Decision Making in Fragile Settings

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Overview of co-authors

This dissertation includes three chapters written in joint work with co-authors, a general introduction, and a conclusion. This section describes the contributions by each of the co-authors and myself.

1. The paper *"Gender and Value of Decision-making Within the Household: Experimental Evidence from Colombia"* is co-authored with Prof. Marcela Ibañez Diaz Ph.D., Dr. Maria Natalia Cantet, and Prof. Dr. Gerhard Riener. All four authors developed the research idea and the instruments. The experimental design was developed jointly by Marcela Ibanez, Gerhard Reiner, and Tatiana Orozco Garcia. Tatiana Orozco García and Natalia Cantet recruited and trained the enumerators team in Colombia, conducted the pilot for data collection, and prepared the first draft of the paper. Tatiana Orozco García conducted the literature review, cleaned, and analyzed the data. All authors contributed to the data analysis and contributed to the final manuscript.

2. The paper *"Discrimination in Peacebuilding. The Role of Moral Wiggle Room"* is co-authored with Prof. Marcela Ibañez Diaz, Ph.D. Both authors contributed to conceptualizing of the research idea, the research design, and the experimental design. Tatiana Orozco García performed the data collection, the data cleaning and analysis, the initial literature review, and prepared the first draft of the paper. Marcela Ibañez contributed to the data analysis.

3. The paper *"Broken Promises and Repeated Conflicts. On the Moral Harzad Problem in Peace Agreements"* is co-authored with Tobias Korn. We have equally contributed to the research idea, the development of the theoretical model, and the data preparation. Tatiana Orozco García conducted the data analysis. Both authors contributed to writing the final manuscript.

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"The world is sufficiently complicated and uncertain place that the most valuable thing economist have to share is often not their conclusion, but the path they took to reach it - the facts they knew, the way they interpreted those facts, the deductive steps they took, the remaining sources of their uncertainty."

Abhijit V. Banerjee and Esther Duflo,
Good Economics for Hard Times: Better Answers to Our Biggest Problems

Contents

List of Tables

List of Figures

List of Acronyms

AME	Average Marginal Effect
ATP	Attitudes Toward Prisoners Scale
ATX	Attitudes Towards Ex-combatants
BDM	Becker-DeGroot-Marchak Mechanism
BIC	Bayesian Information Criterion
CAPI	Computer-assisted Personal Interviewing
CATSO	Community Attitudes Toward Sex Offenders Scale
COP	Colombian Pesos
DHS	Demographic and Health Survey
DDR	Demobilization, Disarming, and Reintegration
FARC	Revolutionary Armed Forces of Colombia
FCV	Fragility, Conflict and Violence
GLLAMM	Generalized Linear Latent and Mixed Models
IGOs	Intergovernmental Organizations
IMPACT	Implementation of Pacts Dataset
IOs	International Organizations
IVDR	Intrinsic Value of Decision Rights
MDGs	Millennium Development Goals
NIMBY	Not-in-my-backyard
ODK	Open Data Kit Collect
PA	Peace Agreement
PA-X	Peace Agreement Databse and Dataset
PDSL	Post-double-selection LASSO model
USD	US-Dollar
WTP	Willingness to Pay

Chapter 1

General Introduction

Bold steps would lead us astray. The true path to peace is different. It's winding, often hard to find, full of obstacles. Charging ahead at full speed would only take us to the wrong destination. The correct approach starts by saying "Careful, diligent steps will move us in the right direction".

Christopher Blattman,
Why We Fight: The Roots of War and The Paths To Peace

1.1. Research Objectives and Contributions

In 2011, the World Bank recognized the importance of addressing fragility, conflict, and violence (FCV) as part of its initiative to end extreme poverty (World Bank, 2011). A state, system, or community is fragile when it is vulnerable to risks and is incapable of managing, absorbing, or mitigating those risks because of inadequate coping capacities (OECD, 2020). If the state lacks basic functions such as security or service delivery, economic development is difficult. In fact, state ineffectiveness has a significant adverse effect on progress toward the Millennium Development Goals (MDGs) (Harttgen & Klasen, 2013), and it is of first-order importance in explaining the differences in the macroeconomic performance of countries in Africa (Chuku & Onye, 2019). In addition, household activities, intra-household relations, and gender roles are likely to be strongly affected by mass violent conflict and fragility (Brück & Schindler, 2008). Moreover, a lack of economic opportunities for citizens and a loss of faith in the government can increase social divisions, violence, conflict (Hoeffler, 2019), and the risk of a conflict trap (Collier & Sambanis, 2002).

