

H.05. Gender inequalities in STEM education and the labour market: evidence, determinants, and interventions

Does The Gender Pay Gap Really Exist? A Case-Study Of University of Palermo Graduates

Martina Vittorietti (Delft University of Technology) · Ornella Giambalvo (University of Palermo) · Giovanni Boscaino (University of Palermo)

gender pay gap, stem, mediation analysis

“Reducing the wage disparity between women and men, at all levels of employment, down to a 1% difference” is one of the main goals of Italy’s Strategic Sustainability Plan for 2024-2026.

The wage disparity, also known as gender pay gap (GPG) encompasses more than just pay discrimination, reflecting broader issues like sectoral segregation, the unequal distribution of paid and unpaid work, the glass ceiling effect, and direct pay discrimination [1].

The GPG in the EU stands at 10.7% in 2022, with 69.3 % of women across the EU being employed compared to 80% of men [3].

The gender overall earnings gap, which considers hourly earnings, hours worked, and employment rates, is a more comprehensive measure of the pay gap and it was a staggering 36.7% in 2018 [4].

In Italy, the GPG is just around 5%, below both the OECD and European average [5].

However, a more in-depth analysis by the Observatory on Private Sector Employees of the INPS (Italian National Institute of Social Security) showed a stark annual disparity of almost €8,000 between genders in the private sector in 2022 [6].

Graduates’ wages further confirm gender disparity, with men earning about 12.9% more than women five years post-graduation [3]. A significant factor contributing to the GPG is the underrepresentation of women in STEM fields, which are among the most lucrative [2]. This underrepresentation is linked to various factors, including gender differences in math and spatial abilities, women’s undervaluation of their skills, and differences in career preferences [8].

In this paper, we want to single out the effect of gender on the wage considering the influence of the unbalance gender composition in the most remunerative STEM fields.

Our hypothesis is that participation in STEM fields can act as a mediator in the relationship between gender and wages. The rationale for considering STEM as a mediating variable is that men might earn more, on average, than women because they are more likely to work in STEM fields, which tend to pay higher wages. Thus, the GPG is not solely a direct effect of discrimination or other gender-based factors but is also mediated by the choice of or access to high-paying STEM careers.

To explore this, we use AlmaLaurea data on University of Palermo graduates as a case-study.

The role of STEM as a hypothesized mediator that could be affected by the “treatment”, the gender, and could subsequently affect the outcome, the salary, will be assessed decomposing the total effect of the treatment into two components: an “indirect effect” that channels the gender effect through the STEM mediator and a “direct effect” that works directly.

Acknowledgment

We acknowledge financial support under the National Recovery and Resilience Plan (NRRP), Mission 4, Component 2, Investment 1.1, Call for tender No. 104 published on 2.2.2022 by the Italian Ministry of University and Research (MUR), funded by the European Union – NextGenerationEU– Project Title Stem in Higher Education & Women INequalitieS [SHE WINS], CUP I53D23004810006, Grant Assignment Decree No. 1060 adopted on 07/17/2023 by the MUR.