Cross-Border Mobility Responses to Covid-19 in Europe: New Evidence from Facebook Data

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Abstract

Background

We use a unique database on Facebook users' mobility to study the daily evolution of cross-border movements of people during the Covid-19 pandemic. To limit censoring issues, we focus on 45 pairs of European countries, and document the changes in daily traffic during an entire pandemic year. We rely on regression and machine learning models to identify the role of infection threats and containment policies. Permutation techniques allow us to compare the impact and predictive power of these two categories of variables.

Results

In contrast with studies on within-border mobility, our models point to a stronger importance of containment policies in explaining changes in cross-border traffic as compared with international travel bans and fears of being infected. The latter are proxied by the numbers of Covid-19 cases and deaths at destination. Although the ranking among coercive policies varies across modelling techniques, containment measures in the destination country (such as cancelling of events, restrictions on internal movements and public gatherings), and school closures in the origin country (influencing parental leaves) have the strongest impacts on cross-border movements.

Conclusion

While descriptive in nature, our findings have policy-relevant implications. Cross-border movements of people predominantly consist of labor commuting flows and business travels. These economic and essential flows are marginally influenced by the fear of infection and international travel bans. They are mostly governed by the stringency of internal containment policies and the ability to travel.

Full Text

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Figures

Figure 1

Aggregate Traffic Deviations from Pre-Covid Levels Source: Facebook data on daily border crossings.
 Notes: Y-axis represents the average of T_{ijt} , the percentage change (times 100) in the 7-day moving average traffic compared to $t = 0$ over all destinations. The weights are the traffic levels observed in pre-Covid-19 period (i.e., $t = 0$).

Figure 2

Traffic Deviations from Pre-Covid Levels for Selected Corridors Source: Facebook data on daily border crossings. Notes: Y-axis represents $T_{ij,t}$, i.e. percentage change (times 100) in corridor 7-day moving average traffic compared to $t = 0$ in corridor ij .

Figure 3

Average value of government policy measures over the time. Source: Oxford Covid-19 Government Response Tracker (OxCGRT). Note: The values of each government policy indicator is scaled between 0 and 1 and the average is calculated among the 30 countries included in our sample.

Figure 4

Correlation Matrix of the different variables. Own computations. Notes: Unilateral traffic growth for each country i is the relative deviation in aggregate traffic involving country i , $\sum_{j=1} T_{ijt}$, as compared to the pre-Covid-19 period ($t = 0$).

Supplementary Files

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- [Appendix.pdf](#)
- [Appendix.tex](#)