Do informal transfers induce lower efforts?
Evidence from lab-in-the-field experiments in rural Mexico*

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Abstract

How do informal transfers affect work incentives? The question matters in developing countries, where labor markets are intertwined with transfer networks. The tax-and-subsidy component of transfers would dilute work incentives, but their pro-social element could encourage people to work harder. Such crosscurrents are hard to disentangle because participation in informal networks is likely endogenous. We tackle this problem with a lab-in-the-field experiment. Participants work harder in the presence of transfers, and the observed behaviors are more compatible with warm glow than with altruistic preferences. This suggests that the impact of informal transfers extends beyond just the sharing of risk.

Keywords: informal transfers, effort, moral hazard, warm glow, altruism
JEL codes: D64, C91, O12

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1 Introduction

In most developing countries, informal transfers are widespread.[1] While such transfers allow the sharing of risk for any given income distribution,[2] they may also affect the incentives to undertake productive efforts or, indeed, to save in the first instance. According to experimental and empirical work conducted in Africa, "kin taxes" have a detrimental effect on the incentives to invest and/or save,[3] which is what would be expected if individuals are selfish and if transfers are driven by a desire to comply with a social norm. However, if instead they are driven by an intrinsic desire to share (for example, altruism or warm glow), they may have a positive effect on productive efforts (Alger and Weibull, 2008, 2010). The implication of any relationship between transfers and efforts for economies where transfers are common is clear: if transfers have a detrimental effect on effort, they may hamper economic development; if they have a positive effect on effort, they help promote economic development above and beyond the benefits of risk sharing. To evaluate the overall effects of informal transfers on welfare, it is therefore crucial to understand whether or not and how they affect the incentives to undertake productive efforts. In this paper we report the results of a novel experiment designed specifically to provide insights as to whether the expectation of making or receiving a transfer affects the incentives to undertake productive efforts.

In reality, informal transfers are often embedded in long-term, repeated interactions, in which the willingness to provide effort may be driven by a strategic repeated-interaction effect (Ligon, Thomas, and Worrall, 2002),[4] or by a desire to signal pro-sociality (Bénabou and Tirole, 2006). Furthermore, participation in such interactions is often voluntary. Hence, in reality an individual's effort choice is likely affected by a complex set of factors, which, moreover, may interact. In order to understand the overall effects of these factors and how they may interact, a necessary first step is to study each of them in isolation. Thus, the decision to participate in risk sharing groups has been studied by Barr and Genicot (2008) and Attanasio et al. (2012). We propose to study another specific question, namely, does the potential pro-social element of transfers, that would encourage people to work harder, outweigh the tax-and-subsidy component of transfers, that dilutes work incentives?

To study this question, we propose an experimental design that imposes the composition of the group within which transfer take place and that shuts down both the repeated-interaction and the signaling channel. Thus, we disregard limited commitment, by examining behavior in one-shot interactions, and we impose the direction as well as the size of any transfer, so that the only choice variable for subjects is the productive effort. Specifically, in this experiment each subject played four games. In each game the subject received an endowment and was given an opportunity to perform a real effort.[5] The effort level of the subject determined the probability of success, where success meant that additional income was generated on top of the initial endowment. In autarky games, the subject was simply able to retain any such additional income. In transfer games, subjects allocated

[1] For a cross-country analysis, see Cox, Galasso and Jimenez (2006). See also Cox and Fafchamps (2008) for a survey of the literature on extended kinship networks, and Fafchamps (2011) for a survey of the literature on inter-household transfers.

[2] For evidence on such sharing of risk, see Rosenzweig (1988), Udry (1990), Townsend (1994), Ligon, Thomas and Worrall (2002), Fafchamps and Lund (2003), Dercon and Krishnan (2003), Dubois, Jullien, and Magnac (2008), Mobarak and Rosenzweig (2013), and Attanasio, Meghir, and Mommaerts (2015).

[3] See Azam and Gubert (2005), Baland, Guirkinger, and Mali (2011), Di Falco and Bulte (2011, 2013), Alby, Auriol, and Nguimkeu (2013), Grimm et al. (2013), Grimm, Hartwig, and Lay (2013), and Jakiela and Ozier (2016).

[4] See also Kimball (1988), Coate and Ravallion (1993), and Kocherlakota (1996).

[5] We propose a real effort instead of a "chosen effort" (Bruggen and Strobel, 2007) for two reasons: first, because it allows to avoid income effects; second, because of concerns that the population that was sampled for the experiment is foreign to abstract thinking. It may be that the subjects enjoyed performing the task; however, this is irrelevant for our main results, which rely on within-subject comparisons of efforts. For results based on between-subjects analyses we control for differences in ability and learning.

to a donor role had to make a transfer (of fixed size) to someone else in case of success. Subjects allocated to a recipient role received a transfer (of fixed size) from someone else in case of failure. In any case, individuals who were potentially affected by these transfers were passive, so there was no strategic interaction. Reciprocity and signaling motives were ruled out (as much as possible) by ensuring that effort choices as well as payoffs were private information, and by matching subjects anonymously.

The comparison of effort choices in autarky games with those in transfer games provides a clean measure of how the mere expectation of making or receiving a transfer affects effort. Importantly, in the autarky and transfer games played by any given subject, effort has the same effect on the expected amount paid by us to the community. Hence, if subjects make a greater effort in the presence of a transfer, this cannot be explained by a desire to extract more money from the experimenters. Instead, an effort increase can only be explained by a positive utility associated with giving a transfer when in a donor role, and to avoiding receiving a transfer when in a recipient role.

In economics many classes of pro-social preferences have been studied, including altruism (Becker, 1974), warm glow (Andreoni, 1990), a concern for fairness or inequity aversion (Rabin, 1993; Fehr and Schmidt, 1999), caring about social efficiency (Charness and Rabin, 2003), and moral concerns (Alger and Weibull, 2013). It is beyond the scope of this paper to make a full analysis of all these preference classes. Instead, we limit our attention to the following three: selfishness, altruism, and warm glow. The payoff structures in the experiment allow us to infer whether the observed behaviors are more consistent with selfishness, altruism, or warm glow preferences.

The experiment was conducted in 16 small villages in rural Mexico (where informal transfers are common),[6] with a total of 536 participants. Within each village, the participants were randomly split into two groups, one of which was allocated to a donor treatment with transfers going to passive recipients, and the other to a recipient treatment with transfers coming from passive donors. Across villages, we varied the transfer size: in half of the villages the transfer represented 33% of the additional income, while in the other half, the transfer represented 100%.

Our main findings are as follows. First, in all of the treatments transfers have a positive and economically substantial effect on effort, an effect which is significantly different from zero in most cases. Second, since transfers have a significant and positive effect on effort even in treatments where the transfer represents 100% of the potential additional income, and since the expected amount of money extracted from the experimenter is held constant across the games played by any subject, we can safely conclude that, on average, subjects derive positive utility from transfers. In particular, the hypothesis that selfishness (or worse, spite) is the main motivation in the sample can be ruled out. Moreover, the findings are more in line with warm glow than with altruistic preferences. If externally valid, our findings would have profound implications: they would mean that informal transfers in our participating villages increase material welfare not only by allowing risk to be shared, but also by inducing higher productive efforts.

The experimental design further allows us to examine the following questions. First, do subjects choose different efforts in transfer games depending on the identity of the passive party to be affected by the transfer? Exploiting the variation in the transfer destination/source across the games (the transfer affects either one other individual drawn at random from a group of passive participants, the whole pool of passive participants, or the local health center), we find that the positive effect of the transfer was always significant when the transfer affected one other individual, but not always significant when it affected the whole pool (the hypothesis that this effect is different from the effect when the transfer affects one individual cannot be rejected, however). The

[6]There is a large literature on behaviors in small villages in Mexico (e.g., Angelucci, De Giorgi, Rangel, and Rasul, 2009, 2010).

effect was the largest (and always significant) when the transfer affected the local health center. Furthermore, we find that the positive effect on effort of a transfer is significantly higher in villages where the population is more homogeneous in terms of religious denomination.[7]

Second, do donors and recipients make different effort choices? Here we make between-subject comparisons of effort in donor and recipient treatments. In line with the theoretical predictions, we find that the increase in effort in response to the introduction of a transfer is smaller for recipients than for donors (this effect is driven by the payoff structure: a subject in a recipient treatment was always poorer—in terms of payoffs—than the passive donor who gave him/her a transfer, whereas a subject in a donor treatment was always richer than the passive recipient who got a transfer from him/her). The difference was, however, not statistically significant; a result which is consistent with warm glow preferences.

Our results are consistent with observations of pro-social behaviors in laboratory experiments. In particular, they are qualitatively in line with findings in anonymous dictator games, where positive transfers suggest that the subjects derive a benefit from giving in such situations (Blanco, Engelmann, and Normann, 2011).[8] Such findings have also been made in experiments in developing countries, with variations on the anonymity of the recipient and the origin of the income to be shared.[9] Furthermore, the fact that our results lend stronger support to warm glow than to altruism is in line with other (different) experiments that have sought to discriminate between these two motives, including Palfrey and Prisbrey (1996), Erkal, Gangadharan, and Nikiforakis (2011), and Gangadharan et al. (2016).[10]

The experiment is described in the next section, with the theoretical model presented and analyzed in Section 3. The empirical specification is described in Section 4, the results are presented in Section 5, followed by robustness checks in Section 6. Section 7 concludes.

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[7]Even though our subjects do not know the individual identity of the donor or recipient with whom they are being paired, in villages that are more homogeneous in terms of religious denomination the likelihood of being paired with another individual who shares the subjects' religious beliefs is higher, and this can have an effect on sharing behavior. Relatedly, Barr, Dekker and Fafchamps (2012) find that individuals belonging to the same religious group are more likely to share risk when agreements are enforced through social sanctioning than when they are so by the experimenter. Regarding other economic outcomes, Fisman, Paravisini and Vig (2012) show that shared religious beliefs between borrowers and lenders affect outcomes like loan amounts and repayment. Finally, these results are in line with Leider et al. (2009), who find that helping behaviors tend to be different towards friends than towards strangers, and the idea that an individual's behavior may depend on her sense of identity, which may depend on political, religious, educational, cultural, gender, or other identifying factors (Akerlof and Kranton, 2000; see also Kranton, 2016, and Kranton et al. 2016).

[8]If given the possibility to pay a price to avoid giving, however, some subjects use this option (Dana, Weber, and Kuang, 2007). Our experiment did not include such an option.

[9]Thus, Ligon and Schechter (2012) conclude that the largest proportion of observed transfers in anonymous dictator games among villagers in rural Paraguay can be attributed to preference-related motives. Jakiela (2015) compares the behavior of U.S. students to Kenyans to study whether the willingness to share is different when the endowment in the dictator game derives from luck and when it is the result of a risk-free effort. In a comparative experimental study in which subjects could give own wealth, or steal or destroy others' wealth, Fafchamps and Vargas-Hill (2015) found that some gave and some stole, and that Kenyan and Ugandan subjects behaved more pro-socially than British subjects.

[10]There is also a non-experimental empirical literature that seeks to tease out the motivations behind transfers. See, e.g., Lucas and Stark (1985), Altonji, Hayashi, and Kotlikoff (1992), Cox, Eser, and Jimenez (1998), Foster and Rosenzweig (2001), De la Brière et al. (2002), and De Weerdt and Fafchamps (2011). However, the results reported in this literature are not directly comparable to ours, since empirical work relying on real-life transfers cannot shut down the reciprocity motive.

2 The experiment

2.1 Design

In the *effort-and-transfer experiment*, each subject played a series of four games, one of which was randomly drawn to determine the payoffs. In each game the subject was presented with the same initial endowment and the same real effort task. The subject's effort level determined the probability that additional income was generated. The games that were used in the experiment were as follows (each subject played a subset of those games; see below). In *autarky* games nothing else happened besides the effort and the subsequent potential generation of additional income. All the other games involved transfers. First, in the donor games, a subject who had successfully generated additional income had to make a transfer: in the *one-to-one donor* game the transfer was given to one passive individual; in the *pool donor* game the transfer was split equally among a pool of passive individuals; in the *public donor* game, the transfer was given to the local health center. Second, in the recipient games, a subject who had failed to generate additional income received a transfer: in the *one-to-one recipient* game the transfer came from one passive individual; in the *pool donor* game the transfer came from a pool of passive individuals, each of whom gave equally much; in the *public recipient* game, the transfer was taken from an endowment to be donated to the local health center.

Importantly, in all the games the transfer size and direction were exogenously imposed, so that the subject's only decision consisted in the level of effort to exert. Any given subject played both autarky and transfer games, and the amounts were chosen so as to obtain a clean test of whether transfers impact effort positively or negatively, which is the key goal of this study. Across the subjects we varied the role (*donor* vs *recipient*) to see whether transfers have different effects on donors and on recipients, as well as the size of any transfer, which was either *partial* (33% of the additional income) or *full* (100% of the additional income). While a partial transfer may be closer to real-life settings, the full transfer allows us to single out how a transfer affects effort absent any effect of this effort on own wealth.

In sum, there were four treatments: *Donor-Partial* (DP), *Recipient-Partial* (RP), *Donor-Full* (DF), and *Recipient-Full* (RF). Each of the 16 villages where the experiment was conducted was allocated either to the *Partial* or to the *Full* treatments. In each village the subject pool was divided into two groups of equal size (usually 20), one of which was allocated to the *Donor* treatment, and the other to the *Recipient* treatment, sequentially. Whichever group was not actively playing was used (unbeknownst to them) as passive players in some of the games played by the active group.

The effort task consisted in threading nuts onto bolts.[11] For each fully threaded nut (all the nut-bolt pairs were identical), the subject increased the probability of generating additional income by 0.1, a probability which was zero for zero threaded nuts.[12] Ten fully threaded nuts thus guaranteed success. In each game the subject had one minute to thread nuts onto bolts.[13] Curtains ensured that subjects could not observe each other's

[11] A variety of real effort tasks have been used in the literature, such as solving anagrams (Charness and Villeval, 2009), stuffing envelopes (Carpenter et al., 2010), counting zeros (Abeler et al., 2011), and moving sliders (Gill and Prowse, 2012). We chose a manual task that did not require the use of computers, and which allowed us to use the same materials in all the sessions without being damaged.

[12] Concretely, for each fully threaded nut, the subject earned one ball. Thus, upon completing the four games, each subject had earned a certain number (between 0 and 10) of balls in each game. Once the game that would be used to calculate the payoffs had been picked, a traditional style bingo cage with balls numbered from one to ten was used to draw one ball. Any subject who (in the relevant game) had threaded a number of nuts equal to or exceeding the number on the drawn ball generated additional income, whereas those who had threaded a smaller number did not generate additional income.

[13] In the theory section below, we assume that the cost of effort is strictly convex in effort. This allows us to focus on interior solutions. In the experiment the probability of success is linearly increasing in the number of threaded nuts and it may therefore

effort choices or communicate. Furthermore, to minimize the experimental pressure to exert effort, each subject had on his/her table a fresh newspaper to look at during the imparted time.

Clearly, threading nuts onto bolts in a short period of time is a task that requires ability, and learning may appear since the task is performed repeatedly. The baseline ability as well as the learning may differ across individuals. To obtain a measure of individual ability and learning, we let each subject perform two incentivized ability tests: one at the beginning and one at the end of the experimental session. Each ability test consisted in rewarding the participants with one point for each properly threaded nut in one minute. The way these two incentivized tests are used to control for ability and learning in the empirical analysis is explained in detail in the Appendix.

Figures 1 and 2 show the set of four games played in the four treatments, and the payoff consequences that we used (the first number is the initial endowment, an italicized number the additional income, and a bold number a transfer).[14] Among the four games played, a set of three games was qualitatively similar across the four treatments. Specifically, each subject allocated to a donor session played an *Autarky* game, a *One-to-one donor* game, and a *Pool donor* game. Likewise, each subject allocated to a recipient session played an *Autarky* game, a *One-to-one recipient* game, and a *Pool recipient* game.

Game	State	Payoff to Active	Payoff to Passive
DP Autarky	S	100 + *75*	
	F	100	
DP One-to-One	S	100 + *75* - **25**	50 + **25**
	F	100	50
DP Pool	S	100 + *75* - **25**	50 + n_s(25/n)+ **25/n**
	F	100	50 + n_s(25/n)
DP Aut Low	S	100 + *50*	
	F	100	

Game	State	Payoff to Active	Payoff to Passive
DF Autarky	S	100 + *75*	
	F	100	
DF One-to-One	S	100 + *75* - **75**	25 + **75**
	F	100	25
DF Pool	S	100 + *75* - **75**	25 + n_s(75/n)+ **75/n**
	F	100	25 + n_s(75/n)
DF Public	S	100 + *75* - **75**	25 + n_s(75/n)+ **75/n**
	F	100	25 + n_s(75/n)

Figure 1: Payoff consequences of the active subject's effort in the *Donor* treatment games: the left column shows the *Donor Partial* treatment and the right column the *Donor Full* treatment. In each cell, the first number is the initial endowment, an italicized number the additional income, and a bold number a transfer. S denotes success, F failure, n the number of passive subjects, and n_s the number of active subjects who succeeded.

The first three lines in Figure 1 show the payoff consequences of success and failure in these three core games in the two *Donor* treatments (*Partial* in the left column and *Full* in the right column). Here, n_s denotes the number of other active subjects who succeeded (indeed, in the *Pool* game, the pool of passive individuals was the same for all active subjects, namely those in the other group). Note that the subject's initial endowment as well as the additional income was the same in the three games; furthermore, the transfer amount as well as the initial endowment to any passive player was the same in both transfer games, and the active subject was always at least as rich as any passive transfer recipient.

Likewise, the first three lines in Figure 2 show the payoff consequences of success and failure in the three

appear that the cost of effort is linear. However, since subjects were time-constrained effort really consisted in the speed at which nuts were threaded, it is sensible to believe that marginal cost of effort was indeed increasing in effort. Furthermore, the fact that out of 2,144 observations (536 participants who played four games each) there are 23 observations where zero nuts were threaded, and 209 where ten nuts were threaded, indicates that our focus on interior solutions is sensible.

[14] All the numbers are expressed in *points*, the experimental unit, worth MXN 0.50 each (when the experiment was conducted, the exchange rate was approximately MXN 13 = USD 1). The overall average payoff turned out to be MXN 92 (it was MXN 59.55.across the donor-full treatments, MXN 122.02 across the donor-partial treatments, MXN 62.30 across the recipient–full treatments, and MXN 122.43 across the recipient–partial treatments).

