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► **To cite this version:**

Carolina Alban Conto. Does Distance-Driven Information Asymmetry Affect Private Income Transfers? Theory and Evidence From Colombia. 2021. hal-03192955

**HAL Id: hal-03192955**

**<https://hal.science/hal-03192955>**

Preprint submitted on 8 Apr 2021

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# Does Distance-Driven Information Asymmetry Affect Private Income Transfers? Theory and Evidence From Colombia\*

Carolina Alban Conto<sup>†</sup>

December 8, 2017

## Abstract

This paper investigates to what extent distance between donors and receivers influences the responsiveness of private transfers to positive income shocks. First, I provide an original conceptual analysis that incorporates the notion that information asymmetry increases with distance and encourages donors and receivers to act strategically. Next, using evaluation data from a conditional cash transfer program in Colombia, *Familias en Acción*, and implementing a difference-in-difference strategy, I test the main predictions of the underlying theoretical framework. The estimates support the idea that benefiting from a government subsidy affects transfer decisions when donors and receivers live geographically close from each other. This finding challenges the existing literature on the topic by showing that, ignoring information asymmetry can lead to erroneous interpretations of transfer-income derivatives and crowding out effects.

**Keywords:** Asymmetric and private information; Personal Income, wealth, and their distributions; Welfare Economics; Government Policy, provision and effects of welfare programs

**JEL Codes:** D31, D60, D82, I38

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\*This paper benefited from reviews and suggestions from Flore Gubert, Sylvie Lambert, Javier Herrera, Juan Miguel Gallego and William Pariente as well as from attendees at different seminars at the Paris School of Economics and DIAL.

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# 1 Introduction

Private transfers are crucial to understand household livelihood strategies in the developing world. In poor settings, where social safety nets rarely exist and public sector plays a minor role, money and in-kind help from relatives and friends can be a matter of death or life. A widespread feature of the literature on private transfers is the assumption that donors have perfect information about receivers' income and vice-versa. However, this might be too strong as assumption, especially when agents involved in transfer arrangements are physically separated or are not related filial ties.

Despite the growing theoretical and empirical literature studying the dynamics of private income transfers, very few papers analyze how these transactions are affected by asymmetric information.<sup>1</sup> In this paper, I add to these literature by investigating to what extent information barriers, resulting from the distance between donors and receivers, influence the responsiveness of private transfers to positive income shocks.

Previous theoretical work on the relationship between private transfers and income concludes that the relationship between transfers delivered (transfers-out) and the donor's income is unambiguously positive.<sup>23</sup> From the perspective of the receiver, the effect depends on the motivation for the transfer. Altruistically motivated transfers should decrease with the receiver's income, as her well-being lowers the donor's marginal utility from transferring. Alternatively, if transfers are payments made in exchange of services, this relationship becomes ambiguous. The receiver associates now a higher opportunity cost to the provision of the service, but, the donor's demand will be so inelastic that she will be willing to pay a much higher "price" in order to avoid any possible cut back.

These predictions have been empirically tested in a long series of papers and contexts.

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<sup>1</sup>Some examples are the works of Ambler (2015); Serror (2015); Batista and Narciso (2013); McKenzie *et al.* (2013); De Weerd *et al.* (2014); Seshan and Zubrickas (2017).

<sup>2</sup>This implication holds regardless of the motivations of agents (altruism or exchange), as far as transfers are considered normal goods and donors care about the well-being of receivers (altruism) or are in need of the receivers' services (exchange).

<sup>3</sup>Examples include Barro (1974); Becker (1974); Bernheim *et al.* (1985); Cox (1987) and many others.

The elasticity of transfers-out to donor's income (transfer derivatives) is invariably found to be positive and in most of the cases below unity.<sup>4</sup> On the contrary, the evidence on transfer responses to receiver's income shocks is mixed and sometimes inconclusive.<sup>5</sup> The analysis presented here complements and extends this literature by considering an asymmetry of information setting in which the distance between donors and receivers is a determinant factor in the configuration of private transfer arrangements. To that end, I present an original conceptual setting, derived from a classical model of private transfers proposed by Cox (1987), in which distance generates pervasive informational problems that make the strategic behavior of donors and receivers more likely. Under this approach, the responsiveness of transfers to income depends not only on the motivation of agents but also on information deficiencies spread by the distance between them.

Then, I test these new predictions using data collected for the evaluation of a welfare program recently implemented in Colombia, *Familias en Acción*. Started in 2003 and still ongoing, *Familias en Acción* aims at increasing human capital investment in children among very poor households. The *Familias en Acción* intervention is exploit as a positive income shock potentially correlated with household transfer behavior. In concrete, I aim to analyze the associations between program eligibility and the probability and the value of private transfers-in and transfers-out, allowing the effect to differ depending on the relative distance between donors and receivers. I take advantage of the design of the program and the longitudinal nature of the data set to build an identification strategy based on a difference-in-difference method using household fixed effects.

Interesting findings emerge from this analysis. When transfers are simply added without

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<sup>4</sup>See for instance Arrondel and Laferrere (1998); Cox (1987, 1990); Cox *et al.* (1997); Ioannides and Kan (1999); Wolff (2006).

<sup>5</sup>For a sample of works finding a positive relationship between these two variables, see Altonji *et al.* (1995); Cox (1987); Cox and Rank (1992); Cox and Jakubson (1995); de la Briere *et al.* (2002); Frankenberg *et al.* (2002); Lucas and Stark (1985); Secondi (1997). On the contrary, some of the works finding a negative relationship are Albarran and Attanasio (2002); Clarke and Wallsten (2003); Cox *et al.* (1997); Kuhn and Stillman (2002); Jensen (2004); Maitra and Ray (2003); McGarry and Schoeni (1996); McKernan *et al.* (2005); Schoeni (1997). Finally, works finding no effect are Lillard and Willis (1997); Olinto *et al.* (2006); Teruel and Davis (2000), among others.

regard to their geographic origin and destination, they prove to be uncorrelated with the probability of getting the subsidy. However, if transfers are disaggregated by the geographic distance between donors and receivers, I find appealing results. When partners live in close proximity to each other, the *Familias en Acción* allocation is negatively correlated with transfers received (transfers-in) and positively correlated with transfers delivered. Estimates show that eligible households are 12 percentage points less likely to receive money transfers and get, on average, 7,095 COP less than non-eligible households. Similarly, they are 14 percentage points more likely to deliver money transfers to partners living nearby, transferring them, on average, 8,450 COP more. On the contrary, when agents live far from each other, the coefficient associated to the program is, throughout all the different estimations, not statistically significant.

These results suggest that the failure to distinguish the geographic distance of transfer partners may be the reason why some empirical analyses on the subject are inconclusive. Besides, they highlight a potential re-distributive effect of government subsidies to the poor. By lessening their budget constraint, the program allows beneficiaries to share a fraction of the allocation with their physically closer kin and friends. Final welfare effects will depend on the characteristics of the receivers of these transfer transactions not available in the data. Further investigation and more suited data, tracking all the partners involved in transfer transactions, is highly needed in order to be able to understand better these distributional implications.

The rest of the paper is organized as follows. Section 2 reviews the literature, presenting the standard models of private transfers and the existing empirical evidence on the relationship between transfers and income. Section 3 presents a conceptual framework that adds to the classical models of private transfers the idea that distance increases the probability of asymmetric information on the income of donors and recipients. Section 4 characterizes the program *Familias en Acción* and describes the data used in the empirical analysis. Section 5 provides some descriptive statistics of the sample and the empirical strategy. 6 presents

the results and discusses the main identification threats and implications of the analysis. Section 7 concludes.

## 2 Literature Review

The economic literature studying private income transfers is quite broad. Wolff (2006) and Cox and Fafchamps (2008) provide a comprehensive summary, with a special emphasis on the motivational structure of transfer transactions. The objective of this section is twofold. First, I present a review of the existing theoretical literature, recalling its main conclusions and introducing the analysis of information asymmetry and distance. Second, I provide a summary of the main empirical studies addressing the relationship between transfer transactions and income levels. This section is built up from the reviews of Wolff (2006) and Cox and Fafchamps (2008).

### 2.1 Private Transfers Models

The first theoretical models on private income transfers were made famous by Barro (1974) and Becker (1974, 1981). Focusing on family behavior, these works provide a conceptual framework for analyzing transfers as income sharing devices made possible by the existence of altruistic preferences. In their models, transfer donors care about the well-being of transfer receivers, so their utility depends, in part, of their own income and, in part, of these transfers. Many authors have questioned the strength of the altruistic framework to explain transfer behavior, by considering alternative motivations set apart from it. An alternative setting is thus, provided by the exchange of services model, where the donor's main interest is the consumption of services and transfers are payments to the providers (Bernheim *et al.*, 1985).

Under pure altruism, the main testable prediction is that transfers respond positively to increases in the income of the donor and negatively to increases in the income of the receiver. Under exchange motives, although the effect of the income of the donor is the

same, the effect of the income of the receiver is ambiguous. A rise in the income of the receiver might increase the implicit price of the services she provides, via an increase in the opportunity cost. Transfers would, therefore, increase or decrease depending on whether the donor's demand for these services is price inelastic or not.

A common element to both altruistic and exchange transfer models is the assumption that donors and receivers have perfect information about each other's income. Recent research suggests that transfer arrangements are vulnerable to the interference of information barriers. Unlike the standard models of transfers referenced above<sup>6</sup> this literature, mostly focused on immigrant transfers, assumes the decisions of transfer donors and receivers are driven by contingent contracts, enforced through the threat of noncompliance. These contracts are modeled as potential penalties that negatively affect agents' utility functions. Ambler (2015), for example, introduces a model where migrants and households of origin establish a contract that specifies how much transfers will be sent and the way they should be spent. In this model, the value of transfers depends on the probability of observing the income of the migrant and the power of the household to punish her. Serron (2015), for its part, develops a framework where misrepresentations on income are due to the receiver's intention to increase transfers-in and migrants' decisions are based on unverifiable actions and outcomes. The model predicts that households of origin manipulate private information to extract rents from migrants, making it difficult for the parties to arrive at efficient intra-household allocations. Seshan and Zubrickas (2017) present a model of remittances in exchange of participation in the financing of migration. They introduce the idea of a verification cost that captures the degree of asymmetric information between the parties. The easier it is to determine the income earned by the migrant, the less asymmetry there is. The optimal contract prescribes a threshold for remittances such that, if not met, verification is initiated. Distance across agents makes information barriers more pronounced and strategic deviations more alike. The consequences are higher monitoring costs and more strict contracts.

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<sup>6</sup>Barro (1974); Becker (1974, 1981); Bernheim *et al.* (1985); Cox (1987).

Differing from asymmetric information transfer models in immigration settings, De Weerdt *et al.* (2014) develops a model of extended family networks to predict the relationship between income mis-perceptions and transfers, under three different motivations: altruism, exchange and pressure. Although this study contemplates genetic, social and physical distance between transfer donors and receivers, as potential explanations of income mis-perception, these dimensions are not formally integrated in the analytical framework by the authors.

## 2.2 Empirical Evidence

The empirical literature estimating the relationship between transfers and income is quite extensive (see Cox and Fafchamps, 2008 for a comprehensive summary). In congruence with standard theoretical predictions, the effect of the donor's income is, most of the time, found to be positive and in many cases below unity. On the contrary, the studies analyzing the effect of receivers' income do not prove so conclusive. In a study for the United States Cox (1987) shows that a 1% increase in the receiver's income drives a 0.53% increase of transfers-in. However, using an almost identical approach, the same author finds contradictory results for Albania, Bulgaria, Colombia, Jamaica, Kazakhstan, Nepal, Nicaragua, Panama, Peru, the Philippines, Poland, Russia and Vietnam.<sup>7</sup>

These empirical papers are generated from a variety of datasets and econometric methods.

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<sup>7</sup>In their analysis of Vietnam, Cox and Jakubson (1995) show that, increasing pre-transfer income from 3,000 to 9,000 Dongs, reduces the probability of receiving a transfer by 8 percentage points. Conditional on receiving a transfer, the same boost in income would actually raise transfers received by 569,000 Dongs. In the case of Poland, Cox *et al.* (1997) find that increasing pre-transfer income from 40,000 to 70,000 Zlotys rises the probability of delivering transfer by 11 percentage points; while, increasing pre-transfer income from 20,000 to 30,000 Zlotys per month reduces this probability by 4 percentage points. The elasticity of the transfers received, at sample means, is around -0.045 Zlotys per 1 Zloty increase in pre-transfer income. Cox and Jimenez (1998) show for Peru that the probability of receiving a transfer is inversely related to the income of the receiver; but the effect on transfer values, conditional on receiving a transfer, exhibits an inverted u-shaped. A one Inti increase in income, yields a 0.16 Inti increase of transfers-in, for income levels below 2,900 Intis. At higher levels transfers-in actually decline. For the Philippines, Cox *et al.* (2004) find an elasticity of transfers of -0.39 for pre-transfer incomes below the 29th percentile. Cox and Jimenez (1998) show, for the case of Colombia, that an increase in monthly income from 2,000 to 5,000 Colombian pesos reduces the probability of net transfers received in 8 percentage points. Finally, in a cross-sectional study for 11 countries including Albania, Bulgaria, Jamaica, Kazakhstan, Nepal, Nicaragua, Panama and Russia, Cox *et al.* (2006) find that the probability of being a net receiver of private transfers declines with per capita income, with a steeper decline for households among the poorest 25%, in almost all the cases. The only exception is Kyrgyzstan.

