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Abstract

We study if urban class segregation destroys social capital in Latin America using experimental data that are representative for six Latin American cities. In particular, we focus on whether belonging to upper class neighborhoods impacts reciprocity in a standard trust game. While our overall results confirm a negative association between these two variables, we also find that trusting behavior can help counteract the negative impact of class.

Keywords: Social Capital, Trustworthiness, Socioeconomic Level, Latin America

JEL Classification: C90, D01, O12

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Introduction

As a result of a combination of historical, institutional and economic reasons, many Latin American cities today are highly segregated by class (Johnson, 1983). This is reflected by observed urban patterns in which, at one extreme, upper class groups are spatially concentrated in very limited zones of cities—typically near financial centers as well as very specific suburban areas. At the other extreme, poor groups live mainly in more distant and badly serviced areas as well as in the deteriorated sectors that are close to the city-center (Sabatini, 2003). Whereas people from different neighborhoods do interact with each other in their everyday life, it is also common knowledge to all residents that specific neighborhoods correspond to specific classes. On average, class groups are very conscious of this fact and rarely socially mix. Individuals live alongside but separately.[1] In fact, this urban segregation may impact social capital negatively.[2] Worryingly, despite recent efforts to improve city integration (Jatiman, 2015), the current negative socio-economic climate in the region, reflected in increased crime and exacerbated urban inequality, may be further conducive to the destruction of social capital.[3]

In this research we study whether urban segregation is linked to social capital, and we focus in particular on whether social class, measured by neighborhood of provenance, contributes to the destruction of reciprocity or trustworthiness, a crucial element of social capital. Although some researchers study this question (e.g., Glaeser et al., 2000), there is still no clarity on the possible link between these two variables, an issue that is compounded by the fact that samples tend to be small and not representative of any segment of the population, which may introduce bias in the

[1] What defines social class in Latin America is a rather difficult question that researchers have tried to answer for a long time. While the specifics depend on each city, overall it appears to be determined by a combination of race, income, family historical background, and education (Angotti, 2013).
[2] https://www.citylab.com/equity/2015/11/the-missing-link-between-diversity-and-community/413875/
[3] Latin America is home to ten of the fifteen most unequal cities in the world and 47 out 50 most deadly cities in the world https://www.weforum.org/agenda/2016/06/latin-america-s-cities-unequal-dangerous-and-fragile-but-that-can-change/

results. Unlike previous research, we offer three specific contributions. First, we employ representative data for six Latin American cities, a region that is somewhat underrepresented in terms of experimental research. Second, the data come from an artefactual approach that applies a standard "tried and true" trust game and helps us focus on our question of interest instead of design issues of the experiment itself. Third, while we believe very relevant, the question under investigation has hardly been addressed and less so using representative samples.

Our paper is organized as follows. The next section describes the data, followed by a description of the empirical methodology. The fourth section shows our findings. The final section concludes.

Data

The data is from Cardenas et al. (2013), who performed several experimental games on the field using representative samples for Bogota, Buenos Aires, Caracas, Lima, Montevideo and San Jose. They collected stratified random samples where strata were chosen on the basis of education, income, neighborhoods, gender and age. Our research focuses on the data produced out of their first activity, a straightforward trust game (Cardenas et al., 2013). In this experiment, session participants are randomly assigned in pairs, where one half of the individuals assume the role of Player 1 and the other half of individuals, that of Player 2. Both groups are simultaneously located in different rooms, and the identities of the pairs are never revealed, although each player receives information on key demographic characteristics of their pairs: sex, age, schooling level, and socio-economic stratum. In this game, both players receive an equal endowment, and Player 1 is then asked to decide how much of this endowment he or she wants to send to Player 2, knowing that Player 2 will then receive three times that amount on top of the initial endowment everyone initially receives. In another room, Player 2 is asked to decide the amount to be returned to Player 1 for

each possible offer from Player 1, from a discrete set of fractions of amounts sent (0 percent, 25 percent, 50 percent, 75 percent and 100 percent). As Cardenas et al. (2013) explain, doing this facilitates any comparisons among countries as each one has its own domestic currency. Immediately before making their decisions, the individuals are also asked to predict the decisions to be made by the other player. That is, the amount expected by Player 2 from Player 1, and Player 1's expected returned amount from Player 2. After both players make their decisions, the matching of their choices is made. This procedure allows us to separate the effects of expectations from those of social background (Cardenas et al., 2013).[4]

Empirical Strategy

The reduced form employed is the following:

$$\boldsymbol{Reciprocity_i = \beta_0 + \beta_1 UpperN_i \; + \; \beta_2 (UpperN_i) * (P1\; Offer_i) + \; \delta X_i + \varphi P_i + \; \varepsilon_i}$$

where $\boldsymbol{Reciprocity_i}$ is defined by the return ratio (the percentage of the return as a fraction of the final disposable endowment). In other words, this variable captures the amount that Player 2 returns to Player 1 after the latter makes his initial move in the trust game. $\boldsymbol{UpperN_i}$ is a dummy that takes the value of 1 if Player 2 belongs to an upper-class neighborhood, and 0 if this is not the case. $(\boldsymbol{UpperN_i}) * (\boldsymbol{P1\; Offer_i})$, is the interaction between the amount sent by Player 1 and whether Player 2 comes from an upper class neighborhood. A positive $\boldsymbol{\hat{\beta}_2}$ implies that participants tend to reciprocate proportionally, conditional on the amount offered by Player 1. In addition, $\boldsymbol{X_i}$ represents a vector of control variables of individual *i*, which include sex, education, race, whether the individual is employed, the degree of risk aversion of the individual, a positive offer in a

