

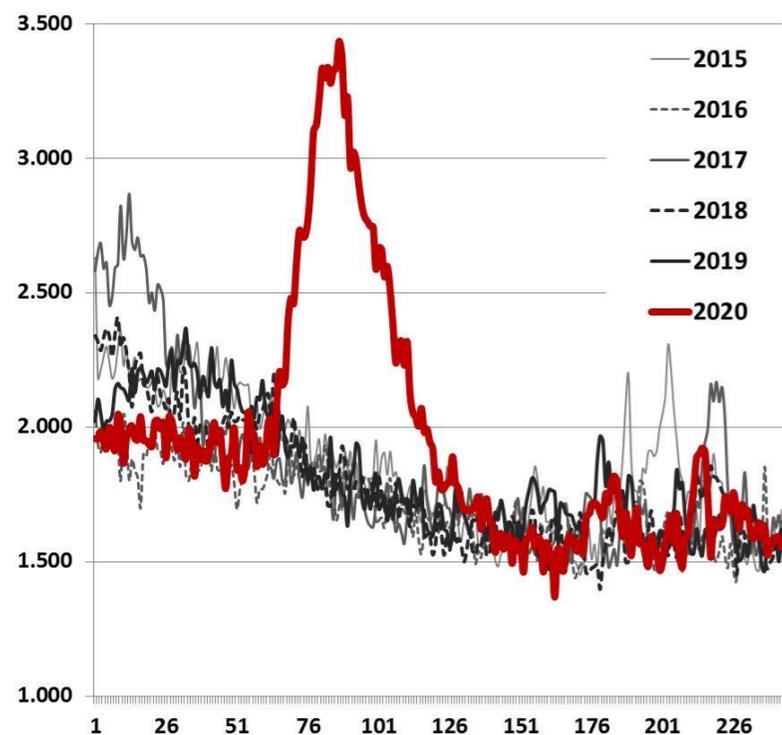
Excess mortality in the Italian Local Labour Market Areas during the COVID-19 pandemic.

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Among the European countries Italy is one that was hit first and the hardest by the COVID-19 pandemic. In the paper we study the excess mortality observed during the pandemic as a measure of one of its effects.

The contribution is based on daily deaths data for the period 1st of January to 31st of August for the years 2015-2020 made available by ISTAT for all Italian municipalities. Data are aggregated to the level of the 610 Italian Local Labour Market Areas (LLMAs) defined through the home/work commuter flows 2011. The number of deaths sharply increased at national level in the first half of March and reached a maximum the 27th of March (Figure 1). This sharp increase is concentrated geographically in Northern Italy in some epicentres of the pandemic.

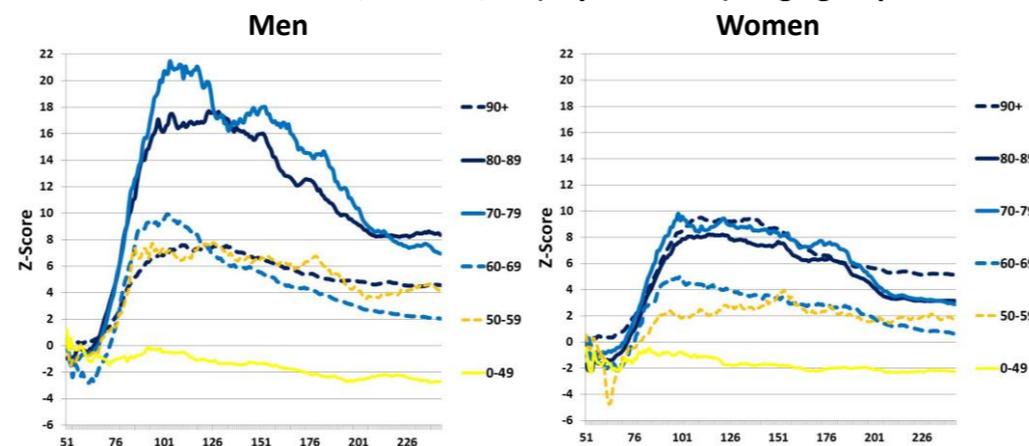
Figure 1 – Daily number of deaths, Italy 2015 to 2019
1st of January to 31st of August (day 1 to 243 of the years considered)



The analysis for age groups

To analyse the trend of daily deaths during the 2020 COVID-19 pandemic two measures are applied: the percentage changes and the Z-Scores of the number of deaths compared to the previous five years. Here only the Z-Scores are reported. The analyses are undertaken for the total number of death (the case of the LLMAs) and separately by sex and large age groups. As observed in other countries, the largest increases are recorded in the most advanced age groups, and especially for men (Figure 2). The 20th of February is considered in Italy the start of the pandemic because on this day the first COVID-19 case was diagnosed.

