

Title: Risk and time preferences under the lockdown

Authors:
- Pablo Branas-Garza, Univ. Loyola Andalucia, branasgarza@gmail.com
- Antonio M. Espín, Univ. Granada, kanton@ugr.es
- Jaromír Kovářík, Univ. de País Vasco, jaromir.kovarik@ehu.eus

Abstract: There exist increasing evidence that human preferences—including risk and time attitudes—change across contexts (Bowles, 1998; Barseghyan et al., 2011; Wolbert and Riedl, 2013; Wang et al., 2016). Since measuring preferences consistently over time is challenging, most studies explore how risk and time preferences adapt after an exposure to exogenous shocks, mostly natural disasters or conflicts.

As for risk attitudes, a number of papers report that negative shocks may increase risk lovingness (Eckel et al., 2009, Voors et al., 2012, Page et al. 2014, Hanaoka et al. 2018). However, other studies find the reverse: more risk aversion (Cameron & Shah, 2015, Cassar et al., 2017, Brown et al., 2018). The literature linking exposure to disasters and time preferences is less extensive but more consistent. Exposure to disaster make subjects more impatient (Voors et al., 2012, Cassar et al., 2017, Shupp et al., 2017).

This evidence notwithstanding, we are aware of no evidence of whether and to what extent risk and time preferences adapt gradually, during a shock or a disaster. Covid-19 pandemic provides a unique opportunity. It is an adversarial event, with a large socio-economic impact on human lives and with a clear connection to mortality risk (especially for people above 50).

This paper explores the stability of risk and temporal preferences during six days of the first two weeks of the lock down in Spain. We conduct an online experiment, eliciting a battery of incentivized and hypothetical measures, including (incentivized) risk aversion using a MPL (Holt & Laury 2002, 2005) and loss aversion (Gaetcher et al., 2007), and two hypothetical measures of short and long run time preferences (MPL, Coller and Williams, 1999).

Given the time span of our data and different impact on risk aversion across studies, we refrain from hypothesizing whether we can observe any behavioral (and the direction) change in our data. Regarding time preferences, the question is whether the six days under study are sufficient to trigger any change in human time attitudes. However, given the consistent direction of the effect in the literature, we hypothesize that, if we detect any change, then the effect would be toward more impatience.

Data description: We use data from an online experiment conducted in southern Spain from March 20 to March 26 (n~1K). Among other tasks, the protocol includes Risk preferences (Holt and Laury, 2002), Loss aversion (Gaetcher et al., 2007), Short and Long term time preferences (Martin et. al., 2019). See annex 1 for details.

JEL codes: D81, C91
Keywords: Covid-19, Home confinement, risk aversion, time preferences

Annex 1: Experimental Details

Pre-registration: The project has been registered in AsPredicted in 04/11/2020 and made public on 04/13/2020. Link: https://aspredicted.org/787cn.pdf.

Data description: The dataset was gathered via an online experiment. Here, we briefly describe the main feature of the recruitment process and some basic statistics of the sample. So far, we have not analyzed the issues related to this proposal (i.e. risk and time preferences) because the data related to this proposal have not been released.

Recruitment: 103 university students were invited (85 Spaniards, 18 international) from an Andalusian university to recruit participants for our online experiment. Participation was not compulsory (16 students did not participate: 10 national, 6 international). 85 students recruited other participants from Andalusia (67), outside Spain (12) or other Spanish regions (3). The remaining 2 decided to discontinue. They were all students of Game Theory for Social Sciences. This subject is offered to students of Communication, International Relationships, Business Administration, Law and Erasmus International students. The main purpose of this experiment was to gather data for teaching purposes.

The students were encouraged and incentivized to recruit further participants, with the objective to obtain a richer subject pool in terms of age, non-student status, and other characteristics. Gender balance and homogeneity across different ages was explicitly encouraged. Students were given between 0 and 100 points for their performance recruiting participants. 100 points might have an impact of 3% of their final score (max=30,000 points). To study the COVID-19 was not the main goal. However, the home confinement was the reason to run the experiment online in order to have data to discuss in class.

Monetary incentives: As in any economic experiment, the experiment uses monetary incentives. Participants were informed that 2 prizes of 100€ will be drawn among them. Experimental earnings (from decisions) were converted in tickets for the two 100€-lotteries. After signing the informed consent, they were explicitly asked whether they were aware of the existence of the prize of 100€. 96.08% responded yes. For instance, there are no significant differences in donations for responding yes/no to this question (two-sample t-test, p=0.696).

Experimental measurements: The entire experiment includes a number of experimental tasks. Questions are always shown in the same order. Note that H refers to non-incentivized questions and M to incentivized tasks:

- Cognitive Reflection test (Frederick, 2005)
- Risk preferences (Holt and Laury, 2002)
- Loss aversion (Gaechter et al., 2007)
- Beauty contest (Nagel 1995)
• Stag hunt game (Skyrms, 2004) I
• Short term time preferences (Martin et. al., 2019) H
• Long term time preferences (Martin et. al., 2019) H
• Self-reported solidarity and envy (Espín et. al., 2018) H
• Dictator game giving (Forsythe et al. 1994) I
• Expected donations (Brañas et al. 2017) H
• Big-5 personality inventory (Rammstedt and John, 2007) H

Geographical area: The experiment was focused on the region of Andalusia, but this not prevented participation of people from outside Andalusia (people from other parts of Spain, n=191, and from other countries, n=20). Almost 1,000 participants are from Andalusia.

Given that the non-Andalusian participants came from many different locations, including 14 Spanish regions and 7 countries, and that their numbers within locations were small and unevenly distributed (across both locations and participation days), we will focus the analyses on Andalusian only.

Participation by days: Our sample consists of 969 Andalusian participants who agreed to complete the online survey. During the first 3 days of the experiment, the participation rate was homogenous (between 14 and 18% of the total). During the second half, participation rate ranged between 9% and 27%. Considering the sample according the dates March 23-25 vs. March 20-22, we obtained a balanced sample between both periods (51% vs 49%).

Participants’ age: Figure 1 shows the distribution of age over March 20-22 and March 23-25. Both distributions display the same variance (variance ratio t-test, p > 0.30), but their means are significantly different (two-sample t-test, p<0.001). Note that we controlled for age in all the regression specifications though.

Gender balance and education: Regarding gender distribution, 55% of our sample were females: 56% in March 20-22, 54% in March 23-25. Education was a categorical variable that ranged between 1 and 8, representing different education categories: (1) complete secondary school, (2) incomplete high-school, (3) complete high-school, (4) incomplete vocational training, (5) complete vocational training, (6) incomplete university degree, (7) complete university degree, (8) postgraduate. The first mode of this variable was category 6 and the second mode was category 7. The mean was 5.43 (SD = 1.91) and 5.53 (SD = 1.97) in March 20-22 and 23-25, respectively. The difference is not statistically different from zero (two-sample t-test, p = 0.397).
Figure 1: Histogram of age on March 20-22 vs. March 23-25. Left and Right panels display the distribution of ages in March 20-22 and March 23-25, respectively.