VIOLENCE & THE FORMATION OF HOPELESSNESS IN COLOMBIA

ANDRÉS MOYA AND MICHAEL R. CARTER*

While loss of economic assets can trap households in poverty, does violence, which may destroy hope and psychological assets, create a poverty trap of its own? In this paper, we explore the formation of hopelessness among victims of violence. For this purpose, we bring together data on perceived prospects of upward mobility, exposure to violence, and symptoms of psychological trauma from a sample of victims of violence in Colombia. After controlling for material losses and current circumstances, we find that the exposure to more severe violence induces hopeless perceived prospects of upward mobility. The effects appear large: a one standard deviation increase in the severity of violence more than doubles the perceived probability of being in extreme poverty in the long-run. In addition, we find that psychological trauma underlies this result. The results suggest to the existence of a psychological poverty trap and to rethinking the strategies to assist the socioeconomic recovery of the victims of violence.

* Moya: Assistant Professor, Economics Department, Universidad de los Andes, Calle 19A # 1-37E, Bogotá, Colombia, 111711, a.moya@uniandes.edu.co. Carter: Professor, Agricultural and Resource Economics, University of California, Davis, & NBER, mrcarter@ucdavis.edu. We thank Steve Boucher, Carlos Chiapa, Ghada Elabed, Hilary Hoynes, Miriam Golden, Guy Grossman, Rachid Laajaj, Evan Lieberman, and Travis Lybbert, as well as the participants at the Northeast Development Conference at Harvard University, Households in Conflict Network Workshop at UC Berkeley, EGAP at Cape Town, and seminars at CIDE, UC Davis, University of Cape Town, and Universidad de los Andes for useful comments. Gabriela Fuentes and María José Torres provided outstanding research assistance. This paper would have not been possible without the support of community leaders and local priests, and without the victims' willingness to participate and revisit their painful experiences of violence. The Pacific Rim Research Dissertation Grant, the Programa de Dinámicas Territoriales from RIMISP, and the Henry A. Jastro Award provided generous funding to collect the data, while the Harry Frank Guggenheim Foundation provided a dissertation fellowship to Moya. The usual disclaimers apply.

I. Introduction

> You know, doctor, it's been a few nights since I do not sleep, I have dreams where I see the heads of my neighbors. I see them cry, supplicate, ask for mercy. I wake up crying. I start thinking about the farm, about my plants in the garden, about our chickens and cattle, and about our dogs that wanted to come with us, but we had to scare them away with rocks so that they would not follow us. I had never felt this way. I had never seen my husband so quiet; I had never seen him cry in silence. […] I do not know what's going to happen with us, only that we have God and that our life will never be the same since we are now displaced.[1]

A victim of the tactics of terror that characterized the battle between warring factions in the Colombian countryside, the women quoted above poignantly testifies to both the loss of material assets, as well as the psychological damage created by her experience of violence and forced displacement. In her own words, she seems hopelessness regarding her ability to recover and progress.

In this paper, we explore whether violence induces hopeless perceived prospects of future upward mobility. Prior work has analyzed how asset losses stemming from violence, displacement, and other shocks thrust victims into poverty and compromise their socioeconomic mobility (Carter, M. R., Little, P.D., Mogues, T., & Negatu, W., 2006; Ibáñez & Moya, 2010a, 2010b). Here, we explore whether the psychological losses brought about by these traumatic events further damage the perceived prospects of economic recovery and progress. That is, does the loss of psychological assets create a poverty trap in its own right, akin to that which can occur with the loss of physical assets?

Our study is motivated by a burgeoning and interdisciplinary literature on the nature of hope and beliefs, and their relation to poverty dynamics. Work in this

[1] Doctors Without Borders (2010): Testimony of a woman in Florencia, Caquetá, who was displaced from her hometown after an armed group arrived to her village, killed and carved up some of her neighbors, and then made her bury them [Own translation].

area is driven by the observation that economic behavior is ultimately driven by what individuals aspire to achieve (Appadurai, 2004; Duflo, 2013; Lybbert & Wydick, 2017; Ray, 2006). Yet, goals and aspirations are also determined by what individuals believe is possible to achieve—this is, by the perceived prospects of upward mobility. Therefore, perceptions of limited prospects for real transformation can be detrimental to goals and aspirations, and inhibit the incentives to invest and improve current circumstances, to gather information about the pathways for progress, and even to modify such perceptions (Appadurai, 2004; Dalton, Ghosal, & Mani, 2011; Duflo, 2013; Ray, 2006). In other words, a sense of hopelessness and a lack of aspirations can bring about a behavioral poverty trap.

We hypothesize that violence may alter the prospects of upward mobility through internal or psychological constraints that arise in addition to the more discernible external constraints. In the context of victims of violence, the latter relate to the material circumstances imposed by violence and displacement, including the substantial loss of material and productive assets, the descent into poverty, and the observation of few success stories of recovery and progress among similarly victimized peers. However, the nature of the traumatic experiences of violence can also condition victims and induce hopelessness and perceptions that there are few pathways for recovery and progress (Sympson, 2000; Yehuda, 2002). In doing so, the psychological consequences of violence can reinforce the effect of external constraints, and lead to a vicious cycle of hopelessness, underachievement, and persistent poverty.

To analyze whether violence leads to hopeless perceived prospects of upward mobility, we sampled 344 victims of violence in Colombia. In section III., we describe our sampling strategy and data, which includes measures of the severity of household-level exposure to different violent events, symptoms of psychological trauma, and perceived prospects of upward mobility. For the

latter, we first built upon the work of Krishna (2004, 2006, 2010) and Narayan, Pritchett, & Soumya (2009) and followed a "stages of progress" approach to construct a ladder of life appropriate for the study population. Then, we measured subjects' perceived prospects for future positions building upon recent methods to elicit subjective probabilities (see Delavande, Gine, & McKenzie, 2011).

Our empirical strategy exploits the variation in the severity of violence, conditional on the individual's current position on the ladder of life. Consistent with our hypothesis, we find that more severe violence induces hopeless perceived prospects of upward mobility. The effects are substantial: an increase of a one standard deviation in the number of violent events raises the perceived probability of being at the bottom of the ladder by 60 percent relative to the mean. Since our empirical strategy controls for the effect of current position on the ladder of life, which captures a host of material constraints, these results point to the internal constraints that result from the experience of violence. In fact, we also find that the hopeless perceptions are explained by the severity of symptoms of depression. Finally, we connect with more conventional analysis of poverty dynamics (e.g., Carter & May 2001), and use these results to estimate transition matrices that reveal the long-run perceived prospects for upward mobility. We observe that the long-run extreme poverty rate is 1.6 times higher for victims exposed to severe violence (at the 75^{th} percentile) than for those exposed to lower levels of violence (at the 10^{th} percentile). We describe these results in detail in sections IV and V.

The results above portray the causal effects of violence under the assumption that the patterns of violence were exogenous to victims' ex-ante hope and perceived prospects for upward mobility. Hence, our empirical strategy would not be appropriate if armed groups victimized hopeless subjects more severely than other victims. While this is unlikely, we follow Moya (2017) and implemented different strategies to demonstrate that the patterns of violence were

exogenous to ex-ante beliefs. First, subjects in the sample were victimized in regions that were being contested by different armed groups and where qualitative evidence suggests that violence toward civilians was indiscriminate (Centro Nacional de Memoria Histórica [CNMH], 2013). Second, we demonstrate that the variation in the severity of violence was not correlated with observable ex-ante characteristics. Third, we analyze the robustness of the results on a subsample of subjects who were victimized en masse and for whom the severity of violence was as good as exogenous. Finally, the results on the underlying psychological mechanism suggest that the effect of violence is explained by the consequences of the traumatic exposure to violence and not by unobserved ex-ante heterogeneity.

Our paper speaks to an emerging body of empirical work on the formation and effects of hope and aspirations. Most of this work has focused on the effects of positive interventions such as child sponsorship programs (Glewee, Ross, & Wyddick, 2015), conditional cash transfers (Chiapa, Campos-Vasquez, Huffman, & Santillán, 2012), exposure to norms, role models, or vicarious experiences of success (Beaman, Duflo, Pande, & Topalova, 2012; Jensen and Oster, 2009; Bernard, Dercon, Orkin, & Taffesse, 2014), financial inclusion (Chiapa, Prina, & Parker, 2016), and social interactions with local leaders (Macours & Vakis, 2014).[2] By and large, these studies provide evidence on how the provision of information and the relief of material constraints have positive impacts on the aspirations of the poor, and on the existence of psychological multipliers that can create virtuous cycles.

To date, however, there is few evidence on how hope and beliefs change following adverse shocks. The study more closely related to ours is the work of Kosec and Hyunjung (2017), who analyze how a natural disaster affected

[2] Related studies have also identified that asking individuals to set their goals is enough to improve performance and outcomes among micro entrepreneurs (Cassar & Wydick, 2014) and university students (Hiller & Moya, 2017).

aspirations in rural Pakistan. After controlling for household's education, expenditures, and wealth, they find that households who were exposed to a more severe rainfall shock lowered aspirations but that access to government transfers ameliorated such negative impacts. Their results thus suggest that adverse shocks bring about internal constraints, which shape individual's aspirations, and that social protection programs can ease such burdens.

We contribute to the literature in different ways: First, we provide first-time evidence on the effect of violence on beliefs and perceived prospects of upward mobility. Second, and perhaps more important, by bringing together data on subjective beliefs and psychological trauma, we demonstrate how the psychological consequences of violence create internal constraints that shape individuals' beliefs. Third, we provide a novel way to elicit perceived prospects of upward mobility that contributes to the recent work on measuring subjective beliefs (see Delavande, Gine, & McKenzie, 2011). Finally, we also contribute to the literature on the economic and behavioral consequences of violence and highlight a different channel through which violence can affect behavior (Bauer, Cassar, Chytilova, & Heinrich, 2014; Bellows & Miguel, 2009; Blattman, 2009; Callen, Isaqzadeh, Long, & Sprenger, 2014; Cassar, Grosjean, & Whitt, 2016; Cassar, Grosjean, & Whitt, 2014; Moya, 2017; and Voors et al., 2012).