Game	State	Payoff to Active	Payoff to Passive	Game	State	Payoff to Active	Payoff to Passive
RP Autarky	S	100 + *75*		RF Autarky	S	25 + *75*	
	F	100			F	25	
RP One-to-One	S	100 + *75*	200	RF One-to-One	S	25 + *75*	175
	F	100 + **25**	200 - **25**		F	25 + **75**	175 - **75**
RP Pool	S	100 + *75*	200 - n_f(25/n)	RF Pool	S	25 + *75*	175
	F	100 + **25**	200 - n_f(25/n) - **25/n**		F	25 + **75**	175 - n_f(75/n) - **75/n**
RP Aut Low	S	100 + *50*		RF Public	S	25 + *75*	175
	F	100			F	25 + **75**	175 - n_f(75/n) - **75/n**

Figure 2: Payoff consequences of the active subject's effort in the *Recipient* treatment games: the left column shows the *Recipient Partial* treatment and the right column the *Recipient Full* treatment. In each cell, the first number is the initial endowment, an italicized number the additional income, and a bold number a transfer. S denotes success, F failure, n the number of passive subjects, and n_f the number of active subjects who failed.

core games in the two *Recipient* treatments (*Partial* in the left column and *Full* in the right column). Here, n_f is the number of other active players who failed (in the *Pool* game the group of passive individuals was the same for all active subjects). Again, the subject's initial endowment as well as the additional income was the same in the three games; furthermore, the transfer amount as well as the initial endowment to any passive player was the same in both transfer games, and any passive transfer donor was always at least as rich as the active subject.

The results stated in the theory section below will allow us to infer whether the observed behaviors in this core set of games are (on average) compatible mostly with selfish, altruistic, or warm glow preferences.

The main analysis is based on the three games. In order to test the robustness of our results, we performed two additional games and included post-experimental questions, as follows.

On top of the three core games just described, we introduced two additional variations. First, subjects in the *Partial* treatments played an *Autarky Low* game. This game had the same effect on the active player's payoff as the transfer games, and thus allows to compare two payoff-equivalent games, one with and one without a transfer (see the fourth line in the left column in Figures 1 and 2). Second, subjects in the *Full* treatments played a *Public* transfer game, where the transfer source/destination was the health center of the village, i.e., outside of the experimental setting (see the fourth line in the right column in Figures 1 and 2; the expression shows the total amount to be donated to the health center). The *Public* game will be used for a robustness test, because it differs from the core transfer games in that the transfer no longer affects the participants in the experiment directly, but the village to which they belong. Thus, the *Public* game can be used to determine to what extent in the core games subjects are driven by a desire to extract money from us to the subjects.

The post-experimental questions were asked right after completion of the games and the ability tests, and while the subjects were still in the lab. First, subjects were asked questions pertaining to the *One-to-one* game. In the *Donor-Partial* treatment we asked subjects if they would have liked to give more than 25, in the *Donor-Full* treatment we asked if they would have liked to give less than 75, and how much more/less in case of a positive answer. This will allow to check whether the results are driven by the transfer size being imposed by us. Second, we asked each subject in the recipient treatments if (s)he would reveal his/her effort level to the individual with whom (s)he was matched in the *One-to-one* game if given the opportunity to do so. The answers to this question will allow to check if the results were driven by the non-observability of effort.

Upon completing all the games and the post-experimental questions, subjects filled out a questionnaire with questions pertaining to standard individual characteristics and transfer behaviours in the past year.

Figure 3 summarizes the session structures. The structures were the same for the two *Full* treatments and for the two *Partial* treatments. The order of the games varied across sessions, as detailed in the Appendix on learning. Note, however, that the transfer games were always played after the autarky game(s). This was done to avoid any priming that the introduction of a transfer and its subsequent removal could induce, and given the pedagogical advantage of starting with the simplest game in a population usually foreign to abstract thinking.

Full treatments	*Partial* treatments
Incentivized Ability test 1	
One autarky game	Two autarky games
Three transfer games	Two transfer games
Incentivized Ability test 2	
Post-experiment Questions	
Questionnaire	

Figure 3: Session structure

2.2 Procedures

In each of the 16 villages where a session took place, subjects were recruited by way of public announcements supported by the village authorities, a day before as well as on the day of the session.[15] Applying a "first come, first served" rule for men and women separately, in each village we sought to obtain a total of 40 subjects, gender-balanced whenever possible. At most one representative per household could participate; furthermore, although we selected small localities (see Table 1), the questionnaire data suggest that only a small share of the subjects were first-degree relatives (see Table 2). Upon arrival, each participant picked a card from an opaque bag. Each card had a number that allowed us to track the subject while keeping his or her anonymity, and a symbol that was used to assign the participant to one of the two groups. Those whose card had a half-circle and an even number were led to the lab field, while those whose card had a full circle and an odd number were shown to the other room; the latter group got a snack while waiting for their turn in the field lab. In the *One-to-one* games, the active subjects were randomly and anonymously matched with the passive subjects, so that each active and each passive subject was matched with exactly one individual. In the *Pool* games any transfer affected all the passive individuals equally.

Almost all the sessions were conducted in the afternoon, after the end of the agricultural labour day, in the village's own school building.[16] These buildings all had at least two independent rooms, one of which was used as the field lab and another one as a waiting room for passive subjects. The lab rooms were large enough to contain twenty tables and chairs, arranged in four columns facing the experiment director, so that all subjects could properly see the director and hear the instructions. We installed opaque curtains between the columns to provide privacy for the subjects (they could not see above the backs of those sitting in front of them, and they were not allowed to turn around to look at those sitting behind them). The experiment director was the same in all the sessions. No written instructions were provided, the protocol was read out loud (and clarified in case of need) and all materials were visual and text-free due to the low alphabetization levels of the participants. Protocols and experimental materials can be found in the Appendix. Translation of the instructions by a native Mayan speaker was provided in those villages where some subjects did not understand Spanish.

[15] Public announcements consisted of loudspeaker announcements and written ads, and by the village authorities spreading the information within the village.

[16] All took place in a primary school, except two, that took place in a high school and in an *ejido* meeting hall, respectively.

In the lab room, each subject sat in front of the table assigned to his or her number. On the table there was one bowl with nuts and one with bolts, as well as a fresh newspaper. Participants were explicitly instructed to not touch any material before receiving the instruction to do so from the experiment director. When the first group had completed the ability tests and games and had answered the question(s) (see Figure 3), the two groups would quietly change rooms without interaction. The first group then got a snack and completed the post-experimental questionnaire in the auxiliary room; the second group filled out this questionnaire, also in the auxiliary room, upon having completed its session in the field lab room. Illiterate participants received help by a native Mexican assistant or Mayan native speaker to fill out the questionnaire.

Once both groups had performed their experimental session, in front of everybody a child randomly picked a colored card (from an opaque bag); the card determined which of the four games would be used to calculate the payoffs (note: if it was the one-to-one game, then it was the one-to-one game both for donors and for recipients, etc). Finally, the lottery was performed in front of all the participants to ensure transparency of the payments calculation. The average payment was 92 pesos, close to the minimum wage of an agricultural worker.[17]

Each group spent between 30 and 45 minutes in the field lab room, depending on the need for translation. The complete session, between the arrival and the departure of the subjects, usually lasted about three hours.

2.3 Field setting and locality selection

The experimental sessions were conducted in July 2014 in the state of Campeche, Mexico. Although the predominant economic activity in Campeche is oil and natural gas extraction (84% of the state GDP according to the National Economic Census 2014), its inhabitants are poor: 43.6% of the state's population is in poverty situation and 11% in extreme poverty (source: CONEVAL 2015).[18] Agricultural activities represent 0.5% of the state GDP in 2014 (source: National Economic Census 2014). Campeche's soils are poorly suited for agriculture, and an important proportion of the agriculture is developed by small and self-subsistence farmers; water is more abundant in the South than in the North of the state. Land ownership is governed by a special system of social land tenure called the *ejido*. An ejido's members (the *ejidatarios*) have collective rights over land.[19] In Campeche, 52% of the total agricultural land area is still cultivated collectively by 60,207 farmers (this represents 7.3% of the state population; of the ejidatarios, 19.5% are women and 80.5% men) in 384 different ejidos (source: National Agrarian Registry Office, RAN). In 2010 a quarter of the population resided in rural localities with less than 2,500 inhabitants, and about 12% of the state population spoke an indigenous language (source: National Population and Housing Census 2010).[20]

The experimental sessions were conducted in rural localities with less than 1,000 inhabitants and a high proportion of subsistence farmers. All of the localities were organized as ejidos, so the institutional and organizational set-up was homogeneous across localities. We excluded seven municipalities due to increasing violence

[17] Although in Mexico there is no legal minimum wage for agricultural workers, we took as reference the general minimum wage in Campeche, which was 63.7 pesos per day, while the minimum wage for an operator of agricultural machinery was 93.6 pesos per day (http://www.conasami.gob.mx).

[18] Extreme poverty refers to persons who cannot afford the cost of a minimum food basket that allows them to carry out a minimal level of physical activity and who, in addition, show between three to six social deficiencies.

[19] Land can be collectively or individually cultivated, depending on the land use decisions taken (by majority rule) in the ejido assembly. Traditionally, ejido plots that were cultivated by individuals could not be sold, rented or put forward as collateral for credit, and no labour outside of the ejidatarios's family could be hired to work on this land. In 1992, the government implemented a reform to give ejidatarios full property rights over their plots and to loosen some other constraints imposed on ejido land (Sanderson, 1984.)

[20] Available online through the National Institute of Statistics and Geography (www.inegi.org.mx).

(Candelaria, Carmen and Escarcega), scarcity of agricultural activity and/or closeness to major developed areas (Calakmul, Campeche, Palizada and Tenabo), and important recent immigration from Central America. We selected sixteen villages from the remaining four municipalities (Calkini, Hecelchakan, Hopelchen and Campoton), eight of which are located in the North and eight in the South. Half of each set of villages was randomly assigned to a *Partial* treatment and half to a *Full* treatment. Figure 4 shows a map with the localities as well as the treatment allocation.

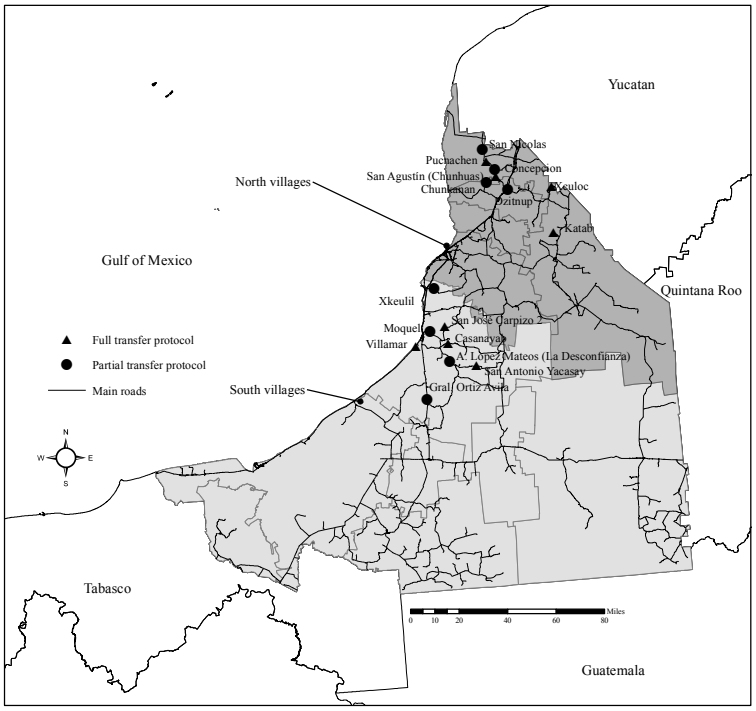

Figure 4: Map of selected localities and treatment allocation.

Tables 1 and 3 show that localities have similar socio-economic characteristics. However, the northern and southern localities also differ along several dimensions (in Section 5.3 we analyze whether these locality characteristics can explain part of the behaviors that we observe in the experiment). First, the share of the land owned by the ejido dedicated to common use is at least 82% in the northern localities, while it does not exceed 32% in more than two southern localities, and the social backwardness indicator as well as the asset index[21] show that the northern localities are poorer (see Table 3).

Second, the northern localities have much higher shares of indigenous population (almost 93% versus 9%). We chose such distinct sets of villages on purpose, to see if we could detect any differences in how indigenous and non-indigenous people behaved in the experiment.[22]

[21] As measures of wealth, we constructed indexes of dwelling characteristics and household assets by taking the first component in a principal components analysis (Filmer and Pritchett, 2001). The variables used for the dwelling index are dummy variables for whether the participant or her family owns their home, availability of running water, toilet, electricity and dirt floor, the number of rooms and light bulbs. For the asset index, we used dummy variables for whether the household owns other real estate properties or land, vehicles, TV, radio, cellphone, gas stove, small kitchen appliances, refrigerator, washing machine, books; productive assets like agricultural machinery or animals; and small livestock.

[22] Mexico still has a large number of distinct indigenous groups, and in light of the results reported by Henrich et al. (2001) (see also Jakiela, 2015) it seems interesting to investigate whether there are significant differences between these groups, and also between indigenous individuals and individuals who do not view themselves as belonging to any indigenous group.

Third, there is significantly smaller religious diversity in the North than in the South (82% versus 50% of the subjects declare themselves Catholics, and 13% versus 32% profess a faith other than Catholicism). This suggests that there may be greater community homogeneity and/or cohesion in the northern than in the southern localities, something which may affect the willingness of people to share with others in the community.

Fourth, the post-experiment questionnaire data (see Table 4) reveals that subjects in the southern localities were much more likely than subjects in the northern localities to have given a transfer during the year prior to the experimental session (64.5% vs 45.7%), whereas the share of subjects who had received a transfer was about the same (39.4% vs 38.6%).[23] This suggests that within-village transfers may be less common in the northern villages. Relatedly, southern localities have, on average, higher travel times to the next big town, a feature which may explain why people need to rely more on the community in the South than in the North.

To check the representativeness of our sample, Table 5 shows that, compared to the population in the 2010 Mexican Census, in our sample there is over-representation of women (especially young women), of individuals with smaller dwellings, and of people born in the state. The first two are not very surprising: although we tried hard to achieve gender balance, it was often harder to recruit men due to their work; moreover, poorer people may have a smaller opportunity cost of time. It is also important to keep in mind that the Census was collected in 2010 while our survey was carried out in 2014, so some differences are to be expected.

Finally, Tables 6 and 7 give information about the balance across the treatments, by showing the means of socio-demographic variables, wealth indicators, and some other variables obtained from the post-experimental questionnaire, across the four treatments. Only a few variables show statistically significant differences between the *Donor* and the *Recipient* treatments, and between the *Partial* and the *Full* treatments, implying that the correlation between individual characteristics and treatment is virtually non-existent.

3 Theoretical predictions

In this section we derive theoretical predictions for the games described above, the aim being to use these predictions to make inferences about the intrinsic motivation behind the effort choices made by the subjects in the experiment.

Let consumption utility from final wealth w be $u(w)$, where u is increasing and strictly concave, and the cost of effort $e \in [0,1]$ be $c(e)$, where c is strictly convex. The *material payoff* is consumption utility minus the cost of effort, $u(w) - c(e)$. Low effort levels may be enjoyable, but effort is costly at the margin when it is high enough. Formally, there exists some $0 \leq \hat{e} < 1$ such that $c'(\hat{e}) = 0$, where $\hat{e}$ is the *voluntary effort*. Let the probability of success be e, let $y > 0$ denote the active player's initial endowment, $z > 0$ the additional income generated in case of success, and t a transfer. We focus exclusively on parameter specifications as well as results that are relevant for the experimental design and assume that there is a unique, interior solution.

In the *Autarky* game, the expected utility of the active individual simply coincides with the expected material utility, which equals

$$e \cdot u(y+z) + (1-e) \cdot u(y) - c(e). \tag{1}$$

The effort, e_A, is implictly defined by the necessary first-order condition:

$$c'(e_A) = u(y+z) - u(y). \tag{2}$$

We analyze how this effort compares to that in the one-to-one and in the pool games in turn.

[23] To the best of our knowledge, no external data on village-level transfers is available for the state of Campeche.

3.1 The one-to-one games

We study the effort choice of an active player under three alternative preferences: selfishness, altruism, and warm glow. Let $\pi(y, z, t, e)$ denote the individual's own expected material payoff, and $\pi_M(y_M, t, e)$ that of the (passive) individual with whom the active individual is matched. Then the utility that the active player derives is $\pi(y, z, t, e)$ if (s)he is selfish,

$$\pi(y, z, t, e) + \alpha \cdot \pi_M(y_M, t, e) \tag{3}$$

if (s)he is altruistic, where $\alpha \in [0, 1]$ is the degree of altruism towards the passive player,[24] and

$$\pi(y, z, t, e) + e \cdot [(1 + t)^\gamma - 1] \tag{4}$$

if (s)he has warm glow preferences, where $(1 + t)^\gamma - 1$ is the individual's intrinsic benefit from making a transfer in a donor situation, or from avoiding the shame of receiving a transfer in a recipient situation, for some $\gamma \geq 0$ (note that $(1 + t)^\gamma - 1 = 0$ for $\gamma = 0$, and that $(1 + t)^\gamma - 1 > 0$ for any $\gamma > 0$, since $t > 0$).

We begin by studying the *One-to-one donor* game. The active player makes a transfer $0 < t \leq z$ to a passive player if success occurs; if failure occurs, nothing happens. Hence:

$$\pi(y, z, t, e) = e \cdot u(y + z - t) + (1 - e) \cdot u(y) - c(e), \tag{5}$$

and

$$\pi_M(y_M, t, e) = e \cdot u(y_M + t) + (1 - e) \cdot u(y_M). \tag{6}$$

Like in the experiment, assume that the player who potentially makes a transfer (here, the active player) is always better off: $y \geq y_M$ and $y + z - t \geq y_M + t$. Decreasing marginal utility of consumption ($u'' < 0$) then implies

$$u(y_M + t) - u(y_M) > u(y + z) - u(y + z - t). \tag{7}$$

Selfishness: For a selfish individual, a transfer has an unambiguously negative effect on the effort compared to the autarky game (formally, this follows immediately from the first term in (5) being strictly smaller than that in (1), and c being strictly convex).

Altruism: Although a transfer has a disincentive effect by reducing own net wealth in case of success, an altruist playing a *One-to-one donor* game also cares about the transfer recipient's consumption utility and therefore also perceives a benefit from making the transfer. To see that this can lead to a higher effort than under autarky, note that the effort, e_D^α, which is implictly defined by the necessary first-order condition

$$c'(e_D^\alpha) = u(y + z - t) - u(y) + \alpha \cdot [u(y_M + t) - u(y_M)], \tag{8}$$

exceeds the autarky effort e_A in the extreme case in which $\alpha = 1$ (by virtue of (7) and strict convexity of c). This is true even in the extreme case where the active player has to give away all the additional income ($t = z$): this result is driven by the fact that the donor is always better off than the recipient, which implies that the transfer has a greater effect on the recipient's than on the donor's consumption utility.[25] Since at the other

[24] It should be noted that pure altruism is often taken to mean that the individual attaches some weight to the other's utility, and not to the other's consumption utility as is here assumed. This is particularly important if the altruistic inclination is mutual. However, it is well known that as long as each individual attaches a weight less than one to the other's utility, with one weight being strictly smaller than one, the utilities may be written as we do here (see, e.g., Lindbeck and Weibull, 1988).

