18th International Joint Conference CFE-CMStatistics
Computational and Methodological Statistics (CMStatistics 2024)
Computational and Financial Econometrics (CFE 2024)
14-16 December 2024, King's College London, UK

View Submission - CFECMStatistics2024

A0563

Title: A mediation analysis approach for gender pay gap in STEM: The university of Palermo case

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Abstract: Italy's strategic sustainability plan for 2024-2026 aims to reduce the wage disparity between men and women to a 1\% difference. Addressing the gender pay gap (GPG) is crucial to promoting equity, improving economic efficiency and ensuring sustainable and inclusive development. Italy's GPG is around 5\%, with an annual men vs women disparity of almost 8,000 between genders in the private sector in 2022. Additionally, a significant factor in the GPG is the underrepresentation of women in STEM fields, which offer higher wages. The hypothesis is that participation in STEM fields mediates the relationship between gender and wages. Using data from the University of Palermo graduates, the gender effect on wages is decomposed into indirect and direct effects through STEM participation. In addition, the propensity score approach is used to relate the study to an experimental one and a quantile regression model is adopted to investigate better the effect of the variables on the income distribution.