Though rich, the vast majority is mainly based on cross-sectional data and suffers from the potential endogeneity of income and other omitted variable bias.<sup>8</sup>

Due to the lack of more suitable data, studies successfully addressing these econometric issues are very scarce, with only few exploiting longitudinal data to test the predictions of theoretical models. McGarry (2000) uses a panel survey of the US to test the effect of income on parent-child transfer arrangements. Using family fixed-effects estimations and controlling by child-specific characteristics, she finds that moving from the lowest to the highest income category decreases the probability of receiving a transfer by 9.1 percentage points and the transfer value by 229 US Dollars. Foster and Rosenzweig (2001) use fixed-effects and instrumental variable techniques to estimate the responsiveness of transfers to profits in the context of rural India and Pakistan.<sup>9</sup> They show that profits have a positive effect on net transfers-out, regardless of whether or not these transfers occur between family or non-family partners and inside or outside the village. McKernan *et al.* (2005) test the responsiveness of private transfers to microcredit programs using panel data on households in rural Bangladesh. Their village fixed-effects estimates indicate that a 100 Taka increase in women's (men's) credit, reduces transfers towards the household by 25 Taka (31 Taka).

Notwithstanding the great advance these papers represent, there are still some empirical concerns regarding the exogeneity of income or profits. Households with higher income, profits, credit or living in areas less exposed to weather shocks, might be more likely to receive private transfers but also to better anticipate and mitigate shocks. To the extent that both transfer outcomes and income measures may be affected by unobserved variables,

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<sup>8</sup>Cross-sectional studies usually identify the effect of income after controlling for household characteristics observed after the transfer occurred. However, actual income, as other contemporaneous household characteristics, may have been also affected by transfers, confounding the true effect of income changes. Moreover, if the variables conjointly influencing income and transfer behavior are unobserved, controlling for pre-transfer characteristics will not be sufficient and estimates will suffer from omitted variable bias. Cox and Fafchamps (2008) claim that omitted variable bias is a major issue when transfers-in truly respond negatively to income. The authors argue that, in the case of altruistically motivated inter-generational transfers, for instance, a positive correlation between the income of the parents and the income of their children, would tend to bias estimated values of  $\partial T/\partial I_r$  towards zero.

<sup>9</sup>In this study instrumental variables were used to deal with the potential measurement error associated to profits.

the correlations between them cannot be interpreted in a causality way.

More recent studies exploit natural experiments generated from natural disasters and public policy interventions to better overcome this issue. Clarke and Wallsten (2003) test the effect of Hurricane Gilbert on transfers. Using household fixed-effects, they find that households got, on average, 23 cents in remittances for every Jamaican Dollar of hurricane damage received. Jensen (2004) uses the post-apartheid expansion in public pension benefits to compare the difference in the value of remittances received between pensioners and non-pensioners. He finds that a one Rand increase in a parent's pension is associated with a 0.25 - 0.30 Rand reduction in remittances received from her children living abroad.

Finally, Teruel and Davis (2000) and Olinto *et al.* (2006) estimate the impact of conditional cash transfer programs on transfers received in Honduras, Nicaragua and Mexico. Their empirical strategy relies on the quasi-experimental design of these programs, wherein eligible households are randomly selected, and their evaluation datasets. The evidence is discouraging, as in most of the estimations, the authors do not find any impact. The exception is a negative small effect on the prevalence of food transfers received from NGOs in Nicaragua.

### 3 Conceptual Framework

In this section, I present a conceptual framework to represent the interactions between transfer behavior and information asymmetry motivated by distance in positive income shock settings. In particular, I aim to conceptualize the idea that distance generates information deficiencies that encourage donors and receivers to act strategically. Living far from each other (geographic distance) or having no parentage (social distance), both donors and receivers can easily hide positive income shocks and, therefore, avoid transfer cutbacks, from the receiver's perspective, or increase transfer pressure, from the point of view of the donor.

Let's start considering a standard private transfers model where transfers are driven by

impure altruism, so both altruistic and non-altruistic (e.g. service exchange<sup>10</sup>) motivations coexist (Cox, 1987). There are two agents, a donor  $d$  and a receiver  $r$ , and transfers depend on current income levels  $I_d$  and  $I_r$ . Each agent knows the other's past income realizations ( $\hat{I}_d$  and  $\hat{I}_r$ ) but ignores its actual level. Current income is given by prior income plus a positive exogenous income shock<sup>11</sup> ( $\theta_d \geq 0$  and  $\theta_r \geq 0$ ), e.g. getting a government subsidy like the one granted in Colombia under the *Familias en Accion*. Other important assumptions are the following: (i) there is only one period<sup>12</sup>, (iii) agents are credit constraint, (iv) transfers are one-sided.<sup>13</sup>

Under these characteristics, two transfer settings are particularly relevant for the analysis. The first consists on transfers with an altruistic donor dominating the transaction and a non-altruistic receiver. The second, on the contrary, entails a non-altruistic donor dominating the transaction and an altruistic receiver.

One might wonder, why the cases in which both agents are impurely altruistic or non-altruistic are not addressed here. First, a regime where the donor and the receiver are both impurely altruistic implies, by construction, that each of them values, in a way, the well-being of the other. Therefore, they are more likely to reach optimal levels of transfers and services

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<sup>10</sup>In this context, services stand for any action of assistance or work done in order to please someone, that generates income (money or in-kind) transfers, in return. Some examples are help with household chores, support in home production, lend a summer house to a neighbor, pay the rent for a student, look after a sick relative or visit an ailing friend. Although, at first sight, these exchanges may seem like a typical market transaction, they differ in several aspects. In some instances, services are only provided to certain agents or under very specific circumstances, like taking care of a nephew or give inn to a friend during the winter. It is also very likely that they do not have market substitutes, as they usually involve affections like caring, trust, etc. In addition, very frequently, what is being exchanged and its value is not always precisely known and "payment" conditions are very uncertain, as transfers may not necessarily occur immediately, but later, or be deferred, or be indirect, or even never occur.

<sup>11</sup>The positive character of the shocks is one of the key elements behind the configuration of strategic behavior due to information asymmetry and distance. Negative shocks (e.g. natural disasters like droughts, earthquakes, etc.) are more likely to induce agents to communicate about them, despite the distance that may exist between transfer partners.

<sup>12</sup>As in many other economic models dealing with information asymmetry, I assume that information frictions are only problematic in the short-run, while agents find the way to address their own information requirements, and disappear in the long-term.

<sup>13</sup>This simplification is adapted to the empirical analysis presented below, whose data are extracted from a survey inquiring household about transfers-in and transfers-out, but that does not both sides of the transactions. Implications of information asymmetry and distance on two-sided transfers remain however a very important question that is left for further investigations.

without resorting on strategic behavior. Second, a case where both agents are non-altruistic, is closer to a pure market transaction, than to an income transfer interaction.

### 3.1 Setting 1. An Impurely Altruistic Donor and a Non- Altruistic Receiver

Consider a donor whose utility depends on her own consumption  $C_d$ , the receiver's well-being  $V$  and a service  $S$ . Assuming she dominates the interaction, the maximization problem, viewed from her own perspective, will be given by Equation (1.1):

$$\text{Max}_{T, S \geq 0} U = U \left[ C_d, S, V(f(C_r), S) \right] \quad (1.1)$$

where  $V$  is a function representing the well-being of the receiver from the donor's perception of her consumption  $f(C_r)$ <sup>14</sup> and the service she provides  $S$ .<sup>15</sup>

The donor is impurely altruistic, meaning that the receiver's well-being is an argument of her own satisfaction, so  $\partial U / \partial V > 0$ . However, the donor also enjoys the services provided by the receiver, i.e.  $\partial U / \partial S > 0$ . Note that  $\partial U / \partial V$  is a measure of the intensity of the donor's altruism. Impure altruism means  $0 < \partial U / \partial V < 1$ , with  $\partial U / \partial V \rightarrow 1$  indicating that the agent is highly altruistic.

The receiver, for her part, is non-altruistic, so her utility  $V = V(C_r, S)$  is an increasing function of her own consumption and a decreasing function of the service provided to the donor ( $\partial V / \partial S < 0$ ). The receiver participates in the transaction if the consumption she gets is greater than the one obtained when no service is provided. This participation constraint is represented by Equation (1.2).

$$V(C_r, S) \geq V(C_r, 0) \quad (1.2)$$

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<sup>14</sup>The well-being of the receiver is a normal good for the donor.

<sup>15</sup>Since services are "non-marketable",  $S$  is not part of the consumption function of the agents.

Consumption functions are defined as follows.  $C_d$ , the consumption of the donor, depends positively on her current income  $I_d$  and negatively on transfers-out  $T$ . The donor's current income will be given by her past income  $\hat{I}_d$  and a possible positive income shock  $\theta_d \geq 0$ , so  $C_d = I_d = \hat{I}_d + \theta_d - T$ . Similarly,  $C_r = I_r = \hat{I}_r + \theta_r + T$ , with  $\hat{I}_r$  standing for the receiver's past income realizations and  $\theta_r \geq 0$  defined as a possible positive income shock.

For its part,  $f(C_r)$  has two arguments: (i) the donor's perception of the receiver's actual income  $h(\hat{I}_r, \theta_r, \psi)$ , which depends on her past income realizations  $\hat{I}_r$ , the subsidy  $\theta_r$  and the distance that separates the donor and the receiver  $\psi$  and (ii) transfers-out  $T$ . Thus,  $f(C_r) = h(\hat{I}_r, \theta_r, \psi) + T$ .

First order conditions, as derived in Cox (1987), are outlined below. Assume that  $T$  and  $S$  are strictly positive and the receiver procures some satisfaction from the transfer-service arrangement. The optimal level of transfers equates the donor's marginal utility of consumption with her perception of the receiver's marginal utility of consumption, weighted by the intensity of her altruism:

$$U_{C_d} = U_V V_{f(C_r)} \quad (1.3)$$

At the same time, the optimal level of services matches the marginal utility they generate to the donor and the dis-utility they engender to the receiver, weighted by the altruism of the donor:

$$U_S = -U_V V_S \quad (1.4)$$

However, if  $T$  and  $S$  tend to zero, the marginal utility of consumption of the donor is higher than her perception about the marginal utility of the receiver, i.e.  $U_{C_d} > U_V V_{f(C_r)}$ , and the donor's utility of the service is less than the dis-utility its provision causes to the receiver, i.e.  $U_S < -U_V V_S$ .

How does the distance between the donor and the receiver influence transfer derivatives in this setting? Remember that distance  $\psi$  is a key element of the way the donor perceives

the well-being of the receiver  $f(C_r) = h(\hat{I}_r, \theta_r, \psi)$ .  $f(C_r)$  will tend to be closed to  $C_r = I_r + \theta_r$  as  $\psi$  decreases, as represented by Equation (1.5). On the contrary, as  $\psi$  increases  $f(C_r)$  will be closed to  $C_r = \hat{I}_r + \theta_r$ , as in Equation (1.6).<sup>16</sup>

$$\lim_{\psi \rightarrow 0} h(\hat{I}_r, \theta_r, \psi) = \hat{I}_r + \theta_r \quad (1.5)$$

$$\lim_{\psi \rightarrow \infty} h(\hat{I}_r, \theta_r, \psi) = \hat{I}_r \quad (1.6)$$

As in this setting the receiver is non-altruistic, she does not make a directly assessment of the well-being of the donor. The decision of the donor will depend on her degree of altruism of the donor and her demand for services. Transfers are the product of  $S$  and a unity "price"  $P$ <sup>17</sup>, so that  $T = SP$ .

A positive income shock, a government subsidy, affecting only the receiver ( $\theta_r > 0$  and  $\theta_d = 0$ ) will have two opposite implications:

- For small values of  $\psi$ , there is no information asymmetry so an increase in the receiver's income will lead to the predictions of the Cox model:

[1.1] If the donor is highly altruistic,  $\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_r} < 0$ <sup>18</sup>

[1.2] If the donor is less altruistic,  $\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_r} > 0$ <sup>19</sup>

- As distance increases, and so do information asymmetry,  $\theta_r$  becomes more difficult to

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<sup>16</sup>Figure 1 provides an illustration of this formulation. The curve  $h(\hat{I}_r, \theta_r, \psi)$  represents the donor's perception of the receiver's actual income as a function of distance. By contrast, the dash lines represent two cases of reference where distance does not influence information flows between the donor and the receiver. The first (red dashed line), is a case where the receiver's after-shock income is completely unobserved by the donor (so the only information available is pre-shock income) and the second (purple dashed line), is a case where the receiver's after-shock income is perfectly observed by the donor.

<sup>17</sup>Indeed,  $P$  would be the value associated with providing one unit of  $S$ .

<sup>18</sup>The intuition, from the donor's perspective, is that, with higher income, a receiver needs smaller transfers to achieve an optimal situation.

<sup>19</sup>A wealthier receiver gets a higher dis-utility when provides services to the donor, so  $\frac{\partial S}{\partial I_r} \leq 0$ . In addition,  $\frac{\partial P}{\partial I_r} \geq 0$ , because  $S$  might be difficult to replace. The more inelastic is the donor's demand for  $S$ , the larger will be  $\frac{\partial P}{\partial I_r}$ , the smaller will be  $\frac{\partial S}{\partial I_r}$  and the more likely will be  $\frac{\partial T}{\partial I_r}$  to be positive.

observe, hence the donor's decision can only be based on the receiver's past income realizations<sup>20</sup> and will not be affected by the shock. Thus:

$$[1.3] \lim_{\psi \rightarrow \infty} \frac{\partial T}{\partial I_r} = 0, \text{ regardless of the level of altruism of the donor}$$

Now consider a case where only the donor gets the subsidy and the income of the receiver remains constant ( $\theta_d > 0$  and  $\theta_r = 0$ ). Given that, by construction, the receiver does not care about the situation of the donor (she is non-altruistic), transfer derivatives will perfectly match those from the original Cox model regardless of the distance separating the agents<sup>21</sup>:

$$[1.4] \frac{\partial T}{\partial I_d} > 0^{22}$$

Finally, consider that the donor and the receiver can get both, simultaneously, the subsidy and that, to simplify the analysis, the value of the allocation is the same.

