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Returning to a Land of Opportunity? Effects of Land Restitution in Colombia[†]

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Abstract

Millions of people are internally displaced by wars and conflicts with wide-ranging adverse social and economic consequences. Yet, we still know very little about how they fare upon return to their homes. Colombia's 50-year internal armed conflict resulted in the world's highest number of internally displaced people. In this paper, we study the effects of a recently implemented law allowing displaced Colombians to apply to receive land restitution. Although everyone could apply for restitution immediately, the implementation of claims happened in a phased manner. Using agricultural census data coupled with geospatial location of formal land restitution, and individual level information on applications, we shed light on the effect of land restitution on three sets of outcomes: social integration, labour investments and market integration. Our results suggest restituted households are integrating into the community - they are more likely to be a member of an association, more likely to partake in reciprocal farm work and sell their produce. We also find evidence that in the short run, unlike the findings in the literature relating to land formalisation, restituted households are not more likely to hire permanent workers but instead increase the use of day workers and household members on their land.

JEL: D13, Q15, O12

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1 Introduction

What are the economic effects of land restitution on individuals that have been displaced? At least 100 million people were forced to flee their homes due to war, conflict, persecution and human rights violations in the past decade with 79 million of these displacements being internal [UNHCR, 2019]. This displacement has dire longer term socio-economic consequences due to the trauma of violent dispossession but also due to the erosion of property rights [Ibáñez and Moya, 2010]. Addressing this issue is a key policy problem. Not surprisingly several governments have designed programs aimed at land restitution to displaced individuals. Yet, there is still very little systematic evidence about the effectiveness of restitution once displaced people return to their homes, and how land restitution programs can promote social, labour and market integration. The integration of formerly forcibly displaced people is a complex and multifaceted issue as the violence experienced in the community will likely have had lasting impacts on both those displaced and those who remained, shaping attitudes, potentially intergenerationally. This paper aims to fill this gap.

We examine *whether and how land restitution to people displaced by internal conflict affects their social integration, labour investments and market integration* . We explore this question in the case of Colombia's 50-year internal armed conflict which officially ended in 2016 when the government brokered a peace agreement.[1] The roots of the conflict lay in the extreme inequality of land distribution and persistent failures of land reform [USAID, 2016, Elhawary, 2007, UNHCR, 2017].[2] Our paper relies on the implementation of "Ley 1448" known as the Victim's Law, entitling people displaced by the armed conflict after 1991 to formal land restitution. The implementation of claims is happening in a phased manner, giving rise to a natural experiment setup. Whether an area is eligible for official restitution is decided by the national security council based upon local security conditions, the historical density of dispossession and conditions of return. By 2015, 49% of Colombia's municipalities were eligible for land restitution, and 46% of restitution claims were for land in these areas. A restitution claim must be in an eligible area to be processed. The exact location of the border is relatively exogenous in so far as it is not used as an administrative border for any government decision beyond land restitution, and it

[1] In November 2016 the government signed a peace agreement with the largest guerrilla group involved in the conflict - the Revolutionary Armed Forces of Colombia.

[2] In 2015, one per cent of the population owned more than half of Colombia's agricultural land area [Department of National Statistics, 2015], and 60% of rural landholdings were informal [Department of National Planning, 2015].

was decided at the federal level. Furthermore, due to the lengthy process, the applicants cannot predict exactly when the outcome will be communicated to them and the application itself does not guarantee a successful outcome. Exploiting the geographic borders of these implementation areas allows us to estimate the causal effect of land restitution to internally displaced people.

We construct a novel geospatial dataset on formal land restitution, coupled with Colombian vereda[3] level data, and individual-level information on applications to the land restitution unit.[4] This dataset makes it possible to identify veredas that received land restitution. We then distinguish between treatment and control groups. Our treated group includes households displaced by the armed conflict, who have returned to land inside the eligible area *and* now own their land. Households in the control group were also dispossessed of their land by the armed conflict but are residing in veredas contiguous to the border of the eligible area. This spatial discontinuity supports our assumption that treatment and control households only differ in their probability of receiving land restitution (only households inside the eligible area can receive restitution, those outside the border have a probability of zero) rather than along any intrinsic unobservable characteristics.

Our interest lies in whether land restitution to IDPs improves their outcomes. There are many factors that could complicate this relationship. The literature relating to forced displacement has found evidence of negative impacts in terms of mental wellbeing, discrimination, and labour market outcomes (e.g. see [Ibáñez et al., 2022] for review). Moya and Carter [2019] show that the level of violence experienced by IDPs during their displacement is highly negatively correlated with their mental wellbeing. Moreover they find that in the long run the expected likelihood of extreme poverty increases with the severity of the violence experienced. Ridley (2020) also find evidence that displacement is linked to chronic poverty throughout the lifetime. Bertrand and Duflo [2017] provide an overview of the costs to refugees of being discriminated against in host communities in terms of self-expectancy and self-fulfilling prophecies. Using propensity score matching, Gimenez-Nadal et al. [2019] find evidence that IDPs in Colombia command lower wages in the labour market - forced displacement is related to decreases of between 10 and 29 per cent in the wages of males, and between 18 and 37 per cent in the wages of females, relative to their counterparts. Together these findings suggest that simply

[3]The vereda is the geographic administrative unit below the municipality. There are 1,103 municipalities in Colombia and 32,377 veredas. It is frequently a village comprising between 50 and 1200 inhabitants.

[4]Our research design was informed by in-person interviews with the former and current directors of the land restitution unit, and from visits to rural households who have been restituted.

restituting land to displaced households may not result in the successful integration of IDPs within communities. Indeed, displacement seems to be an injustice which bifurcates the life trajectory of the individual down a path of self-perpetuating and multifaceted obstacles.

So far evidence on productive investment behaviour of IDPs following land restitution in Colombia has been qualitative. Matijasevic et al. [2007] via Ibáñez and Moya [2007] find that IDPs who were restituted land did not invest in it and only grew subsistence crops due to fear of being displaced again. This contrasts with the expected behaviour found in the formalisation literature which suggests property rights should incentivise more productive activities by improving the expected returns from investment in the land. For instance, Goldstein and Udry [2008] analyse the impact of land rights on agricultural investment and productivity in Ghana. They find individuals with more secure tenure rights invest more in their land and produce a higher output. Goldstein et al. [2016] exploit a land formalization program in rural Benin that results in a shift towards long term investment, and find that female-managed landholdings are more often left fallow. Montero [2022] finds that land redistribution (from outside ownership into cooperatives) in El Salvador led to a shift in the type of agriculture practiced, higher household incomes and more equitable wage distribution. However we might reasonably expect the effect of formal ownership to differ in our case, because displaced individuals, and the communities from which they come, have faced very substantial undermining of their property rights as a result of their displacement. Indeed, due to the negative shock to trust in governmental institutions experienced during forced displacement, IDPs may not believe that the government is able or willing to protect their land ownership rights after restitution, and therefore dissuade them from making long term investment decisions.

Recent research has sought to understand whether cash transfers can help improve IDP outcomes and build social networks between IDPs and their host communities. Valli et al. [2019] use a cluster-randomised controlled trial to better understand how cash, food and food vouchers provided to refugees can promote social cohesion in the host community. They found evidence the programme contributed to the integration of Colombians in the host community through increases in personal agency, attitudes accepting diversity, confidence in institutions, and social participation. More recently Guarin et al. [2022] examine the impacts of financial compensation to victims of the armed conflict and find positive effects on health, living standards and human capital.

Allport et al. [1954] described intergroup contact as a means of reducing discrimination and

promoting social cohesion and integration. In this paper we explore whether subsequent to land restitution individuals experience social integration within the communities they have returned to. Social integration is proxied through participation in community associations and reciprocal collective work on community farms. We also explore the time horizons of IDPs in terms of their labour investments upon land restitution. Specifically, we seek to investigate empirically whether IDPs exhibit caution in terms of investing in their land, potentially due to mistrust in the security of their property rights. Finally, and linked to the former, we investigate whether restituted households move away from subsistence farming and towards commercialising produce thereby suggesting security in their property rights and social integration.

As a part of the restitution programme, households were supported in accessing credit and provided with technical assistance. Thus, as a first step in our analysis we conduct a series of checks to ensure that the households identified as restituted households in our sample are indeed more likely to get access to credit and receive assistance. Consistent with expectations, we find that restituted households are on average 9% more likely to apply for credit and 15% more likely to receive assistance. This provides some indication that the land restitution program is rolling out as intended. Our main findings pertain to social integration, labour investments and market integration following restitution. First, we find evidence of successful social integration into the community - restituted households were on average 26% more likely to be members of an association, most often of a cooperative association or an association of producers. They were also more likely to be involved in collective work with other members of their community. Second, restituted households were more likely to engage household labour and day labour rather than permanent labour. Third, restituted households were more likely to sell their produce rather than grow for auto consumption as compared to non-restituted households. Together these findings suggest that land restitution may have supported a move away from subsistence farming and enabled investment in land and community.

Our paper contributes to the literature in three key ways. First, while the literature on property rights and land formalisation has found evidence of improved outcomes for households, our paper is the first to examine whether these hold when restituting property rights to IDPs. Second, among the scarce empirical literature relating to internally displaced people, most focuses on outcomes whilst they are still displaced, whereas our paper examines their outcomes once they return. Third, our paper delves into a multifaceted understanding of integration upon return - social, labour and market integration.

The rest of this paper is structured as follows: section 2 describes the conflict and land reform while section 3 presents the dataset. Section 4 discusses the empirical strategy. Section 5 presents the results and mechanisms while section 6 presents robustness checks. Section 7 concludes.

2 Conflict and the Land Reform

The 50-year internal armed conflict in Colombia waged between the government and internal guerrilla movements, most prominently the Revolutionary Armed Forces of Colombia (FARC). These rebel groups undertook deliberate attacks on civilians living in rural areas in order to capture more territory and reinforce territorial strongholds [Ibáñez and Moya, 2008]. Civilians were under numerous attacks such as homicides, massacres, forced disappearances and kidnappings [Ibáñez and Moya, 2008, Ibáñez et al., 2022]. From the 1980s to the 2000s, armed groups, are believed to have acquired approximately 4.5 million hectares of land [Elhawary, 2007]. The 2017 annual UNHCR report stated that Colombia had the world's highest number of internally displaced people - 7.7 million people (hereafter IDP). Whilst the conflict officially ended in 2016 with the Peace Accord, the spread of displacement it led to across the country is particularly striking. Ibáñez and Velásquez find that by 2002, over 90% of the country's municipalities had reported internal displacements. By 2020 all Colombian municipalities were affected by forced displacement [Ibáñez et al., 2022]. Moreover, the number of displaced may be an understatement as evidence suggests that the most vulnerable may be least likely to declare themselves as displaced to the government. Figure 1 provides a brief timeline of the key events important for this analysis.