The results of this article also have important policy implications. In section VI., we conclude by discussing the policy framework for victims of violence in Colombia and illustrating how standard asset-transfer programs may be unable to alter long-run poverty dynamics. In doing so, we emphasize the importance of rethinking the strategies to assist the socioeconomic recovery of the victims of violence and other populations exposed to traumatic shocks.

II. Violence and Trauma in Colombia: Context and Conceptual Framework

Colombia has endured decades of violence and civil conflict. In the late 1940s, political disputes and decades of tension between landlords and peasants led to a period of civil conflict known as *La Violencia* (1948-1958). Despite the signing in 1958 of a peace agreement, violence persisted and leftist guerrillas and right-winged paramilitary groups emerged soon after. Starting in the 1980's, illegal armed groups became heavily involved in the illicit drug production and trade, leading to the escalation of violence and to increasing patterns of civilian victimization (CNMH, 2013). In the last decade, conflicts dynamics were altered by three major events: the demobilization of paramilitary groups in 2006; the emergence of neo-paramilitary factions that clashed for the control of regions previously under paramilitary control; and the demobilization in 2017 of the Revolutionary Armed Forces of Colombia (FARC), the largest and oldest guerrilla group in the hemisphere.

Throughout these decades of civil conflict, violence towards civilians has not been accidental. Instead, it has been a deliberate strategy of armed groups who rely on vicious and indiscriminate violence to spread fear and gain control of contested territories (CNMH, 2013). As a result, more than 8.5 million civilians have been victimized since 1985, including 7.3 million internally displaced persons (IDPs) (National Victims Unit, n.d). The latter figure represents 15 percent of the country's population, and is the highest in the world (United Nations High Commissioner for Refugees [UNHCR], 2016).

Prior evidence has demonstrated that violence causes a severe loss of assets, which drives victims into poverty (Ibáñez & Moya, 2010a, 2010b). Victims, who by and large are displaced from rural areas, abandon their lands and productive assets, are unable to find suitable employment opportunities since their agricultural skills are not well suited for urban labor markets, and lose their social

networks. This massive loss of physical, human, and social capital hinders income generating activities and increases the vulnerability to poverty.

The external constraints imposed by the loss of assets and the descent into poverty, likely bound victims' perceived prospects of upward mobility. Building on work of Appadurai (2004), Ray (2006), and Duflo (2012), this can occur through two mechanisms: First, by the recognition that the loss of assets pushed them down the endowment space, imposes obvious obstacles for their ability to move out of poverty, and maybe even destined them to a lower level of wellbeing. Second, by the observation of persistent poverty among victimized peers, which, following Ray's (2006) concept of an aspiration window, provides information on the limited opportunities for progress.

In addition to the role of tangible external constraints, we hypothesize that violence can also lead victims to exaggerate the perceptions that moving out of poverty is unlikely through the loss of psychological assets, which creates internal constraints. Our hypothesis is motivated by previous research on the prevalence of psychological trauma among victims of violence and its implications on behavior. Victims of violence suffer an array of mood disturbances and psychopathologies, including anxiety, depression, complex trauma, and posttraumatic stress disorder (Briere & Spinazzola, 2005; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Mollica, McInnes, Poole, & Tor, 1988; Yehuda, 2002). In Colombia for instance, victims of violence have a high vulnerability to psychological trauma (Richards et al., 2011; Shultz et al., 2014), which follows a dose-response relationship—that is, more severe and recent violence brings about higher symptoms of trauma (Doctors Without Borders, 2010; Moya, 2017).

More important for our discussion, the nature of traumatic experiences can overwhelm the victims' coping resources and perpetuate states of avoidance. This process reduces their willingness to correct their exaggerated beliefs and to

restore their emotional wellbeing. As a result, the exposure to violence may lead to pessimistic explanatory styles and induce hopelessness—that is, perceptions that there are no pathways for progress and recovery (Sympson, 2000; Yehuda, 2002).[3] Moreover, building upon the learned helplessness theory of depression (Seligman, 1975; Garber & Seligman, 1980), victims' may remain overly pessimistic even when the external constraints are not binding anymore and when there are actual pathways for recovery.

Building upon the research above on the psychological consequences and behavioral responses to violence, we hypothesize that victims may magnify the obstacles for upward mobility and incorrectly perceive that there are no prospects for real transformation. Importantly, our hypotheses are not entirely new, or at least not in the Colombian context. A few years after the period of *La Violencia*, Lipman & Havens (1965) tackled a similar question by comparing the degree of personality disorganization between a small sample of subjects who had been displaced during this period of civil conflict, and a sample of urban poor. Among others, they found that victims did not look forward to the future and seemed hopeless. In our paper, we provide more recent and rigorous evidence to answer this question, and also analyze how such perceptions influence the victims' ability to recover.

III. Sample Design & Data

A. Sample Design

In 2011, we conducted fieldwork in the departments of Bolivar, Córdoba, and Sucre, in Colombia's Atlantic region, and Tolima, in the Central region. We chose to conduct fieldwork in these departments as a first step to address the

[3] The loss of agency is also related to a shift towards an external locus of control; the perception that the individual is unable to control the factors that shape her life (Rotter, 1966).

concerns of violence having been targeted and correlated with ex-ante hopes and beliefs. These departments had experienced increasing levels of violence as a result of the struggles between different armed groups for the control of three geographical corridors.[4] Consistent with the dynamics of civilian victimization in civil conflicts (Kalyvas, 2006), anecdotal evidence suggests that armed groups relied on vicious and indiscriminate violence towards civilians to spread fear among the population and gain control of these strategic and contested regions (Human Rights Watch, 2010; Instituto de Estudios para el Desarrollo y la Paz [Indepaz], 2011; CNMH, 2013).

In each department, we used administrative data from the National Victims Unit to identify the main municipalities of residence of victims who had been victimized and displaced from the vicinity of the above corridors.[5] We visited these municipalities and organized community meetings where we explained the projects' objectives, including the recall of the experiences of violence, and highlighted that their participation was voluntary and they could opt-out at any time.[6] At the end of each meeting, we invited one-third of interested individuals to participate.[7]

We sampled 344 victims of violence who had been victimized in, and displaced from, the rural areas of 34 different municipalities and resided in the urban

[4] In the Atlantic region, neo-paramilitary groups that emerged after the paramilitary peace demobilization in 2006 clashed over control of the *Nudo del Paramillo* and *Montes the María*—two corridors with favorable conditions for the illegal drug trade (Human Rights Watch, 2010; Indepaz, 2011). In the Central region, the FARC retreated to the *Cañon de las Hermosas*—a corridor in the Central Andes that facilitates the movement of troops and the trafficking of illegal drugs to the Pacific Ocean, after the Colombian military intensified its operations against this group in 2004 (National Ombudsman's Office, 2009).

[5] Departmental capitals: Sincelejo and Ibagué in the departments of Sucre and Tolima, respectively. Urban centers: Tierralta and Montelíbano in the department of Córdoba.

[6] These meetings were organized with the support of local government officials, ombudsmen and Catholic priest, all of whom were recognized and trusted by victimized and displaced communities. Their support was instrumental to overcome some of the challenges of conducting fieldwork in contexts of civil conflict, such as interacting with victims, obtaining their trust, ensuring the safety of participants, and collecting sensitive information on the exposure to violence.

[7] Overall, more than 90 percent of invited subjects accepted to participate. Subjects who declined had been victimized very recently (less than 6 months before) and it is likely that they were suffering from severe symptoms of trauma. If we indeed sampled the relatively less traumatized, this would work against our hypothesis. Nevertheless, the rate of non-response is low considering the context and we were still able to sample subjects experiencing severe symptoms of trauma.

locations where fieldwork was conducted. The sample includes 132 individuals from nine different villages who had been victimized and displaced en masse by cross fire from armed groups. As we will discuss later, the severity of violence is arguably exogenous to individual and household characteristics for this subsample. Figure A1 in the Appendix illustrates the geographical distribution of the municipalities from which victims were displaced, and of the intensity of displacement to highlight how the regions where we conducted fieldwork had been torn by violence.[8]

B. Data

In each municipality, enumerators first administered a household survey during weekdays. After all surveys were completed, we organized weekend sessions where enumerators first administered a victimization questionnaire and a psychometric scale in private, and we then led a group activity to elicit subjects' perceived prospects of upward mobility. Since we collected sensitive data and conducted fieldwork in municipalities torn by violence, data was collected at the local church to guarantee safe, private, and trusted environments for respondents and enumerators.[9] We describe each instrument below and provide sample statistics. To contextualize our empirical strategy in which we exploit the variation in the severity of violence, we stratify the sample distinguishing between individuals whose households experienced a number of violent events below and above the median. We refer to these two categories as moderate and severe exposure to violence, respectively.

[8] Moya (2017) uses this sample and data to analyze the effect of violence on risk attitudes. To rule out endogenous geographic sorting, he further restricts the analysis to 284 victims who had also resided in the region for more than 10 years. In our paper and in Moya (2017) results are robust if we use the full sample, or the more restrictive sample.

[9] Moya (2017) describes the ethical considerations in collecting sensitive data from victims, and the strategies we implemented to mitigate negative effects on subjects. These include, stressing that participation was voluntary and that subjects could skip specific questions or entire modules, defining a protocol for treatment of special cases, and special training prior to fieldwork on strategies for emotional containment.