[25] Because of this, it is straightforward to verify that if the individual instead were inequity averse (i.e., who attaches a negative weight to the difference in the individuals' final wealth), the predictions would be qualitatively similar. Moreover, altruism is similar to caring for social efficiency (Charness and Rabin, 2003). To see this, note that the following expression, whereby the individual attaches weight one to own material well-being, and weight β to social efficiency (i.e., the sum of the material well-beings), is a monotonic transformation of the expression in (3) for $\beta = \alpha/(1 - \alpha)$: $e \cdot u(y + z - t) + (1 - e) \cdot u(y) - c(e) + \beta \cdot \{e \cdot [u(y + z - t) + u(y_M + t)] + (1 - e) \cdot [u(y) + u(y_M)] - c(e)\}$.

extreme ($\alpha = 0$) one obtains that $e_D^\alpha < e_A$, by continuity we can conclude that there exists $\hat{\alpha} \in (0,1)$ such that $e_D^\alpha > e_A$ if $\alpha > \hat{\alpha}$, $e_D^\alpha < e_A$ if $\alpha < \hat{\alpha}$, and $e_D^\alpha = e_A$ if $\alpha = \hat{\alpha}$.

Warm glow: Warm glow implies that the transfer produces a benefit for the donor, a benefit whose positive incentive effect may outweigh the negative effect of the transfer on own net wealth; as with altruism, this may be true even in the extreme case where $t = z$. To see this, compare the first-order condition for an interior solution,

$$c'\left(e_D^\gamma\right) = u\left(y + z - t\right) - u\left(y\right) + (1+t)^\gamma - 1, \tag{9}$$

with (2). We can conclude that there exists $\hat{\gamma} > 0$ such that $e_D^\gamma > e_A$ if $\gamma > \hat{\gamma}$, $e_D^\gamma < e_A$ if $\gamma < \hat{\gamma}$, and $e_D^\alpha = e_A$ if $\gamma = \hat{\gamma}$.

A final remark on the *One-to-one donor* game: in the *Donor-Partial* treatment the transfer is smaller and the endowment of the passive player is larger compared to the *Donor-Full* treatment. A selfish active player would therefore choose a strictly higher effort in the *Partial* than in the *Full* treatment. By contrast, an active player with altruistic or warm glow preferences would either make a higher or a lower effort in the *Partial* than in the *Full* treatment (this is easy to verify by way of examples).

Next we study the *One-to-one recipient* game. The active player receives a transfer $0 < t \leq z$ from the passive player if failure occurs; if success occurs, nothing happens. Hence:

$$\pi\left(y, z, t, e\right) = e \cdot u(y+z) + (1-e) \cdot u(y+t) - c\left(e\right), \tag{10}$$

and

$$\pi_M\left(y_M, t, e\right) = e \cdot u(y_M) + (1-e) \cdot u(y_M - t). \tag{11}$$

Like in the experiment, assume that the player who potentially makes a transfer (here, the passive player) is always better off: $y_M \geq y + z$ and $y_M - t \geq y + t$. Decreasing marginal utility of consumption ($u'' < 0$) then implies

$$u(y+t) - u(y) > u(y_M) - u(y_M - t). \tag{12}$$

Selfishness: The transfer has an unambiguous disincentive effect (this follows from the second term in (10) being strictly larger than that in (1), and c being strictly convex).

Altruism: An altruist playing a *One-to-one recipient* game suffers a utility loss from seeing the transfer affect the donor's consumption utility. However, the desire to avoid this loss is never strong enough to induce a higher effort than under autarky. To see this, note that the effort, e_R^α, which is implictly defined by the necessary first-order condition

$$c'\left(e_R^\alpha\right) = u\left(y + z\right) - u\left(y + t\right) + \alpha \cdot \left[u\left(y_M\right) - u\left(y_M - t\right)\right], \tag{13}$$

does not exceed the autarky effort e_A even when $\alpha = 1$ (by virtue of (12)). This is because the active player is always worse off than the passive donor, so that the effect on the consumption utility of the passive individual is always smaller than that on the active player. We thus conclude that $e_R^\alpha < e_A$.

Warm glow: By contrast, under warm glow preferences, since the shame of receiving a transfer is independent of the actual effect of the transfer on the passive donor, the benefit from avoiding this shame may outweigh the disincentive effect of the transfer on own net wealth; this may be true even in the extreme case where $t = z$. To see this, compare the first-order condition for an interior solution,

$$c'\left(e_R^\gamma\right) = u\left(y + z\right) - u\left(y + t\right) + (1+t)^\gamma - 1, \tag{14}$$

with (2). In sum: there exists $\tilde{\gamma} > 0$ such that $e_R^\gamma > e_A$ if $\gamma > \tilde{\gamma}$, $e_R^\gamma < e_A$ if $\gamma < \tilde{\gamma}$, and $e_R^\gamma = e_A$ if $\gamma = \tilde{\gamma}$.

Before turning to the pool games, we compare donors and recipients in the one-to-one games. In our experiment, each subject is allocated either to a *Donor* or to a *Recipient* treatment, and our main empirical analysis will consist of within-subject comparisons to study the effects that transfers may have on efforts. However, the data can also be used to make between-subject comparisons. Here we compare the effort that an individual would make in a *Donor* to that (s)he would make in a *Recipient* treatment with the same transfer size.

To begin, note that in the *Partial* treatments, the active player's endowment is the same in the *Donor* and in the *Recipient* treatments ($y = 100$). Furthermore, from Figures 1 and 2 we note that the initial endowment plus the transfer in the *Recipient-Full* treatment games ($y + t = 100$) is equal to the the active player's initial endowment in the *Donor-Full* treatment games ($y = 100$). Straightforward calculations then yield the following predictions (based on the assumption that preferences did not vary systematically between subjects allocated to the *Donor* and those allocated to the *Recipient* treatments).

For the *Partial* treatments, the assumption that the active player is richer than the passive player in the donor game, but poorer than the passive player in the recipient game, implies that if the initial endowment is the same in all the games, an individual should make less effort as a recipient than as a donor, whether (s)he is selfish, altruistic or has warm glow preferences.

In the *Full* treatments effort has no impact on own payoff ($y + z - t = y$ in the *Donor-Full* treatment, and $y + z = y + t$ in the *Recipient-Full* treatment). Since both selfishness and warm glow preferences render its carrier insensitive to the actual impact of their behavior on others, and since the transfer size is the same in the two treatments, both selfishness and warm glow preferences should lead subjects to behave identically in the *Donor-Full* and the *Recipient-Full* treatments. By contrast, an altruist does care about this, and since the active subject is richer than the passive subject in the *Donor* treatment, but poorer in the *Recipient* treatment, she should make less effort in the latter.

3.2 The pool games

In the two pool games there are n active players and n passive players. In the *Pool donor* game the initial endowment is y for each active player and $y_D < y$ for each passive player. A transfer t is taken from each successful active player and divided equally among the n passive players. In the *Pool recipient* game the initial endowment is y for each active player and $y_R > y$ for each passive player. A transfer t is given to each active player who does not succeed, a transfer to which each passive player contributes t/n. In both pool games t is such that a player who makes a transfer is at least as well off as a player who receives a transfer. Formally, in the *Pool donor* game, $y - t \geq y_D + n_s \cdot (t/n)$, where n_s is the number of successful active players; likewise, in the *Pool recipient* game, $y + t \leq y_R - n_f \cdot (t/n)$, where n_f is the number of active players who fail.

To be in line with our experimental design suppose that shocks are correlated in the following way. Indexing the efforts according to their rank among the n efforts, so that $0 \leq e_1 < e_2 < ... < e_n \leq 1$, suppose that success is determined by the realization of a random variable $\tilde{s}$, which is taken to be uniformly distributed on $[0, 1]$. For any realized value s, let the individuals whose effort was at least s succeed, while the others fail. Under these assumptions, n individuals succeed if $s \leq e_1$, $n - 1$ succeed if $e_1 < s \leq e_2$, etc. Hence, the probability that all individuals succeed is e_1, the probability that exactly $n - 1$ succeed is $(e_2 - e_1)$, and so forth, and the probability that nobody succeeds is $1 - e_n$.

Selfishness, warm glow: Starting with individuals with either selfish or warm glow preferences, since the size of the transfer matters but its destination or source does not, the following prediction is immediate. An active player who is selfish or has warm glow preferences makes the same effort in a *One-to-one donor* game and

in a *Pool donor* game in which the endowment and the transfer amounts are the same. The same prediction obtains for a *One-to-one recipient* game and a *Pool recipient* game in which the endowment and the transfer amounts are the same.

Altruism: Turning now to altruism, an altruistic player cares not only about the effect of the transfer she makes on her own material well-being, but also on its effect on all the passive individuals. She may also care about the other active individuals but this is irrelevant since her effort has no effect on these; hence we disregard this possibility when writing the utility. Thus, an altruistic individual i who has degree of altruism α_i towards each of the passive individuals, who makes effort e_i and who faces $n-1$ other active individuals who make the efforts summarized by the vector $\boldsymbol{e}_{-i}$, has the following expected utility in the donor pool game:

$$\begin{aligned} U^{\alpha_i}(e_i, \boldsymbol{e}_{-i}) &= e_i \cdot u(y+z-t) + (1-e_i)\cdot u(y) - c(e_i) \\ &\quad +\alpha_i \cdot n \cdot e_1 \cdot u(y_D + t) \\ &\quad +\alpha_i \cdot n \cdot \sum_{k=2}^{n} (e_k - e_{k-1}) \cdot u\left(y_D + \frac{(n+1-k)\,t}{n}\right) \\ &\quad +\alpha_i \cdot n \cdot (1-e_n)\cdot u(y_D). \end{aligned} \tag{15}$$

The first line is the individual's own consumption utility net of the effort cost. The second line corresponds to the event that everyody succeeds and the last line to the event that nobody succeeds. Finally, the third line summarizes the remaining events. The effort e_i is one of the efforts of the vector $(e_1, ..., e_n)$, depending on how it compares to the other individuals' effort levels. Clearly, then, the marginal effect of i's effort on the passive individuals' consumption utility depends on how her effort compares to the others' efforts. The general problem is complex and beyond the scope of this analysis. Here we limit our attention to the case where all active individuals have the same degree of altruism, $\alpha \in [0, 1]$.

Formally, then, we have a symmetric n-player simultaneous game in which each player has strategy set $[0, 1]$ and payoff given by the expression in (15) for $\alpha_i = \alpha$. It can be shown that this game has no symmetric Nash equilibrium in pure strategies, the reason being that if all the other players choose the same effort, there is a discontinuity in the player's best response function at that effort. To illustrate this, Figure 5 shows the expected utility as a function of the individual's own effort if the other players make effort $\bar{e} = 0.2$ (here, $y = 10$, $z = 5$, $t = 3$, $x_D = 5$, $n = 5$, $\alpha = 0.5$, $u(w) = \ln(w)$, and $c(e_i) = e_i^2$).

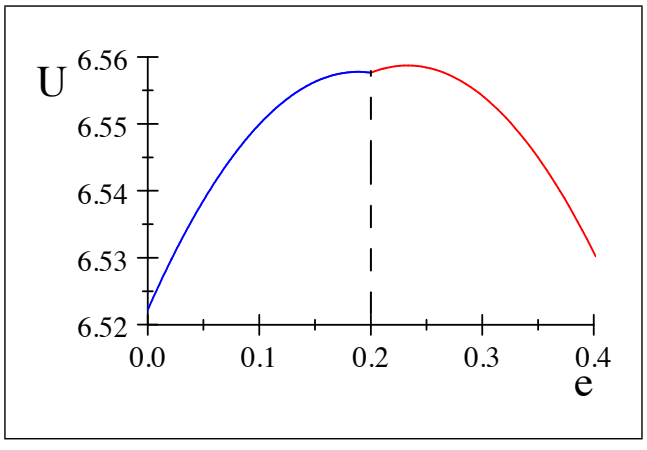

Figure 5: $U(e_i, \bar{e})$ for $\bar{e} = 0.2$

The non-existence issue does not arise if the strategy set is finite. To see this, suppose that the strategy set

is $\{0, 0.1, ..., 0.9, 1\}$, employ the same parameter values as in Figure 5, and set $\bar{e} = 0.2$. Then, as can be seen in the figure, the individual prefers $e_i = 0.2$ to both $e_i = 0.1$ and $e_i = 0.3$, and *a fortiori* to any other effort in the set $\{0, 0.1, ..., 0.9, 1\}$, so that $\bar{e} = 0.2$ is indeed a symmetric equilibrium effort.

A question of particular interest is how an equilibrium effort in the *Pool donor* game compares to the effort in the *One-to-one donor* game, for a given degree of altruism α. While intuition may suggest that the possibility to free ride on other active players will lead to a lower effort, this intuition does not always apply to altruistic individuals. A numerical example suffices to show that an equilibrium effort in the *Pool donor* game may be either higher or lower than in the *One-to-one donor* game. Suppose first that $y = 10$, $x = 5$, $z = 5$, $t = 3$, $n = 20$, $u(w) = \ln(w)$, and $c(e_i) = e_i^2$. Then, the effort in the *One-to-one donor* game (with a strategy set $[0, 1]$) is $e_D^\alpha \simeq 0.215$ if $\alpha = 0.5$ and $e_D^\alpha \simeq 0.198$ if $\alpha = 0.4$. In the *Pool donor* game, with a strategy set $\{0, 0.1, ..., 0.9, 1\}$, the equilibrium effort is $\bar{e}_D^\alpha = 0.2 < e_D^\alpha$ if $\alpha = 0.5$, and $\bar{e}_D^\alpha = 0.2 > e_D^\alpha$ if $\alpha = 0.4$. Identical reasoning can be shown to apply to the *Pool recipient* game. In sum: an active player who is altruistic may make more, less or the same effort in a *One-to-one donor* game and in a *Pool donor* game in which endowment and the transfer amounts are the same. The same prediction obtains for the effort of an altruistic player in a *One-to-one recipient* game and a *Pool recipient* game in which endowment and the transfer amounts are the same.

Figure 6 summarizes the predicted effort comparisons that we will refer to in the empirical sections.

Panel A : Donors

	Selfish	*Altruist*	*Warm glow*
One-to-One	$e_{1,D}^o < e_A$	$e_{1,D}^\alpha \gtrless e_A$	$e_{1,D}^\gamma \gtrless e_A$
Pool	$e_{n,D}^o = e_{1,D}^o$	$e_{n,D}^\alpha \gtrless e_{1,D}^\alpha$	$e_{n,D}^\gamma = e_{1,D}^\gamma$

Panel B : Recipients

	Selfish	*Altruist*	*Warm glow*
One-to-One	$e_{1,R}^o < e_A$	$e_{1,R}^\alpha < e_A$	$e_{1,R}^\gamma \gtrless e_A$
Pool	$e_{n,R}^o = e_{1,R}^o$	$e_{n,R}^\alpha \gtrless e_{1,R}^\alpha$	$e_{n,R}^\gamma = e_{1,R}^\gamma$

Panel C : Donors vs. Recipients

	Selfish	*Altruist*	*Warm glow*
One-to-One			
Partial	$e_{1,D(P)}^o > e_{1,R(P)}^o$	$e_{1,D(P)}^\alpha > e_{1,R(P)}^\alpha$	$e_{1,D(P)}^\gamma > e_{1,R(P)}^\gamma$
Full	$e_{1,D(F)}^o = e_{1,R(F)}^o$	$e_{1,D(F)}^\alpha > e_{1,R(F)}^\alpha$	$e_{1,D(P)}^\gamma = e_{1,R(P)}^\gamma$

Note: $e_{\text{Game,Treatment}}^{\text{Preferences}}$ denotes effort of an individual whose preferences are Selfish (o), Altruistic (α), or Warm Glow (γ), in the game *Autarky* (A), *One-to-One* (1), or *Pool* (n), in the treatment *Donor* (D), or *Recipient* (R). When information about *Partial* (P) and *Full* (F) is absent, it means that the result applies to both.

Figure 6: Theoretical predictions.

4 Empirical specification

4.1 Within-individual analysis

To estimate whether effort is affected by (1) the expectation of receiving or giving a transfer, and (2) the source/destination of the transfer, we perform a within-subject analysis. We compare the effort of a given participant in the three core games, namely, *Autarky*, *One-to-one*, and *Pool* (see Figures 1 and 2). Specifically, we estimate the following OLS regression, for each of the four treatments:

$$e_{ig} = \alpha_1 + \beta_1(\text{One-to-one}_{ig}) + \beta_2(\text{Pool}_{ig}) + L_i\gamma_1 + X_i\gamma_2 + S_i\phi_1 + u_{ig} \tag{16}$$

where e_{ig} is the number of threaded nuts of participant i in game g, One-to-one_{ig} and Pool_{ig} are indicator variables equal to 1 if the effort corresponds to the transfer game at hand, and zero otherwise (the reference is thus the *Autarky* game), L_i is a group of variables aimed at controlling for learning during the experimental session (see below), X_i is a vector of characteristics of the participant and her household, S_i includes locality fixed effects, and u_{ig} is an error term. The coefficients of interest are β_1 and β_2, which measure the effect of a transfer from/to another anonymous participant, and from/to a pool of participants, on effort compared to the autarky situation. With this specification we can directly test for two hypotheses: $\beta_1 = 0$, $\beta_2 = 0$, and $\beta_1 = \beta_2$.[26]

We include as participant controls her age, number of siblings, number of children; dummies for married, for whether the participant was born in the municipality where she currently lives, for whether she speaks an indigenous language, for whether she speaks both an indigenous language and Spanish, for whether she has at least secondary education, i.e., 6 or more years of schooling, and for whether the main income source of her household comes from agriculture. We include the indexes of dwelling characteristics and household assets, constructed from our participant survey and described in Section 2.3. We also include the number and kind of community festivities and organizations in which the subject participates, a measure of how actively she participates in those festivities (0 if she does not attend, 1 if she attends, 2 is she contributes with money, time or goods), a measure of how cooperative the community is as perceived by the participant, a measure of her trust and her attitude towards effort.[27] In the reported estimations, we cluster the standard errors at the locality level to account for any correlation in errors within villages, and use a t-distribution to test whether the main coefficients are statistically significant, as it is recommended when the number of clusters is relatively low (Cameron and Miller, 2011).[28]

4.2 Between-individual analysis

The 2x2 experimental design allows us to make two between-individuals comparisons to see how the size of the transfer and the role (donor/recipient) affect effort.

[26] Estimating similar regressions for pairwise combinations of autarky and transfer games yields similar results. These results are not shown, but are available upon request.

[27] We measure the participant's perception of how cooperative her community is using her response to the question "If a problem arises in your locality, do people cooperate to solve it?", which is coded from 0 to 3 (never=0, always=3). The trust variable is a dummy equal to 1 if the participant agrees that "one can trust the majority of people" and zero if instead she agrees that "one ought to be more careful when trusting people". Finally, her attitude towards effort comes from the question: "In your opinion, is work effort rewarded with higher income?", coded from 0 to 3 (never=0, always=3).

[28] We also tried clustering the standard errors at the individual level, to account for any serial correlation in effort between games. These results, which are similar to our reported ones, are not shown, but they are available upon request.