Most IDPs were small-scale farmers – either owners or landless day labourers. The vulnerable bore the brunt of the conflict as 85% of IDPs were from rural areas and female-headed households suffered disproportionately from displacement [USAID, 2016]. Afro-Colombian and indigenous communities have also been disproportionately affected by displacement: while they constitute 11% of the Colombian population, they made up 33% of IDPs. Overall, IDPs are an extremely vulnerable population, both due to the violence they have experienced or witnessed, and the precariousness of their situation often in turn precludes them from accessing housing, education, and integrating into formal society. Indeed Ibáñez and Moya [2007] describe how the IDP socio-economic profile resembles that of the poorest population in Colombia in terms

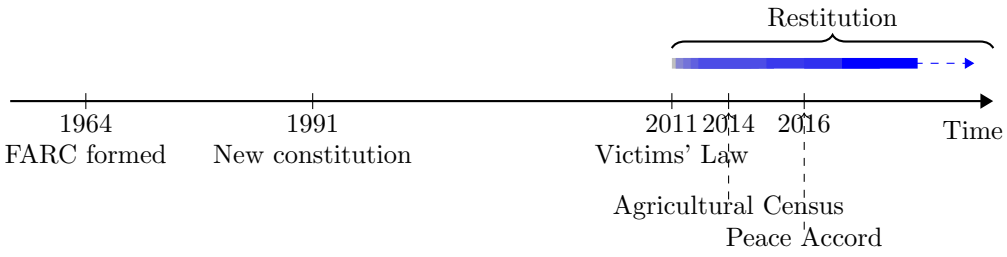


Figure 1: Timeline of the Colombia's conflict and land restitution

of large households with high numbers of dependents and low levels of education.

In 2011 the Colombian government ratified law 1448, known as the "Victim's Law" which lay out the various ways in which the state intended to provide reparations and restitution to those who were affected by the conflict.[5] In particular, the law provided a set of differential reparations to people who were displaced based on the year they were displaced. Under this law, if a person was expropriated from their land after 1991, they are entitled to formal land restitution. The cut-off date is therefore relatively exogenous, as it was chosen based on the *"prescripcion extraordinario de premio"* law that states that if you were outside of your land for 20 years or more you lost all claims to it and it was also the start of a new constitution.[6] Restitution encompasses the return of property lost as well as the formalization of property rights.

The government unit charged with implementing this restitution process is the URT (Unidad de Restitucion de Tierras). The implementation of restitution claims is happening in a phased manner. For a claim to be processed, the land under discussion must be in an area that has been identified as eligible by the government. The national security council has identified these as areas in which the conditions of public and personal security are such that land restitution can happen in a safe manner. Specifically, the decision is based upon local security conditions, the historical density of dispossession and conditions of return. A claim can be submitted to the URT even if the area is not yet eligible. However, a restitution claim must be in an eligible area to be processed.[7] By 2015, 49% of Colombia's municipalities were micro-focalised, and

[5]The government of Colombia implemented several legislations prior to the Victims law (e.g. Decree 1725 in 1953, Law 387 in 1997) which aimed to legally recognise IDPs and protect their rights. Whilst the 1448 law also recognises IDPs as victims of the conflict, the main difference of this law is that it clearly defines direct reparation policies for IDPs.

[6]The figure A.1 plots the density of the year of displacements based on applications received by the URT in 2011–2015.

[7]The figure A.2 presents the density of applications received by the URT between 2011 and 2015.

46% of restitution claims were for land in these areas.[8]

The application process for restitution generally either stems from a 'walk-in', or follows the URT visiting a local area to spread information about applying for the restitution process. The intricacies of the restitution process were clarified during in-person interviews with a project manager in a URT agency in Bogota. Given that most of the displacement happened in rural Colombia, the URT follows a multi-pronged outreach process to remote areas. The agency contacts social leaders in the micro-focalised communities through the 'liaison officer for victims' designated in each town hall. The URT is also in frequent contact with the personaria - the department in the government that guarantees human rights are upheld and creates communication outreach programs to inform rural areas of the restitution process. Finally, members of the URT physically visit recently micro-focalised areas to disseminate information about the restitution process to people. Only 20% of the URTs cases are walk-ins – most are opened following visits to local areas and informing people about the opportunity for restitution. When the agency enters a micro-focalised area, they talk to the leaders in the area, the townhall, and collect information on historic violence and conflict in the community. They use two information gathering techniques: 'Timelines' and 'Social Cartographies' (a spatial map of where the armed groups were in the area, types of crops, etc.).

In terms of the application from the point of view of the individual seeking restitution, the general process is as follows – a person presents themselves at a URT office branch and explains their situation (i.e. where the land was, when they were dispossessed, how it happened). Each claim is reviewed by a team comprised of three types of professionals- lawyers, social workers and a member of the cadastre team. If the land under question is in an area that is eligible for restitution and the dispossession happened after 1991, members of the URT team will visit the area and speak with members of the community as well as local officials in order to establish a history of the dispossession of that area, as well as ascertain whether the individual did indeed live on the land in question. The team fully identifies and geolocalises the land under question using GPS systems. The proof required is either formal proof of ownership or social proof compiled through social cartography and individual interviews as well as focus groups. Once the team is satisfied with the information they have collected, the claim is then entered on the Register of Evacuated or Forcibly Abandoned Land (*Registro de tierras despojadas y abandonadas forzamente*). The application is then ready to move on to the judiciary phase

[8]The figure A.5 demonstates the micro-focalised process between 2015 and 2020.

who will have an audience with the individual requesting land, and review the content of their application. The judge will then make a decision. If successful the judge may either restitute the parcel of land that was lost or may restitute them with another one of the same value. The restituted land will never be less than an UAF (*unidad agricola familiar*) - the minimum amount that has been designated as necessary to live off of. The law states that this whole process should take 8 – 10 months in total.

While corruption is in principle still possible, the opportunities for a household to manipulate the process (e.g. through a bribe) are extremely limited. First, the claimed land must be inside the eligible area for the application to be processed, and the border is drawn by officials at the national level. Second, as part of the application process the claim is reviewed thoroughly by numerous people from both the government and the community (e.g. town hall, neighbours, social leaders). It is therefore highly unlikely that any given internally displaced person would be able to bribe such a large number of people, as well as the judge who makes the final decision.

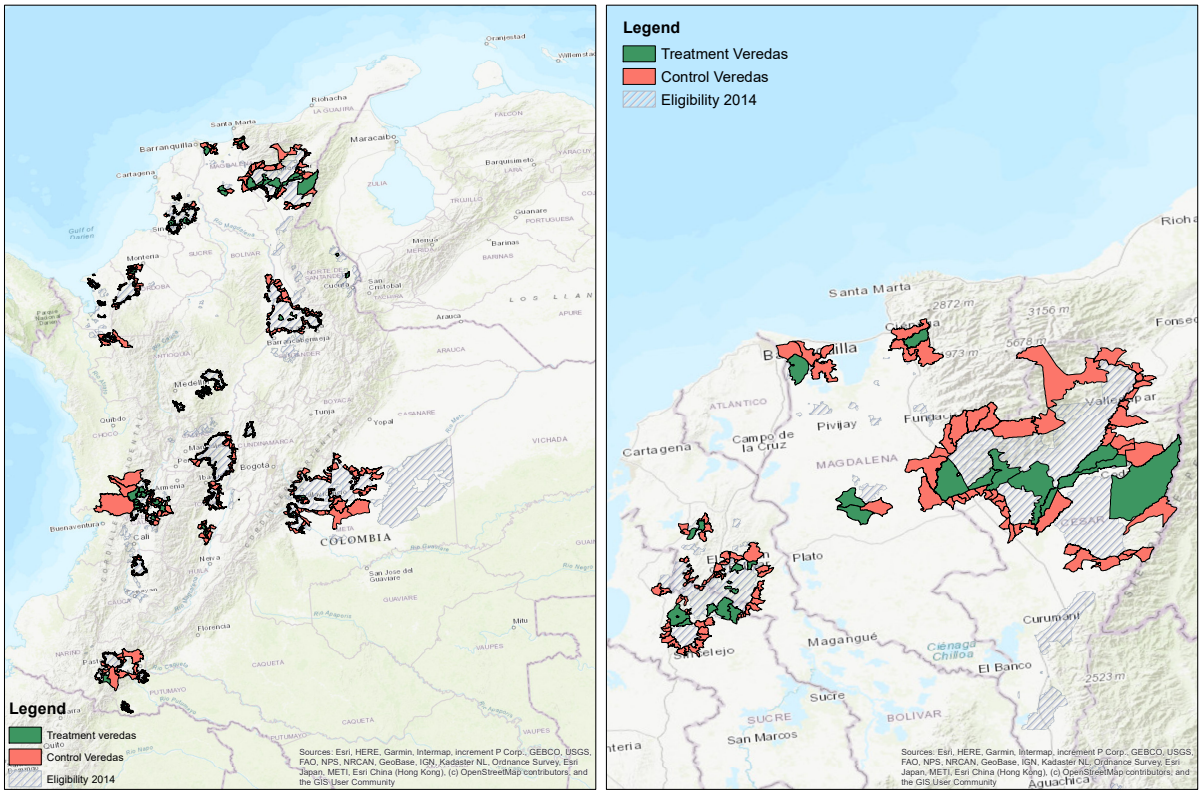
3 Data

To identify the impacts of land restitution on displaced households, we create a dataset combining information from multiple sources. Our first data source is the land restitution unit which collects all individual-level land restitution claims received between 2011 and 2021, including the outcome of the application. Using this information, we code the veredas in which claims were made before 2015 and whether any land was restituted. Second, we geolocalise all areas eligible for official restitution before 2015 and 2021 respectively. The combination of these two types of information allows us to identify all veredas that had received requests for land restitution by 2014, but also to distinguish between veredas that had become eligible by 2015, and those that had not yet become eligible in 2014, but will become eligible by 2021. Third, we use the 2014 agricultural census and restrict the sample to households which have suffered dispossession from their land through the armed conflict, and in which the person charged with making decisions for farm production was also living in a household on the land.[9] Fourth, we then match the census with our geolocalised data to information on the intensity of the armed

[9]Due to the formulation of the census questionnaire it was only possible to identify land dispossession if the person charged with decision-making on the farm answered the household survey. Linked to this, to maintain the clearest causality we restricted the dataset to farms with one decision-making household which was previously or currently dispossessed, and is living on the land.

