Civil Conflict and Antipoverty Programmes: Effects on Demobilisation

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Civil Conflict and Antipoverty Programmes: Effects on Demobilisation[*]

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Abstract

Antipoverty programmes have been successful in helping millions of people afford better livelihoods. While this is well known, little research has yet been conducted that examines the power of such programmes to influence outcomes in times of conflict, especially in countries where antipoverty programmes are implemented amidst disputes against illegal armed groups. This paper focuses on the implementation of *Familias en Accion*, a flagship antipoverty programme in Colombia during the early 2000s when the country was experiencing the crudest peak in its long-lasting internal conflict. Our estimations are based on a natural experiment that resulted from the rolling out of the programme which allowed us to identify a difference-in-differences approach. Our results indicate that the programme had positive effects on the demobilisation of combatants. The theoretical transmission channels of these effects are discussed and contrasted with the existing empirical evidence.

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1. Introduction

It is estimated that nearly one billion people around the world participate in antipoverty transfer programmes in developing countries (Barrientos, Nino-Zarazua, and Maitrot 2010). An important number of those participants are surrounded by civil conflicts. According to Cockayne, Mikulaschek, and Perry (2010), by 2010 there were 20 active civil conflicts in the globe, all of them in developing countries. The intensity of conflicts in some countries has allowed the emergence of antipoverty transfer programmes. The Colombian government has been engaged in a low-intensity civil conflict with Marxist guerrillas since 1964. Paramilitary groups also took part in the civil conflict, playing a major role during the late 1990s. At the same time, Colombia has developed contributory and non-contributory transfer interventions aimed at eradicating or preventing poverty. A flagship antipoverty transfer programme in Colombia is a human development conditional cash transfer programme (CCT) known as *Familias en Accion*. This programme has delivered income transfers in cash to nearly 3 million families comprising 15 million people (30 percent of the population) including regions dominated by illegal armed groups. While the effects that such antipoverty transfers have on income, consumption and human capital have been widely documented in the last decade (Barrientos and Villa 2013), there is very little research that investigates the effects of antipoverty transfers on conflict-related outcomes and, in particular, on the demobilisation of combatants.

Familias en Accion was introduced in Colombia as a social policy component of the so-called *Plan Colombia* (Accion Social 2010). The *Plan Colombia* was a strategy designed by the Colombian Government and partially funded by international donors to intensify the war on narcotics trafficking and guerrilla groups (Petras 2000). The objective of the programme was initially the delivery of income to households in extreme poverty in small towns known in Colombia as municipalities (regarded as counties or districts in other contexts). These antipoverty transfers were contingent on the compliance of local families sending their children to school and pursuing healthcare for infants. In the period between 2001 – 2005 *Familias en Accion* operated in 775 municipalities with population under 100,000 inhabitants. These municipalities were not exempt from the developments of the country's long-lasting civil conflict. By 2005 the coverage of the programme had reached more than 646,000 households with more than one million children.

As it has been evidenced in the current literature, the link between the existence of civil conflicts and the implementation of antipoverty programmes can arise from the externalities that the transfers can generate over the development of civil conflicts. Antipoverty transfers can increase the intensity of the conflict because illegal armed groups perceive them as a threat by influencing the loyalty of the population and deterring recruitment.[1] On the other hand, antipoverty transfers can facilitate resolution of conflicts through enhancements of the institutional capacity. There is a nascent stream of literature that investigates the impact of antipoverty programmes in the development of civil conflict or violence. Felter and Johnston (2014) estimate the effect of the Pantawid Pamilyang Pilipino Program (a CCT known as 4Ps) on civil conflict. This study was perhaps the first one to provide empirical evidence of the effect of a CCT programme on a direct measure of insurgent influence. In their analysis, the authors found that the programme reduced conflict related incidents and insurgent influence in treated villages by weakening for the deleterious effect it had on insurgent recruitment. Dasgupta, Gawande, and Kapur (2014) estimated the effects of the National Rural Employment Guarantee Scheme (NREGS) on the Maoist conflict in India. The authors found that the programme reduced violent incidents and deaths, providing evidence of the effects of this policy on the mitigation of violent civil conflict. To the best of our knowledge these two studies are the only ones to show counterfactual evidence of the effects of CCTs on conflict.

A key aspect in the study of civil conflicts is involves the research on policies that can facilitate the implementation of disarmament, demobilisation and reintegration (DDR) programmes for combatants in illegal groups over ongoing conflicts (Humphreys and Weinstein 2007). While antipoverty transfers are not DDR programmes, we believe that transfers can generate positive externalities on this conflict-related outcome. According to statistics from the Colombian Ministry of Defence, nearly five combatants a day individually demobilised from illegal armed groups in 2014 (MinDefensa 2015). This process involves disarmament and demobilisation, but not necessarily a voluntary participation in reintegration interventions. It is estimated that 40 percent of combatants in illegal groups are child soldiers (Springer 2012). Indeed, from the total number of demobilised combatants, more than 50 percent of them are children between 10 - 17 years of age (Pinto, Vergara, and Lahuerta 2002). The focus of *Familias en Accion* is actually children between 0 - 17 years of age from households that share similar characteristics with those from which illegal armed groups recruit

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[1] For instance, Crost, Felter, and Johnston (2014) estimate the effects of other type of aid intervention programmes such as community driven development projects and food aid supplies also in the Philippines, that have shown that the programmes increase violence conflict because illegal armed groups consider them as a threat for their actions.

combatants. These households are predominantly rural, with a relevant reliance on agriculture production and with low living standards. An impact evaluation of *Familias en Accion* during its initial phase of implementation revealed that the cash transfers conditional on education increased school registration, while nearly eradicating child labour (Attanasio et al. 2005). In light of these effects and the fact that an important proportion of demobilised combatants are children, it is becoming extremely difficult to ignore the existence of a positive externality of antipoverty transfers on disarmament and demobilisation.

The objective of this paper is twofold. We first examine the economics of demobilisation with a strong emphasis on the demobilisation of child soldiers in an interaction between household decisions and the economic problem of the illegal armed group. The Basu and Van (1998) model of child labour is contextualised in a civil conflict framework where adults and children are perfectly substitutable as combatants that earn competitive wages. We find that an antipoverty transfer programme, such as *Familias en Accion*, increases the costs for the illegal armed group for recruiting or maintaining child soldiers. On one hand, the increase in household consumption as a consequence of the participation in the programme and the compliance with the compulsion on the transfers can both make the children return to their households and prevent them from joining illegal armed groups. On the other, holding child soldiers as combatants can become more expensive for illegal armed groups due to the cash transfers received from the programme.

Second, we empirically take advantage of the natural experiment that resulted from the gradual introduction of *Familias en Accion* in the period 2001 – 2005. The eligible municipalities in this first stage of the programme were those with a population below 100,000 inhabitants with accessibility to a bank through which the cash transfers were delivered. Our identification strategy consists of a specification of a difference-in-differencdes (DID) setting in the period 1996 – 2005. With data at the municipal level on the number of demobilised combatants, our first specification allowed us to find positive effects of the programme on the demobilisation of combatants. These results are explained by the demobilisation of combatants from paramilitary groups, who are more inclined to be motivated by economic reasons rather than a strong ideology. The latter is consistent with the qualitative analysis made by Arjona and Kalyvas (2011) who reveal that more than 40 percent of demobilised combatants from paramilitary groups are motivated by economic reasons or extreme poverty, in contrast with only 20 percent from guerrilla groups. Our second specification allowed us to test the parallel path assumption of the DID and to find the effects of the programme on

demobilisation during different years of exposure. These results revealed that the positive effects of the programme on demobilisation hold until the second year after the programme is introduced in selected municipalities. We further check the existence of spillover effects and find that the proximity of treated municipalities diminished the demobilisation at untreated municipalities, indicating that demobilised combatants preferred to complete their disarmament at municipalities selected by *Familias en Accion*. The findings in this paper should make an important contribution to the understanding of the externalities of the implementation of antipoverty transfer programmes on demobilisation of combatants.

