

## Mortality inequalities in Rome: the role of individual education and real estate market

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### Background:

Several indicators at individual and area level have been used to stratify the population. The aim of this work was to investigate the association between real estate prices, education and health status in Rome.

### Methods:

We used the administrative cohort of residents in Rome at the 2011 census. We followed subjects aged 18+ from 2011 to 2016 using anonymous record linkage procedures with administrative databases. The census includes several individual information, comprising sex, age, education, and residential urbanistic zone. From mortality register we collected date and cause of death. Real estate prices (€/m<sup>2</sup>) were available for each urbanistic zone. We classified the population in five categories according to the quintile of the distribution (1=highest prices, 5=lowest prices). We used adjusted Cox

regression models to estimate the hazard ratios (HRs) and 95% CIs.

#### **Results:**

We selected 2,053,668 subjects, not living in institutions at the time of the census survey. Women were 54% of the population; the mean age was 52 years (sd 18), 22.5% had a high education (university degree) and 37% a low education ( $\leq$  junior high school). During the follow-up, 126,548 subjects died. As expected educational level was strongly associated with all-cause mortality (39% higher risk of low vs. high educated). The mortality risk increased with decreasing real estate prices, taking account of age and sex. Compared to subjects living in highest prices areas, those living in level 2 areas had a HR = 1.08 (95%CI: 1.06-1.10), those in level 3 had a HR = 1.14 (95%CI: 1.12-1.16), those in level 4 a HR = 1.16 (95%CI 1.14-1.18), and finally those living in the cheapest areas a HR = 1.22 (95%CI: 1.20-1.25). When we considered both education and real estate prizes, the HRs marginally decreased.

#### **Conclusions:**

There is an independent association of both individual education and socioeconomic characteristics of the area of residence and all-cause mortality.

#### **Key messages:**

- There are strong socioeconomic inequalities in Rome.
- A simple indicator such as real estate prices can be used to tackle inequalities.