TABLE 1—EXPOSURE TO VIOLENCE

	Total	Moderate	Severe
	[1]	[2]	[3]
A. Exposure to Violence			
Victim: exposed to at least one event (=1)	0.93	0.88	1.00
	[0.253]	[0.321]	[0]
Severity: number of violent events	6.64	2.04	13.25
	[8.293]	[1.229]	[9.563]
Temporal proximity: years since violence	2.52	2.50	2.55
	[3.318]	[3.410]	[3.193]
Hh member exposed to a combat (=1)	0.50	0.34	0.73
	[0.501]	[0.476]	[0.445]
Hh member exposed was threatened (=1)	0.55	0.44	0.71
	[0.498]	[0.498]	[0.455]
Hh member suffered the assassination of a hh member (=1)	0.24	0.13	0.41
	[0.430]	[0.333]	[0.494]
Hh member exposed to an attack (=1)	0.15	0.05	0.30
	[0.359]	[0.209]	[0.462]
Hh member exposed to a massacre (=1)	0.08	0.02	0.17
	[0.272]	[0.122]	[0.380]
Hh member was ordered to migrate (=1)	0.42	0.36	0.49
	[0.494]	[0.482]	[0.502]
Hh member exposed to another violent event (=1)	0.26	0.14	0.44
	[0.439]	[0.344]	[0.498]
B. Psychological Trauma - % Above Cutoff (T>63)			
Depression	0.38	0.35	0.42
	[0.486]	[0.478]	[0.495]
Anxiety	0.26	0.23	0.30
	[0.439]	[0.423]	[0.459]
Global Severity Index	0.21	0.17	0.25
	[0.405]	[0.378]	[0.437]
Observations	336	198	138

Notes: Summary statistics on household-level exposure to violence and symptoms of psychological trauma. Columns 1 reports sample statistics for the full sample, while columns 2 and 3 report statistics according to an arbitrary stratification of the data: whether the household was exposed to a number of violent events that were below (moderate violence) or above (severe violence) the median number of violent events. Standard deviations are reported in brackets.

Household victimization questionnaire.—At the beginning of the weekend session, enumerators privately administered a victimization questionnaire that measured whether a household member experienced different violent events, and the number of times that each event had occurred in the last 10 years. We use the

number of violent events experienced by the household as a measure for the severity of violence.[10] In addition, we use the number of years since the displacement of the household as a proxy for the temporal proximity of violence.[11]

Panel A of Table 1 presents sample statistics on the nature and severity of the exposure to violence and highlights three important features: First, all subjects in the sample had been displaced and 93 percent of them had been exposed to at least one violent event.[12] The most frequent events included receiving threats from armed groups (55%), being caught in the cross fire of armed combat (50%), suffering the assassination of a household member (24%), suffering a violent attack (15%), and/or experiencing and surviving a massacre (8%). Second, subjects had been exposed to an average of 6.6 violent events and the victimization occurred 2.5 years on average before the data collection. Third, there is considerable variation in the severity and temporal proximity of violence.

Psychometric Scale.—Next, enumerators privately administered a locally adapted version of the Symptoms Checklist 90 R (SCL 90-R). This scale measured the experience of symptoms that are associated with different manifestations of psychological trauma, such as headaches, back pains, and uneasiness among others, over the previous three months.[13] The responses to different subsets of symptoms provide measures of the extent and severity of nine different psychopathologies, including depression, anxiety and a global severity

[10] We also measure the severity of violence through a victimization score constructed through principal component analysis. The results are robust if we instead use the victimization score in the empirical analysis. Results are available upon request.

[11] Although violent events did not necessarily occur at the same time, subjects stated that their displacement was triggered by a peak in violence. The number of years since the displacement therefore captures the temporal proximity of the moment when violence was at its highest.

[12] In Table 1 and in the rest of the analysis, we drop 8 outliers who reported a number of violent events more than 5 standard deviations above the mean. Results are robust if we keep these observations.

[13] The SCL 90-R has reliable psychometric properties and has been widely implemented in developing countries and in conflict scenarios (Casullo, 2004). For this sample, the Cronbach alpha of 0.94 indicates an excellent internal consistency—the extent to which all items measure the same constructs.

index (GSI).[14] These measures include a continuous standardized T-score and an indicator variable that denotes whether the subject scores above a critical threshold (T_i>63), and is at risk of developing a clinical psychopathology.[15]

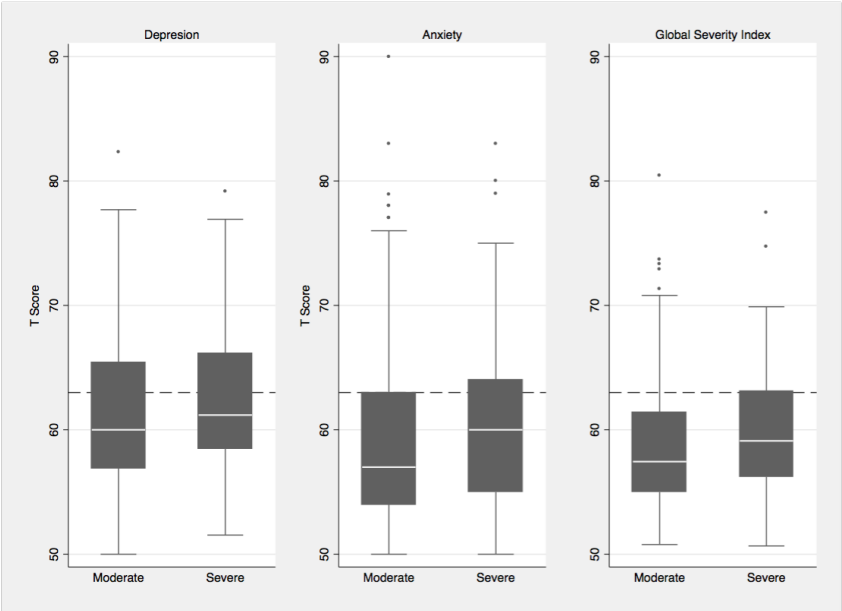


FIGURE 1. PSYCHOLOGICAL TRAUMA

Notes: Box-plot distribution of Depression and Anxiety, and the Global Severity Index. Sample statistics are reported according to an arbitrary stratification of the data: whether the household was exposed to a number of violent events that were below (moderate violence) or above (severe violence) the median number of violent events. The dotted line depicts the level above which individuals are at risk of developing clinical cases.

Figure 2 illustrates the box-plot distributions of the depression, anxiety, and GSI scores according to whether subjects had been exposed to moderate or severe violence as previously defined. The dotted line in each plot indicates the threshold above which a subject is considered at risk. In conformity with the studies in clinical psychology, the data in the figure suggests that the psychological consequences of violence follow a dose–response relationship: a more severe experience of violence brings about more symptoms of depression

[14] The GSI measures the overall severity of symptoms of psychological trauma.

[15] Responses for each question are scaled from 0 to 4, indicating a range of no symptoms to daily symptoms in the last three months. Scores on the relevant questions for each psychopathology are added and divided by the total number of questions answered. Then, a T-score is standardized with mean 50 and standard deviation 10: ($T_i = 10 + 50 \times score$).

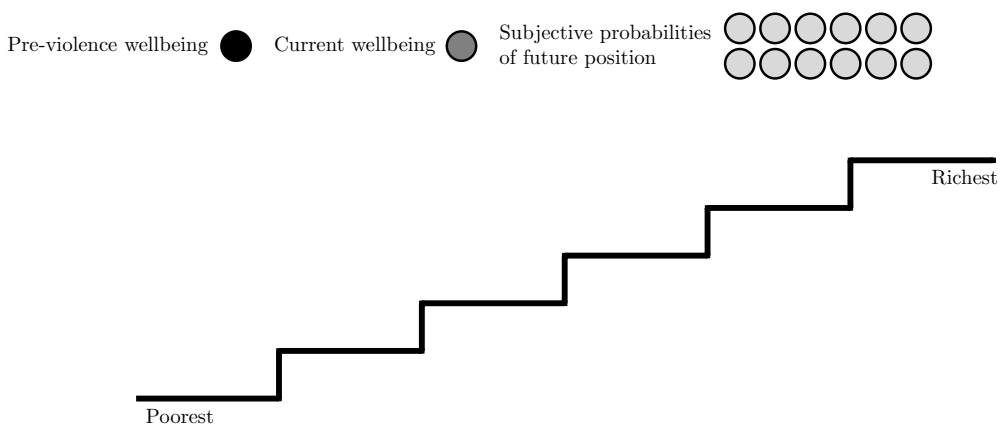
and anxiety and of psychological trauma in general—that is, a higher GSI score. Moreover, at the time of the data collection, 38 and 26 of the subjects were at risk of developing depression and anxiety disorders, respectively (see Table 1, Panel B). These figures are higher among the group exposed to severe violence and considerably higher than those for the Colombian population (Moya, 2017).[16]

Perceived Prospects of Upward Mobility.—At the end of the weekend session, we conducted a group activity to elicit victims' perceptions on their pre-violence and current living standards, and their perceived prospects of upward mobility. For this purpose, we built upon the work of Krishna (2004, 2006, 2010) and Narayan, Pritchett, & Kapoor (2009), and designed a six-step ladder of life that portrayed different levels of living standards among victimized communities.[17] We characterized each step in the ladder over five dimensions—housing, lands, labor income, children's schooling, and consumption. To ensure that our ladder of life provided an accurate representation of the living standards of victims of violence, we characterized each step based on the World Bank's *Moving Out of Poverty* Colombia case study, which constructed ladders of life for victimized and non-victimized communities across the country (see Matijasevic, et al., 2007; and Narayan & Petesch, 2010). In our ladder, the bottom two steps illustrated the more salient characteristics of victims living in extreme poverty, whereas the top step portrayed the characteristics of the better-off victims (see Figure 2).[18]

[16] Appendix Table A1 provides a more detailed characterization of the scores of the 9 psychopathologies captured by the SCL-90 for the full sample and the sample of subjects who were victimized en masse.