The remainder of this paper is detailed as follows: in the next section we present a modification of the Basu and Van (1998) model and assume the introduction of a CCT with the same features of *Familias en Accion*. Section 3 presents a synopsis of the history of Colombia's civil conflict. Section 4 explains the design characteristics of *Familias en Accion*. Section 5 shows our identification strategy consisting of the specification of a DID setting. Section 6 presents the data and results. Finally, section 7 concludes and provides an analysis of the implications of our main findings.

2. The economics of demobilization

The demobilisation of combatants has been studied from political and economic perspectives. Drawing the line between both is somewhat a difficult task. Theidon (2007) defined demobilisation as the process in which armed organizations decrease in size to transform them from a state of war to a state of peace. Demobilisation usually involves the disarmament of combatants, who then should receive government assistance to re-enter civilian life. The study of civil conflict has focused on the reintegration process of demobilised combatants and how the social, political and economic environments are determinants in the success of it. Howenstine (1944) introduced the concept of economics of demobilisation as a determinant of reinsertion of combatants to the social life. Demobilised combatants were identified as previous soldiers who did not continue in a specific army. The economics of demobilisation was particularity studied after First and Second World Wars when soldiers came back to their homes. The reason that they left armed forces was clearly defined by the end of the war and not due to a process that included the individual desertion from the battlefields.

To date, demobilised combatants are conventionally related with illegal armed groups in civil conflicts. The reasons motivating the desertion and demobilisation from an armed group are still

unclear in the economic literature. This is particularly the case when children are involved in the problem and parents can be determinant factors in the decision of joining or leaving illegal armed groups. Although illegal organizations function similarly to any other organization (with respect to the existence of goals, ideological motivation, hierarchy, etc.) the way to join or exit an illegal force is particularly different from any other one. In the adult context, illegal armed groups impose barriers to allow members to exit the organization. These barriers reduce the role of social motivations as determinants of demobilization which implies a strong deterrent to each member to leave the illegal army (Vries and Wiegink 2011). In contrast, in the children's context, child soldiers do not always make decisions by themselves. Qualitatively is has been shown that the motivations for leaving an illegal armed group are determined by an adult making or otherwise influencing the decision (Bjørkhaug 2010). Economic and social environments are determinants for individuals deciding the resource allocation of children as part of the labour force when economic reasons mediate in the decision of joining or leaving an illegal armed group.

Illegal armed forces and the civil population interact through different mechanisms to consolidate civil conflict. Public policies, such as the implementation of antipoverty transfers, can also play an important role. Here we are interested in the economic point of view focusing on how these agents interact across different stages of civil conflict. Three main stages of civil war are identified; namely, recruitment, violent actions and demobilisation, all of these can be overlapping, but each one can be characterised as a specific result of an economic framework. Here we ignore the stage of violent actions and focus on recruitment and demobilisation. When economic reasons strongly mediate in the decision making, adults and children are eligible to participate in an illegal armed group and their decisions can respond to the presence of an antipoverty transfer programme. The reasons to leave the illegal armed group can also respond to antipoverty transfers, to the extent that CCTs, strictly conditional on children's regular school attendance, make more costly the permanence of children in illegal armed groups.

We thus rely on a framework developed by Basu and Van (1998). We reformulate their setting to characterise that illegal armed groups can choose between recruiting and holding adults or children in their forces. The household decision depends on actual household consumption, the poverty threshold, transfers from the programme and the contribution of children to household consumption. In this line, we define a model in which a household is composed of one child and one adult. Both can join an illegal armed group and both can be perfectly substituted from the

household point of view. This is possible insofar as there is no enforceable ban on child or on adult participation in illegal armed groups. Following Basu and Van (1998), the household preference is then defined as:

$$(c, e)|c \geq 0, e \in \{0,1\} \tag{1}$$

Where c is individual consumption and e is the effort of the children in the armed group. e takes value of 0 if the child attends school (free of charge) and 1 if the child participates in an illegal armed group. In addition, when a child participates in an illegal group the individual consumption increases by the equivalent to the child's competitive wage paid by the recruiter, W_c. So, if we focus on the households who already took the decision to participate in the civil war, we can assume that their consumption is below the food poverty line, pl. Then, we define the two possibilities of the household: supply child or adult labour.

$$\{(c, 0) > (c + W_c, 1) \ or \ (c + W_c, 1) > (c, 0)\} \mid c < pl \tag{2}$$

Now, we introduce an antipoverty programme which delivers a transfer when $e = 0$ that increases individual consumption by cct. The Government's problem is not addressed in this context and we assume that the cct has no fiscal cost to be considered for now. This brings us back to the moment when each household decided whether or not to participate in the civil conflict in response to the programme's transfers. Then, the adult would not agree with the recruitment of the child by the illegal group or will require his or her return if the individual consumption rises above the food poverty line. Therefore, household individual consumption is:

$$(c + cct, 0) > (c + W_c, 1) \ \text{if} \ c + cct \geq pl \tag{3}$$

$$(c + W_c, 1) > (c + cct, 0) \ \text{if} \ c + cct < pl \tag{4}$$

Another implication of the transfers is that they need to outweigh the retribution from the illegal armed group to the child, W_c. If adult competitive wage is defined by W_a, then the household constraint is given by:

$$2c \leq (1 - e)cct + eW_c + W_a \tag{5}$$

Maximising the household preference (1), subject to (5) the solution to the problem is thus defined by:

$$c(W_a) = \begin{cases} \frac{W_a + cct}{2} & \text{if } W_a + cct \geq 2pl \\ \frac{W_a + W_c}{2} & \text{if } W_a + cct < 2pl \end{cases} \tag{6}$$

$$e(W_a) = \begin{cases} 0 \text{ if } W_a + cct \geq 2pl \\ 1 \text{ if } W_a + cct < 2pl \end{cases} \tag{7}$$

The influence of the transfers from the programme is determinant in defining household consumption. Note that the transfers need to be large enough to prevent household food poverty and, therefore, child recruitment or permanence in the illegal armed group as inferred from (4). Those conditions are met if the household supplies child or adult labour force to the illegal groups.

Now we turn to the problem of the illegal armed group who is the only employer in a civil conflict area but does not behave as a monopsony. The motivations of the illegal armed group are more economic-oriented rather than ideology oriented.[2] Here we suppose that the i illegal armed group demands labour from adults and children according to a profits function. The profits function is defined as an interaction of real income from operations and costs of operation. Real income, $I(a_i + c_i)$, depends on the amount of the labour force and complies with the neoclassical properties. Additionally, we can establish a relationship between child labour, c_i, and adult labour, a_i. That relation is given by a factor of productivity θ and rewrite child labour as $c_i = \frac{a_i}{\theta}$. So, we assume that child productivity during civil conflict is a fraction θ of the adult productivity, where $0 < \theta < 1$. Then, to reach the same productivity as an adult we need $\frac{1}{\theta}$ children (note that this fraction is greater than 1).