First, to determine whether the effect of a transfer on effort depends on the size of the transfer, note that we can conduct this type of analysis only for donors, since for recipients both the transfer and the endowment were different between the *Partial* and the *Full* treatments. Specifically, we compare the differential effort change of participants due to the introduction of a transfer between the *Donor-Full* and *Donor-Partial* treatments. The estimating equation is given by:

$$\begin{aligned} e_{ig} = \alpha_1 &+ \beta_1(\text{One-to-One}_{ig}) + \beta_2(\text{Pool}_{ig}) + \beta_3(\text{Full}_i) \\ &+ \beta_4(\text{One-to-One}_{ig}) * (\text{Full}_i) + \beta_5(\text{Pool}_{ig}) * (\text{Full}_i) \\ &+ L_i\gamma_1 + X_i\gamma_2 + S_i\phi_1 + u_{ig} \end{aligned} \tag{17}$$

where Full_i is a dummy equal to 1 if participant i was assigned to the *Donor-Full* treatment and zero if she was assigned to the *Donor-Partial* treatment, and the other variables are defined as before. In this equation, the coefficients of interest are β_4 and β_5, which measure the effect of each transfer game, relative to the autarky game, in the *Donor-Full* treatment after differentiating out the same effect for the *Donor-Partial* treatment.

The estimating equation that we use to analyze whether a transfer has a differential effect for donors and recipients has a parallel structure to equation (17). The coefficients of interest are the interactions of the transfer game dummies with a dummy variable equal to 1 if the participant was randomly assigned to a *Donor* treatment, and zero if she was assigned to a *Recipient* treatment.

4.3 Learning and ordering effects

As mentioned in the experimental session description (see Figure 3), to avoid priming the autarky rounds were always played before the transfer rounds by design, and we varied the order in which the transfer games were played. Depending on the treatment, this design induced variation in the ordering of games and/or the number of rounds played between the games to be compared in our main specifications, as shown in the Appendix. We use this variation and the ability tests performed at the beginning and the end of the experimental session ($test1$ and $test2$) to control for ordering effects and learning in equations (16) and (17). Specifically, we include in L_i the first ability test ($test1$), dummies for the ordering of the games within a given session, and their interaction with $\frac{test2-test1}{test1}$. The variable $test1$ is intended to control for baseline ability in performing the task. The variable $\frac{test2-test1}{test1}$ measures the percentage increase in nuts threaded between the very first round of the experiment and the last one, which could be related to the accumulated learning during the session. This learning measure is interacted with the complete ordering of games, captured by the order dummies, which in turn could affect learning through the variation in the number of rounds played between the autarky game and a particular transfer game.

In addition to controlling for these variables in our main estimations, in the Appendix we show that: *(i)* our measures of baseline ability and learning do not differ significantly across the different orderings and treatments; *(ii)* the relationship between learning and the effort difference between the *Autarky* and the *One-to-one* games is mostly flat for all treatment cells; and *(iii)* our main estimates are not driven by the ordering of games.

5 Results

5.1 Do transfers affect effort exerted by donors?

We present the results for the participants randomly allocated to the donor role first. Table 8 presents the results from estimating equation (16), which compares the effort exerted in the *Autarky game* versus the effort

exerted in the *One-to-one* and *Pool* transfer games. These estimations, as explained in the previous section, aim at identifying the effect that giving a transfer has on effort, and also the differential effect that the destination and the size of the transfer might have on donors' effort choices. The left panel shows the results for the *Donor-Partial* treatment and the right panel shows those for the *Donor-Full* treatment. In each panel, the first column includes only a constant and the transfer games dummies; the second adds controls for learning, ordering, their interaction, and baseline ability in performing the task; the third adds individual characteristics; and finally, the fourth column adds locality fixed effects.

In all columns of Table 8, the estimates for the indicator variables for the *One-to-one* and *Pool* games are positive, which suggests that the expectation of giving a transfer increases the effort exerted by donors relative to autarky. In the *Partial* treatment (left panel), the effect of a *One-to-one* transfer is statistically significant at 5 percent and the effect of a *Pool* transfer is significant at 1 percent. Overall, these estimates range between 0.59 and 0.83 of an additional effort level completed. The effect of the *One-to-one* game seems larger in magnitude than the effect of the *Pool* game, but we cannot reject the null hypothesis that they are equal, as shown by the F-test reported at the bottom of the table. This suggests that the positive effect of giving a transfer on effort is the same whether the transfer affects one single individual or the pool of passive individuals. In the *Full* treatment (right panel) only the effect of the *One-to-one* transfer (0.6 of an additional level completed) is statistically significant, but we cannot reject the null that the effects of the two transfer games are equal to each other either. Comparing the left panel with the right one, it seems that the positive effect of transfers on effort is smaller in magnitude in the *Donors-Full* than in the *Donors-Partial* treatment. However, in a between-subject comparison below, we show that this difference is not statistically significant.

In sum, the anticipation of making a transfer to other(s) has a positive and significant effect on the effort exerted, compared to the anticipation of keeping any additional income to oneself. Given the payoff structure, this can only be driven by a positive utility associated with making a transfer.[29] Specifically, according to the predictions in the theory section (see panel A of Figure 6), this result is consistent with both altruistic and warm glow preferences for big enough α and γ, respectively, but not with selfish preferences. Furthermore, the fact that the additional effort exerted in the transfer games is the same whether the transfer affects a single person or a pool of individuals, hints at the existence of warm glow preferences, although it could also be consistent with altruistic ones.

The key estimates in Table 8 are robust to the inclusion of each set of control variables. In particular, the addition of our learning, ordering, and ability variables does not change the estimates of the transfer games, but affects only the constant and the R-squared of the regression. In the first column of each panel, including only the transfer dummies and the constant term yields a very small R-squared, implying that these dummies alone are not able to explain much of the variation in mean effort. In the second column, once our learning, ordering, and ability controls are included, the R-squared increases substantially in all panels, but our estimates for the transfer games remain mostly unchanged and significant. These controls, that vary across individuals but not across games, affect mean effort in all games, as would be expected, but not the mean difference between them. Their inclusion, in case there was any correlation between the difference in efforts between the transfer games and the learning ability indicators, would increase the standard errors and make the coefficients insignificant.

[29] In particular, it cannot be driven by a desire to extract more money from us for the community, since the additional income z is the same across the three games used in the regression. Not anticipating that we would obtain such a strong result, in the *Partial* treatments we also included the *Autarky Low* game, which gave the subject the same effect on own material payoff as the transfer games (see Figure 1). As expected, Table 9, which reports the results of estimating equation (16) with the *Autarky Low* game instead of the *Autarky game*, shows that the estimates of the indicators for the transfer games are positive. The estimates are not significant for the *Pool* game, but the F-tests at the bottom of the table show that we cannot reject the hypothesis that the coefficients for the *Pool* game and *One-to-one* games are equal. Thus, these results are largely consistent with our main estimates.

As shown in the Appendix, we do not find evidence of such correlation, and as shown in the results presented above, we find that including learning and ability controls does not affect the significance of the transfer games dummies. Finally, in columns 3 and 4 of each panel, the inclusion of individual characteristics and locality fixed effects increases the R-squared a bit more, relative to the second column, but does not affect the estimates for the transfer games either.

In Table 10, we analyze whether the positive effect of giving a transfer on effort varies with transfer size. Recall that we do this by interacting the dummies of the transfer games with an indicator for the *Full* treatment in a between-individuals estimation (see equation (17)). Table 10 shows that the main coefficients for the transfer games are all positive and statistically significant at 1 percent in all columns, and that the interactions of these with the *Full* indicator are all negative, but not statistically significant at conventional levels. This implies that the effect of a transfer on effort does not vary significantly with the size of the transfer, a result which is in line with both altruistic and warm glow preferences. Once again, all estimates are robust to the inclusion of controls.

5.2 Do transfers affect effort exerted by recipients?

Turning now to subjects allocated to the recipient role, Table 11 shows the results of estimating equation (16) for recipients. As in Table 8, the left panel is for the *Partial* treatment and the right one for the *Full* treatment. In all columns, the estimates for the transfer games are positive. In the *Partial* treatment, only the effect of a *One-to-one* transfer is significant (at 10 percent), however. By contrast, in the *Full* treatment, the effect of a *One-to-one* transfer is significant at 1 percent, and the effect of a *Pool* transfer at 5 percent. The expectation of receiving a transfer in case of failure increases effort by about 0.4 of an additional level completed, regardless of whether it comes from an anonymous individual or a pool, as confirmed by the F-test at the bottom of the table. All the coefficients for the transfer games are robust to the inclusion of controls.

Thus, the results for recipients indicate that in most cases the anticipation of receiving a transfer in case of failure has a positive effect on effort. This lends further support in favor of non-selfish preferences.[30] In particular, it is consistent with participants experiencing a warm glow from avoiding receiving a transfer rather than altruism towards the passive individual(s)—see panel B of Figure 6.

5.3 Donors vs recipients

When comparing donors and recipients, we see that the estimated effects of transfers are economically significant for both: compared to the *Autarky* game, effort in the *One-to-one* game is on average 14.4% higher in the *Donor-Partial* treatment and 9.4% higher in the *Donor-Full* treatment; for recipients, the effort increase is on average 9.4% in the *Recipient-Partial* treatment and 7% in the *Recipient-Full* treatment. The effort increase appears to be smaller for recipients than for donors. To further analyze whether the effort increase is different for donors and recipients, we conduct between-subjects comparisons, separately for the *Partial* and the *Full* treatments, using an equation similar to (17) (see the comment at the end of Section 4.2).[31]

[30] This is true even though the introduction of the transfer reduces the effect of effort on own material payoff. Table 9, which reports the results of estimating equation (16) with the *Autarky Low* game instead of the *Autarky* game, shows that the *One-to-One game* and the *Pool game* coefficients are both positive and significant, which is consistent with our main estimates.

[31] Note that on average subjects in the *Donor-Partial* treatment make a lower effort in the *One-to-one game* than those in *Recipient-Partial* treatment; this effect can be due to differences in ability and/or preferences, but it becomes insignificant when controls are included.

The first panel of Table 12 shows the results for the *Partial* treatments. We see first that the coefficient for the *One-to-one* game dummy is positive and significant, in line with the results reported above. Second, the coefficient for the interaction between the *One-to-one* game dummy and the *Donor* dummy is positive (thus formally confirming the comparison based on the separate within-subject comparisons referred to above). The coefficient is not significant, however, but its sign is in line with the theoretical prediction that, holding preferences fixed, the effort in the *One-to-one* game should be lower in the *Recipient-Partial* than in the *Donor-Partial* treatment. The second panel of Table 12 shows that the results for the *Full* treatments are qualitatively similar. Together with the results from the within-subject estimations—which allow to rule out that subjects are (on average) selfish—this lends support to warm glow rather than altruistic preferences (see panel C of Figure 6).

5.4 Heterogeneous effects of transfers on effort with respect to individual and locality characteristics

In this section, we use the data from the post-experiment questionnaire and the Mexican census to estimate heterogeneous effects of transfers on effort, according to individual and/or locality characteristics. For this, we estimate a modified version of equation (16) that includes the interaction of each of these locality or individual characteristics with the *One-to-one* and *Pool* dummies, as well as controls. Specifically, we use the data to see if the subjects' effort choices vary with (1) their real-life transfer patterns, (2) poverty indicators, and (3) the homogeneity of their community in terms of religion and indigenous background.

To address the first point, in Tables 13 and 14 we interact the transfer dummies with indicators of whether the individual or the household had given or received any aid in the year preceding the experiment, as they reported in the post-experimental questionnaire. This estimation reveals two interesting patterns. First, in the *Donor-Full* and in the *Recipient-Full* treatment, the coefficient for the interaction between the *One-to-one* game dummy and the dummy indicating that the household had received help in the preceding year is negative and significant. The magnitude of the coefficient indicates that these participants made almost the same effort in the *One-to-one* game as in the *Autarky* game. A possible interpretation is that people who are more heavily involved with receiving help in real life suffer less from receiving help than others (either because they have become used to it, or because they are selfish to begin with and as a result work less and are therefore more likely to need help). Second, in the *Donor-Full* treatment, subjects who had given help in the preceding year also made almost the same effort in the *One-to-one* game as in the *Autarky* game. The behavior of these subjects are consistent with selfish preferences or with low degrees of altruism or warm glow.

Turning now to the second point, we aim to see how poverty, at the level of the individual and of the locality, affects the impact of transfers on effort in the experiment. First, for the individual characteristics, Tables 15 and 16 show that this impact does not vary significantly with wealth, measured by the dwelling and asset indexes.[32] Second, Tables 17 and 18 show that the locality-level social backwardness index does not have a differential effect.

Finally, regarding the community homogeneity, Tables 17 and 18 reveal that the share of indigenous population does not affect the difference in effort between the autarky and the transfer games in any of the four treatments. By contrast, religious heterogeneity appears to matter. Table 18 shows that the interactions of religious homogeneity with the *One-to-one* game dummies are positive and significant in the *Full-Recipient* treatment, implying that this variable increases the average effort exerted by these participants in presence of

[32]We do not find heterogeneous effects of age or gender, either. The only exception is the positive and significant effect that being female has on the effort exerted in both transfer games in the *Donor-Partial* treatment.

a transfer, whether homogeneity is measured as the share of Catholics or as a concentration index of religious denominations.[33] This suggests that recipients may have preferences that depend on the identity of the passive player.

6 Robustness checks

In sum, the empirical analysis based on comparison of subjects' behaviors in the three core games of the experiment (see Figures 1 and 2) shows that transfers have a positive effect on effort in the four treatments, and that in most cases the effect is statistically significant and economically substantial. In this subsection we use the additional data that we collected to study the robustness of these results.

6.1 Are results driven by a desire to maximize the payments obtained from the experimenter?

One possible interpretation of the willingness of subjects to make productive efforts in the three core games, is that they as a group simply wanted to maximize the sum of the payments received from us, and that they would share the sum between themselves after the experiment. To further study this possibility, in the *Full* treatments we added the *Public* game, in which the transfers affected the local health center (a local public good) instead of the passive participants in the other room (see Figures 1 and 2). Replacing the effort made in the *One-to-one* game with that made in the *Public* game in equation (16), we see in Table 19 that participants exert a higher effort in the transfer games than in the *Autarky* game. In this case, the magnitudes of the coefficients for each transfer game are remarkably similar for donors and recipients. Moreover, the F-tests at the bottom of the table indicate that effort is significantly higher in the *Public* game than in the *Pool* game for all participants. In sum, on average participants exert a statistically significantly higher effort when the transfers affect the local health center, compared to the case when the transfers affect the pool of passive experiment participants. If subjects had been driven by a desire to extract the sum of payments from us to the group of participants, they should have done *less* effort in the *Public* game than in the *Pool* game. Thus, we can discard the hypothesis that subjects simply want to maximize the resources extracted from the experimenter and shared among participants. As before, including the learning, individual, and location controls does not affect the results.

6.2 Are some effects driven by the fact that transfer size is fixed?

By contrast to many experiments (e.g., Ligon and Schechter, 2012 and Jakiela, 2015) where subjects are asked to choose the size of a transfer (and typically the size can be zero), in our effort-and-transfer experiment the transfers are forced and of fixed size: the participant's choice is on whether to perform effort, but in case of success of this effort (or failure for the case of the recipients), transfers of a given size are automatic. To control for the fact that these transfers may be smaller or larger than the individuals would have chosen themselves, we use data from the post-experimental questions in the *Donor* treatments about this.

First, at the very end of each experimental session (see Figure 3) in a *Donor* treatment, we asked two questions.[34] One question was related to the transfer size, and the other to fact that the recipient was passive.

[33] The religious homogeneity index is the sum of squares of Catholic share, other Christian share, and non-religious share.

[34] Concretely, we handed out a sheet of paper and a pencil to each subject. The sheet reminded the participants about the transfer

The question related to transfer size was different in the *Partial* and the *Full* treatments. To subjects in the *Donor-Partial* treatments we asked: "Would you have liked to give more?", and "If so, how much more?". It turns out that 40.6% of the subjects would have liked to give more. To subjects in the *Donor-Full* treatments we asked: "Would you have liked to give less?", and "If so, how much less?". We found that 52.7% of the subjects would have liked to give less. This is consistent with the conclusion that we drew from the effort choices, namely, that on average subjects derive positive utility from making a transfer.

We use this information to study whether the effects of transfers on effort may be due to the fact that transfer size was imposed in the games. We do so by checking: (1) for subjects in the *Donor-Partial* treatments whether those who would like to give more respond differently to a transfer compared to autarky than the others; (2) for subjects in the *Donor-Full* treatments whether those who would like to give less respond differently to a transfer compared to autarky than the others. Columns 1 and 2 of Table 20 show that it is not the case: the interaction between the answer to the question and the treatment variable is insignificant in both cases.

Turning now to the question related to the fact that the recipient was passive, we asked each subject whether his/her answer to the question mentioned above would change if the recipient had been able to do an effort. The answer was positive for 42.5% of the donors in the *Full* treatment and 25.8% of the donors in the *Partial* treatment. This suggests that there is some willingness to reward effort, which in real situations could play a role in effort decisions. In our experiment, however, the way subjects answered the question at hand does not have a significant effect on the differential effort between autarky and transfer games (see columns 3 and 4 of Table 20).

6.3 Does the fact that effort is unobservable matter?

In the experiment a subject's efforts are his or her private information. This allows us to focus on pure preference effects and to avoid signaling effects. In reality, however, effort is often observable, and hence our results may under-estimate the effects that transfers have on efforts compared to real-life situations. Although we did not expose subjects to differential observational treatments, we asked a question related to effort observability to all subjects who were assigned to *Recipient* treatments. More precisely, at the very end of each experimental session (see Figure 3) in a *Recipient* treatment, we handed out a sheet of paper and a pencil to each subject. On this sheet we reminded the participant about the *One-to-one* game, and about the fact that his (her) effort would not be revealed to the passive subject with whom (s)he was matched, and then we asked: "If we gave you the opportunity to reveal your effort in the *One-to-one* game to the individual to whom you were matched, would you do so?". The answer turned out to be positive for 39.3 % of the subjects in the *Full* treatments and for 29.07% of the subjects in the *Partial* treatments (numbers which are significantly different at the 7% level). When interacted with the treatment variable of interest, however, the answer to the question has no significant impact on the increase in effort from the *Autarky* game to the *One-to-one* game (see columns 5 and 6 of Table 20).

Summing up, the data collected through questions lend no support to the hypotheses that the effects of transfers on efforts are driven by the fact that transfers are forced and of predetermined size, or the fact that effort is unobservable.

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size in the *One-to-one* game and asked a question; to ensure that all subjects understood, we also showed them the corresponding visual material and read out the text on the sheet aloud. In both cases the subjects answered this question before knowing which game would be used to calculate their payoffs and before knowing whether they would be successful or not.