[17] The "stages of progress" approach of Krishna (2004, 2006, 2010) and the "ladder of life" approach of Narayan, Pritchett, & Kapoor (2009) have been used to identify how the poor understand poverty and the strategies, pathways, and major life events that have affected individual and community poverty dynamics. This is often carried out during focus groups where participants define the different levels of wellbeing or living standards (stages of progress or steps in the ladder of life) within a community. Participants then describe the characteristics of each level, identify where the community poverty line would be located, and discuss the pathways in which households move out or into poverty.

[18] Instead of defining a ladder of life for each community or group, as it is the common practice in previous work, we defined a single ladder of life for all groups. This allowed us to: (1) compare victims' perceptions regardless of the municipality and community in which they were residing at the time of fieldwork; and (2) resemble comparable pre and post-violence living standards to identify movements up or down the ladder of life over this period.



	STEPS					
	1	**2**	**3**	**4**	**5**	**6**
Housing	No place to live	Precarious housing w/o public services	Basic housing with public services	House in good conditions	House in good conditions	House in good conditions
Lands	No access to land	No access to land	Access to a plot of land	Lands, crops and animals	Lands, crops, animals and hires labor	Lands, crops, animals and hires labor
Income	No source of income	Day to day informal job	Employed with a stable source of income	Stable job or small business	Good job or business and hires some employees	Good job or business and hires several employee
Schooling	Cannot afford to send their kids to school	Cannot afford to send their kids to school	Children go all the way to high school	Children finish high school	Children finish high school	Children finish high school and access higher ed.
Consumption	Cannot feed the household	Able to feed the household	Able to feed the household	Able to feed the household with an appropriate diet	Able to feed the household with an appropriate diet	Able to feed the household with an appropriate diet

FIGURE 2. LADDER OF LIFE

Notes: Graphical depiction of the ladder of life. Each step in the ladder was characterized over 5 dimensions (housing, lands, income, schooling, and consumption). Subjects were first asked to place one stone at the step that resembled their living standards before the episodes of violence, and a different one for the current living standards. Then, they were asked to distribute 12 stones in the steps of the ladder where they believed they could end up in the following year.

We measured subjects' perceptions using the ladder of life as follows: First, we explained that we wanted to understand the socioeconomic changes that occurred

to each participant as a result of their exposure to violence and their displacement. To this end, we introduced the ladder of life, used visual aids to describe the characteristics at each step of the ladder, and provided examples of upward, stagnant, and downward mobility that were not related to violence. Subjects received a booklet with the graphical illustration of the ladder of life, and were instructed to place a stone at the step of the ladder that closely resembled their household's pre-displacement living standards, and a different one for their current living standards. This was carried out in private, with the assistance of the enumerators.

Second, we explained that we also wanted to understand how participants envisioned their future. For this purpose, we built upon recent methods to elicit of subjective probabilities of future events without explicitly referring to the concept of probabilities (see Delavande, Gine, & McKenzie, 2011). We handed out 12 stones to each subject and asked them to place them in the steps of the ladder of life where they thought they could end up in the following year. To explain this activity, we only mentioned that they should place more (less) stones in a step if they thought that it was more (less) likely that they would be in that step within a year. After this explanation, subjects privately placed the 12 stones over the ladder of life depicted in the booklet and enumerators recorded their answers. The relative number of stones that were placed at each step provides a measure of the subjective probability of reaching that position on the ladder.

Figure 3 illustrates the distributions of pre-violence and current positions on the ladder of life, and the distributions for the subjective probabilities of being at each step in the following year.[19] The data in the first panel indicates that before the episodes of violence, 37 percent of the subjects were in extreme poverty—at the first two steps of the ladder—, 44 percent of were at the 3rd step, and 18 percent

[19] Table A2 in the Appendix reports the averages for pre-violence and current locations in the ladder, the average probabilities for being at each step in the ladder in the next year, and two-sample mean differences.

had living standards that would have placed them at the 4th step. Moreover, we observe minor differences in the distributions between subjects exposed to moderate and severe violence. The data in the second panel reveals the consequences of violence and displacement. Consistent with the work of Ibáñez and Moya (2010a, 2010b), we observe that violence and displacement drove victims into poverty and condensed the asset and income distribution downwards. Overall, 91 percent of the subjects reported that they were currently in extreme poverty, while less than two percent were at or above the 4th step. In this case, we observe differences according to the severity of violence; 86 percent of the subjects exposed to moderate violence reported that they were currently at the bottom two steps of the ladder, whereas this figure increases to 96 for those exposed to severe violence.

Finally, the bottom panel of Figure 3 illustrates the perceived prospects for each step of the ladder. On the one hand, the data in the figure first indicates that there is optimism among the subjects in the sample. Although most victims fell down to the bottom of the ladder, the distributions of subjective probabilities for future positions resemble and even exceed the distributions of pre-violence positions. On the other hand, when we stratify the data according to the severity of violence, we observe that those who were exposed to more severe violence are more hopeless. Whereas subjects who experienced moderate violence perceive that the probability of being in extreme poverty is 28 percent on average, this figure increases to 41 percent for those who experienced severe violence. This represents a significant 13 percentage point difference (46 percent).

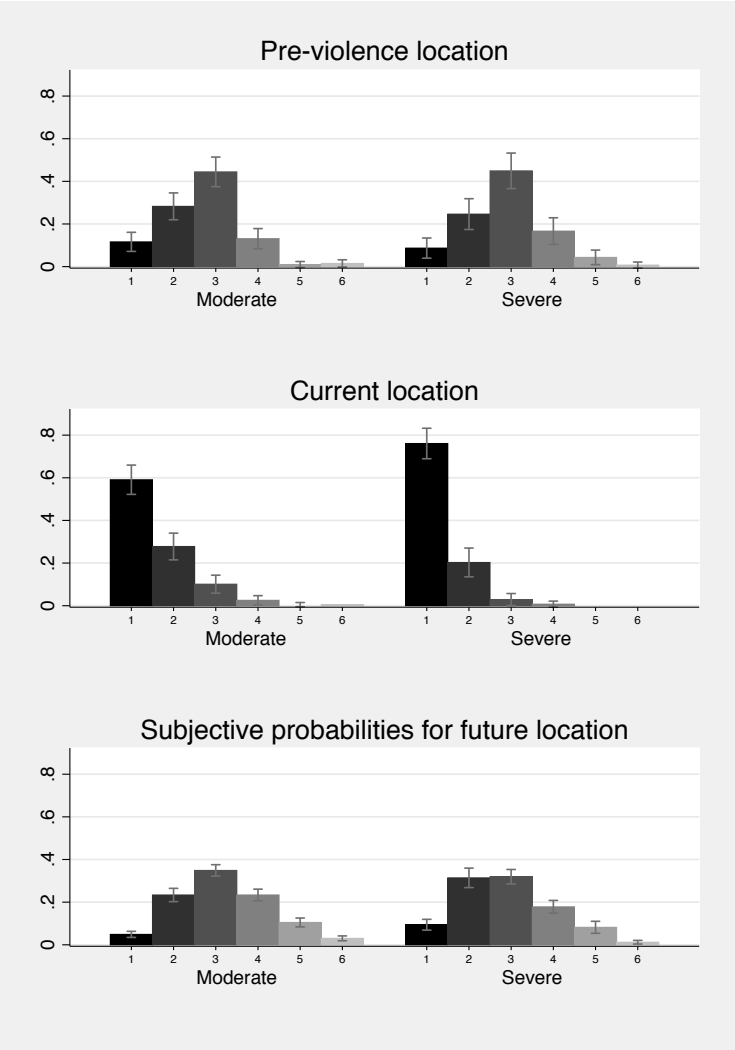


FIGURE 3. PAST AND CURRENT POSITIONS & PERCEIVED PROSPECTS OF UPWARD MOBILITY

Notes: Box-plot distribution of the Depression and Anxiety disorders, and the Global Severity Index using the data from the SCL-90-R scale. As in the previous table, sample statistics are reported according to an arbitrary stratification of the data: whether the household was exposed to a number of violent events that were below (moderate violence) or above (severe violence) the median number of violent events. The dotted vertical line depicts the critical level above which individuals are at risk of developing clinical cases for each disorder.

Household Survey.—As discussed before, enumerators administered a household survey prior to collecting the data above. The survey captured detailed information on current and retrospective socioeconomic and demographic characteristics of subjects and their households. The latter allow us to characterize the households before the episodes of violence and analyze whether

the severity of violence was associated with specific characteristics. In addition, the survey included a question on whether subjects looked towards the following year with hope and optimism or with hopelessness and despair, and a Likert scale question on whether they believed that it was likely, unlikely, or very unlikely for the economic circumstances of their household to improve in the following year. These two questions provide alternative measures of the degree of hopelessness and allow us to assess the validity of the responses to the perceived prospects of upward mobility described above.

Table 2 reports sample statistics and differences between the current and retrospective characteristics of subjects exposed to moderate and severe violence. The data in panels A and B indicates that there are no significant differences between subjects who were moderately and severely victimized, other than their current age, and the household's participation in community organizations before the episodes of violence. The latter difference is consistent with qualitative evidence that finds that armed groups targeted community leaders with a higher likelihood (CNMH, 2013). We will return to this in the following section, when we discuss our empirical strategy. In turn, the data in Panel C indicates that subjects exposed to more severe violence are more likely to look forward to the following year with hopelessness and perceive that it is highly unlikely that their economic circumstances will improve. These differences are consistent with the data in Figure 2, and thus suggest that subjects understood the tasks during the ladder of life activity and that the probabilities for being at each step in the ladder accurately portray their perceived prospects of upward mobility.