As the income depends on supply of adult and child labour, so do costs. As the illegal group is a wage taker, the costs are given by a competitive retribution for each combatant. However, it is imperative to assume that the costs of a child is lower than an adult, so we can define $W_c = \beta W_a$, where $0 < \beta < 1$.

So, the profits function can be written as:

$$P = I(a_i + c_i) - c_i W_c - a_i W_a \tag{8}$$

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[2] In other words, these motivations can be oriented by grievance rather than by greed (Collier and Hoeffler 2004).

Recall that child and adult labour are substitutes. Then the illegal armed forces can play a domain strategy to recruit and hold only children or only adults. Also they have the option to receive both in infinite possibilities of proportions. This decision should be driven by the result of maximizing profits.

If the illegal armed group recruits or holds only adults the first order condition is given by:

$$\frac{\partial P}{\partial a_i} = \frac{\partial I}{\partial a_i} - W_a = 0 \tag{9}$$

If the group recruits and holds only children, then:

$$\frac{\partial P}{\partial c_i} = \frac{\partial I}{\partial c_i} - W_c = 0 \tag{10}$$

Nevertheless, child labour at marginal income and marginal cost is defined as a proportion of adult labour, so we can rewrite equation (10) as following:

$$\frac{\partial I}{\partial a_i}\frac{\partial a_i}{\partial c_i} - \beta W_a = \theta \frac{\partial I}{\partial a_i} - \beta W_a = 0 \tag{11}$$

The decision of recruitment should be given by the relation between the parameters θ and β. If the lower productivity is compensated by savings on wages, the illegal armed group will recruit and hold the child as the first option. If both parameters are equal, illegal forces are indifferent to recruit and hold children or adults, so the decision depends on the household. Finally, the third scenario is when the sacrifice of productivity is not compensated for the benefits of the lower retribution. Then, the recruitment of adults is the best strategy for the illegal armed group. In the context of the Colombian experience, the illegal armed groups have a significant proportion of children as combatants. This provides for an inference that savings on lower payoffs offset the lower productivity.

As for demobilisation, individuals are the principal agents and the illegal armed group plays a roll only in approving adult decision according to adult and child payoffs. For adults, the decision is particularly simple. Adults will leave the illegal forces if $W_a \leq \alpha E(W)$, where $E(W)$ represents the expected value of the adult competitive wage in the society and α represents the probability of getting another job. In absence of other employers, α also depends on particular situations which are known as reintegration (Knight and Ozerdem 2004). In contrast, the child's situation is more

complicated. First of all, recall that children usually do not make these decisions by themselves. Even if they do, their decisions are not related with the most rational motivation. A child who stays in the armed group will fight for the illegal force until his or her contribution to household consumption will not be enough to compensate the household welfare of attending school. Strictly speaking:

$$(c + W_c, 1) \leq (c + cct, 0) \tag{12}$$

Once the adult and the child decide if they want to leave the fight, the illegal armed group may approve or disapprove their decision. This approval depends again on the equations (9) and (11). Illegal armed forces are going to keep a combatant until their marginal profits hold them almost equal to zero. However, with these equations unchanged, it is clear to see that there remain additional barriers to relieve combatants from civil conflict.

This is the stage in which an antipoverty programme plays an important role. We reviewed in the first stage how transfers interact in the household decision to provide child or adult combatants. Also, during this stage CCTs have a particular weight on the decision on whether children stay in or leave the group. But the biggest contribution of the transfers is that they also modify the decision of the illegal group. Note that with these antipoverty programmes attached to school attendance and child development, the competitive wage of children increases. So, now $W_c = \beta' W_a$ where $0 < \beta < \beta' < 1$. β has increased because the payoffs for children have to compensate for the amount of transfers that they would receive if they went to school. Moreover, we can assume that:

$$(\beta' - \beta)W_a = cct \tag{13}$$

This implies that the increase in the total value of W_c is equal to the conditional cash transfers. The change in the children's competitive wage modifies the equation (11), which is the key player in the illegal armed group's decision to keep combatants or to let them go. Rewriting:

$$\theta \frac{\partial I}{\partial a_i} - \beta' W_a = 0 \tag{14}$$

From (14) it is inferred that the cost of holding children as child soldiers becomes more expensive for the illegal armed group. In the optimum, one can expect that $\frac{\partial I}{\partial a_i} = \frac{\beta'}{\theta} W_a > \frac{\beta}{\theta} W_a$. In this sense,

if the transfer is large enough, then $\frac{\beta'}{\theta} W_a > W_a$ which leads the armed group to let children go and to keep more adults.

The role of the antipoverty transfer programme is twofold in this setting. On one hand, it can alleviate food poverty in an immediate manner. The household is able to cope with poverty or hunger and, therefore, preventing children from entering or remaining in an illegal armed group. On the other hand, as the transfers are targeted to poor households, the retribution for retaining the child becomes more expensive and the recruitment of adults (as perfect substitutes) becomes more attractive.

3. Colombia's civil conflict

Colombia's civil conflict is one of the longest in the world. The conflict is driven along political dimensions between three main actors: guerrilla groups, paramilitary forces and the Colombian State (Coleman and Lopez 2010). Although there are competing claims to the origin of the conflict, there is one that has been well identified as *La Violencia* that refers specifically to the assassination of the centre-left presidential candidate Jorge Eliecer Gaitan in April 9, 1948. This event triggered intense bipartisan violence among the followers of Colombia's two major political parties: the Liberals and Conservatives. During this period a series of self-defence and guerrilla groups began to emerge in large parts of the country. Communist guerrillas were formed by peasants to resist the official violence, while liberal-self defence groups were formed by radical middle class members in urban areas (Pizarro 1989). Specifically the Revolutionary Armed Forces of Colombia (*FARC* by its Spanish acronym), which are the most important guerrilla group in Colombia, were created mainly as a consequence of agrarian conflicts which overlapped with *La Violencia*.

A decade after the assassination of Gaitan, leaders from both parties agreed to stop confrontation and decided to share power by alternating the presidency every four years and dividing the control of important political positions in the government (Denissen 2010). However, this agreement excluded many groups from political participation. This led to a reinforcement of political discontents among guerrilla groups who adopted a dynamic of occupying strategic territories to maintain their forces, while strengthening their military and political wings (Rangel 2004). As the *FARC* followed the communist ideologies of the Cold War, other insurgent groups such as the National Liberation Army (*ELN* by its Spanish acronym) were inspired by the Cuban Revolution

(Denissen 2010). In response to the guerrilla actions and their pressure over farmers and peasants, illegal paramilitary forces as well as private armies were formed. Mainly financed by rural elites, the paramilitary forces gained strength with the support of drug lords who were being threatened by the guerrillas (Vargas 2012). In 1997 different paramilitary groups came together and formed the United Self-Defence Forces of Colombia (*AUC* by its Spanish acronym). These groups were initially motivated by the war on guerrillas in light of the absence of the state's capacity to enforce law, but shortly became familiar with the business of drug trafficking, extortion and the control of local business such as illegal fuel trafficking, illegal mining and others (Duncan 2006).