- If the distance between the agents is short ( $\psi \rightarrow 0$ ), thus there is no information asymmetry, two scenarios are possible:

$$[1.5] \lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_{d,r}} < 0 \text{ if the donor is highly altruistic}^{23}$$

$$[1.6] \lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_{d,r}} > 0 \text{ if the donor is less altruistic}^{24}$$

- If the distance between the agents is large ( $\psi \rightarrow \infty$ ), the most likely result will be:

$$[1.7] \lim_{\psi \rightarrow \infty} \frac{\partial T}{\partial I_{d,r}} > 0^{25}$$

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<sup>20</sup>Remember that perfect past information between the donor and the receiver is supported by the assumption that, before the shock, agents are in a long-run equilibrium setting where information circulates well.

<sup>21</sup>Cox (1987)

<sup>22</sup>A highly altruistic donor will be willing to sacrifice more consumption in order to increase the well-being of the receiver. Therefore:  $\frac{\partial T}{\partial I_d} = \frac{\partial S}{\partial I_d} P + \frac{\partial P}{\partial I_d} S$ . If the donor is less altruistic, the result is the same but it is driven by a different mechanism. As the donor's utility increases with  $S$ ,  $\frac{\partial S}{\partial I_d} \geq 0$ . In addition, given that a substitute for  $S$  might be difficult to obtain, the donor's demand will probably be inelastic, so  $\frac{\partial P}{\partial I_d} \geq 0$  and thus, transfers will increase.

<sup>23</sup>Remember that [1.1]  $\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_r} < 0$  and [1.4]  $\frac{\partial T}{\partial I_d} > 0$ . As the donor is expected to give more value to the well-being of the receiver and the dis-utility that causes her to provide services, [1.1] should prevail.

<sup>24</sup>Remember [1.4]  $\frac{\partial T}{\partial I_d} > 0$ , and [1.2]  $\lim_{d \rightarrow 0} \frac{\partial T}{\partial I_r} > 0$ . As both agents have incentives to increase transfers, the total effect will be unambiguously positive.

<sup>25</sup>Even though [1.3]  $\lim_{d \rightarrow \infty} \frac{\partial T}{\partial I_r} = 0$ , [1.1]  $\frac{\partial T}{\partial I_d} > 0$  should prevail.

### 3.2 Setting 2. A Non-Altruistic Donor and an Impurely Altruistic Receiver

Assume now that the receiver is impurely altruistic and is the one leading the interaction. From her view, the optimization problem, is the following. She maximizes a utility function represented by Equation (2.1):

$$\text{Max}_{T, S \geq 0} V = V \left[ C_r, S, U(g(C_d), S) \right] \quad (2.1)$$

and the donor's participation constraint is:

$$U(I_d - T, S) \geq U(I_d, 0) \quad (2.2)$$

where  $g(C_d)$ , defined as  $g(C_d) = j(\hat{I}_d, \theta_d, \psi) - T$ , represents the receiver's perception of the donor's consumption with all the parameters defined as above.

From the receiver's perspective,  $0 < \partial V / \partial U < 1$  and  $\partial V / \partial S < 0$ . The donor, for its part, is non-altruistic so her utility is  $U = U(\hat{I}_d + \theta_d - T + S)$  and she enjoys the services offered by the receiver, so  $\partial U / \partial S > 0$ .

The first order conditions for an interior solution ( $T > 0$  and  $S > 0$ ), , as derived by Victorio and Arnott (1993), are as follows. At the maximum, the transfer matches the receiver's marginal utility of consumption and her perception on the marginal utility her well-being represents for the donor:

$$V_{C_r} = V_U U_{g(C_d)} \quad (2.3)$$

Optimal services, for its part, equal the receiver's dis-utility of provision and her perception on the marginal utility the services provided represent for the donor:

$$-V_S = V_U U_S \quad (2.4)$$

Distance  $\psi$  affects transfer derivatives through the receiver's perception of the donor's situation  $g(C_d) = j(\hat{I}_d, \theta_d, \psi)$ .<sup>26</sup>

$$\lim_{\psi \rightarrow 0} j(\hat{I}_d, \theta_d, \psi) = \hat{I}_d + \theta_d \quad (2.5)$$

$$\lim_{\psi \rightarrow \infty} j(\hat{I}_d, \theta_d, \psi) = \hat{I}_d + \theta_d \quad (2.6)$$

Three cases are possible. First, consider that only the donor is affected by the positive income shock ( $\theta_d > 0$  and  $\theta_r = 0$ ).

- For small values of  $\psi$  and a perfectly observable shock  $\theta_d$ :

$$[2.1] \lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_d} > 0^{27}$$

- For a greater distance separating the donor and the receiver, the after shock income of the donor becomes fuzzy, making her past income the only available source of information for the receiver to determine the optimum level of transfers. Thus:

$$[2.2] \lim_{\psi \rightarrow \infty} \frac{\partial T}{\partial I_d} = 0$$

Second, only the receiver is granted with the subsidy ( $\theta_d = 0$  and  $\theta_r > 0$ ). Since the donor does not get any utility from the well-being of the receiver, transfers will depend neither on the distance nor on the degree of altruism of the recipient. Thus:

$$[2.3] \frac{\partial T}{\partial I_r} > 0^{28}$$

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<sup>26</sup>See Figure 1 for an illustration. The curve  $j(\hat{I}_d, \theta_d, \psi)$  represents the receiver's perception of the donor's actual income as a function of distance.

<sup>27</sup>Since the donor is not altruistic, one expect her to prefer keeping the subsidy. However, given that the receiver leads the game, and she may know about the subsidy, she will offer more  $S$  or increase  $P$ .

<sup>28</sup>Remember that  $T = SP$  and  $\frac{\partial T}{\partial I_r} = \frac{\partial S}{\partial I_r} P + \frac{\partial P}{\partial I_r} S$ . If the receiver is highly altruist, meaning she gives an important weight to the utility of the donor, she is willing to increase the provision of services, even at the expense of her own consumption (i.e.  $\frac{\partial S}{\partial I_r} > 0$ ). If the receiver is less altruistic, meaning that she values more the dis-utility of providing services (i.e.  $\frac{\partial S}{\partial I_r} \leq 0$ ), the result will depend on the donor's demand. A very inelastic demand (i.e.  $\frac{\partial P}{\partial I_r} \geq 0$ ) implies a higher price  $P$  in order to avoid an, otherwise imminent, cut back of  $S$ .

Third, both the donor and the receiver get the subsidy ( $\theta_d > 0$  and  $\theta_r > 0$ ):

$$[2.4] \quad \frac{\partial T}{\partial I_{d,r}} > 0 \text{ regardless of distance}^{29}$$

### 3.3 Main Predictions

Table 1 summarizes the transfer derivatives as predicted above. In *Setting 1*, the combination of distance and a highly altruistic donor encourages the receiver to hide her new income so a positive transfer derivative will prevail. However, if the donor is not altruistic enough, the receiver will be better off by revealing she is getting the subsidy. This way she can be properly compensated for the higher dis-utility she gets when providing  $S$  now that her income is higher.

In *Setting 2*, regardless of the altruism of the receiver, the donor has incentives to hide her new income when distance permits, unless the receiver is willing to increase the provision of her services.

What would be the distance threshold after which information asymmetry affects private transfer decision making? Consider *Setting 1* and a situation where the shock only concerns the receiver. Assume the donor knows  $\hat{I}_r + \theta_r$  with probability  $p(\psi)$  and thinks after-shock income is still  $I_r$  with probability  $1 - p(\psi)$ , with  $p(\psi)$  being a decreasing function of  $\psi$ . Assuming  $h(\hat{I}_r, \theta, \psi)$  takes an exponential function, it can be rewritten as Equation (1.7):

$$\begin{aligned} h(\hat{I}_r, \theta_r, \psi, \sigma) &= p(\psi) (\hat{I}_r + \theta_r) + (1 - p(\psi)) (\hat{I}_r + \theta_r) \\ &= \exp(-\psi/\sigma) (\hat{I}_r + \theta_r) + [\exp(-\psi/\sigma) (\hat{I}_r + \theta)] \end{aligned} \quad (1.7)$$

where  $\sigma$  is the parameter that characterizes the distance from which information asymmetry

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<sup>29</sup>If distance is short the situation will be identical as the one described in [2.1] and [2.3]. If distance is large, it is clear that a highly altruistic receiver is willing, in any event, to increase the provision of services provided. A less altruistic receiver, expected to give more value to the dis-utility associated to the provision of services, will push for a decrease of transfers. However, the donor's demand might be so inelastic that a "price" effect will prevail. Since the receiver is willing, in any event, to increase the provision of services and the donor will also be happy to get more of them, the donor will not opt for hiding her new income state.

impacts transfers. If for example  $\psi = \sigma$  the donor will know  $\hat{I}_r + \theta_r$  with probability  $\exp(-1) = 0.37$ , and observe  $\hat{I}_r$  instead with probability  $1 - \exp(-1) = 0.67$ .

After this threshold  $\sigma$  a donor might not notice that the actual income of the receiver has increased and she needs less transfers in order to get the same well-being. Thus, the observed effect of the shock will be zero. On the contrary, before  $\sigma$ , the donor will be able to better adjust transfers-out without affecting the satisfaction of the receiver but increasing his own well-being.<sup>30</sup>

Symmetrically, under *Setting 2*, with an income shock concerning only the donor, there is a distance threshold  $\tau$  after which the receiver cannot verify the donor's new state and adjust the provision of services to a more convenient arrangement. So  $j(\hat{I}_d, \theta_d, \psi)$ , will be given by Equation (2.7)<sup>31</sup>:

$$\begin{aligned} j(\hat{I}_d, \theta_d, \psi, \tau) &= p(\psi) (\hat{I}_d + \theta_d) + (1 - p(\psi)) (\hat{I}_d + \theta_d) \\ &= \exp(-\psi/\theta_d) (\hat{I}_d + \theta_d) + [\exp(-\psi/\tau) (\hat{I}_d + \theta_d)] \end{aligned} \quad (2.7)$$

## 4 Empirical Analysis

This section presents an empirical analysis of the theoretical predictions exposed above. Specifically, it examines how donor-receiver distance impacts transfer derivatives in the face of positive income shocks. Two different definitions of distance are used. The first, geographic distance, is built according to the relative location of donors and receivers. The second, social distance, is characterized according to the relationship between the donor, or the receiver and the household head.

Positive income shocks are represented by a conditional cash transfer program called *Familias en Acción* implemented by the government of Colombia to offer subsidies to poor

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<sup>30</sup>Note that the same conclusion can be derived from a situation where the shock touches simultaneously both agents.

<sup>31</sup>Here again, the same conclusion will be driven if both agents get the subsidy simultaneously.

households. The following pages describe this program and present the data, descriptive statistics, identification strategy, results and discussion of the empirical analysis.

## 4.1 *Familias en Acción*

*Familias en Acción*, which translates as Families in Action, is a program that was launched in Colombia in 2003 to provide conditional cash transfers to very poor households living in small urban or rural localities.<sup>32</sup> It included two core components: a health and nutrition subsidy, allocated to households with children aged 0 to 6 years old, and an educational subsidy targeting children between 7 and 17 y/o. The health and nutrition allocation was fixed in 2003 at 46,500 Colombian Pesos - COP (18 US Dollars) per family per month.<sup>33</sup> The educational transfer depended on the number of school-age children in the household, fixed by 2003 at 14,000 COP (6 US Dollars) per child in primary school per month, and 28,000 COP (12 US Dollars) per child in secondary school per month.

The average monthly subsidy received was 54,106 COP (22 US Dollars), nearly 11% of the average household monthly income, with half of the beneficiary households receiving at least 46,500 COP (19 US Dollars). The minimum was 14,000 and the maximum 116,500, for a household receiving the nutritional allocation plus the educational subsidy for 3 children in primary and 3 in secondary.<sup>34</sup> As for other similar programs, *Familias en Acción* subsidies required households to fulfill certain requirements, such as assist regularly to health-care checks and attend school.<sup>35</sup>

The implementation of the program started in 1999 and took place in two stages. First, households were targeted geographically to municipalities fulfilling the following conditions: (i) having less than 100,000 inhabitants, (ii) not receiving reconstruction aid (planned for the municipalities most affected by the 1995 earthquake), (iii) not being a department capital,

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<sup>32</sup>*Familias en Acción* was inspired by the CCT *Progresa* in Mexico (now called *Oportunidades*).

<sup>33</sup>The 2002 exchange rate corresponds to approximately 2,500 COP per US Dollar.

<sup>34</sup>Author's calculations using the *Familias en Acción* survey, 2002 - 2003. These figures are based in the last payment received reported by the households in the survey.

<sup>35</sup>In practice, the subsidies were contingent on verification of attendance certificates by the municipal coordination offices and the regional and national coordination units, every two months.

(iv) having basic education and health infrastructure and (v) having a bank.<sup>36</sup>

Next, eligible households from each qualifying municipality were selected on the basis of two requirements : (i) having children aged 0 to 17 y/o and (ii) being in extreme poverty, according to a welfare classification system known as SISBEN.<sup>37</sup> These conditions had to be fulfilled first, by the 31<sup>st</sup> of December of 1999, and then, before the beginning of the program.

In order to receive the subsidy, households from eligible municipalities had to be registered in advance. This process started in late 2000 but most households registered between February and March of 2002. According to the *Familias en Acción* evaluation data, by the end of 2002 almost 92% of the eligible households from treatment municipalities<sup>38</sup> was actually registered.<sup>39</sup>

The program was fully in operation in all targeted municipalities by the beginning of 2003. Although payments were supposed to begin by this date, in half of the treatment municipalities<sup>40</sup> they started earlier, between the end of 2001 and the beginning of 2002.<sup>41</sup> This situation was due to two reasons. First, because one of the main goals of the program was to alleviate the effects of the deep recession that touched the country in 1998 - 2001, so it was important to distribute the subsidies in the shortest time frame possible. Second, because the government was keen to start the implementation before the presidential elections that took place the 26<sup>th</sup> of May of 2002.