TABLE 2—SAMPLE BALANCE: PRE-VIOLENCE & CURRENT CHARACTERISTICS

	Total [1]	Moderate [2]	Severe [3]
A. Current characteristics			
Age	41.05	39.70	42.99**
	[13.32]	[12.96]	[13.64]
Male (=1)	0.39	0.38	0.41
	[0.488]	[0.486]	[0.493]
Household Head (=1)	0.78	0.80	0.75
	[0.415]	[0.399]	[0.437]
Literate (=1)	4.47	4.59	4.30
	[2.035]	[1.930]	[2.173]
Household size	0.82	0.83	0.82
	[0.381]	[0.378]	[0.387]
Log yearly per capita consumption ($COP)	3.80	3.76	3.85
	[0.864]	[0.835]	[0.904]
Religious (=1)	0.85	0.83	0.89
	[0.354]	[0.379]	[0.312]
B. Ex-ante (pre-displacement) characteristics			
Household head was male (=1)	0.66	0.65	0.68
	[0.474]	[0.478]	[0.469]
Highest level of education in the household (years)	8.49	8.63	8.28
	[3.697]	[3.581]	[3.861]
Household main activity was off-farm labor (=1)	0.47	0.47	0.47
	[0.500]	[0.501]	[0.501]
Household main activity was agriculture (=1)	0.59	0.57	0.61
	[0.494]	[0.497]	[0.489]
Lands owned (Ha)	7.22	6.09	8.86
	[23.05]	[15.14]	[31.06]
Hh head participated in at least one social organization (=1)	0.44	0.40	0.50*
	[0.498]	[0.491]	[0.502]
C. Hopelessness - Survey Measures			
Looks towards the following year with hopelessness and despair (=1)	0.55	0.49	0.62**
	[0.499]	[0.501]	[0.486]
Highly unlikely that economic circumstances will improve (=1)	0.31	0.25	0.40***
	[0.463]	[0.433]	[0.491]
Observations	336	198	138

Notes: Panel A and B report data on subjects' current and pre-violence characteristics. Panel C reports data on the survey-based measures of hopelessness. Asterisks in column 3 indicate the significance of the mean-difference test between the moderate and severe victimization groups. Standard deviations reported in brackets. *p < 0.1. ** p < 0.05. ***p < 0.01.

IV. The Effect of Violence on Perceived Prospects of Upward Mobility

In this section, we first analyze whether more severe violence damages the perceived prospects of upward mobility. Then, we discuss the assumptions behind our empirical strategy and analyze the validity of our results using the sample of subjects who were victimized en masse and for whom the victimization was as good as exogenous. In addition, we conduct a series of robustness tests under alternative specifications of the econometric model and key variables. To conclude, we analyze the underlying psychological channel to highlight the role of internal constrains in shaping victims' perceived prospects of upward mobility.

A. Violence & Perceived Prospects of Upward Mobility

To analyze the effect of violence on victims' perceived prospects of upward mobility, we exploit the variation in the severity of violence, controlling for the current step in the ladder of life and other individual and household characteristics. This strategy allows us to compare subjects who were at the same step on the ladder of life, and therefore faced similar external constraints, but who had been exposed to different levels of violence. In doing so, we isolate the effects stemming from the exposure to violence, and that we hypothesize reflect the internal constrains created by such traumatic experiences.

For each future step on the ladder k, we estimate model 1, where we regress $p_{ih}(S^{t+1} = k)$—the perceived probability of being in step k in the following year for individual *i*, from household *h*—on V_h, the standardized number of violent events to which the household *h* was exposed, its quadratic term, and $\mathbf{I}(S^t = j)$, a fixed effect for the current position on the ladder. Since few subjects were at or

above the 4th step of the ladder (see Figure 2), we condensed the top 3 steps into a single step that corresponds to the upwardly mobile victims.[20]

$$p_{ih}(S^{t+1} = k) = \gamma_0 + \gamma_1 V_h + \gamma_2 V_h^2 + \sum_{j=1}^{4} \delta_j \mathbf{I}(S^t = j) + \\ \dots \Gamma_1' X_i^t + \Gamma_2' X_h^{t-1} + \xi_r + \varepsilon_i, \ \forall\, k \in [1,4] \qquad (1)$$

In model 1, we also control for a matrix X_i^t of current individual covariates that are key for the actual prospects of socioeconomic mobility. These include the subject's age, gender, and years of education, which provide a measure of the subject's level of human capital.[21] The matrix of current covariates also includes whether the subject is the household head, and whether the household experienced an economic shock or the death of a member for reasons not related to violence. Model 1 also includes a matrix X_h^{t-1} of pre-violence household characteristics including the size of the household's landholdings, whether a household member participated in local organizations, and whether agriculture was the households' main economic activity. We control for these retrospective characteristics since qualitative evidence finds that they are associated with the likelihood of being victimized (CNMH, 2013), while the data in Table 2 suggests that the participation in local organizations may have been associated with the severity of the victimization. Moreover, since the victims in our sample were victimized in and displaced from rural areas, the size of previous landholdings provides a measure of the households' asset losses. Finally, the model includes a region-specific fixed effect ξ_r, and a White-robust error term ε_i.

[20] Results are robust if we estimate the system of equations on the six steps, and are also available upon request.

[21] We do not control for physical capital since few subject reported ownership or access to productive assets.

Table 3 reports the results of model 1. Each column on the table reports the effects of violence and the current position on the ladder on the perceived prospects of future positions.[22] In Panel A, we exploit the variation in the severity of violence, conditional on individual and household characteristics, without controlling for the current position on the ladder. The results indicate that more severe violence leads victims to perceive that it is more likely to be in extreme poverty in the following year—this is, at the bottom two steps of the ladder. In particular, an increase of one standard deviation in the severity of violence raises the perceived probability of being at the bottom of the ladder by 4 percentage points. This entails a considerable 66 percent effect relative to the mean. Likewise, a one standard deviation increase in the severity of violence increases the perceived probability of being at the second step of the ladder by 8 points—a 28 percent increase relative to the mean. Finally, the positive effect of violence in Column 4 indicates that more severe violence leads victims to perceive that it is less likely that they will move out of poverty and to the top of the ladder within a year. An increase of one standard deviation in the severity of the victimization lowers the perceived probability of reaching the top of the ladder by 10 percentage points—a 31 percent effect relative to the mean.

In Panel B, we report the results of model 1 when we include a fixed effect for the current position on the ladder of life. This allows us to compare subjects with similar living standards and control for the external constraints that were common among subjects at the same step on the ladder. The results indicate that the current position on the ladder has a strong and significant effect on the perceived prospects of upward mobility. In general, as current circumstances improve and subjects move up on the ladder of life, the perceptions of the prospects of being in poverty fall, while those for moving up the ladder increase. For example, relative

[22] For expositional purposes, we omit the coefficients for the set of covariates. Full results are available upon request.

to subjects at the second step of the ladder, those at the bottom step perceive that the likelihood of remaining in the bottom of the ladder is 4 percentage points higher, while the likelihood of moving up to the top step is 13 percentage points lower. These results are fairly intuitive; objectively it is more difficult for a subject at the bottom of the ladder to move to the top of the ladder in the span of a year than for subjects at other steps. Hence, the results suggest that subjects accurately perceive how current socioeconomic circumstances and the related external constraints influence their prospects of upward mobility.

More importantly, the results in Panel B indicate that when we control for the current position on the ladder of life, the severity of the victimization still has a sizeable and significant effect on victims' perceived prospects of being in chronic poverty. In this case, an increase of one standard deviation in the severity of violence raises the perceived probability of being at the bottom of the ladder by 4 percentage points and lowers the perceived probability of being at the top of the ladder by 6 percentage points. These effects account to 54 and 17 percentage changes relative to the mean, respectively. In addition, we find that the effect is robust when we control for the temporal proximity of violence, suggesting that the internal constraints persist in time (see Table A4 in the Appendix).

Taken together, the results in Table 3 indicate that subjects who were exposed to more severe violence perceive that they live in a different world, one with diminished prospects for upward mobility. Since we control for current circumstances, material capacities, and the time since the episodes of violence, the differences between two otherwise similar victims who were exposed to different levels of violence, point to the existence of persistent internal constraints by which violence begets hopelessness.

TABLE 3—VIOLENCE & PERCEIVED PROSPECTS OF UPWARD MOBILITY

	p(Step t+1 = 1)	p(Step t+1 = 2)	p(Step t+1 = 3)	p(Step t+1 = 4)
A. Severity of Violence				
# of violent events (standardized)	0.044***	0.076***	-0.019	-0.102***
	[0.014]	[0.026]	[0.019]	[0.029]
# of violent events squared (standardized)	-0.008	-0.023**	0.012**	0.019
	[0.005]	[0.010]	[0.005]	[0.013]
Constant	0.099*	0.362***	0.364***	0.175
	[0.055]	[0.084]	[0.070]	[0.109]
Hh exante & current controls	Yes	Yes	Yes	Yes
R-squared	0.08	0.11	0.04	0.1
Observations	311	311	311	311
B. Severity of Violence & Current Location on the Ladder of Life				
# of violent events (standardized)	0.036***	0.037	-0.016	-0.057**
	[0.013]	[0.024]	[0.019]	[0.028]
# of violent events squared (standardized)	-0.005	-0.009	0.008	0.005
	[0.005]	[0.008]	[0.005]	[0.011]
Step t = 2	-0.038**	-0.174***	0.080***	0.132***
	[0.017]	[0.025]	[0.029]	[0.037]
Step t = 3	-0.054**	-0.255***	-0.033	0.342***
	[0.023]	[0.036]	[0.044]	[0.069]
Step t = 4	-0.062***	-0.285***	-0.043	0.389***
	[0.017]	[0.050]	[0.087]	[0.126]
Constant	0.104*	0.382***	0.361***	0.153
	[0.053]	[0.075]	[0.070]	[0.095]
Hh exante & current controls	Yes	Yes	Yes	Yes
R-squared	0.10	0.25	0.08	0.21
Observations	311	311	311	311
Mean value of dependent variable	0.067	0.267	0.337	0.329

Notes: Each column reports the results of estimating model 1 on the perceived probabilities of being in each step of the ladder of life in the following year. The table reports the estimated coefficients for the severity of violence, measured by the standardized number of all violent events to which a household was exposed, its quadratic term, and a fixed effect for the current position on the ladder. As described in equation 1, each model includes a set of current and ex-ante covariates and a regional fixed effect. Current covariates include the subject's age, gender, and years of education, whether he or she is the household head, and whether the household experienced an economic shock or the death of a household member for reasons not related to violence. Ex-ante (pre-violence) covariates include the household size, size of land holdings, participation of a household member in local organizations, and participation of the household in agricultural work. Estimated coefficients of the covariates and fixed effect are not reported but are available upon request. White-robust standard errors are reported in brackets. *p < 0.10. **p < 0.05. ***p < 0.01.