By the 1980s both, guerrilla and paramilitary groups, began to participate in the drug business initiated earlier by the Colombian drug cartels. When these cartels introduced the coca crops into the country the land where they were located was dominated by guerrilla groups. At the beginning they protected these areas and imposed taxation. Once the cartels were dismantled, the illegal armed groups inherited the production and trade of drugs. The *FARC* and *AUC*, with major control of the drug business in Colombia, received exorbitant profits from narcotic trafficking, kidnapping civilians for ransom, looting towns, etc, which made them able to maintain their army and carry out terrorist acts against the Colombian state and population.[3]

After the 9/11 attacks, the fight against armed groups evolved into a new classification and the Colombian civil conflict evolved into a new stage. By initiative of the United States government, the *FARC* and *ELN* were declared as terrorist groups by Colombia, Canada, Chile, New Zealand and the European Union. This allowed the Colombian government to gain international military aid and support under the strategy of the *Plan Colombia.* The *Plan* was aimed at reducing significantly the guerrilla's military capacity and diminishing the production and trade of narcotics (Rochlin 2011). As for paramilitary forces, from 2003 to 2006 the *AUC* and the Colombian Government held a peace process that ended with the DDR of paramilitary combatants into civilian life. Nearly 40,000 armed men participated in a massive demobilisation and took part in a reintegration programme in 2006 (Porch and Rasmussen 2008; Theidon 2007). The reintegration process in Colombia was designed gradually and under the organization and implementation of different Government agencies. Finally

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[3] It is estimated that drug trafficking can add up to 2 – 5 percent of the country's GDP (Rocha 2000; Steiner 1996).

in 2006 an entity was created to coordinate and execute all the social and economic reintegration process (Denissen, 2010).[4]

Given the strengthening of the official armed forces that resulted from the implementation of the *Plan Colombia*, a significant number of combatants from guerrillas and paramilitary groups began to demobilise in an individual manner. Since the early 2000s the number of demobilised combatants has reached nearly 30,000 members that have abandoned the illegal armed groups (Pinto, Vergara, and Lahuerta 2002). A characterisation of ex-combatants by Arjona and Kalyvas (2011) and Springer (2012) has revealed that of those individual combatants likely to leave paramilitary groups, nearly half are children, they have been fighting for an average of five years, and 70 percent had some secondary education. As for reasons for joining the illegal armed group, 58 and 25 percent of demobilised paramilitaries and guerrillas responded to economic reasons, respectively (17 and 7 percent of *FARC* and *AUC* members responded to ideology reasons, respectively).[5] In a database of 12,000 ex combatants, Rosenau et al. (2014) reported that the reasons for leaving the illegal armed group are led by the "desire for a change of life," "mistreatment ", and "pressure from military operations". A significant portion, 80 percent, had joined the illegal group during childhood.

4. The *Familias en Accion* programme

Familias en Accion was introduced in Colombia in response to the 1999 economic crisis that hit most Latin-American countries. It was conceived as an counter-cyclical intervention to prevent the poorest households from reducing the investment in the human capital of their children (Accion Social 2010). The main component of this programme that would lead to the achievement of this objective was the delivery of direct cash subsidies to households in poverty, conditional on school attendance and health checkups of their children. The strategy of *Familias en Accion* is to alleviate current poverty, while preventing children to inherit low levels of human capital when adults. Although the programme was proposed to run over a period of three years, after the country recovered from the economic crisis the policy makers opted for its extension instead of phasing it out.

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[4] In September 2006 the Colombian government created the *Alta Consejeria para la Reintegracion Social y Economica de Personas y Grupos Alzados en Armas* (High Council for the Social and Economic Reintegration of Disarmed People and Groups) an entity responsible of the reintegration process with the aim of eliminating this paramilitary group as an armed actor in the Colombian conflict.

[5] Ideology-related reasons are more consistent for guerrillas rather than for paramilitaries. See an approach by Ugarriza and Craig (2012)

As mentioned in the previous section, the Colombian government introduced the *Plan Colombia* with the international aid from the United States and the European Union in the early 2000s. In spite of the fact that most of the investment was focused on military supplies and the modernization of national security agencies, policymakers were concerned about the success of the *Plan* without a social component amidst an economic recession. Consequently, in 2000 the *Red de Protección Social* (RPS) (Social Protection Network) was introduced as a complementary social intervention of the overall military strategy. The RPS was composed of three different sub-programmes: 1. a workfare programme that would counteract the high unemployment levels among the poor by building infrastructure; 2. a job training programme for three years that would recruit and train unemployed and disadvantaged youths during the crisis; 3. a CCT programme that became the current *Familias en Accion* intervention (DNP 2000).

The first impact evaluation was done between 2001 and 2006. The selection of the municipalities was made by the programme and notified to the evaluators. Given that *Familias en Accion* was not introduced in all the municipalities of the country, the evaluation strategy consisted of identifying a group of comparison municipalities. Consequently, 122 municipalities participated in the evaluation, divided between 57 treated and 65 untreated. For the evaluation's sake, the municipalities were divided between town centres and scattered rural areas. Using matching techniques, the villages and their rural areas were compared by conducting a baseline survey and two follow-ups with 11,462 households and 20,868 children.[6] In response to the lack of initial randomization, two main non-experimental methods were considered. The availability of a panel data allowed the combination of *propensity score matching* and *difference in difference* treatment effect estimators.

The results of the impact evaluation were revealing in terms of human capital accumulation and household consumption, especially in rural areas. According to the final report by IFS-Econometría-SEI (2006) school attendance increased by 5.1 and 7.2 percentage points in urban and rural areas for children between 12-17 years of age, respectively. The programme reduced the number of repeated school years by 0.12 for children between 14-17 years old. As for labour markets, child labour was almost eradicated by a reduction of 5.5 percentage points in rural areas while the number of weekly worked hours by adults remained unaffected. Although the transfer was found to correspond to 20 percent of household income, there were no significant impacts on household incomes while

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[6] These matching techniques consisted mainly of propensity score matching. The municipalities were paired according their propensity score (probability of being treated by the programme). Then, the differences in the outcomes between treated and comparison municipalities were attributed to the programme.

consumption only increased by 5 percentage points in rural areas. Similarly, food consumption increased 15 percent in rural areas.[7] Thus, the programme reduced food poverty in rural areas by 12.6 percent.

Familias en Accion has also been highlighted by the empirical literature focusing on conflict- or violence-related outcomes. For instance, Wald (2014) also found that the programme increased the educational success among children from war zones with low-intensity conflict, however these effects were weaker as the intensity of the conflict increased. Similarly, by studying the effects of *Familias en Accion* on the levels of criminality in the urban area of the city of Bogota, Mejia and Camacho (2014) found that the income effect of the programme is responsible for reducing crime against property. The evidence on an income effect became relevant when the authors examined if the conditionality of the transfers on school attendance had an effect over youths engaging in criminal activities. The estimates showed that the school attendance was not a key driver in the urban context.