The World Bank's "Strategy for Fragility, Conflict, and Violence 2020-2025" (World Bank,

2020) recognizes the need to consider additional factors, such as climate change, demographic shocks, gender inequalities, and economic and social exclusion, among others, to address the complex and interconnected nature of FCV challenges. This dissertation advances the discussion on the behavioral responses of agents in contexts of fragility, particularly in the aftermath of conflict and characterized by gender disparities.

Regarding the relationship between gender inequality and fragility, the literature has not only shown that women and girls have been significantly and differently affected by conflict and instability (McKay, 1998; Buvinic et al., 2013) but also that gender inequalities are associated with societies' risks of conflict (Caprioli, 2005; Caprioli & Boyer, 2001; Demeritt et al., 2014; Melander, 2005). Therefore, efforts have been made to increase women's participation in the economy so they can become more involved in their communities and contribute more to economic, social, and power-sharing arrangements. However, significant gaps remain in women's access to resources, job opportunities, political representation, and decision-making power, particularly in rural areas (Cornwall, 2016). A growing body of literature indicates that these challenges are exacerbated in contexts of conflict and fragility (Handrahan, 2004; Buvinic et al., 2013; Caprioli, 2000; Loudon et al., 2021; OECD, 2022). To better understand women's and men's decision-making processes, we examine individuals' preferences for decision rights in a rural context characterized by gender inequalities. Our study contributes to ongoing research on promoting gender equality to promote development and reduce conflict risk.

In the aftermath of conflict, fragility is particularly relevant as the economy and institutions have been severely damaged. Traditionally, the literature has investigated the need to promote economic recovery following a conflict (Addison & Brück, 2008; Collier et al., 2008). However, recent research has shed light on additional factors associated with conflict reversion risk (Collier et al., 2008; Rustad & Binningsbø, 2012), such as democracy, elections, and natural resources. Thereby, this thesis contributes to the literature on the transition from war to peace in various fields. First, it considers the importance of civil society for the reintegration of ex-combatants since alleviating frustration and dissatisfaction among receiving communities is necessary for post-conflict reconstruction (Walter, 2004; Verwimp et al., 2019; Blattman & Miguel, 2010; Justino, 2009; Gilligan et al., 2013). Potential discrimination against ex-combatants could jeopardize the positive impact of reintegration programs on peacebuilding. While there is a growing body of literature on discrimination against ex-combatants in post-conflict societies (Bauer et al., 2018; Osborne et al., 2018; Cárdenas et al., 2014; Unfried et al., 2022), empirical evidence does not study reintegration by supporting economic activities of ex-combatants. Second, this thesis considers the decision-making of governments and rebels after peace agreements and its implications for a stable peace. We contribute to the growing literature on the importance of implementation (Hoddie & Hartzell, 2003; A. K. Jarstad & Nilsson, 2008; Joshi & Quinn, 2017; Cederman & Vogt, 2017) of promises made in peace agreements and its implications for stable peace.

The first research objective of this thesis is to explore gender differences in how individuals value decision rights. We begin by examining whether men and women assign different

intrinsic value to decision-making. Additionally, we investigate what motivates them to retain their decision rights. To answer these questions, we conducted a lab-in-the-field experiment using charitable donations. Individuals needed to decide how much they wanted to pay to keep the decision rights over the donation. The experiment varies the control individuals can exert over the outcome of another person in the couple, either a stranger or their spouse. To our knowledge, the study presented in Chapter 2 is the first to consider household and gender dimensions in the literature on intrinsic motivations to keep decision rights. In addition, it contributes to research on household decision-making processes by considering the decisions of both wives and husbands and comparing them to decisions outside the household.

The second objective of this thesis is to investigate individuals' preferences and discriminatory behavior against ex-combatants during peacebuilding. After a conflict, physical and social capital needs to be reconstructed. However, a conflict-ridden society might be divided, and reconciliation efforts might fail. Potential discrimination against former rebels in reintegration could be a source of conflict traps. We investigate how information about ex-combatant identity affects and changes individuals' discriminatory preferences. The receiving community might discriminate against ex-combatants because of a lack of trust or distributional dilemmas when deciding whether to support them. In that regard, Chapter 3 presents the results of an online experiment that involved a real purchase decision. While previous studies have used dictator and trust games to measure discrimination against ex-combatants (Bauer et al., 2018; Osborne et al., 2018; Cárdenas et al., 2014; Unfried et al., 2022), our novel experimental design used repeated measures on the willingness to pay for a product made by an ex-combatant, allowing us to explore the heterogeneity of the discrimination. Additionally, the study shows that when given the opportunity, individuals would prefer not to know about the producer's identity, which can reduce discrimination against former combatants.