Figure 2: Treatment and control veredas

(a) Country-level *(b)* Region-level



Note: This figure plots the location of treatment and control veredas. Panel (a) plots the information at the country level. Panel (b) presents this information for a selected region to provide a closer view. Source: Authors' calculation.

conflict in Colombia which is collected by the Conflict Analysis Resource Center.

This combined final dataset enables us to create treatment and control groups. Our treatment area includes all eligible veredas (i.e. in which land had been deemed eligible for restitution claims to be processed) and where at least one confirmed land restitution took place by the end of 2014. Within these veredas, we then select as treated all households which were dispossessed of their land and have returned to formally own their land. This results in a final set of 113 treatment veredas, and 2,207 households. We then create a counterfactual group meeting two criteria. First, the control vereda must be contiguous to the border of the eligibility area of the treatment vereda. Second, our control group only consist of households who were dispossessed of their land due to the armed conflict but have not yet returned. These two selection criteria result in 759 control veredas and 9,409 control households.

Figure 2 demonstrates the treatment and control veredas and the eligibility areas, at the

country-level (a) and a selected region (b). Our treatment veredas are in green, whilst control veredas are in red. The eligibility area in 2014 is denoted by grey stripes. Three observations can be made here. First, eligibility areas and subsequent treatment and control veredas are not concentrated in one part of the country but rather are spread across Colombia. Second, there is large heterogeneity in vereda size (i.e. neither large nor small veredas were prioritised). Third, the eligible areas do not follow municipality borders.

Table 1 describes the profiles of the treatment and control groups as well as the orthogonality tests at municipality, vereda and individual levels. In the last column we run a joint test of orthogonality to test for balance in our treatment and control groups. This test checks that treatment does not predict a significant difference in our observable controls. We use two macroeconomic level variables collected prior to treatment - nightlight intensity (included as a proxy for income levels) and the level of violence. The results of the orthogonality test show that control veredas were not in better performing areas and the level of violence cannot significantly predict treatment. We also control for density of dispossession in each vereda, that is to say how many people were dispossessed from their land by the conflict. It is particularly important to check that this is not differential between treatment and control groups given that dispossession was a determinant of the national security council's decision to make the area eligible for restitution. We find no significant difference, which lends support to our spatial regression discontinuity strategy identifying households that are similar except for one falling on one side of the border rather than the other. Adding assurance, we also find that there is no significant difference in the year households in treatment and control were displaced. The only significant difference we find between treatment and control pre-treatment is that household heads are slightly more educated, however we control for this in our analysis.

Table 2 provides summary statistics on an array of other variables we control for in our analysis. We find no significant differences in the ethnicity composition of treatment and control households, nor in the number of women-headed households (23% in the control and 18% in the treatment). We find treatment and control households similar in terms of the size of their land, the material of their property walls and floors and the age of the household head. We do find that treatment veredas are slightly larger than control veredas, but we control for this in our analysis.

Table 1: Pretreatment variables for control and treatment

	Control Mean	Control N	Treatment Mean	Treatment N	Difference	IV p-value
Municipality level						
Land dispossession	740	9409	889	2207	-149.05	0.663
High level of violence	0.12	9409	0.13	2207	-0.01	0.911
Moderate level of violence	0.19	9409	0.44	2207	-0.25	0.911
Low level of violence	0.68	9409	0.43	2207	0.25	0.040
Vereda level						
Nightlight 2012	0.16	9409	-0.02	2207	0.13	0.121
Individual level						
Year dispossessed	2001.24	9281	2001.69	2196	-0.45	0.195
Education HH 1	0.37	8926	0.49	2131	-0.12	0.089
Education HH 2	0.20	8926	0.21	2131	-0.01	0.000
Education HH 3	0.08	8926	0.05	2131	0.03	0.001
Education HH 4	0.13	8926	0.07	2131	0.06	0.841

Note: This table presents summary statistics and balance checks for pretreatment variables at the municipality, vereda and individual levels.

Table 2: Summary Statistics

	Control Mean	Control N	Treatment Mean	Treatment N	Difference	IV p-value
Minority ethnicity	0.16	9409	0.05	2207	0.11	0.065
Female HH	0.23	9409	0.18	2207	0.05	0.557
Household size	3.55	9409	3.55	2207	0.00	0.090
Age of HH	48.67	9409	51.66	2207	-2.99	0.111
Log land size	10.17	9409	11	2207	-0.83	0.620
Log vereda size	8.01	9409	8.34	2207	-0.33	0.026
Floor material - cement	0.5	9314	0.45	2188	0.05	0.025
Floor material - earth	0.3	9314	0.37	2188	-0.08	0.014
Floor material - wood	0.13	9314	0.11	2188	0.02	0.274
Floor material other	0.08	9314	0.07	2188	0.01	0.274
Wall material (1)	0.44	9323	0.39	2187	0.05	0.463
Wall material (2)	0.17	9323	0.31	2187	-0.14	0.096
Wall material (3)	0.33	9323	0.25	2187	0.08	0.496
Wall material other	0.06	9323	0.05	2187	0.01	0.024

Note: This table presents summary statistics and balance checks at the individual levels. Floor material other includes carpet, marble, parquet, polished or lacquered wood, tile, vinyl, tablet, brick and ceramic. The reference category in balance checks for cement, floor, earth and wood variables is floor material other. Whilst the baseline category for floor material other is floor material - wood. Walls material type (1) includes block, brick, stone, polished wood; type (2) includes tapia tread, adobe, bahareque; type (3) includes rough wood, board, and plank; the other type includes prefabricated material, guadua, cane, mat, other vegetables, zinc, tile, cardboard, cans, waste, plastics and no walls. The reference category in balance checks for wall material variables is wall material other. The baseline category for wall material other variable is wall material (3).

4 Empirical Strategy

To evaluate the impact of land restitution on households who were formerly displaced by the internal armed conflict, we estimate the following empirical model:

$$y_{hvm} = \beta_0 + \beta_1 \text{Restitution}_{hvm} + \Psi' X_{hvm} + f(X_m, Y_m) + \epsilon_{hvm} \quad (1)$$

Where y_{hvm} denotes the outcome of a household h living in vereda v located in municipality m. $Restitution_{hvm}$ captures whether a household is treated. X_{hvm} is a vector of household-level characteristics that include the ethnicity, level of education and gender of the household head as well as the household size, year evicted and size of farm. $f(X_m, Y_m)$ is a polynomial of geographic location, where the longitude and latitude of the municipality control for confounders which are continuously distributed along the border (e.g. rainfall, soil characteristics). We cluster standard errors at the vereda level since households in each vereda are likely to be affected by similar shocks than households in different veredas. As a robustness check, we also use Conley [1999] standard errors to account for spatial correlation in the data.

Equation (1) needs to satisfy several criteria to be internally valid and provide unbiased, causal impact estimates. First, all controls must vary smoothly around the boundary. Second, only the treatment must exhibit a "discontinuity at the cut point" [Hahn et al., 2001]. Third, the "local randomisation assumption" must hold [Lee and Card, 2008]. This in turn requires that a person has control over whether their land falls on one side of the boundary or another be imprecise, making the difference in unobservables for people close to the border random. Given that being in an eligible area is a pre-requisite for restitution and that assignment to an eligible area is based on a strict longitude and latitude (i.e. the location of the border), the eligibility border is the rule which predicts treatment. If there can be no selective sorting across the border, any difference in subsequent mean outcomes should be caused by restitution. It is unlikely that any given household can influence the National Security Council in determining the border, nor should any local politician, given this is a federal-level determination. As the land itself cannot move, and as the URT is very thorough in triangulating information about the location of people's land, there is limited scope for internally displaced people to manipulate the threshold, and thus for the boundary to be endogenously placed.

The bandwidth, which is the interval around the cut-off, should be as small as possible

given the sample. A smaller bandwidth lessens the bias from misspecifying the functional form of the relationship between the running variable and the outcomes but comes at the expense of variance required for precise estimation. If the choice of location is determined with even partial knowledge of the outcomes, then larger bandwidths introduce bias. If someone was astute enough to dupe the URT officials into believing their land was on one side of the boundary rather than the other, or if they were able to influence the decision of where to draw the border (i.e. due to social/or capital) it might be reasonable to assume that these traits would also influence whether they engage in land investments or access credit. Since treatment is at the vereda-level, rather than specific to each plot of restituted land, it is "lumpy" and does not lend itself to the typical optimal bandwidth analysis. However, by selecting as control veredas only those who are contiguous with the border we restrict ourselves to plausibly the most comparable sample. The analysis does not suffer from the usual trade-off between optimal bandwidth and sample size.[10] The local unconfoundedness claim for our estimates, therefore, appears credible.

Finally, we use an instrumental variable to address non-compliance within veredas, estimated using a two-stage least squares procedure that instruments restitution with being in an area. The chosen instrument should be valid because it satisfies the assumptions of independence, exclusion restriction, first stage and monotonicity. Conditional on covariates, the land being sought by people is random along the border - people are unable to manipulate the location of their land or the border. The instrument operates through a single known channel - being in an eligible area affects the outcomes in no other way than through increasing a household's probability of being restituted. Being in the eligible area should positively alter the likelihood that a household will be restituted. Under these assumptions, the instrumental variable estimation will provide the local average treatment effect on the compliant population. Compliers are the people who would not have been restituted land had they not been in the eligible area. When measuring the effect of restitution we have one-sided non-compliance - no household in the control who has returned and owns their land can be considered restituted given that they are outside the eligible area, thus there are no "always takers".