By 2003, the program reached 365,000 households. Existing work suggest the program

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<sup>36</sup>691 municipalities, out of 1,024, qualified at the time.

<sup>37</sup>SISBEN, which translates as Selection System of Identifying and Selecting beneficiaries, is a system routinely used to evaluate the quality of life of Colombian households. It gathers information on 5 main dimensions: health status, education, housing, access to public services and social vulnerability (exposure to risks and security conditions). From these data, households are classified in one out of 6 levels. Level 1 corresponds to the most deprived group.

<sup>38</sup>Municipalities eligible for the program.

<sup>39</sup>Those who were not yet registered argue they did not complete the paperwork on time (37%), were not aware of the program or did not know they were eligible (36%) and did not have the time and the money to fulfill the conditions (8.3%), among other reasons.

<sup>40</sup>Named Treatment with Payment - TCP.

<sup>41</sup>According to program officials, these early started municipalities (TCP) were selected by the order in which the paperwork was administrated in the central office (Attanasio *et al.*, 2010).

successfully met its goals by increasing school enrollment rates, diminishing child labor participation and improving health and nutrition outcomes, and also achieved an increase in household consumption (Attanasio and Mesnard, 2006; Attanasio *et al.*, 2006, 2012, 2010).

## 4.2 Data

The analysis uses the first two rounds of the data collected to evaluate the *Familias en Acción* program.<sup>42</sup> These surveys were implemented between June and October of 2002 and July and November of 2003 on a panel of 11,462 households. The design consisted on constructing a representative stratified sample of treatment municipalities and to choose a group of control municipalities, as similar as possible but that were not implementing the program.<sup>43</sup>

This process had two phases. In the first phase, the municipalities<sup>44</sup> were grouped by the number of eligible households, in order to randomly select a representative stratified sample of treatment municipalities. Then, 25 strata were defined based on the region and an index of health and education infrastructure. Control municipalities were chosen within each strata in order to be comparable to treatment ones in terms of population, area and an index of quality of life. The final sample consists of 122 municipalities, 57 treatment and 65 control.<sup>45</sup>

In the second phase, for each municipality, approximately 100 eligible households were randomly selected, using the information contained in the December of 1999 SISBEN registers. Although the implementation of the baseline survey<sup>46</sup> was scheduled to begin before the first payments took place, in half of the treatment municipalities the subsidies started to

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<sup>42</sup>In total four rounds of data were collected: the baseline in 2002, the first follow up in 2003, a second follow up in 2005 and a fourth one in 2011.

<sup>43</sup>The whole process was handed by a consortium formed by the Institute for Fiscal Studies - IFS and two Colombian agencies, *Econometría*, a research Institute, and SEI, a data collection firm,

<sup>44</sup>The exact term is not municipality but Primary Sampling Unit - PSU. However, in most cases, one PSU corresponded to one municipality.

<sup>45</sup>A more detailed description of this process is contained in Attanasio *et al.* (2003); Attanasio and Mesnard (2006); Attanasio *et al.* (2010).

<sup>46</sup>Which took place during the summer of 2002.

be delivered earlier (TCP). These municipalities, and their peers from the control group<sup>47</sup>, were identified in the data and excluded from the analysis (3,558 households), leaving a final baseline sample of 7,904 households.

The second round of the survey took place in 2003, succeeding in interviewing 6,529 households, living in 101 municipalities. Table 2 shows the structure of this two year sample, broken down by municipality status.

Despite attrition is reasonable (18%), it might induce some selection bias in the results. The main concern is nonrandom migration, potentially correlated with treatment status. However, attrition rates are not significantly different between households living in treatment and control municipalities. In addition, there are other reasons to believe that nonrandom migration is unlikely to invalidate the results. First, recall that in order to receive the subsidy households needed to be register in a treatment municipality by 1999, so migration between surveys does not change the eligibility status of households. Moreover, migration in this context might be costly and the incentives induced by the subsidy do not seemed to be enough to compensate.<sup>48</sup>

The *Familias en Acción* survey contains information on many variables. Two modules collecting retrospective information on private transfers received and delivered by the household, are particularly relevant for the analysis. The first module inquires about money and in-kind transfers received during the last twelve months from someone not living in the household (transfers-in).The exact question is: In the last 12 months, has any household member received any help in cash or in-kind from a relative, a neighbor or a friend not living in this household? When the answer is yes, the respondent is asked to report how many times in the period this help was received, its total value (in Colombian Pesos - COP), the relative location of the donor and her relationship with the household head, for a maximum of 3 different sources. The second module, asks about transfers delivered to someone not living in the household also during the last twelve months (transfers-out).

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<sup>47</sup>Named Control with payment - CCP.

<sup>48</sup>The average subsidy received by a household represents 11% of average income.

Both modules provide information on the relative geographic location of transfer partners (donors or receivers), recorded through four answer categories: i) same neighborhood or sidewalk, ii) same village/municipality, iii) another Colombian village/municipality, and iv) a foreign country. In the same way, the survey gathers information about the relationship of the household head and the transfer partners (donors or receivers), recorded in two categories: i) relatives, and ii) friends.

Based on this information a number of outcome variables recording transfer transactions were constructed. The process followed for their construction is detailed as follows. Lets consider the example of the variables recording the value of money (in-kind) transfers-in (transfers-out). First, I construct a variable adding all the money (in-kind) transfers received (delivered) by the household without taking into account the geographic or social distance of the donor (receiver). This variable is named “Any location/partner”. Second, I build two variables disaggregating these transfers by the geographic relative location of the donor (receiver): “Close”, aggregates the transfers received (delivered) from (to) the categories same neighborhood, same sidewalk and same village/municipality. “Far”, adds the transfers received (delivered) from (to) the categories another Colombian village/municipality, and a foreign country. Finally, I built two variables disaggregating transfers according to the relationship of the household head with the donor (receiver): “Relatives” and “Friends”. Households not receiving (delivering) any money transfer were recorded as missing.

In addition to variables that record the value of the transfers, whose construction process is explained above, similar variables measuring the participation of households in these transactions were also built. These are dummy variables, equal to one if the household received (delivered) at least one Colombian peso of money (in-kind) transfer in each category, and zero otherwise.

It is important to note that transfer partners are not tracked in the survey. This means that the only way to identify them in the data is through the aforementioned information (i.e. geographic relative location and relationship with the household head) provided by the

receiving (delivering) household itself.

### 4.3 Descriptive Statistics

Table 3 displays some the socioeconomic characteristics of the households before *Familias en Acción* was launched (i.e. 2002). A little more than half are located in urban areas and 37% in denser populated rural zones. They are, on average, composed by 6 members and are mostly nuclear families. One in ten affirm having at least one permanent migrant, generally living in another Colombian municipality (90%). Almost 20% are headed by a single parent, most of whom are women. Household heads are on average 45 years old and one third are illiterate. Only 3% are unemployed and most work as paid employees or self-employed (38% in each case).

As already mentioned, households in the sample are very poor, 89% are below the poverty line and 53% fall into the range of extreme poverty.<sup>49</sup> In addition, 26% live in inadequate housing, 17% have no access to basic services, 35% live in overcrowded dwellings, 6% have at least one child aged 7 to 11 not attending school and 19% live in high economic dependence. The average monthly household income<sup>50</sup> is 496,047 COP (around 198 US Dollars) and consumption amounts to 227,780 COP (91 US Dollars). On average, households have savings for 29,995 COP (12 US Dollars) while loans amount up to 57,050 (23 US Dollars).

Private transfers are very important in this context. Table 4 shows that nearly half of the households reporting having received a private transfer in the previous year: 20% in the case of money transfers and 39% in the case of in-kind transfers. Money transfers come mostly from relatives and represent, on average, 17% of household income. By contrast, in-kind transfers come mostly from donors living nearby and their contribution reaches 17% of total consumption.<sup>51</sup> As expected, very few households deliver money and in-kind transfers, 11%

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<sup>49</sup>The poverty and extreme line values were fixed respectively at 1,788,624 and 769,260 COP in 2002 (Attanasio *et al.*, 2004).

<sup>50</sup>Adding labor, rental and retirement income.

<sup>51</sup>Hernández Luna (2008) and Medina H. and Galván (2008) claim that private transfers are the second most relevant source of household income in Colombia, after labor and before public transfers and subsidies,

and 17% respectively (representing 3% of total income and 4% of total consumption).

Most households privilege delivering transfers to nearby locations, specially in the case of in-kind ones. Despite its relevance, data shows that, transfers are not received and delivered in a very regular basis. In most of the cases, households are involved in transfer transactions only once or three times in the year (Figure 2).

Although it is not the most common trend in the data, households can be involved in several transfer transactions at the same time. Just 13% of the households simultaneously received and delivered transfers (811 cases), with only 6% of them receiving and delivering transfers from and to a close partner, and 31% receiving and delivering transfers from and to a friend. It is also rare to receive or deliver transfers to more than one type of partner. From the total number of households receiving transfers, only 11% simultaneously received them from close and far locations, and 12% from relatives and friends. Similarly, from those delivering transfers, only 3% delivered them to close and far locations, and 9% to relatives and friends, at the same time (Table 5).

Finally, Table 6 presents the evolution of private transfers between 2002 to 2003. The percentage of households receiving and delivering transfers registers a general increase. In the case of transfers-in, participation raised in 21 percentage points, mostly driven by in-kind transfers. What is more interesting, however, is that these gains are much more important in the case of transfers involving partners living far and friends. When it comes to their values, however, the evolution path is less clear. Although aggregate transfers increased in both money and in-kind types, in some cases, these sums actually decreased (e.g. for all money transfers-in disaggregated cases and in-kind transfers-in from relatives).

Something similar is observed for transfers-out. Although the aggregate participation rates remains stable, all the disaggregated cases registered an increase, with the most important gains observed for transfers delivered to far locations and friends.<sup>52</sup> This time, however, the values associated to the different geographic and social distance sub-categories, show all

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and a key factor in explaining poverty alleviation and income diversification for the poorest.

<sup>52</sup>Except for in-kind transfers-out.

decreasing trends.

## 4.4 Identification Strategy

The identification strategy relies on a difference-in-difference method (DID), consisting in comparing changes in private transfer outcomes between *Familias en Acción* eligible and non-eligible households before and after the program. The empirical specification is given by Equation (3):

$$Y_{i,t} = \alpha_t + \eta_i + \beta P_{i,t} + \gamma R \times \alpha_t + \lambda Z \times \alpha_t + \varepsilon_{i,t} \quad (3)$$

where  $Y_{i,t}$  denotes the transfer outcome of interest for household  $i$  in year  $t$  (for example, in the case of being participating in money transfers-in from a close partner,  $Y_{i,t}$  represents a dummy variable equal to 1 if household  $i$  received a money transfer from a household from a nearby location in year  $t$ ),  $P_{i,t}$  is a dummy variable equal to 1 if the household  $i$  is located in a treatment municipality and 0 if it is located in a control municipality in year  $t$ ,  $R$  is a set of region dummies,  $Z$  is a set of zone type dummies (urban<sup>53</sup>, populated center<sup>54</sup> and rural),  $\alpha_t$  represents time,  $\eta_i$  accounts for household fixed-effects and  $\varepsilon_i$  is an error term.

To the extent that treatment status is a random event,  $\beta$  would yield an unbiased estimate of the average impact of *Familias en Acción* eligibility on private transfers. Although the program was not randomly assigned, its evaluation design was made in such a way that in the data, treatment and control households should be alike. Tables 7 and 8 present simple test of differences in means in order to check how different were these households before the program started.

Results suggest that treatment and control households do not differ significantly in terms of income and several measures of wealth. This indicates that selection into the program may not be strongly linked to initial household socioeconomic differences. However, there are other dimensions in which treatment and control households do not appear to be as

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<sup>53</sup>Capital cities and municipal heads.

<sup>54</sup>Concentration of at least 20 adjacent dwellings, neighboring or attached to each other, located in the rural area of a municipality or a departmental subdivision.

comparable. Eligible households are, for instance, less likely to live in urban areas; tend to have less children between 7 and 11 y/o not attending school; have less adults; have more children below 7 y/o; have younger and more literate household heads, less household heads unemployed and less household heads in self-employment; consume less and accumulate less savings (Table 7).

With only two exceptions<sup>55</sup>, households do not statistically differ in the participation in transfer-in and transfer-out transactions. With regard to the variables recording the amounts of transfers, multiple differences are observed. In most of the cases treatment households receive and deliver smaller amounts of transfers than their control counterparts (Table 8).

In order to ease up selection into treatment concerns, all the estimations include household fixed-effects ( $\eta_i$ ), that capture those time unvarying observable and unobservable characteristics potentially correlated with program eligibility status and private transfer outcomes. In addition, estimations also include region and zone type dummies interacted with time ( $\gamma R \times \alpha_t$  and  $\lambda Z \times \alpha_t$ ), to control for unobservable time varying characteristics at these levels. However, an unbiased estimate of  $\beta$  still requires to fulfill other requirements, posed, for example, by the parallel trends assumption. This and other identification threats are discussed at the end of the section.

## 4.5 Results

Tables 9 and 10 present the estimated  $\beta$  coefficients of Equation (3) for transfers-in and transfers-out, when the dependent variables are the participation in transfer transactions (Columns 1 - 3) and their value (Columns 4 - 6). Panel A displays the result of a regression in which the dependent variable aggregates all the transfers received without distinguishing the geographic/social distance with the donor, i.e. “Any location/partner”. Panel B presents the results when the dependent variable is disaggregated by geographic distance. The first row,  $\beta_{close}$ , presents the results when the dependent variable includes only transfers received from

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<sup>55</sup>Money transfers received from relatives and friends; and in-kind transfers delivered towards close partners.

the same neighborhood, the same sidewalk and the same village/municipality.<sup>56</sup> The second row,  $\beta_{far}$ , displays the results when the dependent variable aggregates transfers received from another village/municipality and from a foreign country. The last row contains the Chi-squared and P-value of a statistical test to establish whether these two coefficients are different, that is  $\beta_{close} - \beta_{far} = 0$ .

