THE IMPACT OF "SANITARY ENVIRONMENT" ON HEALTH AND HEIGHT IN ITALY AT THE END OF THE 19th CENTURY

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BACKGROUND AND AIMS

The present contribution aims to investigate the effect of the socio-economic and "sanitary" environment on health condition and height in three Italian areas in Northern and Central Italy, specifically in Veneto and Umbria, and in the island of Sardinia. At the end of 19th century the creation of new infrastructures and the implementation of new technologies were deemed necessary in order to improve the sanitary and social conditions of the urban population. Pure water and efficient sewage systems were considered the most important field of intervention (Faccini, 1984). Some studies showed that environmental interventions clearly played an important role on improving health, as the most dramatic drops in infectious disease occurred before the widespread availability of vaccines and antibiotics (Giovannini, 1996). We analyze the role of public health infrastructure in enhancing male populations' health status by improving the standard of living of the people. Specifically, public health infrastructure can be interpreted as sewerage and drainage systems, waste disposal, clean water supply, and basic health care. Moreover, we attempt to compare the three regional patterns of height, evaluating the relationship with the main socio-economic indicators, like education and occupation. It is known that differences in height depend on the heterogeneous level of education or work status (Komlos, 1993; Cavelaars, 2000) as well as on diet habit, disease, household conditions or sanitary infrastructure (Rona 1981; Nystrom Peck and Lundberg, 1995). Records collected by the army enable us to explore the health status and height of the cohort of military conscripts born at the end of the 19th century that faced the beginning of the demographic transition and, in particular, the so-called "sanitary transition".

DATA

Military recruitment records are used as the main data source for the empirical analysis in which individual characteristics for the 1881 cohort of Veneto and Umbria are considered, while in the case of the Sardinia the data of the conscripts born in 1880 were available. The use of individual data enables to empirically document: (i) the cross-section variability of the anthropometric characteristics correlated with the improvements on the standard of living in the three regions; (ii) variations in health conditions comparing Umbria and Sardinia, for which data were available, by evaluating the multi-causes of unfitness for military service in order to analyze the different type of morbidity and the persistence of pathologies. In addition the socio-economic variables, known in the literature to be linked to the health status, are considered.

The information about the sanitary infrastructures and the primary health care were taken from the Survey on the Italian municipalities which took place in 1885, published in the following year by the General Directorate of Statistics in Italy (DIRSTAT). This source, which aimed to represent the sanitary conditions of the municipalities in the newborn country of Italy, investigated the conditions of housing, streets, air, water, sewage, primary health care service (doctors, pharmacies, midwifes…) as well as the debate on the perspective for improving the sanitary conditions.

METHODS

Methodologically, as a first step, the impact of both socio-economic and demographic individual variables on health and height is tested by including contextual fixed effects in a series of multivariate regression analyses. For the final stage of the analysis, a multilevel statistical model is constructed. Multilevel models are effective tools to examine systems in which individuals responses are subject to the influences of grouping variables, the groups being the municipalities and the regions. Thus, we investigate the probability to be in “good health” at age 20 separately for the regions, by examining the significant influence of both individual and geographic macro-aggregate variables.

RESULTS

As clearly emerges from our estimations, a negative relationship between education attainment and to be declared unfit for military service is found. This implies that, the schooling represents a way to leave unhealthy conditions behind. Furthermore, the inclusion of sanitary infrastructures and primary health care and their significance in the multilevel specification addresses to accurately evaluate the contextual effects as the main determinants of a general weakness and short stature of the cohorts of conscripts investigated, which are responsible for high percentages of males declared unfit for military service.

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