[4] Cardenas, et al. (2013) also collected data from other experimental games, in particular, a voluntary contributions game and a risk aversion game. We use the data of these additional artefactual experiments as controls in our reduced forms, as described in the following section.

voluntary contribution game, household size and whether the individual is the head of the household. $\boldsymbol{P_i}$ is a vector of control variables of individual *i* matched Player 1. Finally, $\boldsymbol{\varepsilon_i}$ is the error term. All regressions include city and session fixed effects. In addition, in the all regressions the errors are clustered at the city-session level. Table 1 provides definitions of all the variables employed in this research.

Findings

Table 2 shows our results. In column 1 we provide evidence that individuals coming from upper-class neighborhoods tend to reciprocate less, as the reciprocated amount from Player 2 to Player 1 is reduced by around 6.6 percentage points with respect to the final endowment. Segregation and urban inequality may have a negative bearing on social capital. Interestingly, this result is countered by the fact that individuals are compelled to reciprocate larger amounts the larger the initial offer of Player 1 is. That is, when Player 2 comes from an upper-class neighborhood, we find that the more trusting Player 1 is, the more trustworthy Player 2 will be and, thus, will reciprocate a larger amount. Having said this, the overall impact of belonging to an upper-class neighborhood remains negative, on average.

The second column in Table 2 highlights the fact that when we control for the expected offer of Player 1, we still find the same results as when this variable is not included, as both of our variables of interest maintain their corresponding signs and remain statistically significant at conventional levels, although, as expected, the size of the interacted coefficient drops from 0.11 to 0.08. Interestingly, we still find that when Player 2 comes from an upper-class neighborhood, the original amount extended by Player 1 to Player 2 still motivates the latter to reciprocate proportionally with respect to the size of originally sent to him or her.

Conclusions

We study if urban class segregation destroys social capital in Latin America. In order to do this, we use experimental data that identifies upper class neighborhoods in six cities and focus on whether reciprocity is negatively impacted in a standard trust game. While our overall results confirm a negative association between class and reciprocity, we also find an important silver lining. It appears that trusting behavior and goodwill can help counteract the negative impact of class. Individuals from upper-class neighborhoods that are trusted appear to be willing to reciprocate accordingly. This is potentially good news from a policy perspective, as governments may want to consider mechanisms that make particularly salient issues related to goodwill and consensus when designing public policy.

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Table 1. Variables

Variable	Obs.	Mean	Std Dev	Min	Max
Return ratio	1,533	0.28	0.21	0	1
Upper Neighborhood	1,570	0.26	0.44	0	1
Player 1 Offer	1,545	0.45	0.28	0	1
Player1 Expected Offer	1,567	0.48	0.29	0	1
Player 2 Sex	1,574	0.55	0.5	0	1
Player 2 Age	1,571	36.99	14.48	17	77
Player 2 Secondary	1,574	0.23	0.42	0	1
Player 2 Higher Education	1,574	0.46	0.50	0	1
Player 2 Employment	1,574	0.7	0.46	0	1
Player 2 Caucasian	1,560	0.56	0.50	0	1
Player 2 Household Head	1,574	0.37	0.48	0	1
Player 2 Household Size	1,569	4.03	1.79	1	15
Player 2 Low Risk Aversion	1,573	0.18	0.38	0	1
Player 2 Mid Risk Aversion	1,573	0.29	0.45	0	1
Player 2 Part in Vol Cont Game	1,572	0.22	0.42	0	1
Player 1 Sex	1,556	0.56	0.50	0	1
Player 1 Upper Neighborhood	1,574	0.22	0.41	0	1
Player 1 Age	1,552	37.56	14.62	17	80
Player 1 Secondary	1,574	0.21	0.41	0	1
Player 1 Higher Education	1,574	0.49	0.50	0	1

Player 1 is the first mover in the trust game. Player 2, or second mover, is the individual that reciprocates the amount initially offered by Player 1. All of these variables were included in the regressions presented in Table 2.

Table 2. Determinants of Reciprocity

	(1)	(2)
Upper Neighborhood	-0.0665***	-0.0567**
	(0.0254)	(0.0239)
Player 1 Offer	0.0128	0.0258
	(0.0297)	(0.0279)
Upper Neighborhood * Player 1 Offer	0.116**	0.0858**
	(0.0473)	(0.0432)
Expected Player 1 Offer		0.212***
		(0.0209)
Constant	0.0824	-0.0004
	(0.0510)	(0.0494)
Observations	1,509	1,505
R-squared	0.210	0.279
Session FE	Yes	Yes
City FE	Yes	Yes

The dependent variable is the percentage of the final endowment returned by Player 2 to Player 1. The final Player 2 endowment is composed as the sum of the initial endowment of Player 2 and Player 1 offer multiplied by three. All regressions include sex, age, education, race, employment dummy, degree of (experimental) risk aversion, dummy for contributing in an (experimental) voluntary contributions game, household head dummy and household size.