Finally, Panel C summarizes the results when transfers-in are disaggregated by the social relationship of the household head and the donor. The first row,  $\beta_{relatives}$ , presents the results when the dependent variable aggregates transfers received from relatives; the second,  $\beta_{friends}$ , displays those received from friends; and the third row shows the results of a Chi-squared test of difference between these two coefficients ( $\beta_{relatives} - \beta_{friends} = 0$ ). Columns break down by the three different kinds of transfers under consideration: total (Columns 1 and 4), money (Columns 2 and 5) and in-kind (Columns 3 and 6).

The independent variable of interest is a treatment status dummy, which takes the value of 1 if the household belongs to a municipality eligible for the program, and 0 otherwise. Estimations are implemented using Linear Probability Models (LPM), in the case of transfer participation outcomes, and OLS, in the case of transfer value outcomes, and include robust standard errors clustered at the municipality level and household fixed effects. Other controls are five region and three zone type dummies (urban<sup>57</sup>, populated center<sup>58</sup> and rural).

## Transfers-in

The first set of results describes the association between *Familias en Acción* and transfers received. Very important findings emerge from these estimations.

Aggregated transfers (Panel A - Table 9) appeared to be uncorrelated to the program, regardless the way they are measured (participation or value) and their type (total, money or

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<sup>56</sup>In the case of participation this variable is equal to 1 if the household received at least 1 COP from one of these locations and 0 otherwise. Remember that this variable is recorded as missing if the household did not receive any transfer and that some households receive transfers from both types of partners.

<sup>57</sup>Capital cities and municipal heads.

<sup>58</sup>Concentration of at least 20 adjacent dwellings, neighboring or attached to each other, located in the rural area of a municipality or a departmental subdivision.

in-kind). Perfect information models of transfers would interpret this result as evidence of the unresponsiveness of transfers-in to income shocks. However, considering that there may be distance driven information asymmetries influencing these transactions, other interpretations become plausible.

When transfers-in are disaggregated by the geographic distance of the donor (Panel B), the program appeared to be negatively correlated with money transfers received from nearby locations (both participation and value measures), while there is no evidence of any statistical association with those coming from farther locations are all statistically equal to zero. Specifically, compared to control households, *Familias en Acción* eligibles are 12 percentage points less likely to receive money transfers when they come from close locations. In addition, value estimates show that these households receive on average 7,095 COP (almost 3 US Dollars) less money transfers per month from partners living close. This amount is equivalent to 13% of the average subsidy received by a household in the data (54,106 COP, 22 US Dollars).

These findings are in line with the conceptual framework outlined in Section 3. Start first by analyzing ( $\beta_{close}$ ). Theory predicts that, in situations where the actual state of the receiver is perfectly observable, transfers-in may decrease with positive income shocks on the receiver's side, and even if these shocks simultaneously affect the donor<sup>59</sup>. In the case where only the transfer receiver is eligible to the subsidy, the intuition is that, with the subsidy, the receiver is better off, and less willing to provide services to the donor, and by living close to her, the donor can easily notice that now she needs smaller transfers to achieve an optimal situation.

Now, if both, the receiver and the donor are potential beneficiaries of *Familias en Acción*<sup>60</sup>, what would be behind  $\beta_{close}$  is the interaction between a receiver valuing more

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<sup>59</sup>However, this is not testable given that this side of the transaction is not observed in the data.

<sup>60</sup>This scenario could seem, at first sight, very likely given that this specification aggregates transfers received from the same municipality, so both agents live in a treatment municipality. However, it should be noted that no other characteristics of the donor are observed in the data, so it is not possible to know whether she meets the other eligibility criteria of the program or not.

the dis-utility associated to providing services to the donor, and a donor wishing to get more services but altruistically enough to give more weight to the well-being of the receiver.

On the other hand,  $(\beta_{far})$  refers to a situation in which the actual condition of the receiver is less likely to be noticed by the donor. Therefore, the unresponsiveness of transfers-in to the program, observed in Table 9, might be explained by the faculty that distance gives the receiver to hide the subsidy. If the donor were also eligible, a situation that can not be observed in the data,  $\beta_{far}$  would tend to be positive.

Attention is drawn to the fact that these results only concern money transfers. This might be related to the possibility that in-kind transfers might be motivated by other types of interactions and preferences, different from the ones originally modeled by Cox, and on which the analysis presented in this chapter is based. However, there is also the possibility that this variable is less precise given that these types of transfers are more difficult to measure.

Finally, a brief comment on estimations from Panel C, social distance. None of the coefficients, neither  $\beta_{relatives}$  nor  $\beta_{friends}$ , are statistically associated with program eligibility in any of the proposed estimations. This is striking given that, many of the existing theoretical literature and empirical research on private transfers are based on family interactions. However, it cannot be ruled out that the relatives/friends typology is not precise enough or that this type of interaction requires a different framework of analysis.

## **Transfers-out**

The second set of results refers to transfers-out and *Familias en Acción* eligibility. As in the previous case, aggregate transfers-out (Panel A - Table 10) prove to be uncorrelated with program eligibility status. However, money transfers delivered to close locations show a positive coefficient for both participation and value measures (Panel B). *Familias en Acción* eligible household are 14 percentage points more likely to deliver money transfers when their partners live close. Furthermore, they transfer, on average, 8,452 COP (3.4 US Dollars)

per month more to partners living nearby, 16% of the average *Familias en Acción* subsidy received by a household in the data (54,106 COP, 22 US Dollars). On the contrary, when donors and receivers live far from each other, the coefficients associated to the program ( $\beta_{far}$ ) are not statistically significant in any of the estimations.<sup>61</sup>

Theoretical predictions from Section 1.3, offer a good approach to explain these results. When the situation of the donor is perfectly observable by the receiver ( $\beta_{close}$ ) and only the first is eligible for *Familias en Acción*, either she is highly altruistic, and seeks to increase the well-being of the recipient, or, she is less altruistic, but is willing to increase her demand for services. Now, if both agents are eligible, a situation not observable in the data, transfers-out will also increase because, the receiver would be likely to discount the dis-utility gain of the provision of services, via an increase of  $P$ .

On the contrary, when transfers are delivered farther ( $\beta_{far}$ ), the eligibility of the donor is unobserved by the receiver. Thus, the donor would be in the possibility of hiding the subsidy avoiding that the receiver increases the value of the services she provides. Similarly, if the receiver were eligible too,  $\beta_{far}$  would also be positive, as it is in the interest of both agents to reveal their true state.

As for transfers-in, here again, no correlation is observed between the program and in-kind transfers nor between the program and transfers disaggregated by social distance.

## 5 Discussion

The results presented above suggest that positive income shocks, like government subsidies, are associated to a decrease of transfers-in and an increase of transfers-out when transfer donors and receivers are geographically close. On the contrary, when donors and receivers live far from each other, transfers and income shocks appeared to be uncorrelated. This section discusses three important identification threats that prevent a causal interpretation of these findings, and the possible social welfare implications of the main results.

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<sup>61</sup>Note however that, in these cases, the test fails to reject the hypothesis of  $\beta_{far}$  equal to  $\beta_{far}$ .

## 5.0.1 Identification Threats

### Parallel Trends Assumption

The key assumption behind the identification of unbiased  $\beta$  coefficients, from Equation (3), is the parallel trends assumption. It posits that, conditional on covariates, in the absence of the program, the trend in transfers-in and transfers-out would have followed the same path across treatment and control groups. Since the program was not randomly assigned, households across treatment and control municipalities are very likely to present different pre-program paths. Indeed, as shown in Tables 3 and 4, treatment and control households were different just before the program started.

Suppose, for instance, that households living in treatment municipalities, suffered more from the 1998 - 2001 recession and were more likely to lose their houses and jobs.<sup>62</sup> This situation could have made them more likely to receive private transfers, in order to easier mitigate the shock and recovery faster. The possibility that treatment households may exhibit higher pre-treatment transfer growth rates underlines an eventual violation of the parallel trends assumption.

In order to verify that transfers effectively follow a parallel trend in the data, the ideal would be to have information on transfer transactions from several years prior to 2002. However, *Familias en Acción* data collection started in 2002 and no retrospective information on transfers was ever collected. There is also no data from other potential sources for the period in question. One possibility is the National Income and Expenditure Survey (ENIG, for its acronym in Spanish).<sup>63</sup> However, this survey is only representative for urban areas in 23 municipalities, while the *Familias en Acción* data used for the analysis also includes rural areas and covers 101 municipalities.

The possible violation of the parallel trends assumption implies that the analysis results

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<sup>62</sup>Remember that treatment municipalities are differentiated from control ones, among other aspects, for having a banks. Well, the banking system was, precisely, one of the most affected by this crisis.

<sup>63</sup>This survey includes, in the income module, a question about transfers received (delivered) from (to) other households.

should be interpreted with caution, since it cannot be assured that the estimators are actually capturing the causal effect of the program on transfer transactions alone.

### **Selection in Transfer Partners**

The main contribution of the analysis presented above is the comparison of  $\beta$  coefficients across transfers received (delivered) from (to) close/far locations and relatives/friends. However, for these comparisons to be causally interpreted, one may expect that the geographic/social distance between transfer donors and receivers is determined exogenously. This may be a very strong assumption given that households are most likely to decide about their transfer partners according to different considerations and characteristics, some potentially correlated with their treatment status (representing here positive income shocks).

Tables 11 and 12 present simple tests of mean differences between households receiving (delivering) transfers from (to) close and far locations, and from (to) relatives and friends. Results suggest that households receiving (delivering) transfers from (to) close and far locations differ significantly in several characteristics; as well as those receiving (delivering) transfers from (to) relatives and friends.

It is important to note that all those characteristics that do not vary over time are captured in the estimations by household fixed-effects ( $\eta_i$ ). However, there is no way to rule out other time varying confounding factors. Consider, for instance, a household head that, in order to fulfill with the requirements of *Familias en Acción*, assists regularly with her 4 y/o kid to health checks. She may agree to take the child of her neighbor too, receiving, in return, a small income transfer (i.e. service motivated transfer), but the same arrangement would not be possible with a friend living in another village. (i.e. service motivated). Although it is possible to find statistical differences between these coefficients in this example ( $\beta_{close}$  would likely be positive and significant and  $\beta_{far}$  not significant), it would be inaccurate to interpret them as a consequence of information asymmetry.<sup>64</sup>

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<sup>64</sup>Other examples include eligible households spending the subsidy in financing the migration of a relative and getting back higher remittances ( $\beta_{far} > 0$  and  $\beta_{close} \rightarrow 0$ ), or asking their neighbors for an express loan

## Anticipation Effects

Another problem will arise if, before the program officially started, households changed their transfer anticipating the subsidy . This issue is particularly worrying in the case of *Familias en Acción* because the program was widely publicized, even before the baseline data was collected, and households were required to register earlier.<sup>65</sup>

Attanasio *et al.* (2004, 2012, 2010) present evidence confirming possible anticipation effects of the program on household consumption, school enrollment and labor supply, which are directly related to the conditionalities of the program. In the case of transfers, it is possible that, knowing that the subsidy would relax their budget constraints, households may, for instance, increase transfers-out (in the case of donors) or provoke a raise of transfers-in (in the case of receivers), by offering more services or augment the monetary value of them. Although this situation would imply that the  $\beta$ coefficients in Tables 9 and 10 would be downward biased, there is no evidence to support differences according to the distance between donors and recipients.

### 5.0.2 Social Welfare

The identification threats outlined above signal that, although the empirical evidence presented in this paper illustrates well the theoretical predictions outlined in Section 3, according to which the responsiveness of transfers to income shocks is partly explained by information asymmetries associated to distance, one can not discard that other devices are at stake in explaining the association between transfer transactions and government subsidies. The viability of alternative mechanisms highlights the importance of being cautious when it comes to draw strong and definitive conclusions from these findings. However, it is important to note that, by acknowledging the role that information asymmetry and distance fulfill in the configuration of private transfers, this analysis does not intend to question the legitimacy of

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to start a new business ( $\beta_{close} > 0$  and  $\beta_{far} \rightarrow 0$ ).

<sup>65</sup>Official figures suggest that by march of 2002, 64% of the eligible households were already registered to receive the subsidy.

other channels. Besides, there are other caveats that limit the interpretation of the findings and restrict the assessment of its public policy implications.

A highly relevant aspect is the social welfare effects of the decrease in private transfers received or the increase in pressure to deliver more on *Familias en Acción* eligible households. In particular, it is possible that the government subsidies will bring in new transfer partners introducing additional re-distributive effects. To find out more about these effects, however, it is necessary to have more precise information about the socioeconomic characteristics of the different transfer partners and the dynamics of the new transactions.

By assuming, for instance, that donors cutting transfers to *Familias en Acción* eligible households are, after the subsidy, comparatively poorer, i.e.  $\hat{I}_r + \theta_r > I_d$ <sup>66</sup>, and considering they may now start to deliver transfers to poorer households (subscript  $t$ ), i.e.  $\hat{I}_r + \theta_r > I_d > I_t$ , the social welfare impact of the program can be indeed positive. On the contrary, if donors do not engage in any new transfer transactions, the effect might be negative. Similarly, if, thanks to the subsidy, *Familias en Acción* eligible household engage in transfer transactions with poorer households, i.e.  $\hat{I}_d + \theta_d > I_r > I_t$ <sup>67</sup>, the final impact will be even greater.

Unfortunately, the lack of information on these variables prevents the analysis to be more conclusive about the social welfare aggregated effects.

## 6 Conclusions

Asymmetry of information and distance between donors and receivers has often been ignored by the theoretical and the empirical literature studying private income transfers. In this paper, I contribute to fill this gap by investigating, to what extent, the relative geographic location between transfer donors and receivers, and the proximity of their parentage, helps to explain the responsiveness of private transfers to positive income shocks. First, I present

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<sup>66</sup>Remember that ,in this example, *Familias en Acción* eligibles, as transfer receivers, are those identified with the subscript  $r$ .

