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'Unequal mortality during the Spanish Flu'

Mortality rates during modern pandemics are unequal. Pandemic deaths hit countries, regions, sexes, ages and social classes with a surprisingly large variation in intensity. The timing of the arrival of the pandemic and the precautionary measures can explain a considerable amount of the geographic variation in mortality. Some intrinsic characteristics of the affected locations like population density and climate can also account for these geographical patterns. Genetic differences or previous immunization to the pandemic shape sex and age mortality differentials. However, social group mortality differences are not easy to explain. On the one hand, there is co-morbidity caused by social-related illness and, on the other hand, poor people could not avoid social contact during pandemic outbursts and, hence, suffer a large proportion of infections. Furthermore, some professions have a higher infection, and hence mortality risks, than others.

The main contribution of this paper is to uncover the substantial unequal mortality differentials across age, sex, space and occupational groups in Spain using deviations from historical mortality trends. According to our research, the main features of Spain's flu mortality are the following. First, the mortality differences among different professions are impressive (excess mortality ranged from 102% for miners to 19% for landlords). Second, these differences are also substantial when we aggregate occupations for socio-economic groups. The high-wage group (liberal professions and rentiers) had an average excess mortality rate of 29% compared to 69% in the low-wage group (agricultural and miners) and 62% in the mid-wage group (industry, trade and transport). Third, we also document a female penalty. For example, the excess mortality rate during the peak of the pandemic (October 1918) was 374 per cent for females and 321 per cent for males. Fourth, another defining characteristic of the Spanish Flu is an inverse U-shape in excess mortality rate. The peak was in people aged between 25 and 29. Fifth, using shift-share analysis, we point out that the provincial component, and not the industrial one, explains the majority of variation in mortality rates. We also demonstrate that this comparative advantage of the provinces had a remarkable geographic element (latitude), which may be related to weather differences. Finally, we undercover an urban premium, when the previous literature shows the contrary an urban penalty exacerbated during pandemics (Evans, 2006). Consistent with this evidence, we also document a negative correlation of industrialisation levels with excess mortality in occupations in the low-wage group.