5. Identification strategy

Traditionally, the effects of CCT programmes have been assessed by employing household-level data, with a strong focus on human capital outcomes on an experimental and quasi-experimental basis (de la Brière and Rawlings 2006). In the absence of experimental data for the evaluation of *Familias en Accion*, our identification strategy here is based on the initial stage of implementation of the programme over the period 2001-2005. This initial stage of the programme was shaped by the gradual inclusion of small municipalities which were believed to acutely suffer from the consequences of the economic crisis that had hit the country by the end of the 1990s. Indeed, the geographic selection criteria of the programme were 1. municipalities with population below 100,000 inhabitants, 2. municipalities that were not regional capitals and 3. municipalities with at least one bank office through which the transfers could be delivered. The gradual introduction of the programme along with these selection criteria are the basis of our empirical analysis. We rely on the specification of a difference-in-differences (DiD) approach by comparing municipal-level data between treated and untreated municipalities that shared the same administrative and geographic selection criteria.

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[7] Among foods, the impact was centred in the increase in the intake of proteins and cereals.

Table 1 below shows the rolling-out of *Familias en Accion* during its initial implementation stage. The programme selected 775 municipalities with the same selection criteria (out of a country-total of 1,100). The implementation of the programme started aggressively in the first two years, with coverage of 604 municipalities and nearly 497,000 households by 2002. In the period 2003 – 2004, the programme slowed down the registration of new municipalities until 2005 when it reached 775 municipalities and 646.000 households, which is an average of 834 households per municipality. Three mayor registration rounds can be identified for municipalities treated in 2001, 2002 and 2005.

Table 1.Rolling-out of *Familias en Accion* 2001-2005.

Year	Treated municipalities	Registered households
2001	360	232,078
2002	604	496,955
2003	610	504,202
2004	610	504,885
2005	775	646,483

Source: authors based on administrative records from Familias en Accion.

In light of the gradual introduction of *Familias en Accion* across the selected municipalities with similar selection characteristics, we first specify the following municipal-level fixed-effects equation:

$$Demobilised_{it} = \beta_0 + \beta_1 treated_{it} + \beta_2 X_{it} + \gamma_i + \gamma_t + e_{it} \tag{15}$$

Where $Demobilised_{it}$ is the number of demobilised combatants from illegal armed groups at municipality i in year t. Similarly, $treated_{it}$ is the treatment indicator for each municipality in the year in question, taking a value of 1 if the municipality is treated and 0 otherwise. We complement our analysis accounting for municipal-level characteristics, X_{it}. Finally, γ_i and γ_t are municipal and year-specific fixed effects. Our estimand of interest, β_1, provides the DiD treatment effect of the programme for the whole sample.

Likewise, the gradual introduction of the programme allows us to identify the effects of *Familias en Accion* at different years of exposure of the selected municipalities to the cash transfers. We thus identify a similar DiD estimator that detects changes in the number of demobilised combatants three years before and three years after the implementation of the programme at each municipality.

$$Demobilised_{it} = \beta_0 + \sum_{t=t_0-3}^{t_0-1} \beta_{1t} Before_{it} + \sum_{t=t_0}^{t_0+3} \beta_{2t} After_{it} + \beta_3 X_i + \gamma_i + \gamma_t + e_{it} \tag{16}$$

Where t_0 denotes the year in which the programme was introduced at each municipality selected by the programme. $Before_{it}$ are dummy variables that indicate the treatment status before the programme was introduced at each municipality. We consider here three years before and after the intervention. The β_{1t} coefficients help us determine whether our setting is correctly specified, in the sense that their significance indicates the potential violation of our identification strategy. As a placebo test, β_{1t} capture any effect of the programme on demobilisation before its introduction at each municipality. If β_{1t} are not significant we can infer that the underlying parallel path assumption of the DiD is confirmed with our data. $After_{it}$ are also dummy variables denoting the treatment status of each municipality after the intervention starts. The significance of β_{2t} implies that the programme generated effects on demobilisation in the year of introduction or thereafter.

6. Data and results

To estimate (15) and (16) we count on a rich dataset compiled by the *Centro de Estudios sobre Desarrollo Economico* (CEDE) from the *Universidad de los Andes* that contains historical municipality-level information on the conflict that has affected Colombian municipalities in the last 30 years (Acevedo and Bornacelly 2014). This information is mainly provided by the Colombia Ministry of Defence, which keeps track of conflict-related incidents that are reported by the Armed Forces and the National Police. A possible drawback of this data is that it is only accurate in registering the incidents between the Armed Forces and illegal armed groups in contrast to those incidents among illegal armed groups (i.e. guerrillas against paramilitaries). Our variable of interest, demobilisation, is generated from the reports from the corresponding authority on the number of combatants that surrender their weapons voluntarily to the Armed Forces at the municipality level. We do not count on individual demobilisation data, so we were unable to distinguish between adult and child soldiers. Demobilised combatants are not the same as deserters, as demobilisation implies surrender and the delivery of weapons, surrender and the delivery of weapons to the Armed Forces or National Police. Desertion could be also affected by the programme but given the lack of reliable reports we only focus on demobilisation. Demobilised combatants are enticed to leave illegal armed groups by the enrolment in a reinsertion programme that includes protection and a welfare package.

We have decided to consider the period 1996 – 2005 for our econometric approach. The reason to consider 1996 and not earlier years emerges from the fact that the registration of demobilised combatants was close to zero in the first half of the 1990s. Only beginning in 1996 demobilisation

trends became more dynamic. Another issue with the registration of demobilised combatants before 1996 is that they might be contaminated with measurement errors, since the registration in the early 1990s was somewhat informal and not systematic. On the other hand, the reason to consider 2005 and not later years is in line with the characteristics of the programme's implementation. By 2006 all the geographical selection restrictions were lifted and most of Colombian municipalities were eligible for the intervention. In 2006 the programme started to enrol the displaced population that had left their regular residence places due to the life-threatening dynamics of the conflict. The inclusion of displaced population into the CCT programme, amid the implementation of the *Plan Colombia*, would also change the dynamics of the displacement itself, as more households would be motivated to leave their residence to obtain the benefits from the programme at selected municipalities (CNC 2008; Dion and Russler 2008).

Figure 1 below shows the municipal-level averages of demobilised combatants for each implementation wave of the programme (see Table 1). What is interesting from this figure is that average demobilisations were significantly low before 2000. In fact, the average of demobilisations between 1996 - 2000 was 0.045 combatants per municipality. In the period 2001 – 2005 this average jumped to 1.651. If we compare the numbers by implementation waves, it is evident that all of them experienced similar trends before the programme started. For those municipalities registered in 2001 the demobilisation levels peaked in 2004. In 2001, municipalities treated in 2002 and 2005 preserve similar trends. Demobilization declined in 2005 for municipalities treated in 2001 and 2002, but not for those actually treated in 2005. Recall that in 2005 - 2006 paramilitary groups, such as the AUC, were negotiating a cease fire and demobilisation with the Colombian Government. From these dynamics we can infer that, for this series, there was no intervention before 2001.

Figure 1. Averages of demobilised combatants in each implementation wave.
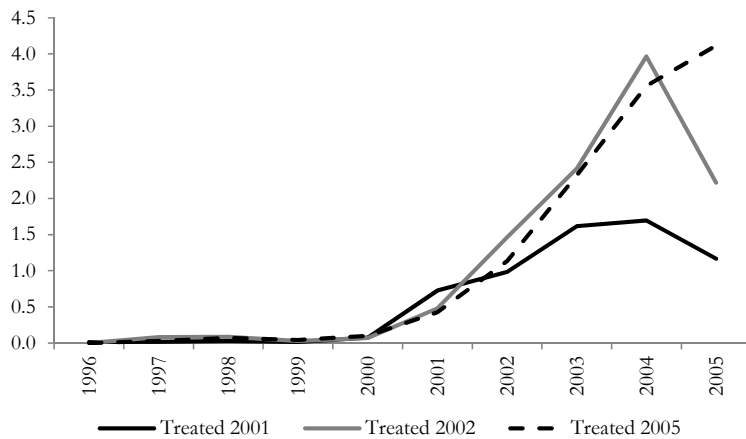
Source: authors based on administrative records from *Familias en Accion* and CEDE (Acevedo and Bornacelly 2014).