B. Assumptions for Identification

The validity of the results in Table 3 hinges on the assumption that the severity of violence was exogenous to pre-violence perceived prospects for upward mobility. The results would thus be biased if armed groups exerted more violence on individuals or households based on characteristics that were correlated with their ex-ante levels beliefs and levels of hope. Below, we argue on the validity of the results based on statistical and qualitative evidence that indicates that the severity of violence was not driven by observable or unobservable characteristics, and the robustness of the results on a subsample for which the severity of violence was exogenous to pre-violence characteristics.

First, we analyze whether the severity of violence was based on ex-ante observable characteristics. In Table 2, we had observed that the households' participation in local organizations differed across the groups exposed to moderate and severe violence. For this reason, in model 1 we control for this characteristic in the matrix of pre-violence observables in X_h^{t-1}. In addition, we control for the households' land size and for whether agriculture was the household's main economic activity, since qualitative analysis of conflict dynamics in Colombia have identified that these characteristics increase the likelihood of being targeted and victimized by armed groups (CNMH, 2013). Under the assumption of conditional unconfoundedness (Imbens, 2003), we remove the biases that arise from pre-violence differences by controlling for these observable characteristics in X_h^{t-1}. Nevertheless, following Bellows and Miguel (2009), we conduct a more thorough analysis and regress the number of violent events to which a household was exposed or the victimization score, on a set of ex-ante household characteristics (see Table A4 in the Appendix). The results indicate that the severity of violence was not based on specific observable characteristics or jointly determined by the set of observables.

Naturally, the analysis above does not ensure that the severity of the victimization was not based on unobservables—this is, characteristics that we were unable to measure. Yet, qualitative evidence indicates that in contested territories such as those where we collected the data, armed groups not only lack the information needed to target specific individuals, but also rely on indiscriminate violence against civilians as a strategy to obtain territorial supremacy (CNMH, 2013).[23] This is consistent with the logic of violence towards civilians in civil wars (Kalyvas, 2006). Therefore, the severity of violence would be driven by unobservables only if civilians made themselves more conspicuous and put themselves at risk. In a context of widespread violence and civil conflict, it is unlikely that such behaviors would characterize the more hopeless subjects.[24]

To further support the validity of our empirical strategy, we analyze the robustness of the results on the sample of subjects who were victimized en masse, with their entire villages in massacres or in the crossfire of combat between illegal armed groups. Therefore, for this subsample the severity of violence is arguably random.[25] The results reported Appendix Table A5 indicate that despite the smaller sample, the severity of violence brings about a qualitatively robust effect on the perceived prospects of being in extreme poverty within a year, and a stronger and statistically significant effect on the perceived prospects of moving to the top of the ladder over the same period.

[23] By doing so, armed groups spread fear and undermined the popular support for their opponents, which allowed them to control of the movements, activities, preferences, and habits of the population. This constituted, in the words or former combatants, the most effective mechanism to achieve territorial dominance. For this reason, assassinations, mutilations, and massacres, among other manifestations of violent, were often randomly carried out in public spaces; the more vicious the type of violence, the more effective (CNMH, 2013).

[24] In such case, the negative correlation between the pre-violence hope and the severity of violence would bias the estimates against our hypothesis.

[25] The characteristics of massive displacements can be portrayed by the emblematic massacre and mass displacement of the municipality of El Salado in the department of Bolivar, in which some of the subjects in our sample had been victimized. In February 2002, over 300 paramilitaries arrived to the municipality head and order all the inhabitants to gather in the central plaza. Survivors reported that the paramilitaries literally selected the victims at random, and then tortured and killed them in front of everybody else. Paramilitaries abandoned the town three days later, after murdering over 70 civilians, and the entire population migrated soon after (CNMH, 2013).

C. Alternative Specifications

In this section, we address three concerns regarding the specification of model 1 and the results reported in Table 3. First, in model 1 we ignored the pre-violence positions on the ladder of life, which may have been correlated with a host of individual and household skills and could act as a reference point for the victims' perceived prospects of upward mobility. In Appendix Table A6 we estimate model 1 including a fixed effect for the pre-violence position on the ladder of life. The results indicate that the effect of the severity of violence and the current position on the ladder have a robust and significant effect on victims' perceptions, while the pre-violence position does not have a significant effect.

Second, it may be that the results in Table 3 hinge on whether the characteristics of each step of the ladder of life accurately represented the living standards for the subjects in our sample, and whether subjects with similar living standards placed themselves at the same step. An alternative would be to control for objective measure of the current living standards. For this reason, in Appendix Table A7 we estimate model 1, but now controlling for the per capita consumption, which was calculated using a standard expenditure module that was included in the household survey. Again, the results indicate a robust and significant effect of violence on the perceived prospects of being at the bottom two steps of the ladder of life and of reaching the top step within the following year. In addition, the households' per capita consumption portrays the effect of the current step of the ladder of life that we had observed in Table 3: higher levels of consumption have a positive and significant effect on the perceived probability of reaching the top step of the ladder and a negative and significant effect on the perceived probability of being at the second step of the ladder.

Finally, we may be concerned that the subjects did not fully understand the subjective probability elicitation task and that there is significant error in their

responses. In Appendix Table A8 we analyze the robustness of our results using the survey-based measures of hopelessness as our dependent variables in model 1. Again, we find that the effect of violence is robust: a more severe exposure to violence increases the probability that subjects look to the future with hopelessness and despair, and the perceptions that it is highly unlikely that the household's socioeconomic circumstances will improve within a year.

D. Exploring the Psychological Mechanism

In this section, we assess whether the effect of violence on victims' perceived prospects of upward mobility is explained by the psychological consequences of violence. For this purpose, we first document the way in which more severe and recent violence brings about higher symptoms of depression, anxiety and other manifestations of psychological trauma. Then, we exploit the variation in the symptoms of depression to understand how they alter the victims' perceived prospects of upward mobility. Finally, we conduct a mediation analysis to test whether depression explains the effect of violence of victims' perceived prospects of upward mobility.

First, we analyze how the symptoms of psychological trauma vary according to the severity and temporal proximity of violence. For this purpose, we replicate the analysis of Moya (2017) and regress the T-scores for depression, anxiety, or GSI on the standardized number of violent events, the number of years since the episodes of violence, and their interaction.[26]

In conformity with the data in Figure 2, the results indicate that a more severe and recent exposure to violence produces more severe symptoms of depression and anxiety, and a higher GSI score (see Appendix Table A9). For instance, an

[26] In addition, we control for the subjects age and gender to account for well-known differences in the susceptibility to psychological trauma among men and women and across age groups, and include the regional fixed effect. The results are robust if we do not control for these characteristics or for the regional fixed effect.

increase of one standard deviation in the severity of violence increases the depression and anxiety T-scores by 0.7 and 1 points (see Columns 1 and 3). Likewise, it increases the probability that the symptoms of these two disorders are above the critical threshold by 7 and 5 percentage points, respectively (see Columns 2 and 4). The latter effects account for an 18-percentage increase relative to the mean, and are consistent with the studies in psychology outlined before on the dose-response relationship between violence and psychological trauma (Mollica et al., 1988; Doctors Without Borders, 2010).

Having established the effects of violence on different psychopathologies, we now address whether psychological trauma is the mechanism through which violence induces hopeless perceived prospects of upward mobility. For this purpose, we estimate model 2 where we regress $p_{ih}(S^{t+1} = k)$—the perceived probability of being in step k in the following year for individual i, from household h—on D_i, the T-score for the symptoms of depression, and its quadratic term. Again, we include a fixed effect for the current position on the ladder $\mathbf{I}(S^t = j)$, control for the current individual and pre-violence household covariates in X_i^t and X_h^{t-1}, and include a regional fixed effect ξ_r.

$$p_{ih}(S^{t+1} = k) = \beta_0 + \beta_1 D_i + \beta_2 D_i^2 + \sum_{j=1}^{4} \delta_j \mathbf{I}(S^t = j) + \\ \dots \Gamma_1' X_i^t + \Gamma_2' X_h^{t-1} + \xi_r + \varepsilon_i, \ \forall\, k \in [1,4] \qquad (2)$$

Panel A of Table 4 reports the results of model 2 and confirms our hypothesis regarding the effect of depression on the victims' perceived prospects of upward mobility. The results indicate that an increase of one point in the depression T-score raises the perceived probability of being at the bottom two steps of the ladder by 3 and 7 percentage points, respectively. In addition, it lowers the perceived probability of reaching the top of the ladder by 9 percentage points. These effects are remarkably similar in magnitude to the effects of the severity of

violence. The data in the table indicate, in addition, that the effect of the current step of the ladder persists when we control for the extent of psychological trauma.