7 Conclusions

We present the results of a novel lab-in-the-field experiment designed to test whether transfers to or from others affect effort choices. The experimental design aims at capturing the intrinsic motivation behind productive efforts in the absence and in the presence of transfers. Thus, in our design the composition of the group within which transfers take place is given, interactions are not repeated, effort is unobservable, and the direction as well as the size of any transfer is imposed by us. We conducted the experiment in 16 small rural villages in Southeast Mexico. The data reveals two main findings.

First, on average subjects make a higher effort in the presence than in the absence of a transfer, an effort increase that is both economically and statistically significant in most relevant comparisons. Since the amount of money extracted from us is the same whether or not there is a transfer, this effect cannot be due to a desire to extract more money from us for the community. If these effects are externally valid, they imply that informal transfers within these villages increase material welfare not only because they allow to share risk, but also because they induce higher productive efforts than if no such transfers occurred. Furthermore, this suggests that productive efforts might be lower under formal insurance schemes, public or private, than under informal ones, because formal insurance would only involve the tax-and-subsidy component of transfers, and not the pro-social component involved in informal transfers. If this were the case, then formal insurance would not be superior to informal insurance in this respect.

Second, the payoff structures used in the four treatments of the experiment allow us to infer whether behaviors are consistent with selfish, altruistic, or warm glow preferences. On average, the behaviors are inconsistent with selfishness, and they lend more support to warm glow than to altruistic preferences.

Although our results are in line with findings supporting pro-social behaviors in other experiments, they do contrast quite starkly with some results reported elsewhere in the literature, which indicate that informal transfers may have perverse incentive effects: Jakiela and Ozier (2015) find that individuals are willing to forego money to hide income from others, and Azam and Gubert (2005) find that recipients of remittances have an abnormally low productivity. It remains to be seen how these differences can be explained. To what extent does it matter that in our experiment subjects are asked to engage in productive efforts rather than manipulate sums of money? Would our findings be different if the recipients of transfers had been sampled from a poorer population than the donors, an asymmetry that may help explain the findings of Azam and Gubert (2005)? One may also wonder whether there are differences between Mexico and the other countries studied in the literature that matter for how people respond to transfers, and if so, how and why? These questions must be left for future research.

Our experiment allows to isolate the net effect of the tax-and-subsidy component and the intrinsic pro-social component involved in transfers. Arguably the results are strong enough to indicate that in populations where informal transfers are common it is restrictive to assume that the pre-transfer income distribution is independent of the ensuing transfers. Our study, however, disregards many others factors that may impinge on the productive efforts in this context, such as strategic repeated-interaction effects, a desire to signal pro-sociality, and the decision to participate in informal transfer networks in the first place. Understanding the overall effects of informal transfers on productive efforts will thus eventually require understanding not only the effect of each factor taken in isolation, but also how the factors interact. Future research will be necessary to achieve this goal.

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Table 1: Sociodemographic Characteristics at Locality level

Location	Total population (persons)	Inhabited dwellings	Rate women/men, adults over 18	Fertility [1]	Average Schooling years, population over 15	Share of illiterate population over 15	Share of married population over 12
Chunhuas	401	84	0.99	3.04	6.15	17.81	62.83
Chunkanan	885	197	0.94	2.90	5.68	21.55	63.80
Concepción	351	95	0.86	3.53	6.44	18.25	54.93
Dzitnup	891	185	0.98	2.40	7.83	10.38	57.90
Katab	405	70	0.99	2.75	5.63	18.64	60.00
Pucnachen	865	201	1.06	2.56	6.80	19.42	62.90
San Nicolás	369	88	0.86	2.69	6.80	1.65	61.25
Xculoc	469	84	1.02	2.68	6.22	17.43	52.94
Average North villages	579.50	125.50	0.96	2.82	6.44	15.64	59.57
Canasayab	256	62	0.97	3.10	7.01	9.09	62.50
General Ortiz Avila	507	123	1.01	3.01	6.01	12.69	52.35
Lic. Adolfo López Mateos	420	97	0.93	2.82	6.35	12.04	62.75
Moquel	695	187	1.11	2.82	6.56	8.62	66.91
San Antonio Yacasay	473	108	0.95	3.38	5.72	17.65	60.11
San José Carpizo 2	294	83	0.99	3.24	4.90	20.10	60.00
Villamar	460	115	1.05	3.01	6.39	14.09	63.26
Xkeulil	991	229	0.94	2.38	7.23	4.51	65.19
Average South villages	512.00	125.50	0.99	2.97	6.27	12.35	61.64
Difference N-S	**67.50**	**0**	**-0.03**	**-0.15**	**0.17**	**3.29**	**-2.07**

Source: National Institute of Geography and Statistics (INEGI by its acronym in Spanish), National Census 2010.
T-tests: *** p<0.01, ** p<0.05, * p<0.1
[1] Fertility rate is the rate of living born children for women aged 12 to 130 years respect to the same cohort of women, excluding women that did not specify the number of born children.

Location	Share of Indigenous population over 5	Share of Indigenous population over 5 that do not speak Spanish	Proportion of Catholics	Proportion of non-Catholics, Christian	Religious homogeneity [2] (Index)
Chunhuas	97.71	9.17	62.34	23.94	0.46
Chunkanan	95.28	9.57	58.87	26.78	0.43
Concepción	89.78	7.43	92.02	3.99	0.85
Dzitnup	80.33	2.16	85.41	12.12	0.74
Katab	97.51	13.26	98.27	1.48	0.97
Pucnachen	94.34	10.04	81.16	9.36	0.68
San Nicolás	91.44	5.20	99.73	0.00	0.99
Xculoc	95.73	9.48	75.69	23.03	0.63
Average North villages	92.77	8.29	81.69	12.59	0.72
Canasayab	2.63	0.00	68.36	25.78	0.54
General Ortiz Avila	1.33	0.00	32.74	32.54	0.33
Lic. Adolfo López Mateos	32.80	0.00	37.62	36.67	0.34
Moquel	1.11	0.00	89.93	2.88	0.81
San Antonio Yacasay	8.90	0.00	61.10	23.26	0.45
San José Carpizo 2	15.19	0.00	30.61	46.94	0.36
Villamar	1.73	0.00	39.57	40.00	0.35
Xkeulil	8.50	0.00	37.03	50.76	0.40
Average South villages	9.02	0.00	49.62	32.35	0.45
Difference N-S	**83.74*** **	**8.29*** **	**32.07*** **	**-19.76*** **	**0.30*** **

Source: National Institute of Geography and Statistics (INEGI by its acronym in Spanish), National Census 2010.
T-tests: *** p<0.01, ** p<0.05, * p<0.1
[2] Religious homogeneity index calculated as sum of squares of Catholic share, other Christian share, and non-religious share.

Table 2: Tightness of the network: post-experimental survey on participants inter-relations.

Location	Know other participants	Family (first degree) of other participants	Meets other participants often
Chunhuas	0.80	0.15	0.20
Chunkanan	0.51	0.06	0.15
Concepción	0.78	0.02	0.03
Dzitnup	0.82	0.05	0.18
Katab	0.86	0.13	0.05
Pucnachen	0.81	0.03	0.07
San Nicolás	0.83	0.11	0.19
Xculoc	0.89	0.02	0.07
Average North villages	0.79	0.07	0.12
Canasayab	1.00	0.11	0.11
General Ortiz Avila	0.91	0.03	0.05
Lic. Adolfo López Mateos	0.89	0.05	0.00
Moquel	0.87	0.00	0.02
San Antonio Yacasay	1.00	0.17	0.17
San José Carpizo 2	0.86	0.10	0.15
Villamar	0.94	0.00	0.21
Xkeulil	0.82	0.05	0.10
Average South villages	0.91	0.06	0.10
Difference N-S	**-0.13*** **	**0.01** **	**0.02*** **

Source: Post-experimental questionnaire.
T-tests: *** p<0.01, ** p<0.05, * p<0.1
The post-experimental survey questions were: (1) *Do you know the people that came to the activity?*, with closed answers "all - almost all - a few - none". We present here the summary of a dummy variable taking value one for the answers "all - almost all". (2) *How many of them are members of your direct family?*, with closed answers "all - many - half- a few". We present here a dummy variable that takes value one for the answers "all - many". (3) *With how many of them do you share daily activities like visits to the market or workplace?*, with same answers as question (2).

Table 3: Geographic and Productive Characteristics of the Selected Localities

Location	Average size of farms with Procampo support [1]	Share of Procampo beneficiaries beneficiaries in population over 18	Proportion of ejidatarios in population over 18	Share of ejido land with communal use
Chunhuas	2.01	24.54	27.51	97.69
Chunkanan	1.11	19.48	15.95	98.16
Concepción	1.76	28.87	38.03	96.38
Dzitnup	1.51	19.65	32.79	84.52
Katab	5.57	65.45	24.36	94.81
Pucnachen	1.23	16.14	39.82	99.77
San Nicolás	0.90	24.35	27.00	82.00
Xculoc	1.26	51.47	23.53	97.36
Average North villages	1.9	31.2	28.6	93.8
Canasayab	5.20	17.93	26.09	99.29
General Ortiz Avila	2.65	22.44	31.02	8.66
Lic. Adolfo López Mateos	3.45	19.80	25.17	15.14
Moquel	3.82	17.56	16.27	20.86
San Antonio Yacasay	3.39	28.53	23.82	18.02
San José Carpizo 2	3.46	56.52	33.91	32.18
Villamar	4.97	5.43	21.41	1.33
Xkeulil	2.89	15.71	15.97	98.51
Average South villages	3.73	22.99	24.21	36.75
Difference N-S	**-1.81****	**8.25**	**4.42**	**57.09*****

Source: National Institute of Geography and Statistics (INEGI), National Census 2010 and National Agrarian Registry Office.
T-tests: *** p<0.01, ** p<0.05, * p<0.1
[1] For the Program for Direct Income Support to Farmers (PROCAMPO),this indicator represents the average size of the plot for farmers in the locality.

Location	Distance to main city, kms.	Commuting to main city, minutes	Social Backwardness Index (SBI) [2]	Level of Social Backwardness	Asset index, Experimental data	Asset index
Chunhuas	23.4	39.00	0.14	Medium	-0.69	-2.27
Chunkanan	22.0	33.00	-0.13	Medium	-0.16	-1.33
Concepción	20.6	35.00	-0.24	Medium	-0.54	-0.45
Dzitnup	3.5	8.00	-0.67	Low	0.48	-1.25
Katab	21.7	22.00	-0.08	Medium	-0.81	-1.76
Pucnachen	26.5	32.00	-0.24	Medium	-0.22	-1.08
San Nicolás	25.2	29.00	0.04	Medium	-0.71	-3.57
Xculoc	64.2	60.00	0.25	Medium	-0.62	-1.91
Average North villages	25.9	32.3	-0.12		-0.4	-1.7
Canasayab	26.6	36.00	-0.99	Very low	0.03	0.83
General Ortiz Avila	141.0	104.00	-0.67	Very low	-0.12	0.21
Lic. Adolfo López Mateos	41.0	46.00	0.38	Medium	0.08	-1.16
Moquel	9.5	17.00	-1.23	Very Low	0.75	4.31
San Antonio Yacasay	52.0	69.00	-0.53	Low	0.06	0.46
San José Carpizo 2	27.6	39.00	-0.64	Low	0.31	1.01
Villamar	69.5	54.00	-0.93	Very low	0.83	1.97
Xkeulil	40.8	39.00	-0.88	Low	0.59	3.56
Average South villages	51.0	50.50	-0.69		0.32	1.40
Difference N-S	**-25.11**	**-18.25**	**0.57**		**-3.10*****	**-0.73*****

Source: National Institute of Geography and Statistics (INEGI), National Census 2010 and National Agrarian Registry Office.
T-tests: *** p<0.01, ** p<0.05, * p<0.1
[2] The National Council for Evaluation of Social Development Policy develops the social backwardness index (SBO) to rank the lackness of social opportunities and the absence of capabilities, privations or inaccessibility to goods and services that reflect the social welfare. This index considers 15 categories of exclusion in four dimensions: education, access to health services, basic services and quality of dwelling. The SBI is calculated using the principal component analysis technique. The SBI goes from -2 which reflect very low backwardness to +3 that indicate very high level of social backwardness. In addition, five cardinal categories of social backwardness are defined: very low, low, medium, high and very high. The asset index was calculated using the principal factor analysis method that considers the following assets: properties, motor vehicles, durables and appliances, agricultural and farm assets, cattle and books.

Table 4: Post-experimental survey on participants' giving/receiving patterns

	Giving		Receiving		Reason to give		Number of observations
	individual	household	individual	household	voluntary	reciprocity	
Chunhuas	0.16	0.44	0.13	0.41	0.87	0.12	36
Chunkanan	0.27	0.31	0.41	0.43	1.00	0.00	31
Concepción	0.34	0.68	0.15	0.43	0.75	0.25	32
Dzitnup	0.48	0.49	0.22	0.47	0.35	0.35	37
Katab	0.16	0.55	0.31	0.60	0.90	0.10	22
Pucnachen	0.38	0.54	0.15	0.39	0.76	0.15	26
San Nicolás	0.37	0.44	0.37	0.40	0.80	0.20	27
Xculoc	0.26	0.30	0.11	0.22	0.87	0.25	34
Average North villages	0.30	0.47	0.23	0.42	0.79	0.18	
Canasayab	0.50	0.71	0.32	0.57	0.91	0.08	34
General Ortiz Avila	0.51	0.64	0.30	0.43	0.96	0.04	39
Lic. Adolfo López Mateos	0.40	0.51	0.20	0.31	0.94	0.05	35
Moquel	0.50	0.70	0.30	0.43	0.96	0.03	40
San Antonio yacasay	0.48	0.60	0.18	0.32	0.95	0.04	37
San José Carpizo 2	0.41	0.72	0.16	0.38	0.84	0.11	36
Villamar	0.40	0.62	0.13	0.32	0.95	0.08	37
Xkeulil	0.30	0.48	0.21	0.46	0.81	0.18	33
Average South villages	0.44	0.62	0.23	0.40	0.92	0.08	
Difference N-S	**-0.15*** **	**-0.14*** **	**-0.03**	**-0.01**	**-0.08** **	**0.08** **	

Source: Post-experimental questionnaire
T-tests: *** p<0.01, ** p<0.05, * p<0.1
The post-experimental survey questions were: *During the last year, did someone in your household give/receive any help in the form of clothes, food, money, ...?*, and *If yes, who did give/receive this help?* with closed answer "you - someone else in the household". After the giving question, the participants were asked *Do you think that this help was given..?* with multiple choice: "voluntarily - due to community pressure - family pressure - reciprocity - needed to receive help in the future".

Table 5: Summary statistics - Locality vs. subject characteristics

Part A: South Localities

	Subjects		CENSUS information		
Variable	**Mean**	**SE**	**Mean**	**SE**	**P-value**
Proportion women/men, older than 18	1.4648	0.0233	1.0150	0.0026	0.0000
Fertility, children per woman	3.2152	0.1155	3.0882	0.0086	0.2727
Proportion of 18-24 years old women in total population	0.0628	0.0007	0.1156	0.0059	0.0000
Proportion of 15-49 years old women in total population	0.2619	0.0007	0.4170	0.0039	0.0000
Proportion of singles in total population	0.1166	0.0031	0.3489	0.0024	0.0000
Proportion of married in total population	0.7758	0.0027	0.6750	0.0021	0.0000
Proportion of divorced, separated and widows in total population	0.1031	0.0022	0.0865	0.0018	0.0000
Proportion of population that speaks only Indigenous language	0.0045	0.0005	0.0000	0.0000	0.0000
Proportion of population that speaks indigenous language and Spanish	0.0673	0.0019	0.0486	0.0024	0.0000
Proportion of population older than 15 with no formal education	0.1566	0.0026	0.1211	0.0038	0.0000
Proportion of population older than 15 with high school education	0.1885	0.0066	0.2315	0.0025	0.0000
Proportion of people born in State	0.2025	0.0119	0.6168	0.0044	0.0000
Proportion of one-room dwellings	0.2108	0.0052	0.1406	0.0029	0.0000
Proportion of two-rooms dwellings	0.4888	0.0039	0.2617	0.0046	0.0000
Proportion of dwellings with more than three rooms	0.3004	0.0048	0.5958	0.0049	0.0000
Proportion of dwellings with piped water in property	0.8610	0.0037	0.9186	0.0026	0.0000
Proportion of dwellings with electricity	0.9042	0.0028	0.9486	0.0013	0.0000

Part B: North Localities

	Subjects		CENSUS information		
Variable	**Mean**	**SE**	**Mean**	**SE**	**P-value**
Proportion women/men, older than 18	1.5605	0.0293	0.9564	0.0023	0.0000
Fertility, children per woman	3.2364	0.0975	2.7768	0.0131	0.0000
Proportion of 18-24 years old women in total population	0.0705	0.0016	0.1770	0.0067	0.0000
Proportion of 15-49 years old women in total population	0.2603	0.0009	0.4538	0.0055	0.0000
Proportion of singles in total population	0.1166	0.0031	0.3489	0.0024	0.0000
Proportion of married in total population	0.8307	0.0034	0.6637	0.0018	0.0000
Proportion of divorced, separated and widows in total population	0.0479	0.0017	0.0480	0.0008	0.9407
Proportion of population that speaks only Indigenous language	0.0607	0.0020	0.0626	0.0017	0.2276
Proportion of population that speaks indigenous language and Spanish	0.6070	0.0070	0.7017	0.0108	0.0000
Proportion of population older than 15 with no formal education	0.1059	0.0018	0.1022	0.0036	0.2368
Proportion of population older than 15 with high school education	0.4036	0.0054	0.2993	0.0031	0.0000
Proportion of people born in State	0.7618	0.0135	0.9822	0.0009	0.0000
Proportion of one-room dwellings	0.3003	0.0051	0.2000	0.0056	0.0000
Proportion of two-rooms dwellings	0.4473	0.0021	0.3864	0.0035	0.0000
Proportion of dwellings with more than three rooms	0.2524	0.0058	0.4100	0.0054	0.0000
Proportion of dwellings with piped water in property	0.9042	0.0031	0.8500	0.0113	0.0000
Proportion of dwellings with electricity	0.9462	0.0012	0.9675	0.0009	0.0000

Source: Own estimations using t tests on the equality of means for locality sample vs. Census sample.
Note: We compare on proportion of people born in State from ITER vs. Proportion of people born in municipality of our sample

Table 6: Summary statistics on Experimental Subjects: Mean Difference *Full* vs *Partial* Protocol

