model 11 (Males): Education level influences log wages (9.7% increase), professional degree significantly boosts wages.
- Model 12 (Gender Interaction): Education increases wages by 9.7%, but gender wage gap (27.6%) not statistically significant. Overall, degrees do not significantly affect gender wage disparities.

Predictive Modelling and Interpretation:

- Confidence intervals in predictive models indicate consistent higher earnings for males across all education levels.
- Professional degrees show the least overlap in gender earnings, suggesting a more pronounced disparity at this education level.

Conclusion:

- Clear wage disparities exist between genders in the healthcare practitioner industry.
- Further research needed to explore other factors influencing this gap and to develop better predictive models.
- Levels of education were found to not significantly affect gender wage disparities.

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Regression Models 10, 11, and 12

			Dependent variable: lnw
	Women	Men	Interactions
	(1)	(2)	(3)
Level of Education	0.102***	0.097***	0.097***
	(0.008)	(0.017)	(0.017)
BA_Degree	0.108***	0.084	0.084
	(0.023)	(0.056)	(0.056)
MA_Degree	0.112***	0.079	0.079
	(0.033)	(0.070)	(0.070)
Prof_Degree	0.048	0.157*	0.157*
	(0.061)	(0.086)	(0.085)
PhD_Degree	0.033	0.010	0.010
	(0.053)	(0.106)	(0.106)
Female			-0.276
			(0.772)
Female:BA_Degree			0.024
			(0.061)
Female:MA_Degree			0.033
			(0.078)
Female:Prof_Degree			-0.108
			(0.105)
Female:PhD_Degree			0.023
			(0.119)
Female:Level of Education			0.005
			(0.019)
Constant	-1.190***	-0.914	-0.914
	(0.322)	(0.703)	(0.702)
Observations	7220	1988	9208
R^2	0.138	0.121	0.140
Adjusted R^2	0.137	0.118	0.139
Residual Std. Error	0.543 (df=7214)	0.648 (df=1982)	0.568 (df=9196)
F Statistic	253.348*** (df=5; 7214)	71.895*** (df=5; 1982)	149.835*** (df=11; 9196)
Note:			*p<0.1; **p<0.05; ***p<0.01

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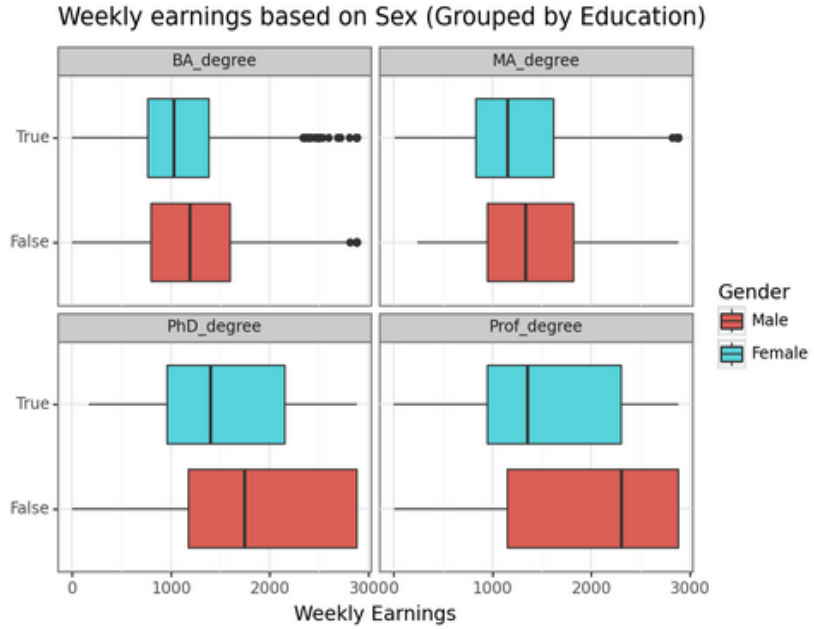
Boxplot:



Point Plot with Error Bars: