Title: Understanding heterogeneity of COVID-19 diffusion in Italy through the 'big five': lockdown, climate, pollution, age-structure and socio-economic activity.

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Abstract
The geographical distribution of the COVID-19 epidemics in Italy is a puzzle given the intense flow of movements among the different geographical areas before lockdowns. By the end March, almost half of the positive cases and more than 60% of deaths are concentrated in one region only. We create a database of daily COVID-19 outcomes at province level including deceases, contagions, discharged cases, and evaluate the relative role of five factors in the diffusion of the disease: lockdown decisions, socio-economic activity, age-structure, temperature/humidity and particulate matter. Our findings aim to provide relevant policy implications for variables that are under human control, such as social distancing and lockdowns, socio-economic activity and pollutions. We also aim to assess potential trade-offs between different well-being domains before and during the epidemic, i.e. health, social and economic well-being, and environment.

Data description: COVID-19 deceases, contagions, discharged cases of Italian provinces (daily data).

JEL codes: H12, I18, J17, Q51

Keywords: COVID-19, socio-economic activity, lockdown, pollutions, epidemic.