	Donor			Recipient		
	Full	**Partial**	**Difference**	**Full**	**Partial**	**Difference**
Age	37.68	42.27	-4.598**	38.70	40.34	-1.639
Married	0.592	0.695	-0.102	0.720	0.748	-0.029
Number of siblings	6.008	5.344	0.664	5.553	5.671	-0.118
Fertility, children per woman	3.246	3.405	-0.158	3.447	2.846	0.601*
Proportion of people born in the municipality	0.646	0.649	-0.003	0.674	0.727	-0.053
Indigenous that do not speak Spanish	0.031	0.038	-0.007	0.061	0.021	0.040
Indigenous that speak Spanish	0.346	0.412	-0.066	0.333	0.434	-0.100
Has at least High School	0.462	0.481	-0.019	0.439	0.469	-0.029
Agriculture is main income source of household	0.723	0.580	0.143 *	0.652	0.741	-0.090
Dwell Index	-0.108	0.201	-0.309*	-0.195	0.144	-0.340*
Asset Index	0.157	0.038	0.118	-0.144	0.134	-0.277
Organization enrollment	1.377	1.344	0.033	1.621	1.622	-0.001
Number of festivities attended	2.331	2.626	-0.295	2.629	2.657	-0.029
How actively she participated in festivities	1.408	1.481	-0.073	1.545	1.510	0.035
Individual perception of how cooperative is the community	1.308	1.351	-0.043	1.432	1.336	0.096
Average perception of how cooperative is the community	1.367	1.380	-0.012	1.323	1.361	-0.038
Believes people are just	0.185	0.198	-0.014	0.205	0.217	-0.012
Believes people would take advantage if given the chance	0.477	0.466	0.011	0.424	0.524	-0.100
Believes effort is rewarded	1.562	1.634	-0.072	1.348	1.608	-0.260
Observations	**130**	**131**	**261**	**132**	**143**	**275**

Source: Post-experimental questionnaire
T-tests: *** p<0.01, ** p<0.05, * p<0.1

Table 7: Summary statistics on Experimental Subjects: Mean Difference *Recipient* vs *Donor* Role

	Full			Partial		
	Recipient	**Donor**	**Difference**	**Recipient**	**Donor**	**Difference**
Age	38.70	37.68	1.020	40.34	42.27	-1.939
Married	0.720	0.592	0.127*	0.748	0.695	0.054
Number of siblings	5.553	6.008	-0.455	5.671	5.344	0.328
Fertility, children per woman	3.447	3.246	0.201	2.846	3.405	-0.558*
Proportion of people born in the municipality	0.674	0.646	0.028	0.727	0.649	0.078
Indigenous that do not speak Spanish	0.061	0.031	0.030	0.021	0.038	-0.017
Indigenous that speak Spanish	0.333	0.346	-0.013	0.434	0.412	0.021
Has at least High School	0.439	0.462	-0.022	0.469	0.481	-0.012
Agriculture is main income source of household	0.652	0.723	-0.072	0.741	0.580	0.161**
Dwell Index	-0.195	-0.108	-0.088	0.144	0.201	-0.057
Asset Index	-0.144	0.157	-0.300	0.134	0.038	0.095
Organization enrollment	1.621	1.377	0.244	1.622	1.344	0.279*
Number of festivities attended	2.629	2.331	0.298	2.657	2.626	0.031
How actively she participated in festivities	1.545	1.408	0.138	1.510	1.481	0.030
Individual perception of how cooperative is the community	1.432	1.308	0.124	1.336	1.351	-0.015
Average perception of how cooperative is the community	1.323	1.367	-0.045	1.361	1.380	-0.019
Believes people are just	0.205	0.185	0.020	0.217	0.198	0.018
Believes people would take advantage if given the chance	0.424	0.477	-0.053	0.524	0.466	0.059
Believes effort is rewarded	1.348	1.562	-0.213	1.608	1.634	-0.025
Observations	**132**	**130**	**262**	**143**	**131**	**274**

Source: Post-experimental questionnaire
T-tests: *** p<0.01, ** p<0.05, * p<0.1

Table 8: Donors - Comparison of Autarky with both transfer games (One to One and Pool)

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partial				Full			
OneToOne	0.832**	0.831**	0.831**	0.831**	0.646**	0.664**	0.664**	0.664**
	(0.249)	(0.252)	(0.258)	(0.260)	(0.185)	(0.197)	(0.202)	(0.204)
Pool	0.611***	0.592***	0.592***	0.592***	0.446	0.477*	0.477	0.477
	(0.162)	(0.155)	(0.159)	(0.160)	(0.247)	(0.250)	(0.256)	(0.258)
Constant	5.763***	0.672	4.627*	0.0926	6.192***	0.776*	0.425	1,232
	(0.272)	(1.021)	(2.000)	(1.408)	(0.296)	(0.362)	(1.059)	(1.011)
Observations - Ind. IDs	393 - 131	390 - 130	390 - 130	390 - 130	390 - 130	384 - 128	384 - 128	384 - 128
R-squared	0.024	0.405	0.471	0.483	0.018	0.423	0.489	0.513
F-test ($\beta_1 = \beta_2$)	0.946	1,077	1,024	1,010	1,118	0.880	0.836	0.824
Prob > F	0.363	0.334	0.345	0.348	0.326	0.379	0.391	0.394
Ability	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Order, Learning, Order * Learning	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Individual Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Location FE	No	No	No	Yes	No	No	No	Yes

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table compares the behavior of subjects allocated to the *Donor* role across the three core games. The left panel presents the results for the subjects in the *Partial* transfer treatment, and the right panel presents the results for subjects in the *Full* transfer treatment. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively. The F-test reported tests the hypothesis of equality of the coefficients on the *OneToOne* (β_1) and *Pool* (β_2) games.

The ability control is the number of bolts in the first ability test. To control for ordering and learning, we include (separated and interacted) an Order dummy variable on the different orders of the games, and a learning indicator (measured as percentage increase between ability test 2 and ability test 1). We include as participant individual characteristics her age, number of siblings, number of children; dummies for married, for whether the participant was born in the municipality where she currently lives, for whether she speaks an indigenous language, for whether she speaks both an indigenous language and Spanish, for whether she has at least secondary education, i.e., 6 or more years of schooling, and for whether the main income source of her household comes from agriculture. We include also the indexes of dwelling characteristics and household assets, the number and kind of community festivities and organizations in which the subject participates, a measure of how actively she participates in those festivities, a measure of how cooperative the community is as perceived by the participant, a measure of her trust and her attitude towards effort. We also include a trust variable that is a dummy equal to 1 if the participant agrees that "one can trust the majority of people" and zero if instead she agrees that "one ought to be more careful when trusting people", and her attitude towards effort comes from the question: "In your opinion, is work effort rewarded with higher income?", coded from 0 to 3 (never=0, always=3). Location Fixed Effects are dummies for each of the localities where the experiment was implemented.

Table 9: Payoff-equivalence for Donors and Recipients - *Partial*

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Donors				Recipients			
OneToOne	0.573***	0.562***	0.562***	0.562***	0.769**	0.761**	0.761**	0.761**
	(0.146)	(0.154)	(0.155)	(0.159)	(0.233)	(0.233)	(0.235)	(0.240)
Pool	0.351	0.323	0.323	0.323	0.538**	0.528**	0.528**	0.528**
	(0.255)	(0.267)	(0.269)	(0.276)	(0.204)	(0.205)	(0.206)	(0.211)
Constant	6.023***	1,668	-0.483	0.146	6.077***	0.425	-1.472**	-0.228
	(0.301)	(0.940)	(1.181)	(1.793)	(0.203)	(0.881)	(0.611)	(2.023)
Observations	393 - 131	390 - 130	390 - 130	390 - 130	429 - 143	426 - 142	426 - 142	426 - 142
R-squared	0.011	0.406	0.424	0.486	0.022	0.404	0.420	0.442
F-test ($\beta_1 = \beta_2$)	1,118	0.880	0.836	0.824	0.946	1,077	1,024	1,010
Prob > F	0.326	0.379	0.391	0.394	0.363	0.334	0.345	0.348
Ability	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Order, Learning, Order * Learning	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Ind. Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Location FE	No	No	No	Yes	No	No	No	Yes

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table compares the behavior of subjects across the three payoff-equivalent games on the *Partial* transfer treatment. The left panel presents the results for the subjects in the *Donor* role, and the right panel presents the results for subjects in the *Recipient* role. The reference game is *Low Autarky*, and *OneToOne* and *Pool* are dummies for the efforts on the One-to-one and Pool games respectively. The F-test reported tests the hypothesis of equality of the coefficients on the *OneToOne* (β_1) and *Pool* (β_2) games.

The ability control is the number of bolts in the first ability test. To control for ordering and learning, we include (separated and interacted) an Order dummy variable on the different orders of the games, and a learning indicator (measured as percentage increase between ability test 2 and ability test 1). We include as participant individual characteristics her age, number of siblings, number of children; dummies for married, for whether the participant was born in the municipality where she currently lives, for whether she speaks an indigenous language, for whether she speaks both an indigenous language and Spanish, for whether she has at least secondary education, i.e., 6 or more years of schooling, and for whether the main income source of her household comes from agriculture. We include also the indexes of dwelling characteristics and household assets, the number and kind of community festivities and organizations in which the subject participates, a measure of how actively she participates in those festivities, a measure of how cooperative the community is as perceived by the participant, a measure of her trust and her attitude towards effort. We also include a trust variable that is a dummy equal to 1 if the participant agrees that "one can trust the majority of people" and zero if instead she agrees that "one ought to be more careful when trusting people", and her attitude towards effort comes from the question: "In your opinion, is work effort rewarded with higher income?", coded from 0 to 3 (never=0, always=3). Location Fixed Effects are dummies for each of the localities where the experiment was implemented.

Table 10: Donors - Between subjects - Effect of the size of the transfer in effort

Dependent variable: Effort level in each of the games				
	(1)	(2)	(3)	(4)
OneToOne	0.832***	0.831***	0.831***	0.831***
	(0.241)	(0.243)	(0.246)	(0.248)
OneToOne * Full	-0.186	-0.167	-0.167	-0.167
	(0.300)	(0.308)	(0.312)	(0.315)
Pool	0.611***	0.592***	0.592***	0.592***
	(0.156)	(0.150)	(0.152)	(0.153)
Pool * Full	-0.165	-0.116	-0.116	-0.116
	(0.285)	(0.284)	(0.287)	(0.289)
Full	0.429	0.500	0.623	2.533**
	(0.388)	(0.422)	(0.359)	(0.951)
Constant	5.763***	1,083	2,145	0.983
	(0.262)	(0.631)	(1.278)	(1.023)
Observations - Ind. IDs	783- 261	774 - 258	774 - 258	774 - 258
R-squared	0.027	0.392	0.432	0.448
Ability	No	Yes	Yes	Yes
Order, Learning, Order * Learning	No	Yes	Yes	Yes
Individual Characteristics	No	No	Yes	Yes
Location FE	No	No	No	Yes

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table compares the behavior of *Donors* allocated to the *Full* and *Partial* transfer treatments. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the efforts on the One-to-one and Pool games respectively. The dummy variable *Full* takes value one for donors allocated to the *Full* treatment.

The ability control is the number of bolts in the first ability test. To control for ordering and learning, we include (separated and interacted) an Order dummy variable on the different orders of the games, and a learning indicator (measured as percentage increase between ability test 2 and ability test 1). We include as participant individual characteristics her age, number of siblings, number of children; dummies for married, for whether the participant was born in the municipality where she currently lives, for whether she speaks an indigenous language, for whether she speaks both an indigenous language and Spanish, for whether she has at least secondary education, i.e., 6 or more years of schooling, and for whether the main income source of her household comes from agriculture. We include also the indexes of dwelling characteristics and household assets, the number and kind of community festivities and organizations in which the subject participates, a measure of how actively she participates in those festivities, a measure of how cooperative the community is as perceived by the participant, a measure of her trust and her attitude towards effort. We also include a trust variable that is a dummy equal to 1 if the participant agrees that "one can trust the majority of people" and zero if instead she agrees that "one ought to be more careful when trusting people", and her attitude towards effort comes from the question: "In your opinion, is work effort rewarded with higher income?", coded from 0 to 3 (never=0, always=3). Location Fixed Effects are dummies for each of the localities where the experiment was implemented.

Table 11: Recipients - Comparison of Autarky with both transfer games (One to One and Pool)

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partial				Full			
OneToOne	0.587*	0.570*	0.570*	0.570*	0.417***	0.405***	0.405***	0.405***
	(0.278)	(0.269)	(0.276)	(0.277)	(0.0854)	(0.0884)	(0.0907)	(0.0913)
Pool	0.357	0.338	0.338	0.338	0.447**	0.450**	0.450**	0.450**
	(0.253)	(0.244)	(0.250)	(0.251)	(0.144)	(0.144)	(0.148)	(0.149)
Constant	6.259***	0.121	2.376*	0.189	6.008***	1.347**	1.773**	0.982
	(0.171)	(0.667)	(1.072)	(1.430)	(0.300)	(0.428)	(0.570)	(0.703)
Observations - Ind. IDs	429 - 143	426 - 142	426 - 142	426 - 142	396 - 132	393 - 131	393 - 131	393 - 131
R-squared	0.013	0.388	0.430	0.442	0.011	0.482	0.543	0.557
F-test ($\beta_1 = \beta_2$)	1,185	1,171	1,118	1,104	0.0519	0.135	0.129	0.127
Prob > F	0.312	0.315	0.325	0.328	0.826	0.724	0.730	0.732
Ability	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Order, Learning, Order * Learning	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Ind. Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Location FE	No	No	No	Yes	No	No	No	Yes

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table compares the behavior of subjects allocated to the *Recipient* role across the three core games. The left panel presents the results for the subjects in the *Partial* transfer treatment, and the right panel presents the results for subjects in the *Full* partial treatment. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively. The F-test reported tests the hypothesis of equality of the coefficients on the *OneToOne* (β_1) and *Pool* (β_2) games.

The ability control is the number of bolts in the first ability test. To control for ordering and learning, we include (separated and interacted) an Order dummy variable on the different orders of the games, and a learning indicator (measured as percentage increase between ability test 2 and ability test 1). We include as participant individual characteristics her age, number of siblings, number of children; dummies for married, for whether the participant was born in the municipality where she currently lives, for whether she speaks an indigenous language, for whether she speaks both an indigenous language and Spanish, for whether she has at least secondary education, i.e., 6 or more years of schooling, and for whether the main income source of her household comes from agriculture. We include also the indexes of dwelling characteristics and household assets, the number and kind of community festivities and organizations in which the subject participates, a measure of how actively she participates in those festivities, a measure of how cooperative the community is as perceived by the participant, a measure of her trust and her attitude towards effort. We also include a trust variable that is a dummy equal to 1 if the participant agrees that "one can trust the majority of people" and zero if instead she agrees that "one ought to be more careful when trusting people", and her attitude towards effort comes from the question: "In your opinion, is work effort rewarded with higher income?", coded from 0 to 3 (never=0, always=3). Location Fixed Effects are dummies for each of the localities where the experiment was implemented.

Table 12: Between-subject comparison of role on effort choices.

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partial				**Full**			
OneToOne	0.587*	0.570*	0.570*	0.570*	0.417***	0.405***	0.405***	0.405***
	(0.278)	(0.269)	(0.274)	(0.275)	(0.0855)	(0.0883)	(0.0900)	(0.0905)
Donor	-0.495*	-0.340	-0.312	-0.299	0.185	0.238	0.219	0.208
	(0.221)	(0.220)	(0.237)	(0.244)	(0.186)	(0.151)	(0.140)	(0.143)
Donor * OneToOne	0.245	0.260	0.260	0.260	0.229	0.259	0.259	0.259
	(0.328)	(0.321)	(0.326)	(0.328)	(0.238)	(0.254)	(0.258)	(0.260)
Constant	6.259***	0.680	3.690**	1.293	6.008***	0.876**	1.752**	1.406*
	(0.171)	(0.751)	-1.228	-1.071	(0.300)	(0.314)	(0.582)	(0.630)
Observations - Ind. IDs	548 - 274	544 - 272	544 - 272	544 - 272	524 - 262	518 - 259	518 - 259	518 - 259
R-squared	0.035	0.418	0.450	0.455	0.025	0.487	0.521	0.529
Ability	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Order, Learning, Order * Learning	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Ind. Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Location FE	No	No	No	Yes	No	No	No	Yes

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table compares, for the One-to-one game, the behavior of participants allocated to the *Donor* and *Recipient* roles. The left panel presents the results for the subjects in the *Partial* transfer treatment, and the right panel presents the results for subjects in the *Full* transfer treatment. The reference game is *Autarky*, and *OneToOne* is a dummy for the efforts on the One-to-one game. The dummy variable Donor takes value one for subjects allocated to *Donor* role.

The ability control is the number of bolts in the first ability test. To control for ordering and learning, we include (separated and interacted) an Order dummy variable on the different orders of the games, and a learning indicator (measured as percentage increase between ability test 2 and ability test 1). We include as participant individual characteristics her age, number of siblings, number of children; dummies for married, for whether the participant was born in the municipality where she currently lives, for whether she speaks an indigenous language, for whether she speaks both an indigenous language and Spanish, for whether she has at least secondary education, i.e., 6 or more years of schooling, and for whether the main income source of her household comes from agriculture. We include also the indexes of dwelling characteristics and household assets, the number and kind of community festivities and organizations in which the subject participates, a measure of how actively she participates in those festivities, a measure of how cooperative the community is as perceived by the participant, a measure of her trust and her attitude towards effort. We also include a trust variable that is a dummy equal to 1 if the participant agrees that "one can trust the majority of people" and zero if instead she agrees that "one ought to be more careful when trusting people", and her attitude towards effort comes from the question: "In your opinion, is work effort rewarded with higher income?", coded from 0 to 3 (never=0, always=3). Location Fixed Effects are dummies for each of the localities where the experiment was implemented.

Table 13: Interaction with individual and household giving patterns

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Donors				Recipients			
	Partial	Full	Partial	Full	Partial	Full	Partial	Full
OneToOne	0.762**	0.848***	0.678**	0.782**	0.500	0.408***	0.390*	0.500*
	(0.305)	(0.232)	(0.265)	(0.231)	(0.317)	(0.116)	(0.203)	(0.212)
Pool	0.643***	0.684*	0.644***	0.945**	0.269	0.526**	-0.0847	0.521*
	(0.159)	(0.314)	(0.183)	(0.307)	(0.378)	(0.214)	(0.407)	(0.228)
Variable	Ind. Giving	Ind. Giving	HH Giving	HH Giving	Ind. Giving	Ind. Giving	HH Giving	HH Giving
Variable	0.545	0.163	0.365	0.214	-0.158	0.0489	-0.594*	0.168
	(0.305)	(0.249)	(0.356)	(0.136)	(0.278)	(0.251)	(0.291)	(0.132)
OneToOne * var.	0.192	-0.605**	0.278	-0.241	0.133	-0.0479	0.294	-0.179
	(0.348)	(0.256)	(0.349)	(0.263)	(0.297)	(0.192)	(0.368)	(0.314)
Pool * var.	-0.108	-0.602	-0.0705	-0.863*	0.131	-0.226	0.718	-0.136
	(0.406)	(0.354)	(0.244)	(0.391)	(0.466)	(0.192)	(0.529)	(0.191)
Constant	-0.0527	1,694	0.0306	1,622	0.250	0.919	0.135	0.878
	(1.538)	(1.298)	(1.504)	(1.279)	(1.454)	(0.692)	(1.306)	(0.697)
Observations - Ind. IDs	381 - 127	348 - 116	381 - 127	348 - 116	414 - 138	378 - 126	414 - 138	378 - 126
R-squared	0.500	0.548	0.497	0.550	0.442	0.560	0.449	0.560

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks at the differential effect of the transfer treatments with respect to the subject (individual and household) giving patterns. The left panel presents the results for the subjects in the *Donor* role, and the right panel presents the results for subjects in the *Recipient* role. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively.