<sup>67</sup>In this example, *Familias en Acción* eligibles, as transfer donors, are those identified with the subscript  $d$ .

a theoretical framework to conceptualize the idea that distance generates information asymmetry that induce transfer partners to act strategically, by, for instance, hiding income gains from government subsidies. Then, I empirically test these predictions using longitudinal data collected for the evaluation of a very popular social program implemented in Colombia, *Familias en Acción*.

Four key results stand out. First, I find a negative association between the program and both the participation and the value of transfers received, when donors and receivers are physically close to each other. Likewise, the program is positively correlated with transfers delivered to nearby locations. On the contrary, when agents live far from each other, the coefficient associated to the program is not statistically significant. Finally, when transfers are simply added without regard to their geographic origin and destination they also prove to be unresponsive to the program.

These results suggest that *Familias en Acción* subsidies may partially substitute private transfers between partners living close from each other (crowding-out effect), lessening the budget constraint of the donors and pushing targeted household to share a fraction of the program allocation with their physically closer kin and friends. Although further research is needed to assess the welfare implications of these results, the analysis presented in this paper offers some insights into the role of information asymmetry due to geographic distance in shaping private income transfer responses to positive income shocks (e.g. government subsidies).

## 7 Figures and Tables

Figure 1: Perceived Actual Income and Distance

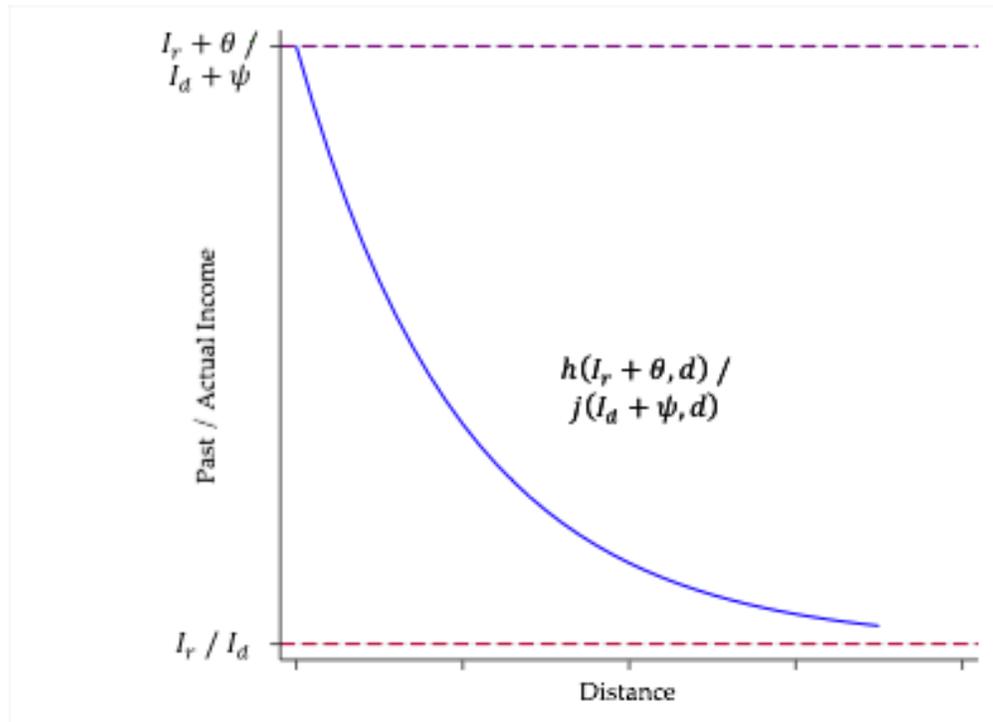


Table 1: Transfer Derivatives  
Summary of Predictions

Case	Altruism		Subsidy beneficiary		Transfer Derivative
	Donor	Receiver	Donor	Receiver	
[1.1]	High	No	No	Yes	$\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_r} < 0$
[1.2]	Low	No	No	Yes	$\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_r} > 0$
[1.3]	High/Low	No	No	Yes	$\lim_{\psi \rightarrow \infty} \frac{\partial T}{\partial I_r} = 0$
[1.4]	High/Low	No	Yes	No	$\frac{\partial T}{\partial I_d} > 0$
[1.5]	High	No	Yes	Yes	$\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_{d,r}} < 0$
[1.6]	Low	No	Yes	Yes	$\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_{d,r}} > 0$
[1.7]	High/Low	No	Yes	Yes	$\lim_{\psi \rightarrow \infty} \frac{\partial T}{\partial I_{d,r}} > 0$
[2.1]	No	High/Low	Yes	No	$\lim_{\psi \rightarrow 0} \frac{\partial T}{\partial I_d} > 0$
[2.2]	No	High/Low	Yes	No	$\lim_{\psi \rightarrow \infty} \frac{\partial T}{\partial I_d} = 0$
[2.3]	No	High/Low	No	Yes	$\frac{\partial T}{\partial I_r} > 0$
[2.4]	No	High/Low	Yes	Yes	$\frac{\partial T}{\partial I_{d,r}} > 0$

Table 2: Sample Composition by Municipality Treatment Status

	Surveyed in	Surveyed in	Attrition	
	2002	2002 and 2003	Rate	
	Obs.	Obs.	Mean	S.E.
	(1)	(2)	(3)	(4)
Treatment municipalities (T)	3215	2646	0.18	(0.02)
Control municipalities (C)	4689	3883	0.17	(0.02)
Difference (C) - (T)	1474	1237	-0.01	(0.03)
Total	7904	6529	0.18	(0.01)

Source: FA Surveys 2002 - 2003. Notes: Standard errors in parenthesis clustered at municipality level and means adjusted by weights. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded.

Table 3: Socioeconomic Characteristics of the Sample (2002)

	Mean	S.E.
	(1)	(2)
Urban (d)	0.54	(0.04)
Populated center (d)	0.37	(0.01)
Rural (d)	0.09	(0.00)
Total hh members	6.24	(0.07)
Number of adults (18-65 y/o)	2.65	(0.04)
Number of youngsters (7 - 17 y/o)	2.17	(0.03)
Number of children ( $\leq$ 7 y/o)	1.23	(0.03)
Hh has more than one family (d)	0.05	(0.00)
Hh has permanent migrants (d)	0.11	(0.01)
Hh is single parenting (d)	0.18	(0.01)
Hh head age	44.68	(0.27)
Hh head is literate (d)	0.70	(0.01)
Hh head is unemployed (d)	0.03	(0.00)
Hh head is employee (d)	0.38	(0.03)
Hh head is self- employed (d)	0.38	(0.03)
Hh is poor(d)	0.89	(0.01)
Hh is extremely poor(d)	0.53	(0.02)
Hh inadequate housing (d)	0.26	(0.03)
Hh dwellings without basic services (d)	0.17	(0.02)
Hh overcrowding (d)	0.35	(0.02)
Hh truancy (d)	0.06	(0.01)
Hh high economic dependence (d)	0.19	(0.01)
Monthly hh income	496047.03	(21638.57)
Monthly per capita income	82566.33	(3644.65)
Monthly hh consumption	227780.24	(2509.63)
Monthly per capita consumption	39941.89	(469.65)
Hh monthly savings	2995.27	(1018.43)
Hh monthly loans	57050.76	(4744.35)
Observations	6529	

Source: FA Survey 2002. Notes: (d) stands for dummy variables. Standard errors are clustered at municipality level and means are adjusted by weights. All values are converted into monthly flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded.

Table 4: Participation in and Value of Private Transfer Transactions (2002)

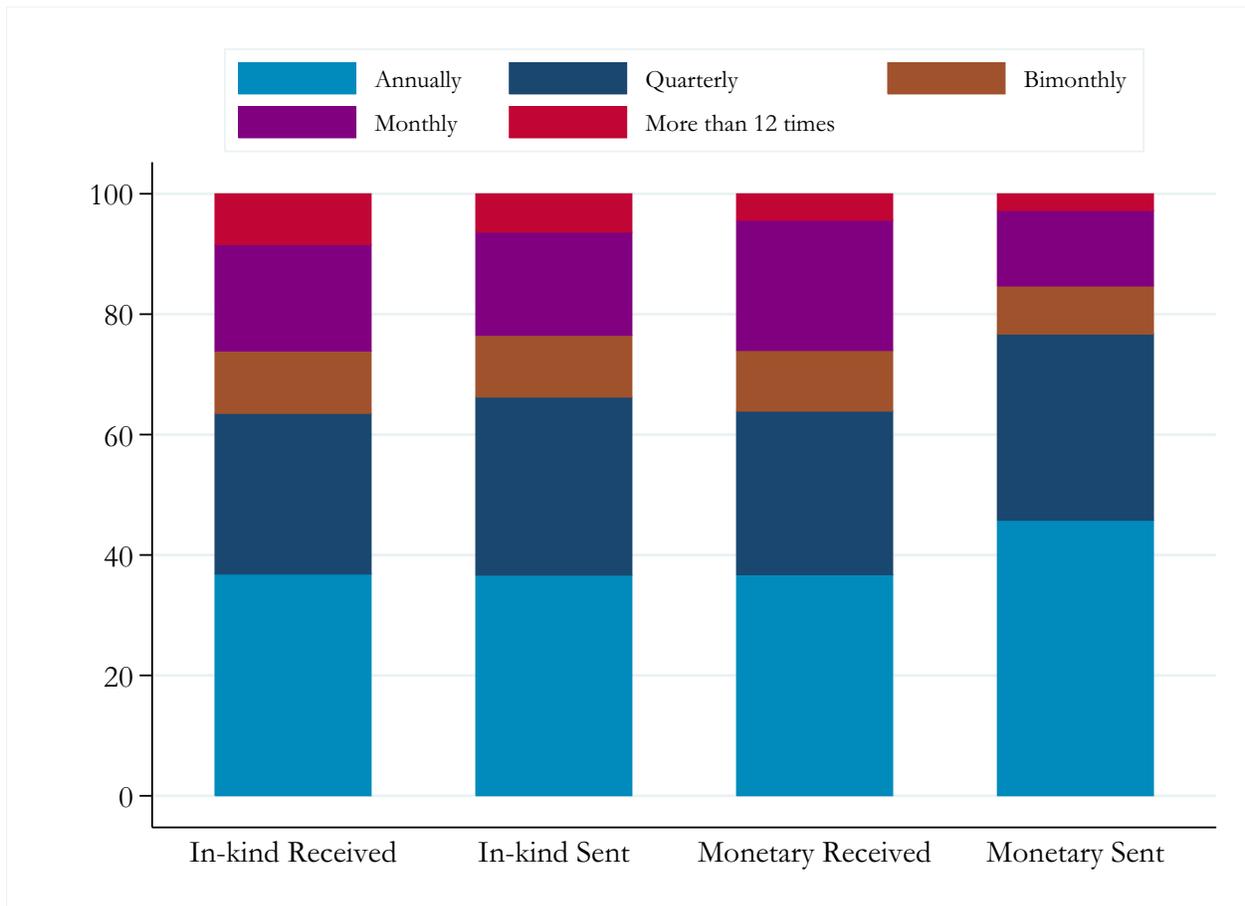
	Participation (d)		Value		Share of income		Share of consumption	
	Mean (1)	S.E. (2)	Mean (3)	S.E. (4)	Mean (5)	S.E. (6)	Mean (7)	S.E. (8)
<i>Total transfers-in</i>								
Any partner	0.47	(0.01)	12439.61	(-34325.36)	0.12	(0.58)	0.21	(0.80)
Close <sup>a</sup>	0.78	(0.01)	15980.47	(-34172.27)	0.09	(0.34)	0.19	(0.87)
Far <sup>a</sup>	0.34	(0.01)	10449.66	(-33192.74)	0.16	(0.83)	0.18	(0.33)
Relatives <sup>a</sup>	0.66	(0.01)	21196.04	(-45436.17)	0.15	(0.70)	0.25	(0.91)
Friends <sup>a</sup>	0.46	(0.01)	5293.69	(-14159.17)	0.05	(0.13)	0.10	(0.37)
<i>Money transfers-in</i>								
Any partner	0.20	(0.00)	5804.63	(-23401.12)	0.15	(0.73)	0.17	(0.29)
Close <sup>b</sup>	0.59	(0.01)	12167.09	(-25504.35)	0.10	(0.30)	0.14	(0.26)
Far <sup>b</sup>	0.47	(0.01)	17111.76	(-41306.90)	0.19	(0.97)	0.19	(0.28)
Relatives <sup>b</sup>	0.82	(0.01)	26037.09	(-45678.68)	0.17	(0.80)	0.18	(0.28)
Friends <sup>b</sup>	0.22	(0.01)	3260.34	(-11164.04)	0.07	(0.13)	0.12	(0.28)
<i>In-kind transfers-in</i>								
Any partner	0.39	(0.01)	6634.98	(-21506.72)	0.08	(0.26)	0.16	(0.81)
Close <sup>c</sup>	0.81	(0.01)	13011.23	(-29638.01)	0.07	(0.27)	0.17	(0.89)
Far <sup>c</sup>	0.24	(0.01)	3885.58	(-14063.18)	0.08	(0.22)	0.11	(0.28)
Relatives <sup>c</sup>	0.57	(0.01)	12252.12	(-30502.70)	0.10	(0.33)	0.21	(0.99)
Friends <sup>c</sup>	0.50	(0.01)	4698.92	(-12796.79)	0.04	(0.11)	0.09	(0.36)