TABLE 4—PSYCHOLOGICAL TRAUMA & PERCEIVED PROSPECTS OF UPWARD MOBILITY

	p(Step t+1 = 1)	p(Step t+1 = 2)	p(Step t+1 = 3)	p(Step t+1 = 4)
A. Reduced Form: Depression T-score				
Depression	0.032**	0.072**	-0.013	-0.090*
	[0.016]	[0.033]	[0.028]	[0.046]
Depression^2	-0.000**	-0.001**	0	0.001**
	[0.000]	[0.000]	[0.000]	[0.000]
Step t = 2	0.000	0.000	0.000	0.000
	[0.000]	[0.000]	[0.000]	[0.000]
Step t = 3	-0.047***	-0.184***	0.087***	0.144***
	[0.018]	[0.025]	[0.028]	[0.037]
Step t = 4	-0.068***	-0.266***	-0.029	0.362***
	[0.024]	[0.035]	[0.044]	[0.067]
Constant	-0.836	-1.906*	0.775	2.966**
	[0.522]	[1.055]	[0.896]	[1.500]
Hh exante & current controls	Yes	Yes	Yes	Yes
R^2	0.08	0.25	0.08	0.21
Observations	307	307	307	307
B. Mediation Analysis: Average Controlled Direct Effect of Violence				
# of violent events (standardized)	0.03	0.04	-0.02	-0.06
	[1.71]	[1.43]	[0.78]	[1.83]
# of violent events squared (standardized)	0.00	-0.01	0.01	0.01
	[0.27]	[0.74]	[1.11]	[0.37]
Hh exante & current controls	Yes	Yes	Yes	Yes
R^2	0.08	0.25	0.08	0.21
Observations	307	307	307	307
Mean value of dependent variable	0.067	0.267	0.337	0.329

Notes: Each column reports the results of estimating model 1 on the perceived probabilities of being in each step of the ladder of life in the following year. Panel A reports the estimated coefficients for the severity of symptoms of depression its quadratic term, and the current position on the ladder. As in the previous table, the models include a regional fixed effect and a set of current and ex-ante covariates. Estimated coefficients for these covariates are not reported but are available upon request. White-robust standard errors are reported in brackets. Panel B reports the average direct controlled effect of violence once the effect of depression and the current step on the ladder is removed. Standard errors are reported in brackets and were obtained through bootstrapping with 1,000 repetitions. *p < 0.10. **p < 0.05. ***p < 0.01.

To provide a more thorough analysis of the way in which depression underlies the effect of violence on victims' perceptions, we conduct a mediation analysis following Acharya, Blackwell, & Sen (2016). In particular, we estimate the average controlled direct effect of violence—this is, the causal effect of violence when the effect of depression is taken into account. This approach allows us to analyze whether the symptoms of depression are one mechanism through which violence influences victims' perceptions, and whether there are other mechanisms that contribute to this relationship.[27]

The average direct controlled effect of violence is estimated through the following two-stage model: In the first stage, we estimate model 1 controlling for the depression T-score and its squared term. Then, we *demediate* the dependent variable by removing the estimated effect of depression and the current step in the ladder. In the second stage, we estimate the average controlled direct effect of violence by regressing the *demediated* dependent variable on the severity of violence. Formally, for each future step $k \in [1,4]$, we estimate the following model:

$$p_{ih}(S^{t+1} = k) = \gamma_1 V_h + \gamma_2 V_h^2 + \gamma_3 D_i + \gamma_4 D_i^2 + \sum_{j=1}^{4} \delta_j \mathbf{I}(S^t = j) + \ldots \Gamma_1' X_i^t + \Gamma_2' X_h^{t-1} + \xi_r + \varepsilon_i \quad (3a);$$

$$\hat{p}_{ih}(S^{t+1} = k) = \alpha_0 + \alpha_1 V_h + \alpha_2 V_h^2 + \Gamma_2' X_i^{t-1} + \xi_r + \mu_i \quad (3b);$$

where $\hat{p}_{ih}(S^{t+1} = k) = p_{ih}(S^{t+1} = k) - \hat{\gamma}_3 D_i + \hat{\gamma}_4 D_i^2 - \hat{\delta}_j$ is the *demediated* measure of the victims' perceived prospects of reaching step k of the ladder in the

[27] This method provides an alternative to the standard mediation method, where one simultaneously controls for the treatment and mediating variables. As Acharya et al. (2016) discuss in detail, the latter often leads to biased and inconsistent estimates as a result of M-bias or posttreatment bias.

following year, and μ_i is the consistent error term estimated through bootstrapping.[28]

Panel B of Table 4 reports the average direct controlled effect of violence that results from the second stage of model 3. The results indicate that we do not reject the null hypothesis that $\alpha_1 = 0$. This means that once we account for the effect of depression and the current position on the ladder, violence does not have an additional effect on victims' perceived prospects of upward mobility. Therefore, the results indicate that the effect of violence that we observed in Table 3 is driven by the psychological consequences of violence. This result is consistent with the literature in psychology (Sympson, 2000; Yehuda, 2002), and demonstrates the mechanism through which traumatic experiences of violence can induce hopelessness and perceptions that there are no pathways for real progress.

V. Violence & Long-Run Perceived Poverty Dynamics

The implications of the results above can be better understood by simulating the long-run distributions that are associated with the victims' perceived prospects for upward mobility. For this purpose, we use the estimated coefficients from Table 3, to construct the transition matrices that define the perceived probabilities of transitioning from one step of the ladder to another over a year, and simulate the associated long-run distribution for different levels of violence. This allows us to illustrate how the experience of more severe violence implies a less favorable long-term distribution.

Define the one period transition matrix P that defines the perceived probability of transitioning from current ladder step *j* to ladder step *k* within a year:

[28] The standard errors are biased in the second stage estimation since they do not consider the first-stage estimation. Unbiased and consistent standard errors can be obtained deriving a consistent estimator for the variance of $\widehat{\alpha_1}$ for linear models or through bootstrapping. Here, we employ the latter method.

$$P = \begin{bmatrix} p_{11} & \cdots & p_{14} \\ \vdots & \ddots & \vdots \\ p_{41} & \cdots & p_{44} \end{bmatrix},$$

where element p_{jk} is the perceived probability that an individual at step j in period t will be at step k in period $t+1$. Note that this structure can accommodate a wide variety of probability processes ranging from convergent to divergent or poverty trap processes. In general, perceived prospects for upward mobility would be signaled by non-zero elements in the upper triangle of the transition matrix, whereas perceived prospects of downward mobility would be signaled by the lower triangle.

Furthermore, let λ_t be the 4x1 vector that denotes the population distribution across the 4 steps of the ladder of life in period t. Given P, the expected distribution of the population in period $t+1$ will thus be $\lambda_{t+1} = P'\lambda_t$. If we further assume that the transition process is governed by a stable Markovian process in which transition probabilities only depend on the current position, then $\lambda_{t+1} = P'[P'\lambda_t]$. For a well-defined probability matrix, the population distribution will converge in the long-run to the stable equilibrium distribution given by the eigenvector $\lambda_e = P'\lambda_e$.

Note that following model 1, in the previous section we estimated a set of equations for the perceived probabilities associated with each future step k on the ladder of life for subjects currently at each step j. Hence, each equation in model 1 provides the information necessary to construct the corresponding column of the transition matrix. To calculate the element p_{jk}, we first estimate the equation for the probability of being at step k in the following period, $p(Step^{t+1} = k)$. Then, we set the individual and household controls at their mean values and calculate the predicted probability for step k, conditional on the current step in the ladder j, and across different levels of violence v. Formally, the predicted conditional

probability $\hat{p}_{jk}$, for a subject at step j, who was exposed to given level of violence v, will be given by:

$$\hat{p}_{jk}(v) = \hat{\gamma}_0 + \hat{\gamma}_2 v + \hat{\gamma}_2 v^2 + \hat{\delta}_j + \hat{\Gamma}_1 \bar{X}_i^t + \hat{\Gamma}_2{}' X_h^{t-1} + \hat{\xi}_r \qquad (4)$$

TABLE 5—TRANSITION MATRICES & LONG-RUN PROSPECTS OF UPWARD MOBILITY

		Violence - 10th percentile						Violence - 75th percentile				
		Step in Period t				d_e		Step in Period t				d_e
		1	2	3	4			1	2	3	4	
Step in period t-1	1	6%	31%	32%	30%	**0%**	1	9%	35%	31%	25%	**4%**
	2	2%	14%	40%	43%	**5%**	2	6%	17%	39%	38%	**9%**
	3	1%	6%	29%	64%	**29%**	3	4%	9%	27%	59%	**28%**
	4	0%	3%	28%	69%	**66%**	4	3%	6%	27%	64%	**59%**

Notes: Transition matrices that define the perceived probabilities of transitioning from one step of the ladder to another one over some time period, and associated long-run distributions for two levels of violence: at the values of the 10th and 75th percentiles. Each element of the transition matrix is based on the estimation of model 4.

Table 5 displays the simulated transition matrices and the associated population long-run distributions when violence is set at the values for the 10th and 75th percentiles—a one standard deviation increase.[29] Consistent with the results from the previous section, the effect of violence on the perceived prospects for upward mobility can be observed by the higher perceived probabilities in the lower triangle of the transition matrix for subjects exposed to more severe violence. Moreover, the associated long-run distributions reveal that if an average victim were to experience an increase in the severity of violence from the 10th to the 75th percentile, the perceived likelihood of ending up in extreme poverty would increase by 8 percentage points. This entails a sizeable 160 percent effect and

[29] Table A10 in the Appendix reports transition matrix and long-run population distributions for different percentiles of the distributions of the severity of violence.

further highlights how the exposure to more severe violence induces overly hopeless prospects of upward mobility.[30]

To further illustrate this point, Figure 4 plots the evolution of the extreme poverty headcount—this is, the percentage of victimized households who are in extreme poverty at different moments of time based on transition matrices for the two levels of violence specified above. The figure illustrates how the extreme poverty headcount falls relatively quickly, in conformity with the victims' perceptions outlined in Figure 3. However, the figure also illustrates how the transitional dynamics diverge rather quickly signaling a large increment in the number of victims that expect to be in persistent and extreme poverty as a consequence of the exposure to more severe violence and the associated psychological consequences.