There are some limitations to our approach. Our estimates are not representative of average treatment effects for three reasons: self-selection, lack of unconditional unconfoundedness, and

[10]Note as we do not have information on the exact location of the farm, we are unable to control for distance from the farm to the border. As all veredas are contiguous, the distance from each vereda to the border is in principle zero. However, when we control for the distance from the centre of the vereda to the border, our results remain robust.

heterogeneous effects. There are a large number of administrative hoops and proofs required to complete the lengthy process, in addition to the extensive in-person and secondary research URT officials undertake to validate each claim. Thus the estimates found in this research may be an upper bound if we believe the treated may have started in a more privileged position, as proxied by their ability to overcome all the administrative hurdles. Moreover, although the URT has undertaken outreach efforts, it is likely that people who are better informed and have better social networks had greater ability and confidence to file a claim. Furthermore, the effects of treatment are unlikely to be homogenous. Although we condition on observables at our disposal as a way of mitigating potential endogeneity driven by omitted variables, treatment may still depend on the unobservables discussed above, so we use an RDD to achieve unconfoundedness for the subpopulation around the cut-off

5 Results

This section first presents a series of proxy checks to test to ensure the identified restituted households are receiving the expected components of the restitution policy, i.e. technical assistance and support accessing credit. Second, we discuss the impact of the land restitution policy on our main outcomes: social integration, labour investments and market integration.

5.1 Proxy Checks

As the land restitution policy is accompanied by support in accessing credit as well as technical assistance, we first check that restituted households are indeed more likely to receive credit and assistance. Table 3 presents the results which pertain to applications for agricultural credit (Panel A) and technical assistance (Panel B). For each of these two proxy checks, we show results for four outcome variables and two specifications – odd columns excluding controls and even columns including controls. Our preferred specification includes control variables and corresponds to equation 1. For each model we provide the first stage result as well as the mean, sample size and first-stage F-statistics. The first stage is highly predictive for all outcomes thereby providing reassurances that our instrument fulfils the relevance assumption.

In the top panel of table 3, our results indicate that restituted households are 9% more likely to apply for agricultural credit. The magnitude of this result is substantial given the mean of

this variable is 19.4%. Contingent on having applied for credit, the household is 8% more likely to be granted credit. When delving into the organisation granting credit, we see that restituted households are more likely to be approved by Banco Agrario and less likely by other banks. This is in line with expectations since Banco Agrario is working with the government to provide loans to the victims of the conflict and specifically to beneficiaries of the land restitution program. Indeed, restituted households are 11% more likely to be granted credit by Banco Agrario and 9% less less likely to be granted credit by other banks.

In the bottom panel, we present the results for receipt of assistance. Similar to credit, restituted households are 16% more likely to receive assistance. Delving into the kind of assistance received, restituted households are 16% more likely to receive support in good agricultural practices, 2% more likely to receive support in how to commercialise their produce.

These results are in line with the auxiliary services households can be expected to receive upon being granted restitution, which provides additional credence to our identification strategy. We remove the polynomial of latitude and longitude in Appendix B to check whether our previous results occurred due to forcing a linear functional form. This marginally improves the robust F-statistic, reduces standard errors, and crucially all the results maintain their significance, signs and magnitudes. Our results are also robust to the use of Conley [1999] standard errors to allow for spatial dependence of an unknown form as can be seen in Appendix B.

Table 3: Preliminary checks (polynomial)

Panel A: Credit

	Applied for a credit		Credit approved		Approved by Banco Agrario		Approved by other bank	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.125***	0.0891**	0.117***	0.0814**	0.0762	0.109**	-0.0320	-0.0942**
	(0.0379)	(0.0367)	(0.0346)	(0.0353)	(0.0624)	(0.0501)	(0.0590)	(0.0459)
Mean Dep Var	0.191	0.194	0.165	0.167	0.680	0.684	0.250	0.246
N	9942	9353	9942	9353	1636	1562	1636	1562
N Clusters	769	757	769	757	384	371	384	371
FS F-statistic	90.39	107.2	90.39	107.2	60.03	141.7	60.03	141.7
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.649***	0.639***	0.649***	0.639***	0.716***	0.729***	0.716***	0.729***
	(0.0683)	(0.0617)	(0.0683)	(0.0617)	(0.0924)	(0.0612)	(0.0924)	(0.0612)

Panel B: Assistance

	Assistance		Assistance: GD practice		Assistance: soil management		Assistance: commercialization	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.156***	0.160***	0.159***	0.160***	0.0190*	0.0174	0.0180	0.0374*
	(0.0514)	(0.0412)	(0.0488)	(0.0395)	(0.00975)	(0.0106)	(0.0309)	(0.0225)
Mean Dep Var	0.271	0.277	0.202	0.206	0.0282	0.0290	0.0729	0.0739
N	9942	9353	11616	10922	11616	10922	11616	10922
N Clusters	769	757	790	776	790	776	790	776
FS F-statistic	90.39	107.2	66.85	90.46	66.85	90.46	66.85	90.46
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.649***	0.639***	0.578***	0.574***	0.578***	0.574***	0.578***	0.574***
	(0.0683)	(0.0617)	(0.0707)	(0.0603)	(0.0707)	(0.0603)	(0.0707)	(0.0603)

Standard errors adjusted for clustering by municipality, are in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

5.2 Main Results

Table 4 presents the main results of the impact of land restitution on social integration, labour investment and market integration. We measure social integration through membership of associations within the community and whether a household partakes in collective work (i.e. agricultural work carried out on the land by members of the community with the understanding of reciprocal support rather than contingent on immediate financial remuneration). The first column in table 4 *Any association* takes a value of one if the household head is a member of any local association and zero otherwise. In subsequent columns, we investigate whether the effect varies by type of association - either a cooperative or an association of producers. We find that households who have been restituted land are 27% more likely to be a member of an association within their community. In particular, restituted households are 15% more likely to be members of the cooperative association and almost 10% more likely to be a member of the association of producers. We find that restituted households are 5% more likely to be involved in collective work. These are important findings which contrastwith previous research indicating that returning individuals can be met with scepticism and alienation [Ibáñez et al., 2022], Bertrand and Duflo (2016). Interviews with restituted individuals conducted during fieldwork for this project suggest that in some instances individuals were initially met with distrust by the community. At the time of these interviews, however, the family reported being well integrated into the community. This highlights the complexity surrounding integration into communities post-conflict.

In terms of labour investment and market integration, we use the following dependent variables: (1) a binary variable equal to one if a household hires at least one permanent employee, and zero otherwise; (2) a binary variable equal to one if a household hired at least one day worker in the past month; (3) a binary variable equal to one if a household uses any household labour; (4) a binary variable equal to one if a household is planting crops to sell versus for auto consumption. Even columns include control variables while odd columns do not. The first stage for all the outcomes is highly predictive at the 1% significance level, and this is true across all three specifications.[11] The results show that households which received restitution are no more likely to employ permanent workers as compared to non-restituted households.

[11]The robust F-statistic for the first stage is consistently high and far exceeds the Stock and Yogo critical values for IV size and bias. Given that the Stock and Yogo critical values require errors to be independent and identically distributed, we additionally run the Montiel Olea-Pflueger (MOP) test for exactly identified instrumental variable analysis and find consistently high effective F-statistics.

We then turn our attention to day workers, which are hired on a temporary basis. Treated households are 7.8% more likely to hire day workers compared to households in the control group. Restituted households are 7.2% more likely to rely on their household labour. Finally, we find that restituted households are also 15.2% more likely to sell their crops. This suggests that restitution may support a move away from subsistence farming and towards a more stable income stream.

Table 4: The effect of land restitution on households' integration and labour outcomes (polynomial)

Panel A

	Association		Association: cooperative		Association of producers		Collective work	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.271***	0.266***	0.143***	0.147***	0.0984***	0.103***	0.0396	0.0546***
	(0.0607)	(0.0545)	(0.0367)	(0.0317)	(0.0313)	(0.0267)	(0.0335)	(0.0207)
Mean Dep Var	0.250	0.252	0.0774	0.0781	0.0946	0.0952	0.0841	0.0849
N	11616	10922	11616	10922	11616	10922	9908	9319
N Clusters	790	776	790	776	790	776	768	756
FS F-statistic	66.85	90.46	66.85	90.46	66.85	90.46	90.43	107.0
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.578***	0.574***	0.578***	0.574***	0.578***	0.574***	0.652***	0.641***
	(0.0707)	(0.0603)	(0.0707)	(0.0603)	(0.0707)	(0.0603)	(0.0686)	(0.0620)

Panel B

	Permanent dummy		Day worker dummy		Household labour dummy		Sell crops	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.00733	-0.0106	0.0537	0.0770*	0.0737***	0.0720***	0.164**	0.152**
	(0.0660)	(0.0331)	(0.0458)	(0.0417)	(0.0236)	(0.0234)	(0.0803)	(0.0643)
Mean Dep Var	0.532	0.531	0.360	0.359	0.861	0.862	0.583	0.586
N	9942	9353	9942	9353	9942	9353	11616	10922
N Clusters	769	757	769	757	769	757	790	776
FS F-statistic	90.39	107.2	90.39	107.2	90.39	107.2	66.85	90.46
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.649***	0.639***	0.649***	0.639***	0.649***	0.639***	0.578***	0.574***
	(0.0683)	(0.0617)	(0.0683)	(0.0617)	(0.0683)	(0.0617)	(0.0707)	(0.0603)

Standard errors adjusted for clustering by municipality, are in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

In table 5 we explore a range of mechanisms which could explain the effects discussed above. This table includes (1) *permanent workers* defined as the total number of permanent labourers on the land; (2) *female permanent* defined as the number of permanent female workers; (3) *male permanent* defined as the number of permanent male workers; (4) *household labour* represents the number of household members working on the land; (5) *female HH labour* represents the number of female household members working on the land; (6) *male HH labour* represents the number of male household members working on the land.

We find that restituted households are no more likely to hire permanent workers than non-restituted households. This result does not differ by gender of permanent worker On the other hand, we find in column 4 that restituted households are significantly more likely to use household labour. This result is differential by gender - treated households are 17% more likely to use male labour. Given that treated households do not have a higher male proportion than untreated, this finding cannot be explained by compositional effects.

The literature suggests that land formalisation leads to an increased willingness to invest in land. However, we find no change in the likelihood of hiring permanent workers but instead increased use of day workers and household labour. This is suggestive that at least in the short run restituted households face some obstacles to investments in labour. It is possible the household had to switch to cultivating a new type of crop because the land lends itself best to it, and an adaptation period is required before making permanent investments. Alternatively, it is possible that in the short run the restituted households are unable to source permanent labour so household and day labour fills the gap. Finally, it is possible due to the severe undermining of their trust in government institutions experienced through the displacement, that a transition period of time is required before the restituted household has the confidence in their land rights to make long term investments in their land, as suggested by the qualitative work of Matijasevic et al. [2007] via Ibáñez and Moya [2007].