In addition to our dependent variable we consider conflict-related and economic controls (see Table 2 below). The demobilisation dynamics may obey to other characteristics of the conflict, especially in the period of analysis when the *Plan Colombia* was launched against illegal armed groups and the trafficking of narcotics. Recall that with a sample of demobilised combatants, Arjona and Kalyvas (2011) found that the motivations for joining the illegal groups were dominated by the economic reasons, especially for paramilitary groups. Reasons to demobilise were related with the tiredness of being a combatant due to constant pressure from the Armed Forces. We thus account for the number of antinarcotics operations by the Armed Forces, number of skirmishes between Armed Forces and illegal armed groups and number of killed combatants and the presence of *AUC*, *ELN* or *FARC*.[8] Similarly, we account for variables that can relate to the economic conditions of each municipality. In this group of variables we consider total population, public sub-national budget transfers from the national Government, royalties transferred from the extraction of natural resources and total municipal tax revenues. Given the existing literature we believe that these variables are linked to the dynamics of recruitment and demobilisation from illegal armed groups in Colombia (see Table A1 of the appendix for descriptive stats).

Turning now to the regression results, Table 2 below presents the estimations of β_1 in (15). Column 1 indicates that the programme generated a positive and significant average treatment effect on average demobilisation. The magnitude of the impact diminishes as we add conflict related controls. On average, the programme increased the number of demobilised combatants by 0.411 when

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[8] We have tested the effects of Familias en Accion on these conflict-related outcomes with no significant results.

controlling for conflict-related and economic controls.[9] If we focus on the illegal armed group that originated the demobilisation in question, we find that paramilitary groups (*AUC*) contributed most to the effects of the programme. The main two guerrilla groups (*ELN* and *FARC*) were unaffected by the CCTs, at least over the period of analysis, while other illegal armed groups also responded positively but in a lower magnitude.

Table 2. Estimation results of the DiD for the whole sample.

DiD	(1) Demobilised	(2) Demobilised	(3) Demobilised	(4) Demobilised	(5) Demobilised: AUC	(6) Demobilised: ELN	(7) Demobilised: FARC	(8) Demobilised: Other
Treated	0.6430**	0.3981*	0.6475**	0.4110*	0.3624*	0.1017	0.1597	0.0193*
	(0.287)	(0.222)	(0.311)	(0.231)	(0.205)	(0.073)	(0.208)	(0.011)
Observations	7,390	7,390	7,390	7,390	7,390	7,390	7,390	7,390
Conflict controls	No	Yes	No	Yes	No	No	No	No
Economic controls	No	No	Yes	Yes	No	No	No	No
R-squared	0.280	0.398	0.302	0.409	0.177	0.236	0.376	0.148

Source: authors based on administrative records from *Familias en Accion* and CEDE (Acevedo and Bornacelly 2014). Note: (i) Clustered standard errors in parenthesis at regional level. (2) Conflict controls are: imprisonments, antinarcotic operations, combats against official Armed Forces, number of killed combatants and presence of AUC, FARC or ELN; economic controls are population, national and regional transfers, regional and municipal royalties and municipal tax revenues. (3) Inference: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3 below shows the results for restricted samples of the estimation. Columns 1-2 restrict the sample according to population size of the municipality. Starting from municipalities with population below 15,000 inhabitants, it is evident that the effect of the programme on demobilisation is stronger on smaller municipalities. Columns 3 – 4 present the estimations for quantiles of the municipal-level GDP per capita. Since there are no national accounts at the municipality level, we have opted for imputing municipal-level GDP by using luminosity data from NOAA (2014) as suggested by Henderson, Storeygard, and Weil (2011) and Pinkovskiy and Sala-i-Martin (2014). It is apparent from these results that municipalities in the second quantile (q2) are driving the results on demobilisation, with an average effect of 1.062 additional demobilised combatants due to the programme.

Table 3. Estimation results of the DiD for restricted samples.

DiD	(1) Demobilised: population < 15K	(2) Demobilised: population > 15K	(3) Demobilised: GDP PC (q1)	(4) Demobilised: GDP PC (q2)	(5) Demobilised: GDP PC (q3)	(6) Demobilised: GDP PC (q4)	(7) Demobilised: GDP PC (q5)

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[9] An additional robustness check was made by obtaining the reported standard error by block-bootstrap as suggested by Bertrand, Duflo, and Mullainathan (2004). See Table A2 of the appendix for results.

Treated	0.7820*	0.4699	1.0984	1.0627**	0.3441	0.2241	0.4303
	(0.447)	(0.310)	(0.848)	(0.414)	(0.308)	(0.264)	(0.461)
Observations	3,770	3,620	1,476	1,480	1,478	1,477	1,479
Conflict controls	No	No	No	No	No	No	No
Economic controls	No	No	No	No	No	No	No
R-squared	0.358	0.162	0.368	0.454	0.255	0.277	0.221

Source: authors based on administrative records from *Familias en Accion,* CEDE (Acevedo and Bornacelly 2014) and NOAA (2014). Note: (i) Clustered standard errors in parenthesis at regional level. (2) Conflict controls are: imprisonments, antinarcotic operations, combats against official Armed Forces, number of killed combatants and presence of AUC, FARC or ELN; economic controls are population, national and regional transfers, regional and municipal royalties and municipal tax revenues. (3) Inference: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

If we turn now to the gradual effect of the programme, the first fact that is worth noting from Table 3 below is that none of the estimations shows significant coefficients before the programme was introduced at *t0*. This finding confirms that the parallel path assumption is accomplished by our DiD identification strategy. From the overall sample, the effects of the programme on demobilisation are positive and significant from the start of the programme and after three continuous years. The effects in *t+3* are diluted, even when controlling for political and economic factors. For the group originating the demobilisation, the results apparently do not hold over time. The observed effects on paramilitaries are observed only in *t+1* while effects on other groups are not significant under this specification. In contrast, effects are detected for demobilised combatants from the *ELN* at t0 but no effects were significant for *FARC*.

Table 3. Estimation results of the gradual DiD for the whole sample.