Figure 2 – Z-Scores of cumulated daily deaths 2020 in comparison to 2015 to 2019 20/02 to 31/08 (day 51 to 243) – age groups



The possible mortality effects of the COVID-19 pandemic

The increase of overall deaths is certainly influenced by deaths with COVID-19 or due to COVID-19. But the number of deaths during the COVID-19 pandemic is also influenced by the generalized lockdown starting on March 11th: in many areas of the country healthcare facilities were less used and probably mortality due to other causes of death increased. However, the number of deaths due to traffic accidents, just to take one example, decreased probably over the same period. The open question is: has the pandemic an ‘harvesting’ effect regarding mortality?

Some conclusions

Difficult to deduce from a territorial analysis factors that influence the deadliness of the first wave of the COVID-19 pandemic. The organization of the regional health systems influence certainly the deadliness of the pandemic. Results indicate that the introduction of the lock-down and the social distancing measures at the local and national level contributed to the attenuation of the impact of the COVID-19 pandemic. However, it is too early to determine the long-term mortality effects of the 1st wave displaying a geographic concentration, something not been observed during the 2nd wave.

Excess mortality in the Italian LLMAs during the pandemic

Excess mortality is concentrated in the LLMAs of Lombardy and the western part of Emilia-Romagna, along the Piacenza - Fidenza - Parma axis. Among the LLMAs with the highest increase are Albino (north of Bergamo), as well as the larger LLMAs of Bergamo, Chiari and Cremona. Other areas are found in the province of Alto Adige and the regions of Piedmont and Marche.

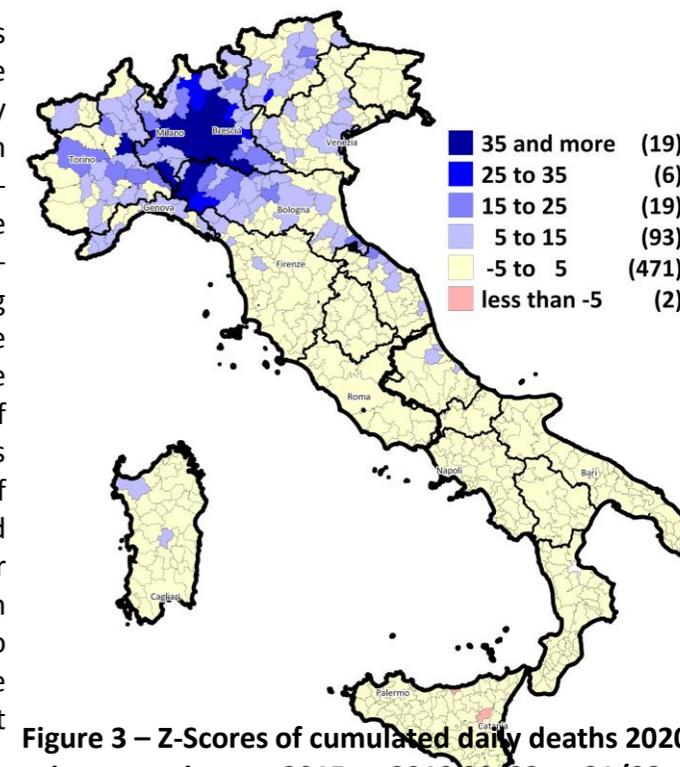
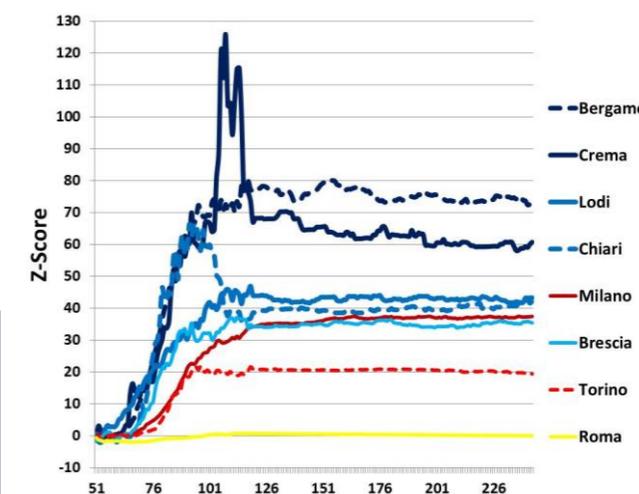


Figure 3 – Z-Scores of cumulated daily deaths 2020 in comparison to 2015 to 2019 20/02 to 31/08

Figure 4 – Z-Scores of cumulated daily deaths 2020 in comparison to 2015 to 2019 20/02 to 31/08 (day 51 to 243) – selected LLMAs



The selected LLMAs most affected by excess mortality (with Rome as a contrast) show a differences in the timing and the course of the excess number of deaths during the 1st wave. The persistently relatively high Z-scores even after the 1st wave indicate the nonexistence of a the ‘harvesting’ effect.

Source of all figures: author’s calculations on Istat data [www.istat.it/it/files//2020/03/Dataset-decessi-comunali-giornali-eri-e-tracciato-record_22ottobre2020.zip]