**Table 4 (cont.): Participation in and Value of Private Transfer Transactions (2002)**

	Participation (d)		Value		Share of income		Share of consumption	
	Mean (1)	S.E. (2)	Mean (3)	S.E. (4)	Mean (5)	S.E. (6)	Mean (7)	S.E. (8)
<i>Total transfers-out</i>								
Any partner	0.23	(0.01)	3046.11	(-19022.94)	0.03	(0.08)	0.05	(0.20)
Close <sup>d</sup>	0.9	(0.01)	9844.55	(-24766.37)	0.03	(0.05)	0.05	(0.19)
Far <sup>d</sup>	0.14	(0.01)	3133.24	(-26552.39)	0.05	(0.18)	0.08	(0.26)
Relatives <sup>d</sup>	0.58	(0.01)	10751.26	(-37713.82)	0.04	(0.10)	0.08	(0.26)
Friends <sup>d</sup>	0.50	(0.01)	2319.76	(-7321.97)	0.01	(0.03)	0.02	(0.04)
<i>Money transfers-out</i>								
Any partner	0.11	(0.00)	1595.03	(-16449.58)	0.03	(0.11)	0.06	(0.25)
Close <sup>e</sup>	0.84	(0.01)	8916.68	(-25224.41)	0.02	(0.05)	0.05	(0.23)
Far <sup>e</sup>	0.18	(0.01)	5325.08	(-37246.01)	0.07	(0.22)	0.10	(0.31)
Relatives <sup>e</sup>	0.69	(0.02)	12947.55	(-47402.10)	0.04	(0.13)	0.08	(0.30)
Friends <sup>e</sup>	0.33	(0.02)	1337.69	(-4928.02)	0.01	(0.02)	0.02	(0.04)
<i>In-kind transfers-out</i>								
Any partner	0.17	(0.00)	1451.09	(-8013.36)	0.02	(0.04)	0.04	(0.07)
Close <sup>f</sup>	0.93	(0.01)	7722.05	(-17379.48)	0.02	(0.04)	0.04	(0.08)
Far <sup>f</sup>	0.08	(0.01)	818.30	(-5073.12)	0.02	(0.03)	0.03	(0.05)
Relatives <sup>f</sup>	0.48	(0.02)	6222.72	(-17055.56)	0.03	(0.04)	0.05	(0.10)
Friends <sup>f</sup>	0.55	(0.01)	2322.65	(-7247.94)	0.01	(0.02)	0.02	(0.04)
Observations	6529		6529		6529		6529	

Source: FA Survey 2002. Notes: (d) stands for dummy variables. Standard errors are clustered at municipality level and means are adjusted by weights. All values are converted into monthly flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded. <sup>a</sup> Only include households receiving transfers. <sup>b</sup> Only include households receiving money transfers. <sup>c</sup> Only include households receiving in-kind transfers. <sup>d</sup> Only include households making transfers. <sup>e</sup> Only include households making money transfers. <sup>f</sup> Only include households making in-kind transfers.

Figure 2: Frequency of Private Transfer Transactions



\*Source: FA Survey 2002. Notes: Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded.

Table 5: Multiple Transfer Transactions (2002)  
Participation (d)

Transfers-in	Transfers-out		Mean	S.E.	Obs.
			(1)	(2)	(3)
<i>Aggregate transfers</i>					
No	No	Any partner	0.42	(0.01)	6529
Yes	No	Any partner	0.33	(0.01)	6529
No	Yes	Any partner	0.12	(0.00)	6529
Yes	Yes	Any partner	0.13	(0.00)	6529
<i>Disaggregated by geographic distance</i>					
Yes	Yes	Close / Far	0.63	(0.02)	849
Yes	Yes	Far / Close	0.27	(0.02)	849
Yes	Yes	Close / Close	0.06	(0.01)	849
Yes	Yes	Far / Far	0.04	(0.01)	849
<i>Disaggregated by social distance</i>					
Yes	Yes	Relatives / Friends	0.20	(0.01)	849
Yes	Yes	Friends / Relatives	0.29	(0.02)	849
Yes	Yes	Relatives / Relatives	0.20	(0.01)	849
Yes	Yes	Friends/ Friends	0.31	(0.02)	849
<i>Received from multiple partners</i>					
Yes	No	Close / Far	0.11	(0.01)	3072
Yes	No	Relatives / Friends	0.12	(0.01)	3072
<i>Delivered to multiple partners</i>					
No	Yes	Close / Far	0.03	(0.00)	1532
No	Yes	Relatives / Friends	0.09	(0.01)	1532

Source: FA Survey 2002. Notes: Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded. Standard errors are clustered at municipality level and means are adjusted by weights.

Table 6: Evolution of Transfer Transactions 2002 - 2003

	participation (d)		Value	
	2003 Mean (1)	Difference 2003-2002 Mean (2)	2003 Mean (3)	Difference 2003-2002 Mean (4)
<i>Total transfers-in</i>				
Any partner	0.67	0.21***	21172.11	10444.99***
Close <sup>a</sup>	0.93	0.13***	18002.93	2792.31
Far <sup>a</sup>	0.65	0.34***	9514.62	-914.63
Relatives <sup>a</sup>	0.85	0.20***	20749.62	697.65
Friends <sup>a</sup>	0.76	0.29***	6874.39	1232.91
<i>Money transfers-in</i>				
Any partner	0.29	0.10***	9456.34	4057.59***
Close <sup>b</sup>	0.87	0.28***	9156	-2285.36*
Far <sup>b</sup>	0.85	0.37***	11383.37	-6795.67***
Relatives <sup>b</sup>	0.95	0.14***	18355.76	-7749.56***
Friends <sup>b</sup>	0.75	0.53***	2190.05	-1345.66***
<i>In-kind transfers-in</i>				
Any partner	0.61	0.22***	11715.77	6387.40***
Close <sup>c</sup>	0.95	0.12***	11944.5	-1031.65
Far <sup>c</sup>	0.64	0.44***	3050.78	-649.49
Relatives <sup>c</sup>	0.81	0.26***	9516.69	-2235.82*
Friends <sup>c</sup>	0.81	0.29***	5573.53	576.54

Table 6 (cont.): Evolution of Transfer Transactions 2002 - 2003

	participation (d)		Value	
	2003 Mean (1)	Difference 2003-2002 Mean (2)	2003 Mean (3)	Difference 2003-2002 Mean (4)
<i>Total transfers-out</i>				
Any partner	0.26	0.01	3353.63	403.53
Close <sup>d</sup>	0.97	0.07***	4573.24	-5353.05***
Far <sup>d</sup>	0.69	0.56***	1737.91	-1469.71***
Relatives <sup>d</sup>	0.84	0.26***	5271.02	-5810.90***
Friends <sup>d</sup>	0.83	0.32***	1050.72	-1165.92***
<i>Money transfers-out</i>				
Any partner	0.13	0.01	1561.17	-158.25
Close <sup>e</sup>	0.96	0.13***	3065.04	-6523.62***
Far <sup>e</sup>	0.8	0.61***	2282.53	-2993.92***
Relatives <sup>e</sup>	0.92	0.26***	4960.25	-8644.72***
Friends <sup>e</sup>	0.85	0.48***	387.32	-954.08***
<i>In-kind transfers-out</i>				
Any partner	0.19	0.01	1792.45	561.78**
Close <sup>f</sup>	0.98	0.05***	2614.18	-4864.40***
Far <sup>f</sup>	0.76	0.69***	230.98	-483.21***
Relatives <sup>f</sup>	0.85	0.37***	2012.93	-3963.12***
Friends <sup>f</sup>	0.90	0.34***	846.85	-1384.60***
Observations	6529		6529	

Source: FA Survey 2002 - 2003. Notes: (d) stands for dummy variables. Standard errors are clustered at municipality level and means are adjusted by weights. All values are converted into monthly flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded. \*\*\*  $p < 0.01$  \*\*  $p < 0.05$  \*  $p < 0.1$ . <sup>a</sup> Only include households receiving transfers. <sup>b</sup> Only include households receiving money transfers. <sup>c</sup> Only include households receiving in-kind transfers. <sup>d</sup> Only include households making transfers. <sup>e</sup> Only include households making money transfers. <sup>f</sup> Only include households making in-kind transfers.

Table 7: Household Baseline Characteristics by Treatment Status (2002)

	Treatment (T)	Difference (T) - (C)	
	Mean (1)	Mean (2)	S.E. (3)
Urban (d)	0.44	-0.14**	(0.06)
Populated center (d)	0.43	0.10	(0.06)
Rural (d)	0.12	0.04	(0.03)
Hh is single parenting (d)	0.17	-0.01	(0.01)
Hh has permanent migrants (d)	0.12	0.01	(0.01)
Hh is poor(d)	0.91	0.03	(0.02)
Hh is extremely poor(d)	0.56	0.05	(0.04)
Hh inadequate housing (d)	0.23	-0.04	(0.04)
Hh dwellings without basic services (d)	0.17	0.01	(0.04)
Hh overcrowding (d)	0.33	-0.03	(0.04)
Hh truancy (d)	0.03	-0.04***	(0.01)
Hh high economic dependence (d)	0.18	-0.01	(0.02)
Total hh members	6.18	-0.09	(0.13)
Number of adults (18-65 y/o)	2.48	-0.23***	(0.07)
Number of youngsters (7 - 17 y/o)	2.21	0.06	(0.06)
Number of children (≥ 7 y/o)	1.34	0.15**	(0.06)
Hh head age	42.75	-2.66***	(0.47)
Hh head is literate (d)	0.74	0.05*	(0.03)
Hh head is unemployed (d)	0.02	-0.01*	(0.01)
Hh head is employee (d)	0.47	0.12***	(0.04)
Hh head is self- employed (d)	0.32	-0.08*	(0.05)
Monthly hh income	506844.78	-35816.13	(43268.15)
Monthly per capita income	83255.29	-2281.21	(7788.72)
Monthly hh consumption	235333.62	-25084.26*	(13774.88)
Monthly per capita consumption	40874.98	-3119.56	(2599.94)
Hh monthly savings	3767.54	-2560.82*	(1481.13)
Hh monthly loans	58585.66	-5076.35	(9903.85)
Observations	2646	6529	

Source: FA Survey 2002. Notes: (d) stands for dummy variables. Standard errors are clustered at municipality level and means are adjusted by weights. All values are converted into annual flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded. \*\*\*  $p < 0.01$  \*\*  $p < 0.05$  \*  $p < 0.1$ .

Table 8: Baseline Transfer Transactions by Treatment Status (2002)

	participation (d)						Value	
	Treatment (T)		Difference (T) - (C)		Treatment (T)		Difference (T) - (C)	
	Mean (1)	Mean (2)	Mean (3)	Mean (4)	Mean (5)	Mean (6)	S.E. (6)	
<i>Total transfers-in</i>								
Any partner	0.43	-0.05	(0.04)	8474.01	-4920.15***	(1573.85)		
Close	0.80	0.01	(0.03)	12110.87	-4739.52***	(1836.90)		
Far	0.30	-0.01	(0.04)	7626.99	-3687.19*	(2195.42)		
Relatives	0.64	0.00	(0.04)	14386.76	-8058.14**	(3142.61)		
Friends	0.50	0.03	(0.05)	5375.89	-492.00	(1077.32)		
<i>Money transfers-in</i>								
Any partner	0.18	-0.01	(0.02)	4121.09	-2286.80**	(1040.46)		
Close	0.63	0.06	(0.05)	9852.74	-1959.4	(1853.40)		
Far	0.42	-0.08	(0.06)	12676.85	-8389.43**	(3685.69)		
Relatives	0.76	-0.07**	(0.03)	18645.78	-11322.25***	(3922.77)		
Friends	0.28	0.08**	(0.03)	3883.8	951.69	(905.36)		
<i>In-kind transfers-in</i>								
Any partner	0.35	-0.05	(0.04)	4352.91	-2633.34***	(888.18)		
Close	0.83	0.00	(0.03)	9703.52	-4670.60**	(2003.97)		
Far	0.20	0.00	(0.03)	2729.56	-479.08	(717.99)		
Relatives	0.55	-0.01	(0.05)	7873.07	-4291.43**	(1836.03)		
Friends	0.53	0.02	(0.05)	4563.15	-1021.84	(1261.78)		

Table 8 (cont.): Baseline Transfer Transactions by Treatment Status (2002)

	participation (d)							
	Treatment (T)		Difference (T) - (C)		Treatment (T)		Difference (T) - (C)	
	Mean (1)	S.E. (2)	Mean (3)	S.E. (4)	Mean (5)	S.E. (6)		
<i>Total transfers-out</i>								
Any partner	0.24	-0.01	(0.04)	2581.06	-957.31	(732.56)		
Close	0.88	-0.03	(0.03)	7016.02	-4289.68***	(1497.06)		
Far	0.15	0.03	(0.03)	3609.51	924.36	(1709.81)		
Relatives	0.58	0.00	(0.04)	8639.29	-2985.46	(2415.63)		
Friends	0.53	0.03	(0.06)	2042.28	-535.1	(542.27)		
<i>Money transfers-out</i>								
Any partner	0.11	-0.03	(0.02)	1487.08	-368.83	(654.54)		
Close	0.80	-0.06	(0.05)	6975.15	-2942.68	(2230.80)		
Far	0.22	0.05	(0.05)	7083.66	2849.65	(3259.90)		
Relatives	0.70	0.04	(0.05)	12775.28	-21.45	(4214.40)		
Friends	0.33	-0.04	(0.05)	1283.54	-181.13	(567.75)		
<i>In-kind transfers-out</i>								
Any partner	0.19	0.01	(0.03)	1093.98	-588.48**	(239.11)		
Close	0.91	-0.04*	(0.02)	5169.97	-3706.55***	(1351.96)		
Far	0.09	0.03	(0.02)	682.1	-23.13	(364.71)		
Relatives	0.5	0.01	(0.05)	3976.95	-2986.65**	(1229.76)		
Friends	0.56	0.02	(0.06)	1927.51	-690.65	(577.81)		
Observations	2646	6529		2646	6529			

Source: FA Survey 2002. Notes: Standard errors are clustered at municipality level and means are adjusted by weights. All values are converted into annual flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded. \*\*\*  $p < 0.01$  \*\*  $p < 0.05$  \*  $p < 0.1$ .