The post-experimental survey questions about giving patterns was: *During the last year, did someone in your household give any help in the form of clothes, food, money, ...?*, and *If yes, who did give this help?* with closed answer "you - someone else in the household".

Ability, Learning, Order, Order * Learning, Ind. Characteristics and Location FE included in all specifications.

Table 14: Interaction with individual and household receiving patterns

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Donors				Recipients			
	Partial	Full	Partial	Full	Partial	Full	Partial	Full
OneToOne	0.866**	0.736**	0.833**	0.877**	0.626*	0.471***	0.605**	0.600***
	(0.314)	(0.231)	(0.310)	(0.265)	(0.277)	(0.0975)	(0.205)	(0.169)
Pool	0.608**	0.443	0.641**	0.593	0.467*	0.500**	0.296	0.700**
	(0.207)	(0.314)	(0.245)	(0.416)	(0.227)	(0.160)	(0.188)	(0.256)
Variable	Ind. Receive	Ind Receive	HH Receive	HH Receive	Ind. Receive	Ind Receive	HH Receive	HH Receive
Variable	0.468	0.197	0.509*	0.418	0.433	-0.115	-0.0726	0.210
	(0.270)	(0.290)	(0.256)	(0.310)	(0.302)	(0.278)	(0.292)	(0.220)
OneToOne * var.	-0.139	-0.418	0.0442	-0.567*	-0.226	-0.323	-0.0716	-0.477*
	(0.364)	(0.350)	(0.358)	(0.299)	(0.397)	(0.341)	(0.361)	(0.247)
Pool * var.	-0.0628	0.193	-0.131	-0.307	-0.524	-0.241	0.104	-0.595*
	(0.360)	(0.389)	(0.361)	(0.469)	(0.429)	(0.223)	(0.462)	(0.260)
Constant	-0.102	1,180	0.205	0.984	-0.0185	1,010	0.139	0.888
	(1.349)	(0.986)	(1.494)	(0.979)	(1.484)	(0.679)	(1.401)	(0.636)
Observations - Ind. IDs	390 - 130	384 - 128	381 - 127	369 - 123	426 - 142	393 - 131	423 - 141	381 - 127
R-squared	0.488	0.515	0.488	0.522	0.445	0.561	0.442	0.576

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks at the differential effect of the transfer treatments with respect to the subject (individual and household) receiving patterns. The left panel presents the results for the subjects in the *Donor* role, and the right panel presents the results for subjects in the *Recipient* role. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively.

The post-experimental survey questions about giving patterns was: *During the last year, did someone in your household receive any help in the form of clothes, food, money, ...?*, and *If yes, who did receive this help?* with closed answer "you - someone else in the household".

Ability, Learning, Order, Order * Learning, Ind. Characteristics and Location FE included in all specifications.

Table 15: Interaction with individual characteristics - Donors

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partial				Full			
OneToOne	0.370	0.969	0.824**	0.830**	0.846**	0.845	0.683**	0.668**
	(0.199)	-1,060	(0.246)	(0.255)	(0.291)	(0.503)	(0.208)	(0.204)
Pool	0.217**	0.161	0.576***	0.593***	0.615	0.376	0.471	0.487*
	(0.0791)	(0.658)	(0.157)	(0.160)	(0.442)	(0.511)	(0.249)	(0.253)
Ind. Characteristic	Female	Age	Dwell index	Asset index	Female	Age	Dwell index	Asset index
Ind. Characteristic	-0.319	-0.0490	-0.0338	-0.0131	0.0918	0.0119	0.0380	0.0624
	(0.269)	(0.0285)	(0.155)	(0.0676)	(0.278)	(0.00937)	(0.0838)	(0.0620)
Ind. Charact * OneToOne	0.747*	-0.00327	0.0347	0.0469	-0.294	-0.00479	0.162	-0.0446
	(0.352)	(0.0211)	(0.102)	(0.0960)	(0.456)	(0.0116)	(0.0883)	(0.0742)
Ind. Charact *Pool	0.666**	0.0102	0.0818	-0.0257	-0.197	0.00268	-0.0461	-0.120
	(0.249)	(0.0125)	(0.142)	(0.0958)	(0.489)	(0.0167)	(0.0984)	(0.106)
Constant	0.336	0.190	0.101	0.0927	1,373	1,206	1,228	1,227
	(1.769)	(1.417)	(1.409)	(1.411)	(1.069)	(0.963)	(1.020)	(1.007)
Observations - Ind. IDs	369 - 123	390 - 130	390 - 130	390 - 130	357 - 119	384 - 128	384 - 128	384 - 128
R-squared	0.490	0.485	0.484	0.484	0.524	0.513	0.515	0.515

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks, for subjects in the *Donor* role, at the differential effect of the transfer treatments with respect to the subject's individual characteristics. The left panel presents the results for the subjects in the *Partial* transfer treatment, and the right panel presents the results for subjects in the *Full* transfer treatment. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively.
Ability, Learning, Order, Order * Learning, Ind. Characteristics and Location FE included in all specifications.

Table 16: Interaction with individual characteristics - Recipients

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partial				Full			
OneToOne	0.679	0.150	0.548*	0.579*	0.567***	0.351	0.388***	0.396***
	(0.386)	(0.438)	(0.270)	(0.284)	(0.0990)	(0.414)	(0.0828)	(0.0895)
Pool	0.232	0.579	0.329	0.354	0.617**	0.299	0.431**	0.449**
	(0.493)	(0.436)	(0.259)	(0.265)	(0.216)	(0.631)	(0.139)	(0.148)
Ind. Characteristic	Female	Age	Dwell index	Asset index	Female	Age	Dwell index	Asset index
Ind. Characteristic	0.0393	-0.0155	-0.158	-0.0161	-0.0103	-0.00589	0.125	0.112*
	(0.350)	(0.0154)	(0.101)	(0.0722)	(0.164)	(0.0146)	(0.0706)	(0.0554)
Ind. Charact * OneToOne	-0.166	0.0105	0.152	-0.0608	-0.290	0.00138	-0.0870	-0.0639
	(0.264)	(0.00822)	(0.103)	(0.0755)	(0.207)	(0.0116)	(0.118)	(0.0752)
Ind. Charact *Pool	0.170	-0.00601	0.0631	-0.110	-0.294	0.00389	-0.103	-0.0120
	(0.440)	(0.0144)	(0.120)	(0.0775)	(0.233)	(0.0152)	(0.111)	(0.0831)
Constant	0.289	0.249	0.199	0.181	0.665	1,050	0.994	0.985
	(1.466)	(1.383)	(1.429)	(1.430)	(0.782)	(0.924)	(0.707)	(0.706)
Observations - Ind. IDs	414 - 138	426 - 142	426 - 142	426 - 142	375 - 125	393 - 131	393 - 131	393 - 131
R-squared	0.442	0.444	0.443	0.443	0.572	0.557	0.558	0.557

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks, for subjects in the *Recipient* role, at the differential effect of the transfer treatments with respect to the subject's individual characteristics. The left panel presents the results for the subjects in the *Partial* transfer treatment, and the right panel presents the results for subjects in the *Full* transfer treatment. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively.
Ability, Learning, Order, Order * Learning, Ind. Characteristics and Location FE included in all specifications.

Table 17: Interaction with locality characteristics - Donors

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partial				Full			
OneToOne	1.145**	1,018	0.980	0.914	0.618*	0.724**	0.835	1.211*
	(0.344)	-1,710	(0.728)	(0.670)	(0.264)	(0.303)	(0.710)	(0.526)
Pool	0.812***	1,461	0.961**	0.777	0.355	0.491**	-0.191	0.454
	(0.144)	-1,019	(0.322)	(0.471)	(0.326)	(0.150)	(0.750)	(0.773)
Location Characteristic	Indigenous	Marginality index	Share catholic	Rel. homogeneity index	Indigenous	Marginality index	Share catholic	Rel. homogeneity index
Location Characteristic	-0.103	-14.10*	-0.268	-0.367	-0.306	2.142**	0.205	0.914
	(0.447)	-7,357	(0.815)	(0.820)	(0.493)	(0.874)	-1,087	(0.990)
Loc. Charact. * OneToOne	-0.670	0.672	-0.225	-0.136	0.112	0.316	-0.280	-1,060
	(0.413)	-6,959	(0.967)	(0.931)	(0.403)	-1,172	-1,103	(0.873)
Loc. Charact. * Pool	-0.467	3,109	-0.555	-0.302	0.299	0.0760	1,098	0.0441
	(0.271)	-4,175	(0.369)	(0.574)	(0.494)	(0.724)	-1,140	-1,124
Constant	4.570*	2,080	5.152*	5,233	0.665	-0.416	0.291	-0.248
	-1,954	-1,535	-2,715	-2,787	-1,155	(0.882)	-1,479	-1,520
Observations - Ind. IDs	390 - 130	390 - 130	390 - 130	390 - 130	384 - 128	384 - 128	384 - 128	384 - 128
R-squared	0.479	0.476	0.473	0.472	0.491	0.501	0.493	0.492

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks, for subjects in the *Donor* role, at the differential effect of the transfer treatments with respect to the locality characteristics. The left panel presents the results for the subjects in the *Partial* transfer treatment, and the right panel presents the results for subjects in the *Full* transfer treatment. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively.

Ability, Learning, Order, Order * Learning, and Ind. Characteristics included in all specifications. Religious homogeneity index is defined as the sum of squares of shares of Catholic, Protestant and No-religious in the locality population (source: Census).

Table 18: Interaction with locality characteristics - Recipients

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Partial				Full			
OneToOne	0.494	4,795	-0.512	-0.505	0.309**	0.439***	-0.169	-0.119
	(0.324)	(4.162)	(0.422)	(0.526)	(0.126)	(0.122)	(0.0940)	(0.129)
Pool	0.338	1,958	0.198	0.209	0.456**	0.338	0.196	0.256
	(0.244)	(4.768)	(0.611)	(0.692)	(0.154)	(0.281)	(0.303)	(0.355)
Location Characteristic	Indigenous	Marginality index	Share catholic	Rel. homogeneity index	Indigenous	Marginality index	Share catholic	Rel. homogeneity index
Location Characteristic	0.0887	2,066	0.145	0.401	-0.759**	-1.438*	-0.933	-1,040
	(0.396)	(10.42)	(0.566)	(0.606)	(0.238)	(0.724)	(0.563)	(0.712)
Loc. Charact. * OneToOne	0.168	15.12	1.659*	1,789	0.199	0.186	0.916***	0.980***
	(0.563)	(14.63)	(0.793)	-1,047	(0.161)	(0.492)	(0.180)	(0.238)
Loc. Charact. * Pool	0.000799	5,798	0.215	0.214	-0.0114	-0.610	0.407	0.364
	(0.525)	(16.63)	(0.956)	-1,169	(0.302)	-1,052	(0.536)	(0.648)
Constant	2.615**	2,419	2.180*	1,805	1.982***	2.127***	2.289***	2.471**
	(1.100)	(2.914)	(1.054)	(1.017)	(0.480)	(0.519)	(0.584)	(0.738)
Observations - Ind. IDs	426 - 142	426 - 142	426 - 142	426 - 142	393 - 131	393 - 131	393 - 131	393 - 131
R-squared	0.431	0.437	0.443	0.445	0.554	0.551	0.546	0.546

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks, for subjects in the *Recipient* role, at the differential effect of the transfer treatments with respect to the locality characteristics. The left panel presents the results for the subjects in the *Partial* transfer treatment, and the right panel presents the results for subjects in the *Full* transfer treatment. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively.

Ability, Learning, Order, Order * Learning, and Ind. Characteristics included in all specifications. Religious homogeneity index is defined as the sum of squares of shares of Catholic, Protestant and No-religious in the locality population (source: Census).

Table 19: Comparison of Public Good and Pool games - In and out of the experiment destination/source - *Full*

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Donors				Recipients			
Public Good	0.862***	0.898***	0.898***	0.898***	0.826***	0.809***	0.809***	0.809***
	(0.210)	(0.197)	(0.198)	(0.203)	(0.0991)	(0.108)	(0.109)	(0.111)
Pool	0.446	0.477*	0.477	0.477	0.447**	0.450**	0.450**	0.450**
	(0.247)	(0.250)	(0.252)	(0.258)	(0.144)	(0.144)	(0.145)	(0.149)
Constant	6.192***	0.503	1.532**	1,199	6.008***	1.233**	1.653***	0.471
	(0.296)	(0.291)	(0.511)	(0.943)	(0.300)	(0.364)	(0.344)	(0.616)
Observations - Ind. IDs	390 - 130	384 - 128	384 - 128	384 - 128	396 - 132	393 - 131	393 - 131	393 - 131
R-squared	0.029	0.438	0.472	0.526	0.029	0.469	0.513	0.558
F-test ($\beta_1 = \beta_2$)	6,571	7,108	6,995	6,656	11.23	11.69	11.51	10.97
Prob > F	0.0374	0.0322	0.0332	0.0365	0.0122	0.0111	0.0116	0.0129
Ability	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Order, Learning, Order * Learning	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Ind. Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Location FE	No	No	No	Yes	No	No	No	Yes

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table compares, for subjects in the *Full* transfer treatment, the behavior between the Autarky and the games affecting the local health center (Public good) and inside the experimental setting (Pool). The left panel presents the results for the subjects in the *Donor* role, and the right panel presents the results for subjects in the *Recipient* role. The reference game is *Autarky*, and *Public Good* and *Pool* are dummies for the efforts on the game affecting the health center and Pool games respectively. The F-test reported test the hypothesis of equality of the coefficients on the *Public Good* (β_1) and *Pool* (β_2) games.

The ability control is the number of bolts in the first ability test. To control for ordering and learning, we include (separated and interacted) an Order dummy variable on the different orders of the games, and a learning indicator (measured as percentage increase between ability test 2 and ability test 1). We include as participant individual characteristics her age, number of siblings, number of children; dummies for married, for whether the participant was born in the municipality where she currently lives, for whether she speaks an indigenous language, for whether she speaks both an indigenous language and Spanish, for whether she has at least secondary education, i.e., 6 or more years of schooling, and for whether the main income source of her household comes from agriculture. We include also the indexes of dwelling characteristics and household assets, the number and kind of community festivities and organizations in which the subject participates, a measure of how actively she participates in those festivities, a measure of how cooperative the community is as perceived by the participant, a measure of her trust and her attitude towards effort. We also include a trust variable that is a dummy equal to 1 if the participant agrees that "one can trust the majority of people" and zero if instead she agrees that "one ought to be more careful when trusting people", and her attitude towards effort comes from the question: "In your opinion, is work effort rewarded with higher income?", coded from 0 to 3 (never=0, always=3). Location Fixed Effects are dummies for each of the localities where the experiment was implemented.

Table 20: Interaction with the answer to post-experimental questions

Dependent variable: Effort level in each of the games

	(1)	(2)	(3)	(4)	(5)	(6)
	Donors				Recipients	
	Partial	Full	Partial	Full	Partial	Full
OneToOne	0.787***	0.700**	0.826**	0.507*	0.465	0.416***
	(0.141)	(0.230)	(0.315)	(0.252)	(0.338)	(0.104)
Pool	0.600**	0.567*	0.598***	0.296	0.465	0.494**
	(0.227)	(0.268)	(0.132)	(0.336)	(0.257)	(0.192)
Question	give more/less		change opinion		reveal effort	
Question	-0.105	0.0659	-0.230	-0.212	-0.190	-0.0113
	(0.378)	(0.207)	(0.292)	(0.253)	(0.172)	(0.204)
One to One * Question	0.213	-0.0731	0.174	0.271	0.267	0.0130
	(0.424)	(0.190)	(0.342)	(0.219)	(0.274)	(0.138)
Pool * Question	0.0346	-0.194	0.121	0.352	-0.489	-0.147
	(0.512)	(0.280)	(0.396)	(0.465)	(0.338)	(0.164)
Constant	0.320	1,192	0.621	0.962	0.392	0.874
	(1.443)	(1.016)	(1.534)	(0.864)	(1.349)	(0.740)
Observations - Ind. IDs	381 - 127	381 - 127	372 - 124	375 - 125	420 - 140	378 - 126
R-squared	0.489	0.512	0.487	0.520	0.449	0.545

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks at the robustness of the results with respect to subject's preferences on the size of the transfer and effort observability. The left panel presents the results for the subjects in the *Donor* role, and the right panel presents the results for subjects in the *Recipient* role. The reference game is *Autarky*, and *OneToOne* and *Pool* are dummies for the One-to-one and Pool games respectively. Results are equivalent for pairwise comparisons of *Autarky* and each of the transfer games, with the corresponding interactions to the answers of the questions.

After all the games were played, to subjects in the *Donor-Partial* treatments we asked: "Would you have liked to give more?", and to subjects in the *Donor-Full* treatments we asked: "Would you have liked to give less?". The answer to these two questions is interacted with the game dummies in columns (1) and (2). The second post-experimental question for donors was whether his/her answer to the previous question would change if the recipient had been able to do an effort. The answer to this question is interacted with game dummies in columns (3) and (4).

After the experiment, recipients were asked: "If we gave you the opportunity to reveal your effort in the *One-to-one* game to the individual to whom you were matched, would you do so?". The answer to this question is interacted with game dummies in columns (5) and (6).

Ability, Learning, Order, Order * Learning, Ind. Characteristics and Location FE included in all specifications.

A1 Appendix: Learning

In the analysis of our experimental data we perform several within-subject comparisons.[35] Here we describe how we account for any learning on the real effort task that may have occurred during the experimental session. This is particularly relevant because, even though we varied the order in which some games were played, the autarky games were always played before the transfer games to avoid priming. It is important to note that only one game was chosen randomly at the end of the experimental session for payment, so the games were seen as independent by the participants. Hence, the only concern is the existence of learning on performing the task that could have changed the marginal cost of effort along the four games played.

Table A1 shows the different orderings of games that were used across treatments, and Table A2 shows the number of sessions as well as the number of subjects who were allocated to each ordering. Except for orderings B and B', we have four sessions per ordering, and between 24.44 and 26.12 percent of the sample for each ordering.[36]

Table A1: Game orders used in the experiment.

	First game	Second game	Third game	Fourth game
Partial order a	Autarky	Autarky Low	Pool	One-to-one
Partial order b	Autarky Low	Autarky	One-to-one	Pool
Full order A	Autarky	Pool	One-to-one	Public good
Full order B	Autarky	One-to-one	Pool	Public good
Full order B′	Autarky	One-to-one	Public good	Pool

Table A2: Number of sessions and subjects for each order used.

	Number of sessions	Number of participants	Share of participants
Partial order a	4	134	25%
Partial order b	4	140	26.12%
Full order A	4	131	24.44%
Full order B	3	109	20.34%
Full order B′	1	22	4.1%

Due to learning, the number of rounds between games could matter for our effort comparisons. Table A3 summarizes the number of rounds between all game pairs. This table reveals that for some game pairs we have variation in the ordering only (e.g., there are always two rounds between *Autarky* and *Pool*), while for other pairs we have also variation in the number of rounds (e.g., in some sessions there are three rounds between *Autarky Low* and *Pool* whereas in others there is only one round).

