3. Abstract:
Building on the epidemiological SIR model we present an economic model with heterogeneous individuals deriving utility from social contacts creating infection risks. Focusing on social distancing of individuals susceptible to an infection we theoretically analyze the gap between private and social cost of contacts. To quantify this gap, we calibrate the model using German survey data on social distancing and impure altruism from the beginning of the COVID-19 pandemic. We find that the optimal policy reduces contacts drastically in the beginning, to almost eradicate the epidemic, until a vaccine becomes tangible. All groups substantially reduce contacts, and differences between groups are only of secondary importance. Private protection efforts are sufficient to stabilize the epidemic in the laissez faire, though at a prevalence of infections much higher than optimal; impure altruistic behaviour closes around a third of the initial gap towards the social optimum. Overall, our analysis suggests that private actions for self-protection and for the protection of others contribute substantially towards alleviating the problem of social cost.

4. Data description:
We conducted a large-scale, representative survey of more than 3500 Germans at the beginning of the pandemic (March 20-27). The full survey was pre-registered at the AEA RCT Registry (https://doi.org/10.1257/rct.5573-1.1). In this project, we utilize a subset of questions – in particular regarding the reduction in physical social contacts and the selfish versus impurely altruistic motivation for engaging in defence measures.

5. JEL codes:
I18; D62; D64

6. Keywords:
COVID-19; coronavirus; economic-epidemiology; private public good provision; impure altruism; uncertainty; SIR; social distancing; epidemic control

7. Link to the paper: