

HABILITATION THESIS REVIEWER'S REPORT

Masaryk University

Applicant

Luca Fumarco

Habilitation thesis

Demographic Characteristics as Drivers of Inequality

Reviewer

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The research of Luca Fumarco centers on how demographic characteristics shape inequality in access to resources, social integration, and well-being. His habilitation thesis, *Demographic Characteristics as Drivers of Inequality*, synthesizes several years of empirical work and contributes to two major strands of applied economics and social science research: discrimination in access to mental health care and relative age effects in education and adolescence. Across both domains, Fumarco employs rigorous quantitative methods and large-scale datasets to demonstrate how seemingly exogenous demographic traits—such as gender identity, race, ethnicity, and birth timing—can generate persistent and meaningful inequalities.

The thesis is structured around two core chapters, each corresponding to a coherent research agenda. The first investigates discrimination and structural barriers in mental health care, particularly for transgender and nonbinary individuals and racial or ethnic minorities. The second examines how relative age within school cohorts affects adolescents' social networks, subjective well-being, and health outcomes across Europe.

Discrimination in Access to Mental Health Care

The first major contribution of Fumarco's work lies in the analysis of discrimination in access to mental health services in the United States. Using a correspondence audit field experiment conducted during the first wave of the COVID-19 pandemic, Fumarco and coauthors assess whether mental health providers respond differently to prospective patients based on perceived gender identity, race, and ethnicity.

The experimental design is particularly strong. Fictitious patients send standardized appointment requests to mental health practitioners, with only names and identity signals varied across messages. This approach allows the study to isolate discriminatory behavior while holding constant the content of the request and the stated mental health concerns. Responses are then categorized into positive outcomes (such as appointment offers) and negative outcomes (including rejections or nonresponse).

The findings reveal clear evidence of intersectional discrimination. While cisgender patients do not experience statistically significant differences in access based on race or ethnicity alone, transgender and nonbinary individuals face substantial disadvantages when combined with minority racial or ethnic status. In particular, African American transgender and nonbinary individuals are significantly less likely to receive a positive response compared to white

cisgender patients. These results highlight how overlapping demographic identities can amplify barriers to care, rather than simply adding them together.

Fumarco also examines how the COVID-19 pandemic influenced access to mental health services. By merging experimental data with state-level indicators of pandemic intensity—such as COVID-19 cases, deaths, and excess mortality—he shows that increased pandemic severity reduced overall appointment availability. Importantly, however, the pandemic did not eliminate or meaningfully alter pre-existing disparities. Discrimination persisted even as access declined for everyone, underscoring the structural nature of these inequalities.

This line of research has important policy implications. It suggests that expanding mental health capacity alone may be insufficient if discriminatory practices remain unaddressed. Fumarco's findings support the need for stronger anti-discrimination oversight, improved cultural and gender-identity competence among providers, and targeted policies to ensure equitable access for marginalized populations.

Relative Age Effects on Adolescents' Social Networks and Well-being

The second major contribution of Fumarco's research focuses on relative age effects (RAEs) in education—specifically, how being younger or older than classmates within the same grade affects adolescents' social and health outcomes. Using data from the Health Behaviour in School-Aged Children survey, covering roughly 380,000 students across more than 30 European countries, Fumarco provides one of the most comprehensive analyses of RAEs outside academic achievement.

Methodologically, this work is notable for its use of a two-stage least squares approach, which instruments actual relative age with expected relative age based on month of birth and country-specific school cutoff rules. This strategy addresses potential endogeneity arising from grade retention, early school entry, or parental timing decisions.

The results show that relatively younger students consistently experience disadvantages. In terms of social networks, younger students have fewer friends and meet them less frequently in person, while relying more heavily on electronic communication. This pattern suggests a substitution effect, where digital interaction partially compensates for weaker in-person social integration.

Beyond social networks, Fumarco finds strong effects on subjective well-being and health. Relatively younger adolescents report lower life satisfaction, poorer self-rated health, more frequent psychosomatic complaints, and a higher likelihood of being overweight. These effects are not trivial in magnitude; for example, a one-year difference in relative age has an impact on life satisfaction comparable to moving between socioeconomic status categories.

Crucially, these disadvantages do not fade as students grow older. The analysis shows little evidence that relative age gaps diminish with absolute age, indicating that early disadvantages can persist throughout adolescence. Some evidence suggests that later educational tracking may mitigate these effects, pointing to institutional design as a potential lever for policy intervention.

Broader Implications and Conclusion

Taken together, Fumarco's research underscores the pervasive role of demographic characteristics in shaping inequality across different life domains. Whether through discrimination in health care markets or institutional rules in education systems, demographic traits that are largely beyond individual control can have long-lasting consequences for well-being and opportunity.

A key strength of this body of work is its combination of methodological rigor and policy relevance. Field experiments, quasi-experimental designs, and large international datasets allow Fumarco to move beyond descriptive correlations and identify causal relationships. At the same time, the findings speak directly to pressing social issues, including mental health access, gender and racial equity, and the design of educational systems.

The thesis also opens several avenues for future research, including the long-term effects of relative age into adulthood and the interaction between institutional settings and demographic disadvantage. Overall, Fumarco's work represents a significant contribution to the empirical study of inequality and provides a strong foundation for evidence-based policy aimed at reducing demographic-driven disparities.

Reviewer's questions for the habilitation thesis defence:

How confident are you that your U.S.-based mental health findings generalize to other health systems, particularly universal systems in Europe?

In a similar vein, given the diversity of school systems in your sample, why is a pooled European analysis appropriate, and what are the results by groups of more similar countries?

How might relative age effects in adolescence interact later in life with discrimination in labor or health markets? Do your findings support theories of cumulative disadvantage, and if so, at which stages do institutions matter most?

If you had funding for only one follow-up project, which extension of this thesis would you prioritize and why?

Conclusion

The habilitation thesis entitled *Demographic Characteristics as Drivers of Inequality* by Luca Fumarco **fulfils** requirements expected of a habilitation thesis in the field of Economics.

Date: January 12, 2026

Signature: