

# Ethnic polarization, gender roles and punishment in Public Good Games

Pablo Brañas-Garza<sup>1</sup>, Antonio M. Espín<sup>2</sup>, Juan F. Gamella<sup>2</sup>, Benedikt Herrmann<sup>3</sup>, Jesús Martín<sup>2</sup>

<sup>1</sup> Middlesex University London, <sup>2</sup> Universidad de Granada, <sup>3</sup> ISPRA

That culture crucially shapes individuals' economic and social behavior is now widely recognized. In some environments, however, cultural differences may have a greater impact due to the existence of strong social identity cues. A likely prominent example of such an environment is given by populations where different cultural backgrounds coexist, since groups often conflict for ethnic supremacy but also have to cooperate for the provision of public goods that benefit everyone. Yet the literature is lacking a systematic investigation of the impact of ethnic polarization on cooperation and punishment in multilateral social dilemma situations.

To address this issue, we conducted a series of artefactual field experiments with 320 Spanish participants playing one-shot public goods games with peer-punishment opportunities. We recruited "ordinary people" belonging to two ethnic groups with a long-lasting and delicately-balanced tradition of conflict and collaboration in Spain: gypsies (the minority) and non-gypsies (i.e. Caucasians; the majority). These two ethnic groups display important cultural differences, some of which have to do with social organization and, more particularly, with gender roles.

Five semi-rural towns with comparable demographic characteristics hosted our experiments. In each location, we ran two experimental sessions in a between-subjects design: one ethnically homogeneous session (either all gypsies, in two locations, or all non-gypsies, in three locations) and one ethnically heterogeneous session (same number of gypsies and non-gypsies; one session in each of the five locations) where ethnic identity was made salient. In each session, 32 participants played the game in eight independent groups of four people each. The participants were initially evenly assigned to one out of four colors using visible colored scarves. Assignment to colors was performed randomly in homogenous sessions but was dependent on ethnicity in heterogeneous sessions, so that two colors represented gypsies and the other two colors represented non-gypsies. In heterogeneous sessions, we subtly induced participants to realize the link between colors and ethnic groups prior to play the game – we made public who composed each color also in homogenous sessions in order to allow for comparability across sessions.

Each game group was composed of one randomly selected (unknown identity) person from each color, that's 4 subjects per group. After deciding how much from a endowment of €10 to contribute to the public good (marginal per capita return = 0.5), participants received feedback on their group partners' contributions and earnings in a color-based fashion and could then anonymously reduce other group members' payoffs at a personal cost (cost-to-impact ratio = 1:3). Finally, participants were also asked to state the level of punishment they expected from each group partner.

## RESULTS.

**Cooperation:** No main effect of ethnic group or session type on contributions is found. The interaction between those two variables is neither significant. However, across both ethnic groups, we find that females contribute more in heterogeneous than in homogenous sessions, while the opposite happens for males (especially among young males). As a result, males cooperate significantly less than females in heterogeneous sessions but similarly in homogeneous sessions.

**Punishment:** In homogeneous sessions, both male and female gypsies punish much less than their non-gypsies counterparts but there are no ethnic differences in heterogeneous sessions. The latter result is mainly due to a higher level of punishment implemented by males (especially among gypsies) and a lower level of punishment implemented by (non-gypsy) females in heterogeneous, compared to homogenous, sessions. In other words, gypsy females' punishment is almost inexistent regardless of the session type whereas the negligible level of punishment implemented by gypsy males in homogeneous sessions turns out to be rather high in heterogeneous sessions. Among non-gypsies, females punish less while males punish more in heterogeneous sessions compared to homogeneous sessions. When disentangling between "**prosocial**" (the target contributed less than the punisher) and "**antisocial**" (the target contributed more than the punisher) punishment, we find that the rather strong punishment implemented by gypsy males in heterogeneous sessions is due uniquely to prosocial punishment since their level of antisocial punishment is also low in heterogeneous sessions. The remaining results mentioned above do not crucially depend on whether punishment is prosocial or antisocial.

We also analyze the role that the **punisher's and target's ethnicity** have on punishment decisions in heterogeneous sessions (note that punishment decisions were individualized by group members' colors, i.e. the ethnicity of the target was known to the punisher). We find that, *regardless of the punisher's ethnicity*, males punish more to gypsy than to non-gypsy group members, while the opposite is true for females. Moreover, *again regardless of the punisher's ethnicity*, gypsy targets receive less antisocial punishment and, especially when punishment comes from a male punisher, more prosocial punishment than their non-gypsy group partners. Finally, the punishment imposed on a target is generally stronger the stronger the punishment that the punisher expects to receive from that specific partner. However, *regardless of the punisher's ethnicity* again, this relationship is much stronger when the target belongs to the punisher's ethnic group than when the target is from the other ethnic group.

Taken together, these results highlight the complexity of inter-ethnic relationships for both the provision of public goods and the enforcement of cooperation. An important aspect uncovered by our experiments relates to the impact of gender roles within and across ethnic groups: while across ethnic groups females are more cooperative in heterogeneous than homogeneous sessions, the opposite is observed for males. Also, males punish generally more in heterogeneous than homogeneous sessions. However, while gypsy females almost do not punish in either session, non-gypsy females' punishment is modulated by session type – high in homogeneous and low in

heterogeneous sessions –, which may be reflecting a ethnic-dependent differential role of females and males on norm enforcement.