Table 9: *Familias en Acción* Estimates on Transfers-in

	participation (d)			Value		
	Total (1)	Money (2)	In-kind (3)	Total (4)	Money (5)	In-kind (6)
<b>A. Aggregate transfers</b>						
$\beta$	0.04 (0.05)	-0.00 (0.03)	0.03 (0.05)	2760.58 (2872.76)	2214.90 (1513.45)	545.67 (1900.77)
Observations	6529	6529	6529	6468	6467	6462
<b>B. Transfers desegregated by geographic distance</b>						
$\beta_{close}$	-0.03 (0.02)	<b>-0.12*</b> <b>(0.07)</b>	-0.01 (0.02)	473.95 (2999.22)	<b>-7095.45*</b> <b>(3757.00)</b>	6529.71 (24684.27)
$\beta_{far}$	0.00 (0.04)	0.09 (0.10)	0.00 (0.03)	-313.71 (26131.96)	-2582.25 (58170.71)	5536.76 (18012.20)
Observations	3698	1591	3223	3664	1568	3188
$\chi^2$ -test comparing coefficients [P-value]	0.03 [0.85]	5.72 [0.02]	1.00 [0.32]	1.77 [0.18]	6.97 [0.01]	0.00 [0.95]
<b>C. Transfers desegregated by social distance</b>						
$\beta_{relatives}$	-0.10 (0.09)	-0.02 (0.07)	-0.06 (0.05)	-567.34 (3023.46)	4841.73 (7555.34)	844.63 (1843.46)
$\beta_{friends}$	-0.00 (0.04)	0.02 (0.07)	-0.01 (0.04)	2760.23 (1839.48)	2084.94 (10976.16)	2084.94 (10976.16)
Observations	3698	1591	3223	3664	1568	3188
$\chi^2$ -test comparing coefficients [P-value]	0.10 [0.75]	0.54 [0.46]	0.18 [0.67]	0.97 [0.32]	7.38 [0.01]	0.46 [0.50]

Source: FA Survey 2002 - 2003. Notes: (d) stands for dummy variables. Robust standard errors in parentheses, clustered at the municipality level and coefficients adjusted by weights. \*\*\*  $p < 0.01$  \*\*  $p < 0.05$  \*  $p < 0.1$ . Independent variables include a treatment status dummy, 5 region dummies and 3 zone type dummies (urban, populated center and rural). Participation estimations are implemented using Linear Probability Models (LPM) and Value estimations are performed using OLS. Panel A displays  $\beta$  coefficients when the dependent variable aggregates all transfers-in without distinguishing the geographic/social distance of the donor. Panel B presents regression coefficients when transfers-in are disaggregated by geographic distance. Remember that only households receiving transfers are included. The first row ( $\beta_{close}$ ), displays the  $\beta$  coefficient when the dependent variable aggregates transfers received from a partner located in the same neighborhood, the same sidewalk and the same municipality/village. The second ( $\beta_{far}$ ), aggregates transfers received from another village/municipality and a foreign country. The last row contains the Chi-squared and the P-value for testing whether these two coefficients are different, that is  $\beta_{close} - \beta_{far} = 0$ . Panel C summarizes the results when transfers-in are disaggregated by the social relationship of the household head and the donor (only households receiving transfers are included). The first row ( $\beta_{relatives}$ ), includes transfers received from relatives; the second, ( $\beta_{friends}$ ) aggregates those received from friends; and the last row shows the results of a Chi-squared test of difference between these two coefficients ( $\beta_{relatives} - \beta_{friends} = 0$ ). Participation variables are equal to 1 if the household received at least 1 COP from the type of partner concerned (close/far or relatives/friends), and 0 otherwise. All values are converted into monthly flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. I exclude municipalities receiving payments before 2003. 1% top outliers of the dependent variable were trimmed in the case of value estimations.

Table 10: *Familias en Acción* Estimates on Transfers-out

	participation (d)			Value		
	Total (1)	Money (2)	In-kind (3)	Total (4)	Money (5)	In-kind (6)
A. Aggregate transfers						
$\beta$	0.06 (0.04)	0.04 (0.03)	0.03 (0.03)	918.78 (828.90)	517.40 (606.29)	401.38 (412.39)
Observations	6529	6529	6529	6467	6465	6465
B. Transfers disaggregated by geographic distance						
$\beta_{close}$	0.03 (0.04)	<b>0.14*</b> <b>(0.08)</b>	0.04 (0.04)	3408.74 (4746.87)	<b>8452.05**</b> <b>(3358.74)</b>	6388.89 (4994.21)
$\beta_{far}$	0.03 (0.05)	0.15 (0.14)	0.03 (0.05)	2037.45 (1494.43)	1789.96 (4308.10)	-692.05 (1051.97)
Observations	1589	763	1167	1563	747	1141
$\chi^2$ -test comparing coefficients [P-value]	0.78 [0.38]	0.32 [0.57]	0.00 [0.99]	0.24 [0.63]	0.00 [0.95]	0.18 [0.67]
C. Transfers disaggregated by social distance						
$\beta_{relatives}$	-0.06 (0.05)	0.06 (0.09)	0.03 (0.06)	4282.32 (3902.00)	8476.99 (5905.67)	4547.54 (3076.43)
$\beta_{friends}$	0.03 (0.07)	-0.01 (0.12)	-0.06 (0.07)	1120.99 (1330.31)	1765.02 (1389.72)	1148.66 (1896.60)
Observations	1589	763	1167	1589	763	1167
$\chi^2$ -test comparing coefficients [P-value]	0.00 [0.96]	1.02 [0.31]	0.00 [0.98]	0.02 [0.88]	0.03 [0.86]	0.01 [0.94]

Source: FA Survey 2002 - 2003. Notes: (d) stands for dummy variables. Robust standard errors in parentheses, clustered at the village level and coefficients adjusted by weights. \*\*\*  $p < 0.01$  \*\*  $p < 0.05$  \*  $p < 0.1$ . Independent variables include a treatment status dummy, 5 region dummies and 3 zone type dummies (urban, populated center and rural). Participation estimations are implemented using Linear Probability Models (LPM) and Value estimations are performed using OLS. Panel A displays  $\beta$  coefficients when the dependent variable aggregates all transfers-out without distinguishing the geographic/social distance of the receiver. Panel B presents regression coefficients when transfers-out are disaggregated by the geographic distance of the receiver. Remember that only households delivering transfers are included. The first row ( $\beta_{close}$ ), displays the  $\beta$  coefficient when the dependent variable aggregates transfers delivered to a partner located in the same neighborhood, the same sidewalk and the same municipality/village. The second ( $\beta_{far}$ ), aggregates transfers delivered to another village/municipality and a foreign country. The last row, contains the Chi-squared and P-value for testing whether these two coefficients are different, that is  $\beta_{close} - \beta_{far} = 0$ . Panel C summarizes the results when transfers-out are disaggregated by the social relationship between the household head and the receiver (only households delivering transfers are included). The first row ( $\beta_{relatives}$ ), includes transfers delivered to relatives; the second ( $\beta_{friends}$ ), aggregates those delivered to friends; and the last row, shows the results of a Chi-squared test of difference between these two coefficients ( $\beta_{relatives} - \beta_{friends} = 0$ ). Participation variables are equal to 1 if the household delivered at least 1 COP from the type of partner concerned (close/far or relatives/friends), and 0 otherwise. All values are converted into monthly flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. I exclude municipalities receiving payments before 2003. 1% top outliers of the dependent variable were trimmed in the case of value estimations.

Table 11: Hh Characteristics by the Geographic and Social Distance of Transfer Donors

	Difference Far - Close <sup>a</sup>		Difference Friends - Relatives <sup>b</sup>	
	Mean (1)	S.E. (2)	Mean (3)	S.E. (4)
Urban (d)	0.03	(0.04)	-0.03	(0.04)
Populated center (d)	0.01	(0.04)	-0.00	(0.04)
Rural (d)	-0.04*	(0.02)	0.03**	(0.01)
Total Hh members	-0.08	(0.13)	-0.25**	(0.12)
Number of adults (18-65 years old)	-0.18*	(0.10)	-0.08	(0.08)
Number of youngsters (7 - 17 years old)	0.22***	(0.06)	-0.10**	(0.04)
Number of children (j 7 years old)	-0.02	(0.09)	-0.18***	(0.07)
Hh has more than one family (d)	-0.01	(0.02)	-0.01	(0.01)
Hh has permanent migrants (d)	-0.06***	(0.02)	0.02	(0.02)
Hh is single parenting (d)	-0.03	(0.03)	0.01	(0.02)
Hh head age	-5.52***	(0.87)	2.97***	(1.02)
Hh head is literate (d)	0.03	(0.02)	-0.03	(0.03)
Hh head is unemployed (d)	0.03*	(0.01)	0.00	(0.01)
Hh head is employee (d)	0.14***	(0.03)	-0.11***	(0.03)
Hh head is self-employed (d)	-0.06***	(0.02)	0.01	(0.03)
Hh is poor(d)	0.06***	(0.02)	-0.01	(0.02)
Hh is extremely poor(d)	0.05*	(0.03)	0.01	(0.03)
Hh inadequate housing (d)	0.06*	(0.03)	-0.06*	(0.03)
Hh dwellings without basic services (d)	-0.04	(0.03)	0.00	(0.02)
Hh overcrowding (d)	0.10***	(0.03)	-0.06**	(0.02)
Hh truancy (d)	0.02*	(0.01)	(0)	(0.02)
Hh high economic dependence (d)	-0.03	(0.02)	0.02	(0.02)
Monthly per capita income	-82458.17**	(39182.91)	256.19	(32983.72)
Monthly Hh income	-12395.32**	(5624.78)	5317.42	(4719.83)
Monthly Hh consumption	-33799.65***	(11053.25)	23072.37**	(9931.90)
Monthly per capita consumption	-5073.49***	(1559.57)	5826.13***	(1873.95)
Hh monthly savings	15381.35	(9573.59)	2469.48	(13314.36)
Hh monthly loans	-150660.50	(104412.02)	92515.50	(68967.70)
Observations	2728 (Close=2040)		2683 (Relatives=1644)	

Source: FA Survey 2002. Notes: Only households receiving transfers are included.<sup>a</sup> 344 households (representing 11.2% of the households receiving transfers) receiving transfers simultaneously from close and far locations are excluded. <sup>b</sup> 389 households (representing 12.6% of the households receiving transfers) receiving transfers simultaneously from relatives and friends are excluded.(d) stands for dummy variables. Standard errors are clustered at municipality level and means are adjusted by weights. All values are converted into monthly flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded.

Table 12: Hh Characteristics by Geographic and Social Distance of Transfer Receivers

	Difference Far - Close		Difference Friends - Relatives	
	Mean (1)	S.E. (2)	Mean (3)	S.E. (4)
Urban (d)	-0.08*	(0.05)	0.04	(0.03)
Populated center (d)	0.09**	(0.05)	-0.05	(0.04)
Rural (d)	-0.01	(0.03)	0.01	(0.02)
Total Hh members	-0.30	(0.27)	-0.46**	(0.21)
Number of adults (18-65 years old)	-0.16	(0.15)	-0.22**	(0.10)
Number of youngsters (7 - 17 years old)	0.17	(0.11)	-0.09	(0.09)
Number of children (j 7 years old)	-0.22	(0.16)	-0.11	(0.09)
Hh has more than one family (d)	0.02	(0.02)	0.02	(0.01)
Hh has permanent migrants (d)	-0.10***	(0.04)	-0.00	(0.03)
Hh is single parenting (d)	-0.08**	(0.04)	-0.03	(0.02)
Hh head age	-2.65*	(1.47)	-2.65***	(0.92)
Hh head is literate (d)	0.09**	(0.04)	0.06	(0.04)
Hh head is unemployed (d)	0.02**	(0.01)	0.01	(0.01)
Hh head is employee (d)	-0.02	(0.07)	0.04	(0.05)
Hh head is self-employed (d)	-0.03	(0.07)	-0.02	(0.05)
Hh is poor(d)	-0.02	(0.04)	-0.02	(0.03)
Hh is extremely poor(d)	0.06	(0.04)	-0.06**	(0.03)
Hh inadequate housing (d)	-0.06	(0.08)	0.01	(0.04)
Hh dwellings without basic services (d)	0.02	(0.04)	-0.00	(0.02)
Hh overcrowding (d)	0.09**	(0.05)	0.04	(0.03)
Hh truancy (d)	0.01	(0.02)	0	(0.01)
Hh high economic dependence (d)	-0.05	(0.04)	-0.01	(0.03)
Monthly per capita income	28437.41	(37056.93)	20397.95	(45377.09)
Monthly Hh income	5603.07	(7528.98)	12995.48*	(7577.55)
Monthly Hh consumption	-7785.64	(15815.95)	29893.02***	(10604.28)
Monthly per capita consumption	-556.86	(2446.23)	8854.71***	(1920.27)
Hh monthly savings	-41404.79	(42673.94)	15698.14	(22257.63)
Hh monthly loans	45089.73	(300137.67)	21242.10	(216807.78)

Source: FA Survey 2002. Notes: Only households delivering transfers are included.<sup>a</sup> 61 households (representing 4.1% of the households sending transfers) receiving transfers simultaneously from close and far locations are excluded. <sup>b</sup> 122 households (representing 7.9% of the households sending transfers) delivering transfers simultaneously from relatives and friends are excluded. (d) stands for dummy variables. Standard errors are clustered at municipality level and means are adjusted by weights. All values are converted into monthly flows and 2003 COP. The exchange rate between the US Dollar and the Colombian Peso during the period of reference is about 2,500. Municipalities that started payments before 2003 (TCP) and their peers from the control group (CCP) are excluded.

## 8 References

### References

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