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Do Natural Disasters Affect Trust/Trustworthiness? Evidence from the 2010 Chilean Earthquake

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ABSTRACT

A series of trust games were conducted in Chile to analyze whether the past 2010 earthquake affected trust and trustworthiness in rural communities. Results show that trust levels are invariant between villages affected by the earthquake and villages not affected by this shock (control group). However, we find statistical evidence that trustworthiness has diminished in areas affected by the earthquake. Results are relevant for policy regarding aid and recovery of communities affected by these types of disasters.

INTRODUCTION

Several economic studies have used the *investment* or *trust game* (Berg, Dickhaut & McCabe, 1995), or similar versions of it, to observe trust and trustworthiness across individuals and communities. Some researchers argue that not only trust and trustworthiness can be measured with this experiment, but a range of different perceptions. For this reason the trust game has gained much attention and applicability in experimental economics [Johnson & Mislin (2010) provide a meta–analysis over 143 studies].

Despite the growing body of literature using the trust game format to evaluate different behavioral responses under diverse conditions, to our knowledge no study has addressed how traumatic events –denoted by natural disasters– affect people's trust or trustworthiness. This is a very important aspect, especially because it can determine the effectiveness of policy or programs aimed to support and recover communities affected by this type of shock. Considering that international and regional institutions are placing increasing resources to help recover social and economic damages resulting from by natural disaster events, understanding how trust and trustworthiness are affected in post–disaster environments is a key issue. Improving trust and trustworthiness could contribute to more effective community response and consolidation of safety nets.

OBJECTIVES & RESEARCH METHODS

Given the natural experiment's conditions given by the covariate shock of the 2010 Chilean earthquake, the main objective of this study is to analyze whether trust and trustworthiness in Chile was affected by the 2010 earthquake.

Trust games were conducted in areas affected by the earthquake (treatment group) and regions not (or much less severely) affected this event (control group).

-**Treatment group**: 5 villages of the VII region (see map)
-**Control**: 4 villages from the IV to VI regions (N to S)

An average of 25 rural dwellers participated in the 9 different games conducted during March and May 2011. Game protocol, rules, organization, support materials and research assistants were exactly the same across experiments. Control villages were selected based on socioeconomic characteristics, demography and location.

GAME PROTOCOL

Based on Berg, Dickhaut & McCabe (1995), our game can be described by:

a) Participants are invited and gathered in a room, where two subgroups are randomly formed: group A and group B. Group A is designed to be the senders or "trustors". Group B is designated to be the receivers or "trustees".

b) The researcher explains that each participant in group A (the trustors) will be endowed with a quantity of money **p**, and that each trustor will have the "secret" choice to send part of her endowment to some random participant in group B (the trustees). The money to be sent (**s**) can be any amount in the range $\mathbf{0 \le s \le p}$. It is clearly stated that the final amount sent by the trustor, **s**, will be converted to **3s** by the researchers.

c) Group B is moved to another room where they lose contact with participants of group A. Trustors are endowed and asked to decide in a secret booth how much to send.

d) Once the trustee receives the money (**3s**), they have to opt to return any amount (**r**) to the trustor (who remains anonymous). The trustee can return any amount in the range $\mathbf{0 \le r \le 3s}$. Then, the trustor receives the money returned by the trustee, **r**, and the game concludes.

s and r/3s are considered to be metrics of trust and trustworthiness, respectively.

p = $6,000 Chilean pesos (≈U$13), given (and multiplied) in $1,000 bills.

RESULTS

	Earthquake villages		Control villages	
	(s)	(r/3s)	(s)	(r/3s)
Dominant Mode	2	0.33	2	0.33
Mean (median)	2.29 (2)	0.28 (0.22)	2.17 (2)	0.36 (0.33)
Standard deviation	1.58	0.24	1.08	0.24
t-test for equality of mean, equal variance assumed	0.69		**0.08*** [**0.01****]	
t-test for equality of mean, equal variance not assumed	0.66		**0.08*** [**0.02****]	
Mann-Whitney U test for equality of distributions	0.87		**0.03**** [**0.02****]	

Note to table: test values correspond to two-tailed p-value. Squared brackets show p-values of sample excluding outliers given by r/3s = 1 (3 and 2 observations in earthquake and control groups, respectively).

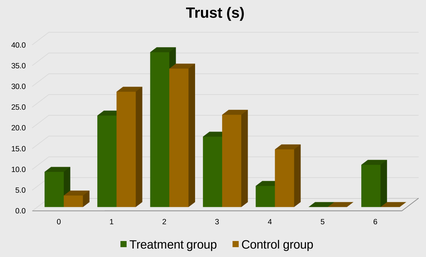

Chart 1. Relative frequencies of **s**

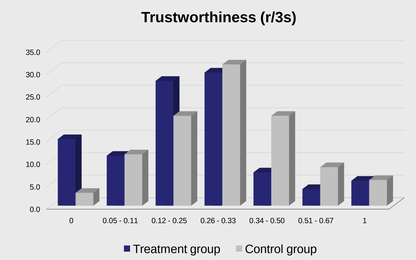

Chart 2. Relative frequencies of **r/3s**

CONCLUSIONS

Evidence from the experiments shows that trust levels among people living in villages affected by the earthquake are not different from trust levels in non-affected communities. However, at the moment of reciprocating trust, the trustworthiness measures by **r/3s**, illustrates that there is a different pattern of response between affected and non-affected areas. The results therefore suggest that a natural disaster produces a type of breakdown of pre-established social-contracts. In other words, natural disasters provide individuals the excuses to break such contracts. As natural disaster appeared to diminish trustworthiness, policy makers and recovery programs should focus on reinforcing the capacity building and social capital of affected communities.

Photo 1. Game session in a public school

Photo 2. Game session in a community center

REFERENCES

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