DiD	(1) Demobilised	(2) Demobilised	(3) Demobilised	(4) Demobilised	(5) Demobilised: AUC	(6) Demobilised: ELN	(7) Demobilised: FARC	(8) Demobilised: Other
t-3	-0.1771	-0.1306	-0.1398	-0.0990	-0.1700	-0.0196	0.0099	0.0027
	(0.195)	(0.225)	(0.195)	(0.219)	(0.119)	(0.022)	(0.129)	(0.006)
t-2	0.1765	0.3084	0.1403	0.2751	0.0184	0.043	0.1179	-0.0036
	(0.125)	(0.266)	(0.135)	(0.151)	(0.071)	(0.031)	(0.084)	(0.005)
t-1	0.3643	0.4117	0.4150	0.4274	0.0710	0.0804	0.2163	-0.0034
	(0.227)	(0.261)	(0.247)	(0.267)	(0.136)	(0.067)	(0.150)	(0.009)
t0	0.7617**	0.6222*	0.7930*	0.6316*	0.2851	0.1525**	0.3136	0.0105
	(0.366)	(0.324)	(0.392)	(0.328)	(0.212)	(0.070)	(0.264)	(0.010)
t+1	0.8926*	0.7640*	0.9561*	0.8035*	0.6197*	0.0665	0.1918	0.0145
	(0.460)	(0.404)	(0.513)	(0.430)	(0.334)	(0.064)	(0.276)	(0.040)
t+2	1.0104*	0.9188*	1.1412*	1.0163*	0.7924	0.1305	0.0742	0.0132
	(0.565)	(0.506)	(0.668)	(0.557)	(0.483)	(0.151)	(0.222)	(0.027)
t+3	-0.1252	0.1008	-0.0173	0.1556	-0.3151	0.0468	0.1670	-0.0240
	(0.462)	(0.395)	(0.394)	(0.373)	(0.429)	(0.040)	(0.183)	(0.021)
Observations	7,390	7,390	7,390	7,390	7,390	7,390	7,390	7,390
Conflict controls	No	Yes	No	Yes	No	No	No	No

Economic controls	No	No	Yes	Yes	No	No	No	No
R-squared	0.282	0.399	0.304	0.410	0.180	0.237	0.377	0.148

Source: authors based on administrative records from *Familias en Accion* and CEDE (Acevedo and Bornacelly 2014). Note: (i) Clustered standard errors in parenthesis at regional level. (2) Conflict controls are: imprisonments, antinarcotic operations, combats against official Armed Forces, number of killed combatants and presence of AUC, FARC or ELN; economic controls are population, national and regional transfers, regional and municipal royalties and municipal tax revenues. (3) Inference: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 4 below provides the breakdown of the effects of the programme on demobilisation for the restricted samples. Interestingly, the results for small municipalities hold for the year of introduction of the programme but not in the medium run. The effects are particularly driven by municipalities in the second quantile of the GDP per capita, with large coefficients that tend to decay in the third year of implementation of the programme.

Table 4. Estimation results of the gradual DiD for restricted samples.

DiD	(1) Demobilised: population < 15K	(2) Demobilised: population > 15K	(3) Demobilised: GDP PC (q1)	(4) Demobilised: GDP PC (q2)	(5) Demobilised: GDP PC (q3)	(6) Demobilised: GDP PC (q4)	(7) Demobilised: GDP PC (q5)
t-3	-0.1493	-0.1668**	-0.2196	-0.3451	0.1885	0.0428	-0.5510
	(0.316)	(0.065)	(0.340)	(0.513)	(0.114)	(0.125)	(0.627)
t-2	0.3962	-0.1432	0.1380	0.7808	-0.0238	-0.1207	0.5045
	(0.283)	(0.174)	(0.140)	(0.613)	(0.169)	(0.101)	(0.597)
t-1	0.7006	-0.1423	0.2335	1.5884	0.0687	-0.1954	0.8863
	(0.470)	(0.270)	(0.301)	(1.712)	(0.350)	(0.180)	(0.996)
t0	1.2301*	0.1218	1.1098	2.0231***	0.1821	-0.0402	1.2563
	(0.691)	(0.169)	(0.810)	(0.609)	(0.453)	(0.279)	(1.382)
t+1	1.1037	0.5294	1.1906	2.1865***	0.2404	-0.0374	1.4805
	(0.682)	(0.348)	(1.034)	(0.634)	(0.430)	(0.329)	(1.636)
t+2	0.6672	1.3459	0.4815	1.4942**	0.5429	0.5220	2.0958
	(0.614)	(0.886)	(0.683)	(0.618)	(0.857)	(0.490)	(1.947)
t+3	0.2522	-0.6041	0.8032	0.6255	-0.8929	-0.0816	-0.6307
	(0.509)	(0.641)	(0.575)	(0.590)	(0.630)	(0.324)	(1.360)
Observations	3,770	3,620	1,476	1,480	1,478	1,477	1,479
Conflict controls	No	No	No	No	No	No	No
Economic controls	No	No	No	No	No	No	No
R-squared	0.360	0.168	0.370	0.460	0.260	0.279	0.225

Source: authors based on administrative records from *Familias en Accion*, CEDE (Acevedo and Bornacelly 2014) and NOAA (2014). Note: (i) Clustered standard errors in parenthesis at regional level. (2) Conflict controls are: imprisonments, antinarcotic operations, combats against official Armed Forces, number of killed combatants and presence of AUC, FARC or ELN; economic controls are population, national and regional transfers, regional and municipal royalties and municipal tax revenues. (3) Inference: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Taken together, these results suggest that the programme generated a positive and significant effect on demobilisation of combatants, especially from the *AUC*, but such effect does not hold over time. Similarly, it is apparent that the effect was driven by small and poor municipalities, which confirms that the programme was more influential in this type of geographical areas.

6.1 Checking for spillover effects

As a complementary exercise here, we follow Miguel and Kremer (2004) to check the presence of spillover effects from treated municipalities to those where the programme had not been introduced in the period 2001 – 2005. Given the internal conflict dynamics, combatants in illegal armed groups would opt for demobilisation at municipalities selected by *Familias en Accion*. As a consequence, the transfers of the programme could introduce migration effects of combatants that would find demobilisation more attractive in places where the programme delivers cash transfers. We thus carried out a single test that consists of accounting for the number of treated municipalities within a radius of 50 kilometres for each treated or untreated municipality. The number of nearby treated municipalities captures the proximity of all municipalities to those affected by the programme. The proximity to treated municipalities to other treated and untreated municipalities makes more likely the generation of spillover effects.

From equation (15) we specify a new linear equation that considers the number of nearby treated municipalities for each municipality:

$$Demobilised_{it} = \beta_0 + \beta_1 treated_{it} + \beta_2 X_{it} + \sum_{t=1997}^{2005} \beta_t Y_t NT_i + \gamma_i + \gamma_t + e_{it} \tag{17}$$

Where Y_t is a year dummy and NT_i is the number of treated municipalities within a radius of 50 kilometres. The coefficients β_t capture the spillover effects. If β_t are significant, then the spillover effects cannot be rejected.

The results of the estimation of (17) are presented as follows:

Table 5. Estimation results for the spillover effects specification.

