

Efficiency and Equity in Italian Secondary School

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Abstract : This research comprehensively investigates the multifaceted interplay determining school performance, individual backgrounds, and regional disparities within the landscape of Italian secondary education. Leveraging data gleaned from the INVALSI 2021-2022 database, the analysis meticulously scrutinizes two fundamental distributions of educational achievements: the standardized Invalsi test scores and official grades in Italian and Mathematics, focusing specifically on final-year secondary school students in Italy. Applying a comprehensive methodology, the study initially employs Data Envelopment Analysis (DEA) to assess school performances. This methodology involves constructing a production function encompassing inputs (hours spent at school) and outputs (Invalsi scores in Italian and Mathematics, along with official grades in Italian and Math). The DEA approach is applied in both of its versions: traditional and conditional. The latter incorporates environmental variables such as school type, size, demographics, technological resources, and socio-economic indicators. Additionally, the analysis delves into regional disparities by leveraging the Theil Index, providing insights into disparities within and between regions. Moreover, in the frame of the inequality of opportunity theory, the study quantifies the inequality of opportunity in students' educational achievements. The methodology applied is the Parametric Approach in the ex-ante version, considering diverse circumstances like parental education and occupation, gender, school region, birthplace, and language spoken at home. Consequently, a Shapley decomposition is applied to understand how much each circumstance affects the outcomes. The outcomes of this comprehensive investigation unveil pivotal determinants of school performance, notably highlighting the influence of school type (Liceo) and socioeconomic status. The research unveils regional disparities, elucidating instances where specific schools outperform others in official grades compared to Invalsi scores, shedding light on the intricate nature of regional educational inequalities. Furthermore, it emphasizes a heightened inequality of opportunity within the distribution of Invalsi test scores in contrast to official grades, underscoring pronounced disparities at the student level. This analysis provides insights for policymakers, educators, and stakeholders, fostering a nuanced understanding of the complexities within Italian secondary education.

Keywords : inequality, education, efficiency, DEA approach

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