Table 5: The integration process

Panel A: Permanent workers			
	Permanent workers	Female permanent	Male permanent
	(1)	(2)	(3)
Restituted	0.0499	0.0754	-0.0224
	(0.135)	(0.0821)	(0.0848)
Mean Dep Var	2.212	0.552	1.659
N	9353	9353	9353
N Clusters	757	757	757
FS F-statistic	107.2	107.2	107.2
Controls	Yes	Yes	Yes
First-Stage Results			
Eligible	0.639***	0.639***	0.639***
	(0.0617)	(0.0617)	(0.0617)
Panel B: Household workers			
	Household labour	Female HH labour	Male HH labour
	(1)	(2)	(3)
Restituted	0.236**	0.0693	0.167***
	(0.0983)	(0.0593)	(0.0516)
Mean Dep Var	1.414	0.417	0.997
N	9353	9353	9353
N Clusters	757	757	757
FS F-statistic	107.2	107.2	107.2
Controls	Yes	Yes	Yes
First-Stage Results			
Eligible	0.639***	0.639***	0.639***
	(0.0617)	(0.0617)	(0.0617)

Standard errors adjusted for clustering by vereda, are in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

6 Robustness Checks

The results presented in the previous section reveal important differences between integration outcomes of restituted and non-restituted households. We now explore the robustness of our findings. Table 7 examines the effect of land restitution on households' integration and labour outcomes using spatial standard errors [Conley, 1999]. Overall, all our results remain robust.

One potential concern with the results presented so far is that they could be driven by outliers (e.g. several households or veredas) rather than the effect of land restitution. Therefore, we next check whether our findings are driven by these outliers using a jackknife test. We perform this in three steps. First, we replicate our main specification 1 for each of the variables presented in table 4. Second, we remove one of the 188 municipalities before reproducing our results for every variable. We then save the *Restituted* coefficient and repeat the procedure for each municipality in turn. Third, we plot the results of this exercise in figures 3 and 4. All findings remain robust and are centered around the coefficients we found in table 4.

Table 8 shows the effect of land restitution using an alternative control group. To obtain it we mapped out all veredas which had received land restitution applications by 2014. We then identify those which only obtain land restitution after 2014 due to not yet being in an eligible area by 2014. Using Euclidian distance, we select as controls *the closest veredas* that fulfil these criteria that are closest to each treatment vereda. This selection of the control group closely approaches the Rubin Causal Model ideal of simultaneously seeing outcomes of the same individual treated and untreated since the veredas are not treated in 2014 but will be in future. These two selection criteria result in 114 control veredas.[12] Whilst the sign for most coefficients remains the same, this approach significantly reduces our sample size to about 4,900 observations and some coefficients are less precisely estimated

Although it would be very informative to look at the heterogeneity of outcomes by the gender of the household head, there is an insufficient sample size in the women-headed restituted sample. We do however interact restitution with the head of household's gender[13]. We do not find evidence that women-headed households were differentially affected after their land has

[12]For this control group, we replicate equation (1) and also control for a quadratic form of distance to the border. The latter choice was informed by Gelman and Imbens [2019] who cautioned against using polynomials greater than an order of 2.

[13]In this case with two endogenous variables (i.e. restitution and gender interacted with the restitution) we use two instruments - eligibility and interaction between eligibility and gender of a household head. Results are available on request

been restituted.

Table 6: The effect of land restitution on households' integration and labour outcomes with spatial standard errors (polynomial)

Panel A								
	Association		Association: cooperative		Association of producers		Collective work	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.271***	0.266***	0.143***	0.147***	0.0983**	0.103***	0.0395	0.0546**
	(0.0787)	(0.0575)	(0.0519)	(0.0360)	(0.0430)	(0.0323)	(0.0356)	(0.0252)
Mean Dep Var	0.250	0.250	0.0774	0.0774	0.0946	0.0946	0.0841	0.0841
N	11612	10922	11612	10922	11612	10922	9904	9319
N Clusters								
FS F-statistic	51.99	50.49	51.99	50.49	51.99	50.49	67.26	63.41
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Panel B								
	Permanent dummy		Day worker dummy		Household labour dummy		Sell crops	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.00731	-0.0116	0.0534	0.0781**	0.0736***	0.0713***	0.164**	0.152**
	(0.0605)	(0.0355)	(0.0395)	(0.0396)	(0.0251)	(0.0268)	(0.0639)	(0.0672)
Mean Dep Var	0.532	0.532	0.361	0.361	0.861	0.861	0.583	0.583
N	9938	9353	9938	9353	9938	9353	11612	10922
N Clusters								
FS F-statistic	67.52	63.70	67.52	63.70	67.52	63.70	51.99	50.49
Controls	No	Yes	No	Yes	No	Yes	No	Yes

We use spatially adjusted standard errors (with 10km radious). These are presented in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

As a final check, we explore whether results differ depending on the intensity of treatment within a given vereda - that is to say depending on how many households received land restitution. Table 9 presents our main results on a sample restricted to treatment veredas which have below median number of restitution cases. Table 10 presents the main results on a sample restricted to treatment veredas which have above median number of restitution cases.[14] As we might expect the effects of land restitution are most pronounced in veredas that have a higher proportion of restituted households. In Table 10, among households in veredas with above the median number of restitution cases we see that all results hold - these households are 17

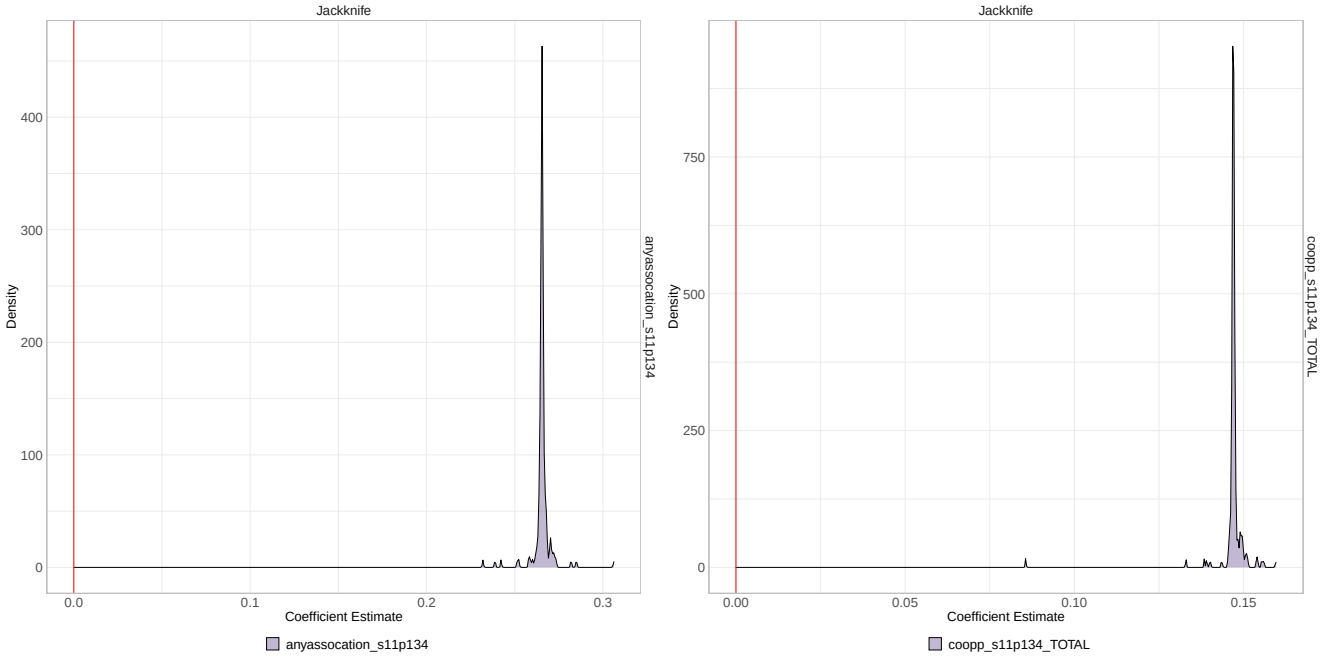
Table 9 shows that results for restituted households in vereda with below the median number of restitution cases results are somewhat less robust. The effect on membership to associations remains however labour and market integration results are no longer statistically significant. We would expect that in future research using more long term outcome data, once intensity of treatment is larger in each vereda, we would see similar effects born out.

[14]There are 59 veredas with below median restitution cases, and 54 above. The median number of restituted households is 11, with largest number of restitution in a given vereda resting at 238.