A1.1 Descriptive evidence on ability and learning across cells

Before describing how we control for learning in our main estimations, we present some descriptive evidence related to baseline ability and learning across treatments and orderings in Tables A4 and A5. We focus on three variables: (1) the initial ability test ($test1$), as a measure of baseline ability to perform the task (in number of nuts threaded); (2) the difference between the second and the first ability tests ($test2$-$test1$), as a measure of the absolute accumulated learning in the session (in number of nuts threaded); (3) the percentage difference

[35] See for example Charness, Gneezy, and Kuhnn (2012) on within-subjects comparisons and their benefits on experimental designs.

[36] Our original intention was to use two different orderings per treatment, but by mistake we ended up with three different orderings for the *Full* treatment sessions. The order B′ was only used in one session, and results are robust to the exclusion of that session. The goal in the *Full* treatment was to be consistent with the information given to the participants through the session, and hence the *Public good* game - with transfers out of the experiment - was always kept last.

Table A3: Number of rounds between games across orderings and treatments.

	(1)	(2)	(3)	(4)	(5)	(6)
			Partial game comparisons			
	Aut. Low Aut.	Aut. Low. One-to-one	Aut. Low Pool	Aut. One-to-one	Aut. Pool	One-to-one Pool
Order a	-1	2	1	3	2	-1
Order b	1	2	3	1	2	1
			Full game comparisons			
	Aut. One-to-one	Aut. Pool	Aut. Public good	One-to-one Pool	One-to-one Public good	Pool Public good
Order A	2	1	3	-1	1	2
Order B	1	2	3	1	2	1
Order B′	1	3	2	2	1	-1

between the second and the first ability tests (*test*2-*test*1/*test*1), as a measure of the percentage accumulated learning in the session.

Table A4: Test of differences in means for ability and learning by game ordering.

	Partial		
	Order a	Order b	t-statistic (p-value)
test1	5.02 (std. 0.177)	5.44 (std. 0.150)	-1.808 (0.071)
(test2 test1)	0.39 (std. 0.034)	0.32 (std. 0.032)	1.591 (0.112)
(test2 test1)/test1	0.09 (std. 0.11)	0.08 (std. 0.013)	0.828 (0.408)
	Full		
	Order A	Order B	t-statistic (p-value)
test1	5.18 (std. 0.170)	5.19 (std. 0.188)	0.037 (0.970)
(test2 test1)	0.38 (std. 0.032)	0.40 (std. 0.035)	0.566 (0.571)
(test2 test1)/test1	0.09 (std. 0.010)	0.11 (std. 0.017)	1.179 (0.239)

Table A4 shows the means of these three variables for the different orderings, and we note two features. First, average baseline ability differs only weakly on the *Partial* treatment, and does not differ significantly in the *Full* treatments. Second, and more importantly, average learning does not differ significantly across orderings.

Table A5: Test of differences in means for ability in learning by role and transfer size.

	Donor	*Recipient*	t-statistic (p-value)
test1	5.11 (std. 0.118)	5.24 (std. 0.118)	-0.747 (0.455)
(test2 test1)	0.37 (std. 0.22)	0.37 (std. 0.024)	-0.110 (0.912)
(test2 test1)/test1	0.09 (std. 0.009)	0.09 (std. 0.008)	-0.082 (0.934)
	Full	*Partial*	t-statistic (p-value)
test1	5.11 (std. 0.119)	5.23 (std. 0.116)	-0.710 (0.477)
(test2 test1)	0.38 (std. 0.023)	0.35 (std. 0.23)	0.741 (0.458)
(test2 test1)/test1	0.10 (std. 0.009)	0.09 (std. 0.008)	0.838 (0.402)

Table A5 shows the means of the same three variables for the subjects in each treatment. We find no statistically significant differences in means between subjects allocated to a *Donor* or *Recipient*, and neither between subjects a *Partial* or *Full* treatment. We conclude from this that neither ability nor learning are correlated with the treatment.

A1.2 Relationship between learning and effort differences between games

As explained above and shown in Table A2, learning is potentially a more important concern for pairwise comparisons between an autarky game and a transfer game, than for comparisons between two transfer games. Recall that this is because autarky games were always played before transfer games, while the ordering between transfer games was varied.

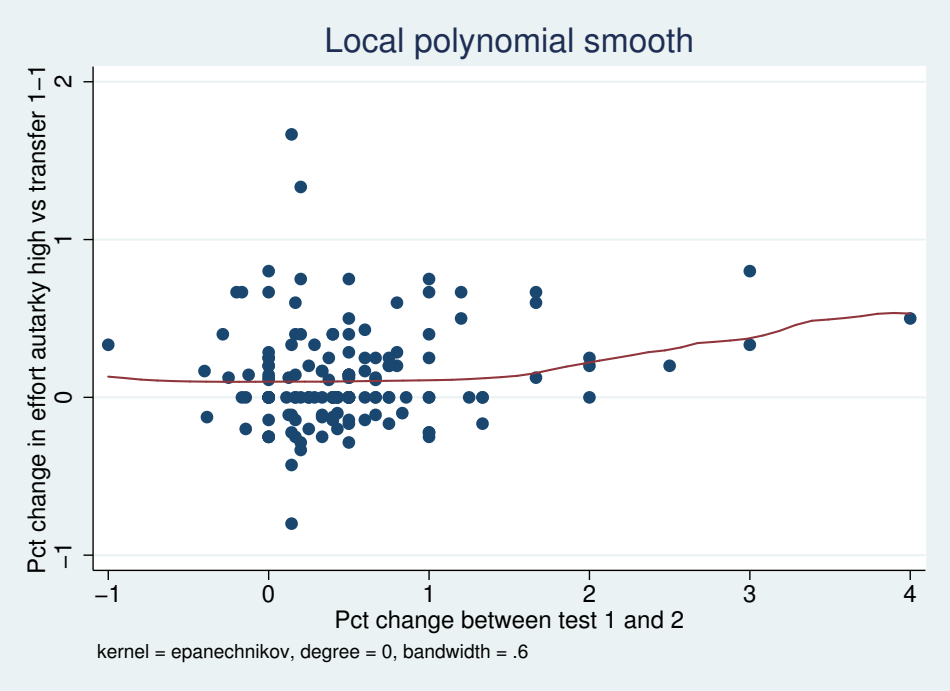

Figure A1: Kernel regression of difference in effort between *Autarky* and *One-to-one* transfer games on learning (Partial, donors)

In Figures A1 to A4, we provide evidence on whether our measure of percentage accumulated learning is correlated with the difference in effort observed between the *Autarky* and *One-to-one* games for each treatment.[37] In these graphs, we fit a kernel regression to allow any nonlinearity in the relationship between these two variables to show up. The figures show that, except for a handful of outliers, the relationship between the percentage accumulated learning and the percentage difference in effort between the *Autarky* and *One-to-one* games is flat for the four treatments, implying no correlation between the two variables. This is consistent with our main results, in which the inclusion of our learning controls, to be described below, seems to explain mean effort for these games, but it does not affect the estimated difference between them.

Even though we find no systematic differences in ability and learning by role, treatment or ordering, and no correlation between learning and the differences in effort between the autarky and transfer games being compared, we control for the effect of these variables in our estimation. For this, we exploit the variation in the ordering of games that we performed and the two ability tests we have for each participant ($test1$ and $test2$). Specifically, we include in all our OLS regressions $test1$, the order of the games, and its interaction with $\frac{test2-test1}{test1}$. The variable $test1$ is intended to control for baseline ability in performing the task. The variable $\frac{test2-test1}{test1}$, as already mentioned, measures the percentage increase in nuts threaded between the very first round of the experiment and the last one, which could be related to the accumulated learning during the session. This learning measure is interacted with the complete ordering of games, captured by the order dummies, which in turn could affect learning through the variation in the number of rounds played between the autarky game and a particular transfer game.

[37] In our main estimations, we compare both the *One-to-one* and *Pool* games with the *Autarky* game, but in this Appendix we only compare the latter with the *One-to-one* game for simplicity.

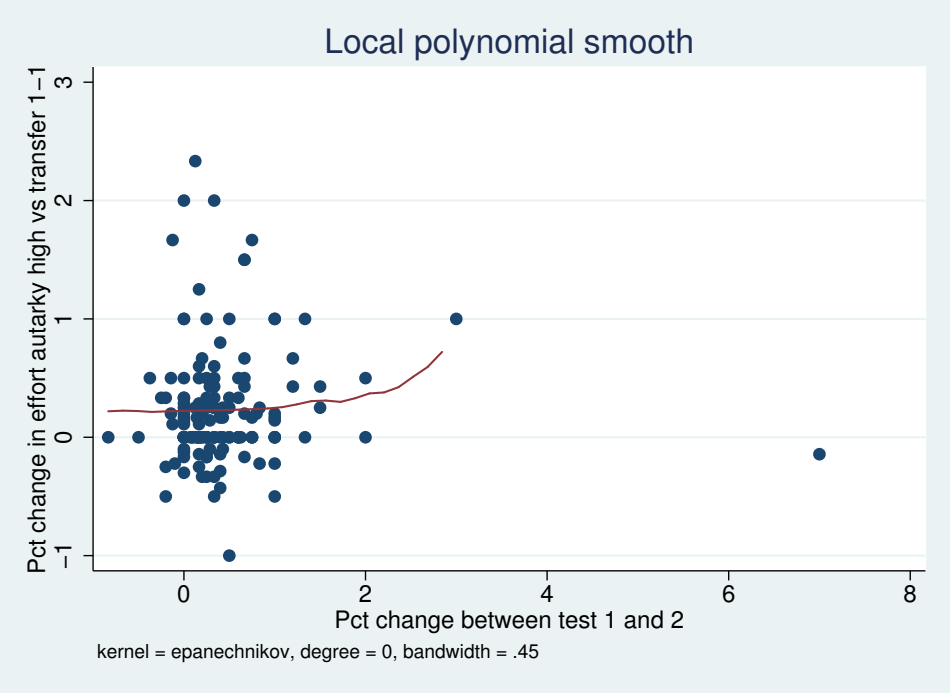

Figure A2: Kernel regression of difference in effort between *Autarky* and *One-to-one* transfer games on learning (Partial, recipients)

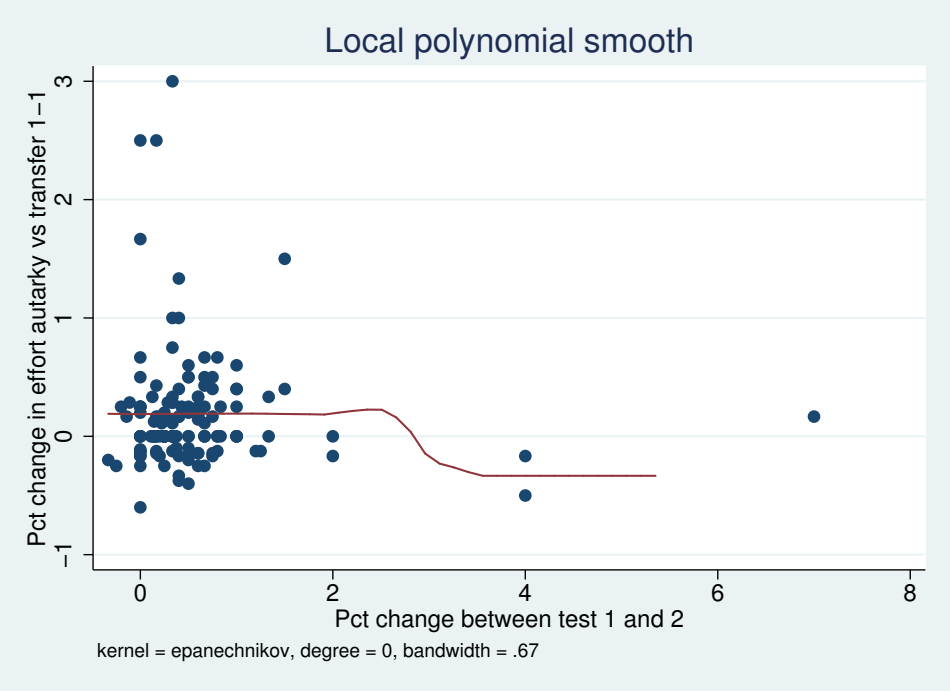

Figure A3: Kernel regression of difference in effort between *Autarky* and *One-to-one* transfer games on learning (Full, donors)

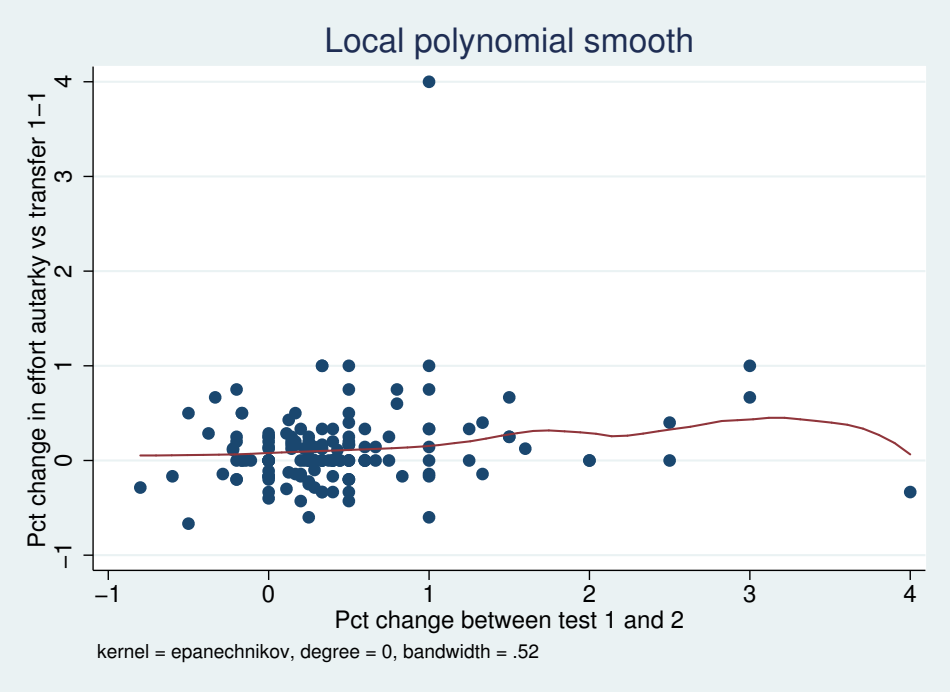

Figure A4: Kernel regression of difference in effort between *Autarky* and *One-to-one* transfer games on learning (Full, recipients)

A1.3 Further robustness checks: Learning and ordering effects on effort differences

In addition to controlling for the variables described above in all estimations (equations (16) and (17)), in this subsection we present further evidence showing that the effort differences we find between the *Autarky* and *One-to-one* games are not driven by learning and ordering effects.

First, in Table A6 we present the raw means of effort in these two games for the different orderings played. We perform two paired tests, a t-test and a Wilcoxon test to see whether effort means, and their distributions, are different. The p-values reported in this table show that effort means and their distributions are significantly different for donors under both the *Partial* and *Full* treatments, and in each of the orders considered. For recipients, some ordering effect is present. However, as shown below, the effort differences between these two games are not driven by this effect.

As a second robustness check, we ran an OLS regression to compare the effort in the *One-to-one* transfer game with that in the *Autarky* game, and include the include the interaction of the *One-to-one* game dummy with a dummy for the ordering in a given session.[38] This interaction tells us if the main result is driven only by one of the orderings. Columns 1 and 3 in Table A7 show that not including this interaction yields positive and significant effects of transfers on effort, as in our main results. Columns 2 and 4 show that including the interaction still yields positive and significant effects of the transfer dummy alone. In addition, the interaction of ordering and *One-to-one* game dummies is not statistically significant, except for subjects allocated to the *Recipients-Partial* treatment. However, even for them, the positive and significant effect of transfers on effort remains, proving that our main results are not driven by the ordering of games.

[38]Remember there are two orderings for each of the *Full* and *Partial* treatments. Hence, the Order dummy refers to the orders a and A for the *Full* and *Partial* treatments respectively.

Table A6: Comparisons of *Autarky* and *One-to-one* transfer games in different orders.

Partial

	Donors					Recipients			
	Mean effort		Wilcoxon paired test	T paired test		Mean effort		Wilcoxon paired test	T paired test
	Autarky	Transfer				Autarky	Transfer		
All	5.763	6.595	0.000	0.000	All	6.258	6.846	0.000	0.000
Order a	5.468	6.640	0.000	0.000	Order a	5.928	7.014	0.000	0.000
Order b	6.044	6.552	0.065	0.029	Order b	6.575	6.685	0.640	0.624

Full

	Donors					Recipients			
	Mean effort		Wilcoxon paired test	T paired test		Mean effort		Wilcoxon paired test	T paired test
	Autarky	Transfer				Autarky	Transfer		
All	6.192	6.838	0.000	0.000	All	6.007	6.424	0.001	0.001
Order A	6.229	6.770	0.007	0.006	Order a	5.974	6.632	0.002	0.001
Order B	6.142	6.928	0.000	0.000	Order b	6.056	6.358	0.215	0.149

Table A7: Comparison, within subjects, of the *Autarky* and *One-to-one* transfer games - Interacted with the session ordering of games.

	(1)	(2)	(3)	(4)
	Partial			
	Donors		Recipients	
OneToOne	0.832**	1.172***	0.587*	1.086**
	(0.249)	(0.164)	(0.278)	(0.367)
OneToOne* Order		-0.664		-0.976**
		(0.424)		(0.408)
Constant	5.763***	5.469***	6.259***	5.929***
	(0.271)	(0.407)	(0.171)	(0.238)
Observations - Ind IDs.	262 - 131	262 - 131	286 - 143	286 - 143
R-squared	0.034	0.042	0.021	0.036
	Full			
	Donors		Recipients	
OneToOne	0.697**	0.619*	0.388***	0.456**
	(0.194)	(0.256)	(0.0879)	(0.137)
OneToOne* Order		0.167		-0.154
		(0.387)		(0.155)
Constant	6.218***	6.286***	6.099***	6.132***
	(0.325)	(0.501)	(0.314)	(0.507)
Observations - Ind IDs.	238 - 119	238 - 119	242 - 121	242 - 121
R-squared	0.032	0.033	0.009	0.011

Clustered standard errors (session) in parentheses: *** p<0.01, ** p<0.05, * p<0.1. OLS estimations are reported. This table looks at the robustness of the results with respect to the order under which the transfer games were played. The top panel presents the results for the subjects in the *Partial* transfer treatment, and the bottom panel presents the results for subjects in the *Full* transfer treatment. The reference game is *Autarky*, and *OneToOne* is a dummy for the One-to-one game.

Ability, Learning, Order, Order * Learning, Ind. Characteristics and Location FE included in all specifications.