DiD	(1) Demobilised	(2) Demobilised	(3) Demobilised	(4) Demobilised
Treated	0.6982**	0.3233**	0.6894**	0.3303**
	(0.293)	(0.142)	(0.301)	(0.134)
No. municipalities x Y1997	-0.0007	0.0030	-0.0012	0.0021
	(0.003)	(0.004)	(0.003)	(0.004)
No. municipalities x Y1998	-0.0040	-0.0091	-0.0002	-0.0061
	(0.005)	(0.007)	(0.008)	(0.006)
No. municipalities x Y1999	0.0012	0.0070	0.0102	0.0136
	(0.008)	(0.008)	(0.013)	(0.011)
No. municipalities x Y2000	0.0009	0.0154	0.0180	0.0278
	(0.010)	(0.011)	(0.023)	(0.018)
No. municipalities x Y2001	-0.0208*	0.0018	-0.0023	0.0150

	(0.011)	(0.012)	(0.023)	(0.019)
No. municipalities x Y2002	-0.0347**	0.0002	-0.0121	0.0166
	(0.015)	(0.018)	(0.028)	(0.027)
No. municipalities x Y2003	-0.0570***	-0.0049	-0.0282	0.0163
	(0.018)	(0.020)	(0.032)	(0.032)
No. municipalities x Y2004	-0.1028***	-0.0368*	-0.0712**	-0.0129
	(0.037)	(0.021)	(0.027)	(0.020)
No. municipalities x Y2005	-0.0853***	-0.0362*	-0.0532	-0.0113
	(0.025)	(0.021)	(0.034)	(0.030)
Observations	7,390	7,390	7,390	7,390
Conflict controls	No	Yes	No	Yes
Economic controls	No	No	Yes	Yes
R-squared	0.291	0.400	0.308	0.411

Source: authors based on administrative records from *Familias en Accion* and CEDE (Acevedo and Bornacelly 2014). Note: (i) Clustered standard errors in parenthesis at regional level. (2) Conflict controls are: imprisonments, antinarcotic operations, combats against official Armed Forces, number of killed combatants and presence of AUC, FARC or ELN; economic controls are population, national and regional transfers, regional and municipal royalties and municipal tax revenues. (3) Inference: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 5 above presents the results of the estimation of (17) starting with a model without controls (column 1). Interestingly the coefficients β_t between 1997 - 2000 are not significant and, indeed, are very close to zero. By contrast, the coefficients between 2001 – 2005 report certain degree of significance. The latter indicates that spillover effects might be relevant for the effects of the programme on demobilisation. The negative sign indicates that the number of demobilised combatants decrease by means of the proximity of each municipality to treated municipalities. This first result indicates, first, that treated municipalities are more attractive for the demobilisation of combatants than untreated municipalities and, second, that previous estimations might have been underestimated. Nonetheless, it is apparent from Table 5 that insofar as we control for other characteristics this effect fades out. The coefficients in Column 4 indicate that the spillover effects are not robust to conflict-related and socioeconomic controls. As a consequence, we cannot certainly accept the spillover effects hypothesis unless we discard the employment of additional control variables.

7. Conclusions

The purpose of this paper was to determine the effects of an antipoverty programme on the demobilisation of combatants. By the development of a modified version of Basu and Van (1998) approach, we were able to theoretically predict that the intervention of a CCT can play an important role on the recruitment and demobilisation of combatants in illegal armed groups. The existing

empirical literature has demonstrated that these interventions can increase or decrease the intensity of civil conflicts. In the case of CCTs, it has been shown that antipoverty transfers of income in cash can diminish the intensity conflicts, especially in Philippines and India. Taking advantage of the natural experiment that resulted from the implementation of *Familias en Accion* in Colombia we were able to identify a DiD approach. The latter allowed us to determine the effects of this CCT on the demobilisation of combatants in Colombia, especially in the first stage of gradual implementation of the programme in 2001 – 2005.

The results of this paper showed that *Familias en Accion* increased the average number of demobilised combatants. The detected effects were driven by the demobilisation of combatants from paramilitary groups, the *AUC*. Given previous qualitative characterization of demobilised paramilitary combatants, it was illustrated that they are more sensitive to respond to economic-related reason rather than ideology. Considering that *Familias en Accion* is a cash transfer programme, we have strong arguments to believe that our results are explained by this fact. Similarly, we also were able to measure whether there were spillover effects in our identification strategy. In fact, the results of this part showed that demobilisation could have decreased in untreated municipalities given their proximity to treated municipalities. Nonetheless, the spillover effects were not robust to the presence of additional controls in our specifications.

The principal theoretical implication of this study is that antipoverty programmes in the form of CCTs can be taken with stronger consideration in the design and implementation of conflict resolution strategies. The intention of CCTs is to alleviate poverty in the short run while incentivising the human capital formation of children. The achievement of this intention can be understood as intermediate outcome in conflict-related contexts, in the sense that by increasing consumption and establishing conditions on the time allocation of children CCTs can generate positive externalities on the development of civil conflicts. In the case of *Familias en Accion*, it was found that these externalities were observed in the direction of higher demobilised combatants.

It is unfortunate that the study did not count on more detailed information on the individual characteristics of demobilised combatants. Our main outcomes were obtained at the municipality level. Individual data would have helped us understand better the drivers of our results. Similarly, we did not count on reliable data on desertion of combatants from illegal armed groups, which is an important outcome complementary to the demobilisation. The unobserved characteristics of many

conflict-related outcomes make it strongly difficult to obtain a richer analysis of the interventions generating externalities on the development of civil conflicts.

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Appendix

Table A1. Descriptive statistics.

Variables	Pre-programme	Post-programme	Total
Demobilised combatants	0.331	1.665	0.848
	[3.541]	[6.491]	[4.944]
Conflict-related controls			
Imprisonments	1.382	2.386	1.772
	[3.583]	[4.520]	[4.003]
Antinarcotic operations	0.145	0.098	0.126
	[0.780]	[0.675]	[0.741]
Combats against official Armed Forces	0.635	1.612	1.014
	[1.600]	[3.749]	[2.692]
Number of killed combatants	0.084	0.085	0.084
	[0.378]	[0.407]	[0.390]
Presence of ELN	0.212	0.206	0.209
	[0.409]	[0.405]	[0.407]
Presence of FARC	0.381	0.465	0.413
	[0.486]	[0.499]	[0.492]
Presence of AUC	0.125	0.284	0.187
	[0.331]	[0.451]	[0.390]
Economic controls			
Total population (x 1,000)	21.72	20.00	21.05
	[18.75]	[17.19]	[18.18]
National budget transfers (US $)*	2.317	2.968	2.570
	[5.710]	[5.899]	[5.792]
Capital transfers (US $)*	101.5	147.3	119.3
	[82.49]	[79.18]	[84.22]
Lcoal royalties (US $)*	0.206	0.344	0.259
	[1.159]	[1.505]	[1.306]
Regional royalties (US $)*	10.22	17.20	12.93
	[18.16]	[26.81]	[22.18]
Total tax revenues (US $)*	0.480	0.441	0.465
	[1.345]	[0.822]	[1.170]
Observations	4,522	2,868	7,390

Source: authors based on administrative records from Familias en Accion and CEDE
(Acevedo and Bornacelly 2014). Note: * variables with 1999 = 100 in per capita terms.

Table A2.DiD results with block-bootstrapped standard errors.

DiD	(1) Demobilised	(2) Demobilised	(3) Demobilised	(4) Demobilised
Treated	0.6430**	0.3981**	0.6475**	0.4110***
	(0.265)	(0.196)	(0.308)	(0.158)
Observations	7,390	7,390	7,390	7,390
Conflict controls	No	Yes	No	Yes
Economic controls	No	No	Yes	Yes
R-squared	0.280	0.398	0.302	0.409

Source: authors based on administrative records from *Familias en Accion* and CEDE (Acevedo and Bornacelly 2014). Note: (i) Block-bootstrapped standard errors in parenthesis at regional level. (2) Conflict controls are: imprisonments, antinarcotic operations, combats against official Armed Forces, number of killed combatants and presence of AUC, FARC or ELN; economic controls are population, national and regional transfers, regional and municipal royalties and municipal tax revenues. (3) Inference: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.