Figure 3: Results of Jacknife test on social integration outcomes

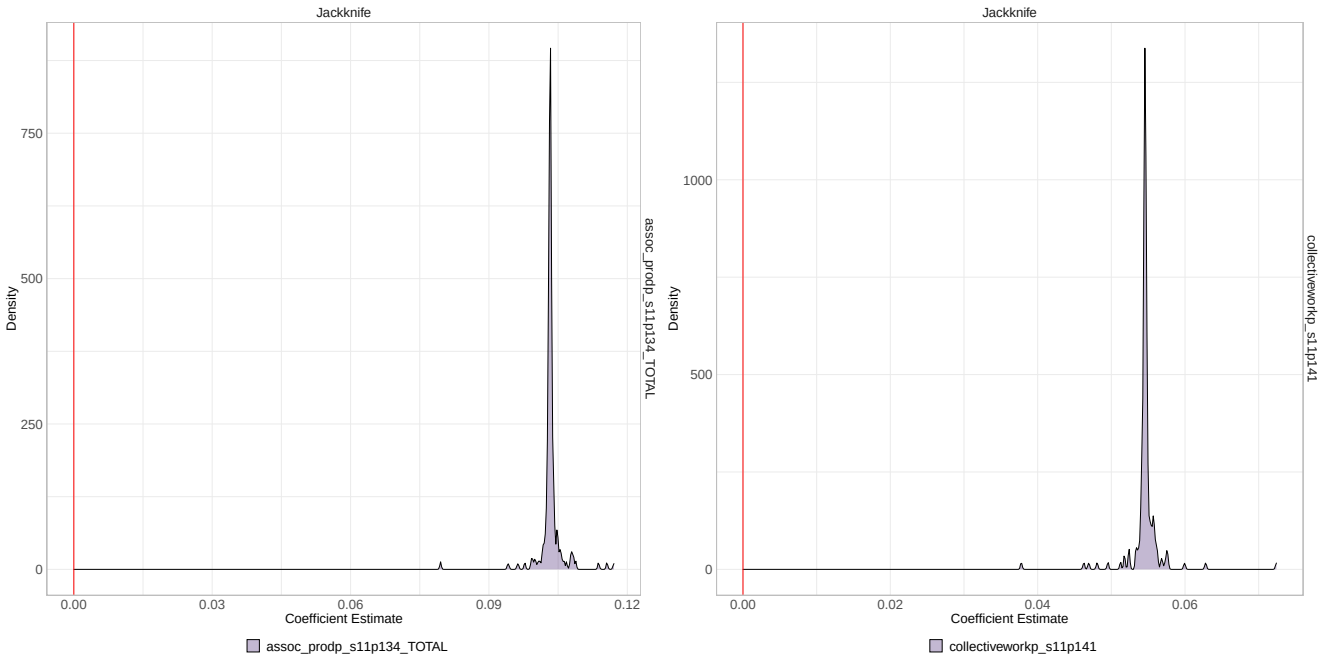
(a) Any association

(b) Cooperative association



(c) Association of producers

(d) Collective work

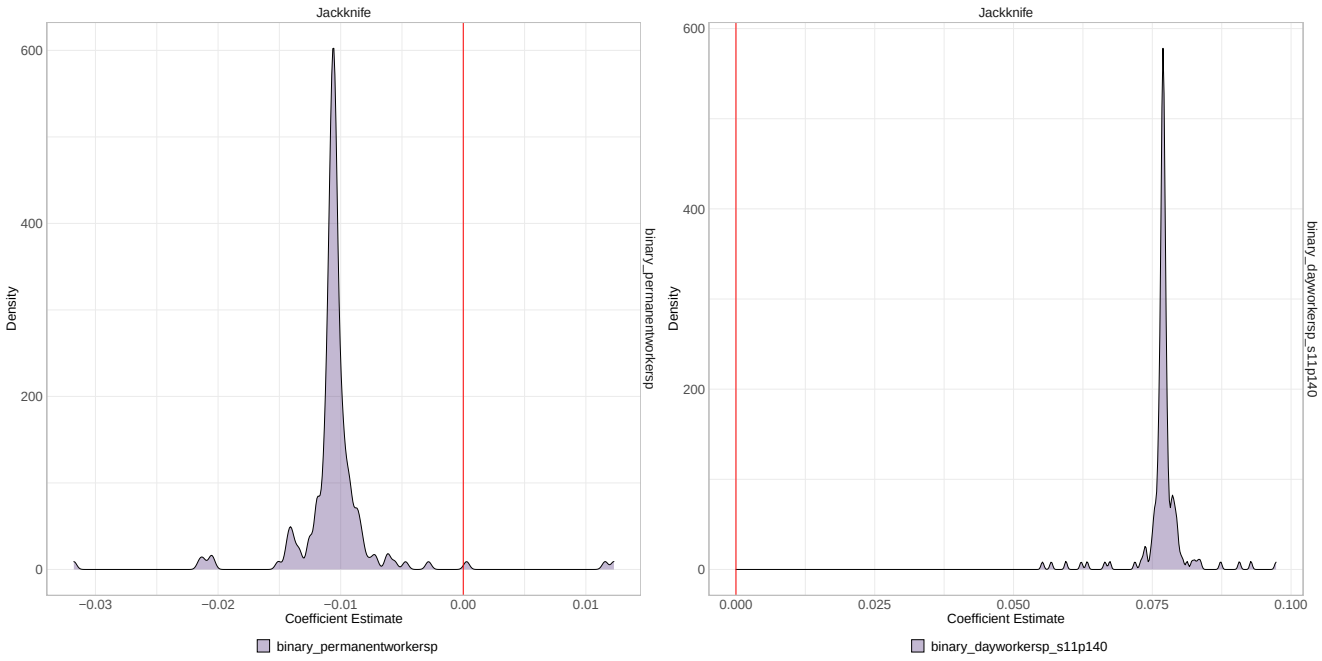


Note: The figure presents the outcomes of Jackknife tests performed for each social integration outcome.

Figure 4: Results of Jackknife test on labour investment and market integration outcomes

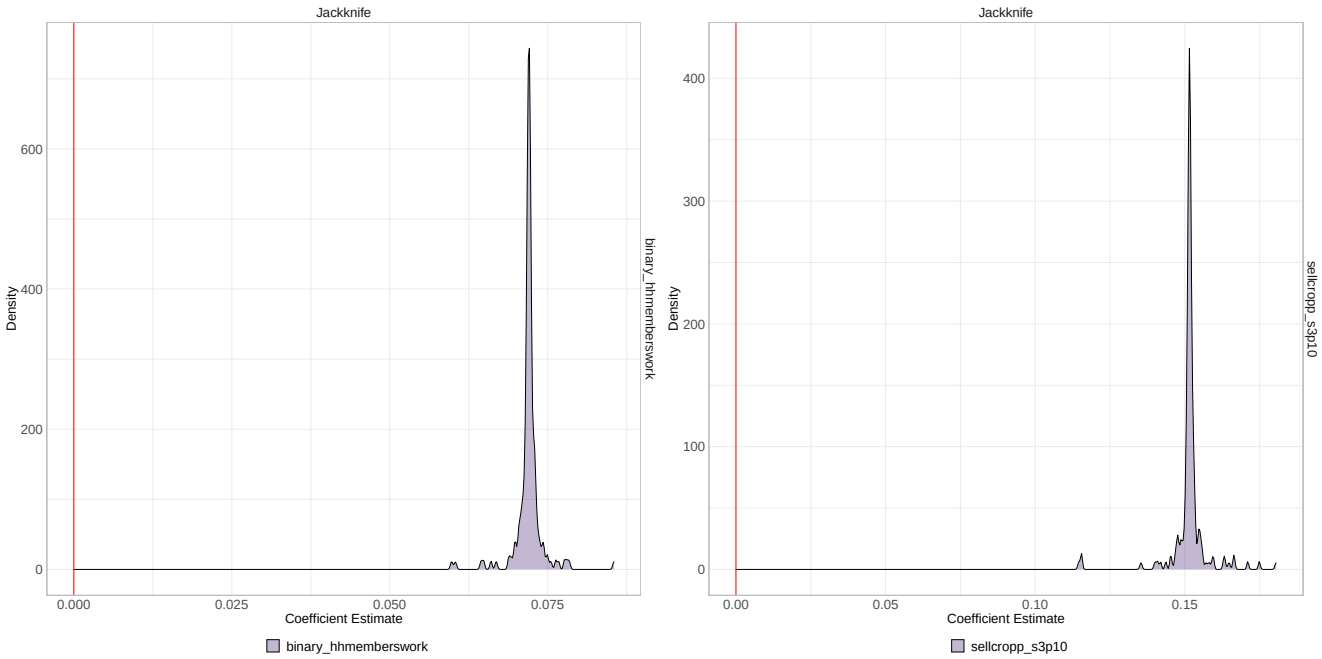
(a) Permanent dummy

(b) Daily worker dummy



(c) Household labour dummy

(d) Sell crops



Note: The figure presents the outcomes of Jackknife tests performed for each labour investment and market integration outcome.

Table 7: The effect of land restitution with the nearest control group (polynomial)

Panel A								
	Association		Association: cooperative		Association of producers		Collective work	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.190***	0.161***	0.105**	0.0704*	0.0624*	0.0689*	0.00217	-0.01000
	(0.0543)	(0.0560)	(0.0423)	(0.0392)	(0.0355)	(0.0380)	(0.0178)	(0.0168)
Mean Dep Var	0.305	0.305	0.115	0.115	0.121	0.121	0.0872	0.0872
N	4651	4651	4651	4651	4651	4651	4025	4025
N Clusters	236	236	236	236	236	236	232	232
FS F-statistic	529.8	484.8	529.8	484.8	529.8	484.8	948.2	998.7
Controls								
First-Stage Results								
Micro-focalised	0.751***	0.761***	0.751***	0.761***	0.751***	0.761***	0.823***	0.838***
	(0.0326)	(0.0345)	(0.0326)	(0.0345)	(0.0326)	(0.0345)	(0.0267)	(0.0265)
Panel B								
	Permanent dummy		Day worker dummy		Household labour dummy		Sell crops	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	-0.107**	-0.0937**	-0.0190	-0.00891	0.0480	0.0331	0.149**	0.146**
	(0.0448)	(0.0456)	(0.0475)	(0.0487)	(0.0463)	(0.0370)	(0.0745)	(0.0724)
Mean Dep Var	0.509	0.509	0.368	0.368	0.881	0.881	0.629	0.629
N	4040	4040	4040	4040	4040	4040	4651	4651
N Clusters	232	232	232	232	232	232	236	236
FS F-statistic	931.7	969.1	931.7	969.1	931.7	969.1	529.8	484.8
Controls								
First-Stage Results								
Micro-focalised	0.817***	0.832***	0.817***	0.832***	0.817***	0.832***	0.751***	0.761***
	(0.0268)	(0.0267)	(0.0268)	(0.0267)	(0.0268)	(0.0267)	(0.0326)	(0.0345)

Standard errors adjusted for clustering by municipality, are in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

Table 8: The effect of land restitution on households' integration (polynomial) below median number of restitutions (polynomial)

Panel A								
	Association		Association: cooperative		Association of producers		Collective work	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.692***	0.573***	0.331***	0.294***	0.231***	0.200***	0.0586	0.0973
	(0.188)	(0.180)	(0.115)	(0.101)	(0.0847)	(0.0733)	(0.0757)	(0.0655)
Mean Dep Var	0.231	0.234	0.0660	0.0666	0.0869	0.0876	0.0786	0.0788
N	9357	8754	9357	8754	9357	8754	7953	7446
N Clusters	733	719	733	719	733	719	711	699
FS F-statistic	23.75	26.09	23.75	26.09	23.75	26.09	22.19	25.57
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.288***	0.295***	0.288***	0.295***	0.288***	0.295***	0.313***	0.323***
	(0.0590)	(0.0577)	(0.0590)	(0.0577)	(0.0590)	(0.0577)	(0.0665)	(0.0640)
Panel B								
	Permanent dummy		Day worker dummy		Household labour dummy		Sell crops	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	-0.00666	-0.0135	0.128	0.106	0.0815	0.135*	0.472**	0.245
	(0.135)	(0.0754)	(0.150)	(0.137)	(0.0623)	(0.0756)	(0.227)	(0.209)
Mean Dep Var	0.530	0.530	0.356	0.354	0.849	0.851	0.574	0.578
N	7979	7472	7979	7472	7979	7472	9357	8754
N Clusters	712	700	712	700	712	700	733	719
FS F-statistic	22.29	25.72	22.29	25.72	22.29	25.72	23.75	26.09
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.312***	0.323***	0.312***	0.323***	0.312***	0.323***	0.288***	0.295***
	(0.0662)	(0.0636)	(0.0662)	(0.0636)	(0.0662)	(0.0636)	(0.0590)	(0.0577)

