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Title: Analysis of Gender Wage Gap Using Mixed Effects Models.

Abstract:

Background: Despite government intervention, the gender wage gap persists, with varying reports on whether it is widening or narrowing. Addressing this issue remains crucial. Traditional methods, such as Blinder-Oaxaca decomposing and quantile regression, often leave a significant unexplained variance. Additionally, gender wage gap estimates have typically been aggregated, and attempts to disaggregate the analysis have focused on broader levels such as occupations and salary bands.

Aim: This study leverages human resource data from the national department of health to analyze the gender wage gap at a more granular occupational level, using job titles.

Methods: A linear mixed-effects model was employed to account for small, varied groups, capturing both systematic trends and unexplained variability.

Results: Key findings include: (1) The unexplained variance in the gender wage gap was only 3%, indicating that the model captures most of the variability. (2) Job titles explained 83% of the total random variance, underscoring the importance of role-specific analysis. (3) While a gender wage gap favoring men was observed overall, 42% of job title groups favored women, with many females in managerial or highly skilled roles.

Conclusion:

Incorporation of random effects techniques and more detailed job categories has considerably enriched this analysis, allowing for a deeper and more accurate understanding of the determinants of the gender wage gap.