1. Title
Contagion of health protection measures - Evidence from longitudinal social network data

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3. Abstract
The effects of social forces have long been studied for a wide range of outcomes, such as consumption, charitable giving, and health behavior. The purpose of this paper is to gain further insight into the contagion processes in peer pro-social behavior against the background of the COVID-19 crisis. Considering the acceptance and implementation of protective measures against the coronavirus is considered a private contribution to the public good of health care, we, in particular, investigate whether the implementation of the protective measures against COIV-19 as well as COIVD-19 related knowledge is contagious among peers. Thereby we address four main questions. First, we investigate what drives the spread of protective measures and knowledge. Does the contagion of protective measures differ from the contagion of knowledge? Second, we ask whether behavioral contagion varies as a function of heterogeneous individual preferences, i.e., are social (green) individuals affected differently by contagion compared to less social (green) individuals? Third, how does the social distance between peers affect behavioral contagion?

This paper differs from previous research on peer effects in several aspects. Previous contributions in this field are based on social interaction models that capture peer effects in a quite aggregated way, such as the characteristics or behavior of an average individual in the peer group or a typical group member. Causally estimating peer effects in observational data, where exogenous variation is absent, is challenging due to three well-documented underlying biases that can lead to the correlation between peers’ preferences and behavior both in space and in time: selection, more specifically homophily, (also referred to as endogenous peer effects) influence and contagion, and shared social-environmental factors (also referred to as contextual peer effects). We investigate behavioral contagion outside of the laboratory using the unique potential of social network data to isolate the effect of one’s peers on the contagion of health-protective choices and knowledge in a lab-in-the field-experiment. We thereby consider real-world peer-to-peer relations. To get rid of the biases in peer effects estimations, we estimate contagion effects in our social network using indirect ties from third parties, as proposed by Bramoullé et al. (2009), as instrumental variables of individuals’ giving behavior. The authors are not aware of any study investigating the contagion of individual contributions to a public health related public good in a social network context.

4. Data description
The empirical analyses are based on longitudinal social network data for undergraduate students at two Chilean universities. We conduct an online lab-in-the-field-experiment on preferences and behavior related to the COVID-19 crisis, which is embedded in an online longitudinal social network study on the importance of climate mitigation activities. The survey also includes information on eating behavior (via a stated preference discrete choice experiment (DCE)), effectiveness knowledge regarding the GHG effects of dietary choices (via the Climate Externalities Food Knowledge Test (CEFKT) (see Haefner and Schobin, 2019)), individual attitudes (i.e. environmental orientation, willingness to take risks, self-esteem, locus of control) and information on participants’ social network. The survey is answered during regular class time in the mandatory minimal course (i.e. all students of a given year and mayor have to take it) as well as at home. We conducted the first two waves during the second semester in Chile. The 1st wave was conducted between the 16th and the 25th of September, the 2nd wave between the 14th and the 21th of October. The third wave was conducted between 26th of March and the 29th of April 2020 Overall, 1100 students took part in at least two of the three waves. (Due to a social protest movement in the Fall, there were higher levels of attrition in the second wave).
The data set used, allows us to identify causal peer effects and contagion in the allocation of donations since it provides additional information on structural properties of the networks, for example, on peer association across several levels. As in Leider et al. (2009), we can distinguish between socially close direct peers, less close peers of peers, and socially more distant strangers. As proposed by Bramoullé et al. (2009), we use exogenous variations in the appropriate behavior among third party peers as instrumental variables for individual behavior. Previous studies applying IV methods to identify causal peer effects include Angrist and Lang (2004), O’Malley et al. (2014), and An (2015).

5. **JEL codes for the project**

C31; D12

6. **Key-words**

Social network, panel data, contagion, public good provision, COVID-19 crisis