Standard errors adjusted for clustering by municipality, are in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

Table 9: The effect of land restitution on households' integration (polynomial) above median number of restitutions

Panel A

	Association		Association: cooperative		Association of producers		Collective work	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.161***	0.176***	0.0927***	0.102***	0.0650**	0.0746***	0.0337	0.0379**
	(0.0496)	(0.0404)	(0.0320)	(0.0250)	(0.0274)	(0.0222)	(0.0351)	(0.0162)
Mean Dep Var	0.230	0.232	0.0693	0.0702	0.0876	0.0881	0.0835	0.0839
N	9577	9008	9577	9008	9577	9008	8148	7672
N Clusters	650	638	650	638	650	638	631	621
FS F-statistic	95.62	292.6	95.62	292.6	95.62	292.6	1013.9	1371.3
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.779***	0.803***	0.779***	0.803***	0.779***	0.803***	0.900***	0.897***
	(0.0797)	(0.0469)	(0.0797)	(0.0469)	(0.0797)	(0.0469)	(0.0283)	(0.0242)

Panel B

	Permanent dummy		Day worker dummy		Household labour dummy		Sell crops	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.00929	-0.0122	0.0368	0.0692**	0.0693***	0.0554***	0.0804	0.130***
	(0.0723)	(0.0320)	(0.0404)	(0.0297)	(0.0197)	(0.0166)	(0.0814)	(0.0439)
Mean Dep Var	0.534	0.533	0.355	0.353	0.862	0.863	0.571	0.574
N	8175	7699	8175	7699	8175	7699	9577	9008
N Clusters	632	622	632	622	632	622	650	638
FS F-statistic	945.6	1344.5	945.6	1344.5	945.6	1344.5	95.62	292.6
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.896***	0.894***	0.896***	0.894***	0.896***	0.894***	0.779***	0.803***
	(0.0292)	(0.0244)	(0.0292)	(0.0244)	(0.0292)	(0.0244)	(0.0797)	(0.0469)

Standard errors adjusted for clustering by municipality, are in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

7 Conclusion

The number of forcibly displaced individuals doubled in the past decade and low and middle-income countries are the key host economies for those displaced [Ibáñez et al., 2022]. Understanding what policies governments in these countries should adopt to improve the socio-economic integration of IDPs is of crucial importance. We explore the case of Colombia which had the highest number of internally displaced people in 2020, reaching a total of more than 8 million [UNHCR, 2020]. We construct a novel dataset to assess the effects of formal land ownership granted through land restitution on social integration, labour investments and market integration of households who were displaced by the armed conflict. Using geo-location information on the restituted land, we exploit a natural experiment arising from the phased implementation of the restitution law.

Lending credibility to our identification, we find evidence individuals benefiting from land restitution see improvements in their access to credit and technical assistance in tandem with their formal land ownership. Our main findings suggest that tenure security increases incentives and the ability to integrate into a community. In our paper this is illustrated by greater rates of association membership among restituted households and participation in collective work. However, in the short run land restitution does not seem to bear some of the long term investments in land predicted by the literature as proxied by hiring more permanent workers. Nonetheless, we do find an increased in the use of day workers, collective work and household labour which is indicative of positive integration. This initial caution could potentially be due to the undermining of their trust in institutions following displacement leading to mistrust about the enforcement of their property rights upon return. Mid to long term the predicted results could be borne out. We also show land restitution stimulates a move towards the commercialisation of produce which could indicate a shift away from subsistence farming towards work on the farm.

Overall, the short-term impacts of land restitution to internally displaced people are positive and appear to reduce the disparities arising from forcible displacement. Our paper provides evidence different from the cash transfer literature and hence shows an alternative way to improve the socio-economic outcomes of displaced people. Our findings about the effectiveness of land restitutions are important for informing policy on whether and how these programs achieve improvements for IDPs.

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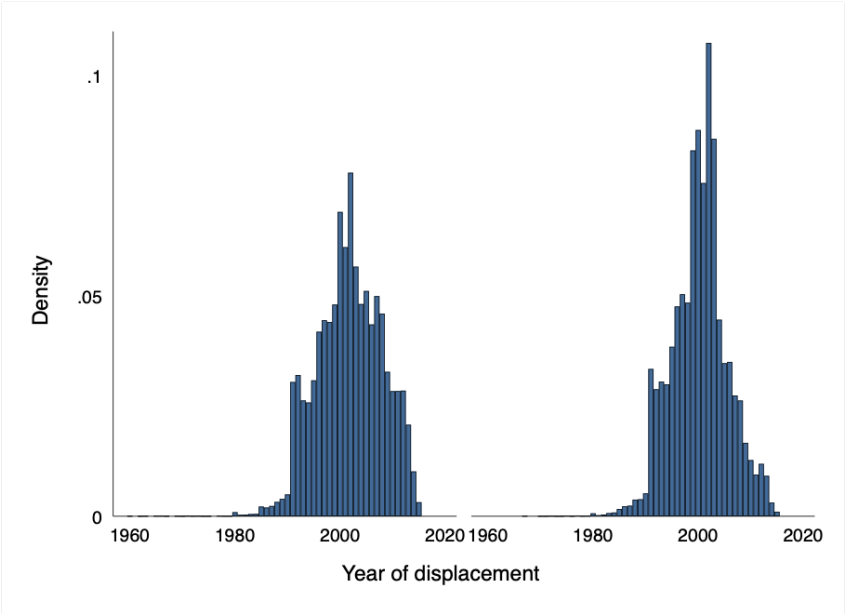
A The Restitution Process

Figure A.1: Displacement over time by eligibility

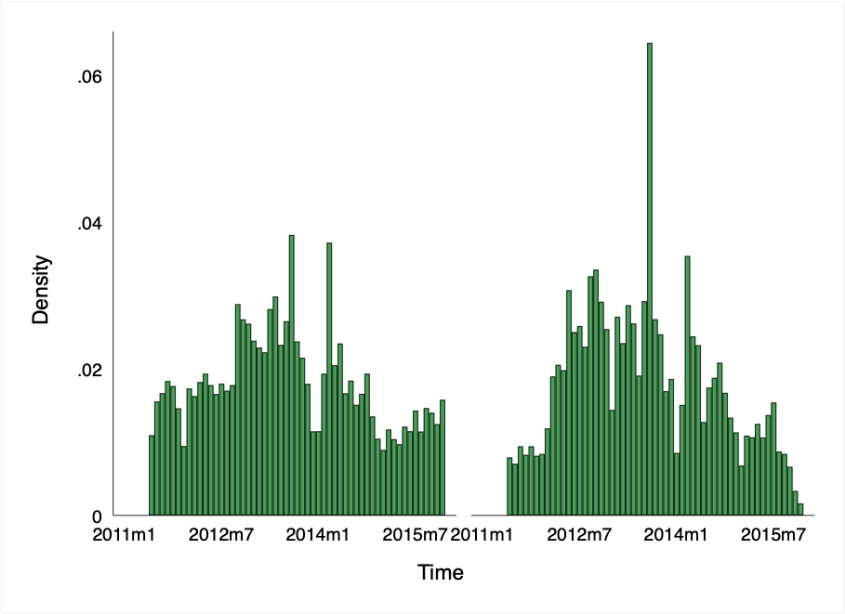
(a) Not yet eligible *(b)* Eligible



Note: This figure plots the density of the year of displacements based on applications received the URT in 2011–2015. Panel (a) plots the series for victims not yet eligible for restitution. Panel (b) plots the series of eligible for restitution victims. Source: Authors' calculation based on the applications submitted to URT.

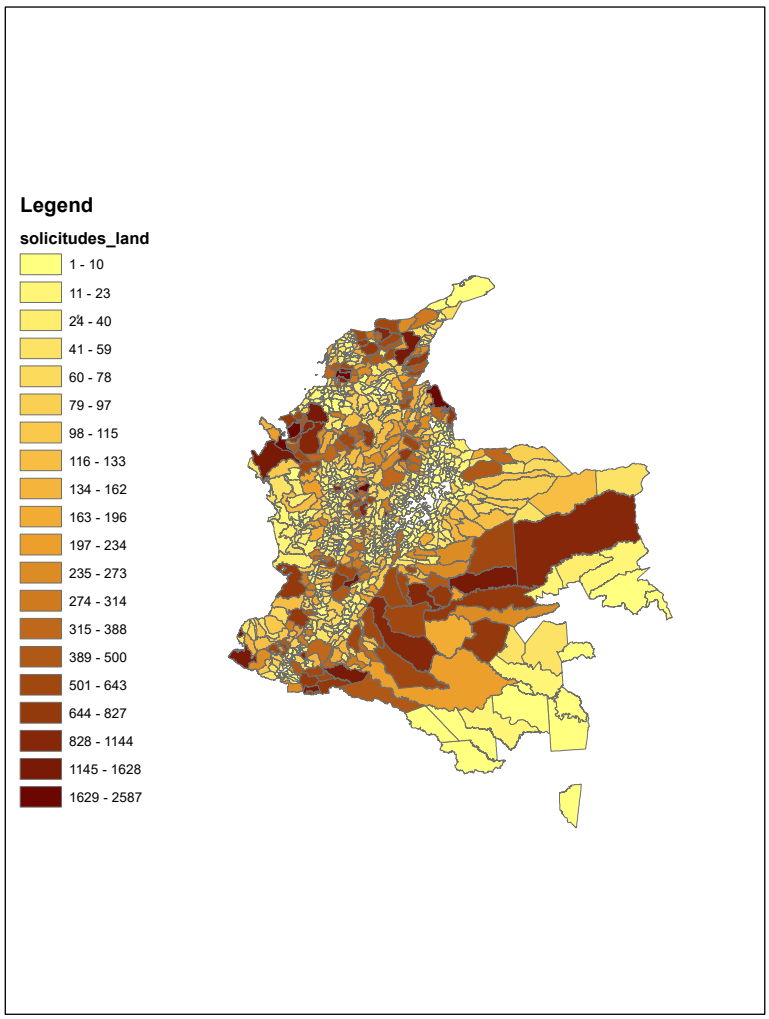
Figure A.2: Applications over time by eligibility

(a) Not yet eligible *(b)* Eligible



Note: This figure plots the density of applications received by the URT between 2011 and 2015. Panel (a) plots the series for applications of victims not yet eligible for restitution. Panel (b) plots the series of victims eligible for restitution. Source: Authors' calculation.

