

Geographical cleavages in educational outcomes: Educational achievement and social inequalities in Inner and Central areas in Italy

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Several empirical contributions documented the relevance of the North-South geographical cleavage in students' educational outcomes as a key characteristic of the Italian educational system (Bratti, Checchi, and Filippin, 2007; Checchi and Braga, 2010; Argentin et al., 2017; Falzetti and Sacco, 2021). In this literature, however, little attention has been paid to the analysis of the role played by the divide between Central and Inner areas in the stratification of students' educational outcomes. Indeed, municipalities located in Inner and Central areas show substantial differences on a set of contextual characteristics which are likely to influence educational outcomes, including public and schooling services, public transport, availability of digital services and infrastructures, and access to cultural heritage (Lucatelli, 2015). Analysing gaps in educational outcomes between Central and Inner areas would allow us to get a deeper understanding of territorial inequalities in educational opportunities in Italy and to inform policy interventions aimed at reducing these inequalities. Additionally, we are interested in whether this geographical dimension contributes to moderate socioeconomic inequalities rooted in the family: is the relationship between students' social background and achievement heterogeneous across central and marginal areas?

The main aim of this paper is therefore to examine whether students attending school in Inner areas show different educational performances compared to students attending school in Central areas. Furthermore, we evaluate whether the Inner/Central areas gap in the educational performance varies across school grades and geographical areas. To this purpose, we use data from INVALSI-SNV on the student population in the 5th, 8th, 10th, and 13th grades for school years between 2011/2012 and 2021/2022. As main dependent variables we rely on educational performance as measured by standardized tests scores in Italian-reading and Mathematics. Scores are standardised by year and grade and are thus interpreted in a relative way, as one student's position in the cohort-year specific achievement distribution. As main independent variable we define the location of schools at municipality level (Comune) by distinguishing between schools located in Inner areas and in Central areas by using the classification provided by Strategia Nazionale per le Aree Interne (SNAI). To examine gaps in educational performance between students attending schools in Central and Internal areas we perform a set of linear regression models separately for each grade. We also include a set of controls to account for composition effects, including students' gender, Socio-Economic and Cultural Status

(ESCS) index, school cohort, and macro-area. Furthermore, we specify an interaction term between, on the one hand, Inner/Central areas and, on the other hand, macro-geographical areas (North, Centre, and South and Islands) and student ESCS.

Preliminary results document slightly lower test scores in both Italian and Mathematics for students attending school in Internal areas compared to those attending schools in Central areas, with larger gaps observed for Italian-reading tests. Moreover, the size of the gap in test performances appears to increase over grades, being larger in 10th and 13th grades as compared to 5th and 8th grades. While in primary and lower secondary school, the gap in Italian-reading tests (adjusted for the set of controls specified in the model) amounts to 0.025 standard deviations, in upper secondary school this gap reaches 0.05 standard deviations. Gaps between Inner and Central areas in Math test scores follow a similar pattern although they are less pronounced. Furthermore, the Inner/Central areas educational gap is likely to vary across geographical areas. In 5th and 8th grades the geographical divide shows multiplicative effects on the Inner/Central areas educational gap: as compared to the North, we observe a larger Inner/Central areas gap in the Centre and in the South. Results for grades 10th and 13th document however a different pattern. While the Inner/Central areas gap in the South is similar to the one observed in the North, this gap is larger for students attending upper secondary schools in the Centre. Finally, the geographical divide between Inner and Central areas is likely to moderate the relation between students' Socio-Economic and Cultural background and educational outcomes. The advantage in terms of educational performances associated to higher ESCS appears to be slightly smaller in Inner areas as compared to Central areas. This result holds for scores in both Italian and Mathematics and across each grade.

In conclusion, this work documents that, over and above the classical North-South cleavage, the Inner-Central areas divide is also likely to play a role in generating inequalities in educational performances in Italy. Furthermore, it shows how educational gaps between Inner and Central areas may have heterogenous patterns across geographical areas, school grades, and students' socio-economic background.

References

- Argentin, G., Barbieri, G., Falzetti, P., Pavolini, E., and Ricci, R. (2017). I divari territoriali nelle competenze degli studenti italiani: tra fattori di contesto e ruolo delle istituzioni scolastiche. *Social Policies*, 4(1), 7-28.
- Bratti, M., Checchi, D., and Filippin, A. (2007). Geographical differences in Italian Students' mathematical competences: evidence from PISA 2003. *Giornale degli Economisti e Annali di Economia*, 299-333.

Checchi, D., and Braga, M. (2010). Sistemi scolastici regionali e capacità di sviluppo delle competenze degli alunni: i divari nelle indagini Pirls e Pisa. *La Rivista delle politiche sociali*, 3, 143-168.

Falzetti, P., and Sacco, C. (2021). Il divario (in) colmabile? Le differenze negli apprendimenti degli studenti fra Nord e Sud Italia. *Rivista quadrimestrale dell'INAPP*, 3, 32-47.

Lucatelli, S. (2015). La strategia nazionale, il riconoscimento delle aree interne. *Territorio*, 74, 80-86.