Of course, these long-run estimates are subject to the proviso that the actual socioeconomic dynamics can be characterized by a Markov process, and that the transitional matrices remained unaltered over time even as the socioeconomic circumstances of the household improve. Yet, we argue that this a good characterization of victims' perceived prospects since the results from the previous section indicate that the effect of violence persists over time and is independent of the levels of wellbeing. Therefore, the results above sharply illustrate how violence operates as an additional force that dampens victims' perceived prospects of future economic advance and can bring about a behavioral poverty trap. This speaks to the work of Sen (1999), who suggested that internal constraints can be more binding than the more noticeable economic constraints, and can create a behavioral poverty trap.

[30] Likewise, a one standard deviation increase in the severity of violence lowers the likelihood of reaching the top of the ladder by 8 percentage points; a 13 percent difference.

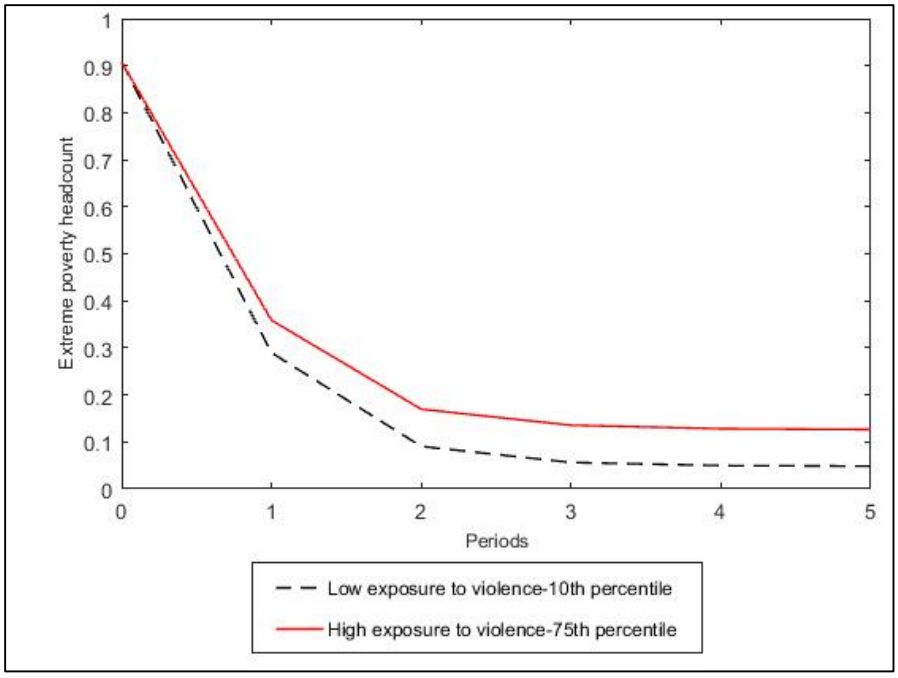


FIGURE 4. SIMULATED EXTREME POVERTY HEADCOUNT
Notes: Simulated evolution of the extreme poverty headcount based on the transition matrices depicted in Table 5.

VI. Discussion & Policy Implications

In this paper, we analyze if the exposure to traumatic episodes of violence induces overly hopeless prospects of upward mobility. For this purpose, we focused on a group of victims of violence in Colombia and collected data on their exposure to violence, symptoms of psychological trauma, and perceived prospects of upward mobility. Our results indicate that the exposure to more severe violence induces hopeless perceived prospects of upward mobility. Importantly, this effect persists even after we take into account the effect of current levels of wellbeing, consumption levels, education levels, and asset losses. The effect of violence therefore signals to the existence of internal constraints, that go beyond the "true" obstacles or external constraints imposed by violence and forced displacement that have been analyzed previously by Ibáñez & Moya (2010a,

2010b). In fact, we demonstrate that the psychological consequences of violence, and the severity of symptoms of depression in particular, are the mechanism through which violence begets hopelessness.

Taken together, our results echo the testimony of the victim at the beginning of this paper, which portrays how violence restricted her ability to envision and hope for a better future. More generally, our findings are consistent with those of psychological studies that show that the experience of trauma triggers depressive explanatory styles and can induce learned helplessness. In doing so, violence can hinder the victims' willingness to try to make the best out of what they have, and reinforce the external constrains and contribute to the persistence of poverty. Precisely, the simulation analysis of the previous section, highlights that the psychological consequences of violence can become more binding than the more discernible external constraints, alter long-run poverty dynamics, and even create a behavioral poverty trap.

One of the limitations of our analysis is that we are unable to observe whether the perceived prospects of upward mobility affect behavior and actual socioeconomic transitions. However, we believe that this likely by drawing upon the work of Cuartas and Moya (2016), who followed our methodological approach to collect data on perceived prospects of upward mobility from a subsample of the Colombian Longitudinal Survey (ELCA for its Spanish acronym). Their analysis indicates that the perceived prospects of upward mobility, which were measured in 2011, have a strong and significant impact on households' economic trajectories between 2011 and 2013. Moreover, their results indicate that the effect persists when they control for a host of observable characteristics related to the households' physical, human, and social assets. Hence, their results also point to the role of internal constraints in shaping the perceived prospects of upward mobility and the actual economic transitions.

Our paper has important policy implications that suggest reconsidering the strategies to assist the victims of violence and other negative shocks. In the case of Colombia, for example, the Government has implemented a progressive set of laws and comprehensive programs to assist the victims since 1997. These include humanitarian and conditional cash transfers and access to subsidized education and health, that are thought to provide a safety net to minimize the negative consequences of violence and forced displacement. In addition, the Government has laid out a strategy to promote the socioeconomic recovery of victims through asset and land transfers, job training programs, and indemnities up to US$8,000, among others. Unfortunately, the psychological consequences of violence have been largely neglected and mental health programs are scarce and poorly funded. According to data of the Colombian Ministry of Health, between 2013 and 2016, less than 4 percent of the victims in the country have received psychological assistance, while less than 1% of the funds allocated by the Government for the victims' recovery are invested in mental health programs. This is unfortunate since our results suggest that the psychological consequences of violence set seeds for persistent poverty.

To conclude, we conduct a simple thought experiment to illustrate how psychological trauma may hinder the effectiveness of other, more traditional types of programs. For this purpose, we return to the simulation analysis of the previous section and assess how the long-run poverty dynamics depicted in Figure 4 would change if we provided an asset transfer to the victims exposed to more severe violence, but without implementing any psychological assistance that could alleviate the hopeless perceived prospects of upward mobility. In particular, we simulate the poverty headcount across time using the initial population distribution and the transition matrices depicted in Table 5. After period 1, we provide an asset transfer to the victims at the 75^{th} percentile of the

distribution of the severity of violence that pushes them one step upwards in the ladder of life.

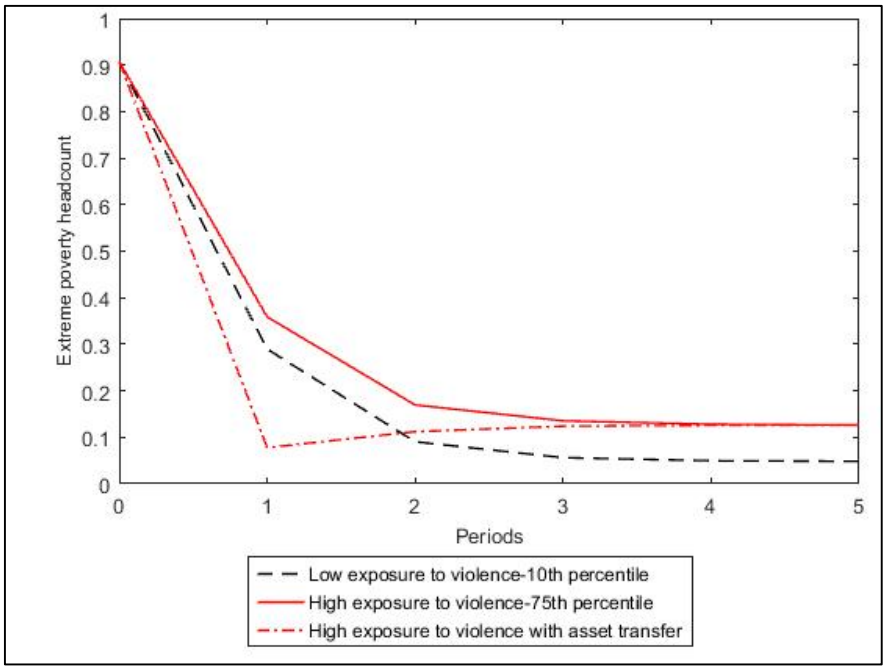


FIGURE 5. SIMULATED EXTREME POVERTY HEADCOUNT UNDER A STANDARD ASSET TRANSFER

Notes: Simulated evolution of the extreme poverty headcount based on the transition matrices depicted in Table 5, and an asset transfer for the victims exposed to more severe violence that pushes them one step upwards in the ladder of life in period 1.

Figure 5 illustrates the evolution of the extreme poverty headcount for the victims exposed to low violence, and those exposed to more severe violence with and without the asset transfer. The figure indicates that in the medium run, the asset transfer lowers the extreme poverty headcount for the victims exposed to more severe violence, and would alleviate material and external constraints. Nevertheless, the figure also indicates that in the long run, the extreme poverty head count for victims exposed to more severe violence converges to the previous level without the asset transfer. The dynamics in Figure 5 therefore indicate that even if victims live a world of convergent socioeconomic mobility, the psychological consequences of violence can render standard interventions

ineffective and alter the long run distribution of well-being. Our paper thus provides additional justification for a better understanding the psychological consequences of violence and how they influence poverty dynamics, and for designing and implementing psychological programs for victims of violence.

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