Figure A.3: Applications by municipality

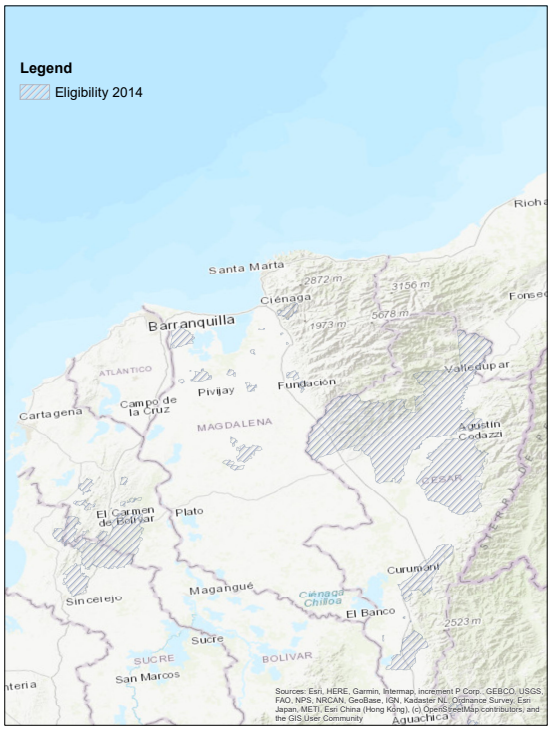


Source: Authors' calculation based on the URT data.

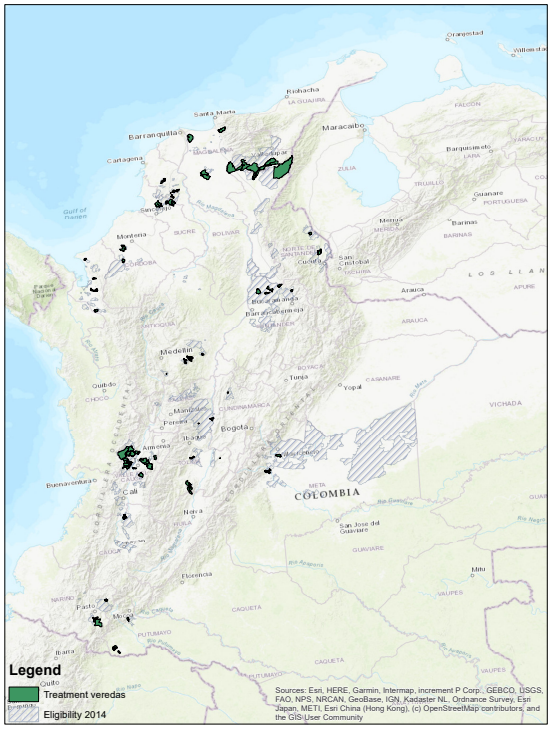
Figure A.4: Eligibility in 2014 and treatment

(a) Eligibility - Country-level

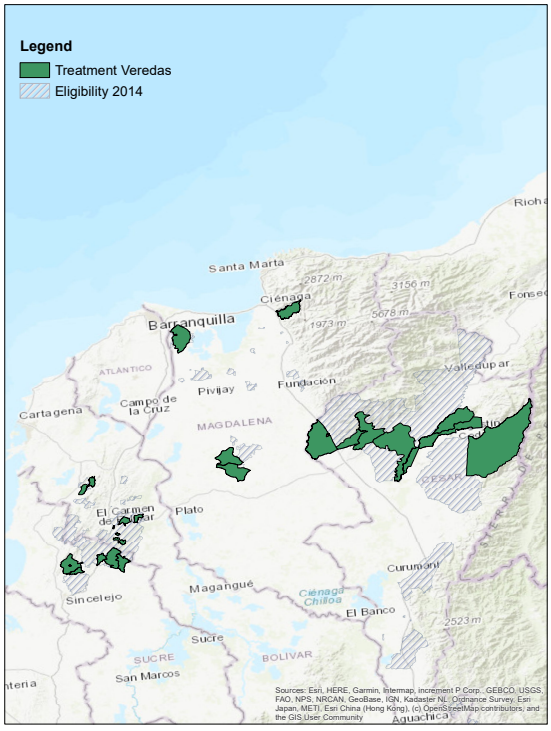
(b) Eligibility - Region-level



(c) Treatment - Country-level



(d) Treatment - Region-level



Note: Areas eligible for restitution in 2014 are in grey and treatment areas are in green.

Figure A.5: Eligibility development between 2015 and 2020

(a) Eligibility 2015

(b) Eligibility 2016

(c) Eligibility 2018

(d) Eligibility 2020

Note: Areas eligible for restitution in yellow.

B Proxy checks

Table B.1: Preliminary checks (linear)

Panel A: Credit								
	Applied for a credit		Credit approved		Approved by Banco Agrario		Approved by other bank	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.178**	0.134	0.169**	0.130	-0.0863	-0.124	0.0135	-0.0405
	(0.0762)	(0.102)	(0.0672)	(0.0871)	(0.0936)	(0.152)	(0.0849)	(0.129)
Mean Dep Var	0.236	0.238	0.207	0.208	0.712	0.718	0.238	0.233
N	3682	3492	3682	3492	761	726	761	726
N Clusters	188	186	188	186	116	114	116	114
FS F-statistic	91.76	29.39	91.76	29.39	59.92	13.66	59.92	13.66
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.659***	0.530***	0.659***	0.530***	0.719***	0.644***	0.719***	0.644***
	(0.0688)	(0.0978)	(0.0688)	(0.0978)	(0.0929)	(0.174)	(0.0929)	(0.174)
Panel B: Assistance								
	Assistance		Assistance: GD practice		Assistance: soil management		Assistance: commercialization	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.185*	0.108	0.252***	0.139	0.0186	0.00103	0.116***	0.0655
	(0.0957)	(0.0896)	(0.0932)	(0.0903)	(0.0203)	(0.0235)	(0.0359)	(0.0459)
Mean Dep Var	0.328	0.331	0.248	0.249	0.0347	0.0350	0.0726	0.0727
N	3682	3492	4242	4031	4242	4031	4242	4031
N Clusters	188	186	191	189	191	189	191	189
FS F-statistic	91.76	29.39	67.44	17.03	67.44	17.03	67.44	17.03
Controls	No	Yes	No	Yes	No	Yes	No	Yes
First-Stage Results								
Eligible	0.659***	0.530***	0.587***	0.434***	0.587***	0.434***	0.587***	0.434***
	(0.0688)	(0.0978)	(0.0714)	(0.105)	(0.0714)	(0.105)	(0.0714)	(0.105)

Standard errors adjusted for clustering by municipality, are in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

Table B.2: Preliminary checks with spatial standard errors (polynomial)

Panel A: Credit

	Applied for a credit		Credit approved		Approved by Banco Agrario		Approved by other bank	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.124**	0.0891*	0.117**	0.0815*	0.0762*	0.109**	-0.0320	-0.0940***
	(0.0503)	(0.0510)	(0.0456)	(0.0476)	(0.0461)	(0.0465)	(0.0361)	(0.0309)
Mean Dep Var	0.191	0.191	0.165	0.165	0.680	0.680	0.250	0.250
N	9938	9353	9938	9353	1636	1562	1636	1562
N Clusters								
FS F-statistic	67.52	63.70	67.52	63.70	49.20	69.82	49.20	69.82
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Panel B: Assistance

	Assistance		Assistance: GD practice		Assistance: soil management		Assistance: commercialization	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.156***	0.163***	0.159***	0.161***	0.0190**	0.0174**	0.0181	0.0380
	(0.0554)	(0.0509)	(0.0529)	(0.0458)	(0.00807)	(0.00837)	(0.0318)	(0.0311)
Mean Dep Var	0.271	0.271	0.202	0.202	0.0282	0.0282	0.0729	0.0729
N	9938	9353	11612	10922	11612	10922	11612	10922
N Clusters								
FS F-statistic	67.52	63.70	51.99	50.49	51.99	50.49	51.99	50.49
Controls	No	Yes	No	Yes	No	Yes	No	Yes

We use spatially adjusted standard errors (with 10km radious). These are presented in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.

Table B.3: Preliminary checks with spatial standard errors (linear)

Panel A: Credit

	Applied for a credit		Credit approved		Approved by Banco Agrario		Approved by other bank	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.124**	0.0897*	0.117**	0.0812*	0.0762*	0.103**	-0.0320	-0.0836***
	(0.0503)	(0.0511)	(0.0456)	(0.0482)	(0.0461)	(0.0434)	(0.0361)	(0.0284)
Mean Dep Var	0.191	0.191	0.165	0.165	0.680	0.680	0.250	0.250
N	9938	9353	9938	9353	1636	1562	1636	1562
N Clusters								
FS F-statistic	67.52	58.34	67.52	58.34	49.20	60.42	49.20	60.42
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Panel B: Assistance

	Assistance		Assistance: GD practice		Assistance: soil management		Assistance: commercialization	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Restituted	0.156***	0.153***	0.159***	0.149***	0.0190**	0.0184**	0.0181	0.0278
	(0.0554)	(0.0559)	(0.0529)	(0.0513)	(0.00807)	(0.00807)	(0.0318)	(0.0365)
Mean Dep Var	0.271	0.271	0.202	0.202	0.0282	0.0282	0.0729	0.0729
N	9938	9353	11612	10922	11612	10922	11612	10922
N Clusters								
FS F-statistic	67.52	58.34	51.99	47.08	51.99	47.08	51.99	47.08
Controls	No	Yes	No	Yes	No	Yes	No	Yes

We use spatially adjusted standard errors (with 10km radious). These are presented in parentheses. Coefficients that are significantly different from zero are denoted by the following system: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. First stage presents the coefficient for micro-focalisation in the reduced form regression for each model. All other coefficients refer to the second stage results of each model and sample specification. Full regression output is available upon request.