The third objective of this thesis is to examine the decision-making process of governments and rebels after a conflict has ended and its implications for sustainable peace. Following the discussion about commitment and coordination problems (Walter, 1997; Stedman, 2002; Murshed & Verwimp, 2008; Mattes & Savun, 2009), we examine how disarmament decisions made by rebels and the implementation of peace agreement promises can impact conflict reemergence. We argue that rebels and the government find themselves in a classical moral hazard dilemma, where governments would be incentivized to shrink the implementation of the promised concessions with little fear of retaliation after the rebels disarm. In addition, we analyze the role of third parties in reducing moral hazard and promoting stable peace. We propose that external incentives in the form of conditional development finance can incentivize the government to fulfill its promises and reduce the incentives for rebels to return to arms. Chapter 4 starts with a theoretical conceptualization of this moral hazard problem. We solve the theoretical model analytically and examine whether our proposed theory is observed in light of the available data. Our results support recent empirical evidence of the potential role of third-party involvement in reducing post-conflict violence

(Karreth et al., 2023).

1.2. Summary of the chapters

This dissertation presents three independent studies that examine decision-making processes within households, individuals, and state agents in fragile contexts. In the following, an outline of the studies is presented.

1.2.1. Chapter 2: *Gender and Value of Decision-making Within the House-hold: Experimental Evidence from Colombia*

This paper examines intra-household decision-making in a context characterized by gender inequality. Although individuals' ability and freedom to make decisions have been at the heart of development economics (Sen, 1999), men remain the primary decision-makers at the community and household levels in many cultures (Doepke et al., 2012; Jayachandran, 2015). Rural women, in particular, face significant challenges associated with disproportionate multidimensional poverty, structural barriers, and social norms that affect their ability to participate in household and community decision-making. The literature has identified women as more reluctant to exert agency (Afzal et al., 2022) and to make decisions driven by social pressure or active coercion (Vaz et al., 2016). Chapter 2 extends this literature and studies gender differences in intrinsic values and motivations to keep decision rights within and outside the household. We consider three motives why individuals demand decision rights: freedom, power, and non-interference. We hypothesize that individuals value decision rights beyond their instrumental benefits, but motivations for retaining agency vary between women and men. In particular, we argue that women are motivated by a preference for non-interference from another person, whereas men tend to be motivated by the possibility of having power over others' decisions. Furthermore, these preferences would increase when faced with a stranger with whom there is little conflict of interest.

We conducted a lab-in-the-field study in Colombia with 1332 people from 775 households to answer these questions. We used a between- and within-subject design in which participants decided how much to donate to the Red Cross individually and as delegates. Participants were randomly matched with their spouses or strangers. We then asked participants if they were willing to pay to keep control over the donation decision rather than accept their partner's decision. To disentangle the preferences for freedom, power, and non-interference, we ask for the willingness to pay when varying the control individuals exert over the other person's outcome.

We find support for our hypothesis that women and men have different motivations for the intrinsic value of decision rights. However, we find that while women are significantly less willing to retain decision rights than their husbands, men strongly prefer freedom, particularly when matched with their spouses. Men prefer to decide their own outcome.

The results suggest that giving women access to resources does not necessarily translate into women's agency over them. Policies that promote women's agency as a social norm are needed to complement policies on women's access to resources if the ultimate goal is to improve gender inequality.

1.2.2. Chapter 3: *Discrimination in Peacebuilding. The Role of Moral Wiggle Room*

This chapter refers to individuals' decision-making in the context of peacebuilding. On the one hand, ex-combatants' reintegration into society after conflict is proposed as an essential strategy for a stable peace, but it also poses significant challenges. Peace may be jeopardized if former combatants face discrimination. Despite the crucial role of citizens in the successful reintegration of ex-combatants, there is limited research on citizens in peace processes (Ditlmann et al., 2017). Therefore, we contribute to the relatively scarce literature on discrimination against ex-combatants in post-conflict societies (Bauer et al., 2018; Osborne et al., 2018; Cárdenas et al., 2014; Unfried et al., 2022) by using a natural setup, involving willingness to pay and a real purchase decision. Moreover, we assess discrimination against ex-combatants with a novel design using repeated measures for each individual, which recognizes the heterogeneity of these preferences.

We conducted an online experiment in Colombia, a country that signed a peace agreement in 2016 to end more than 50 years of internal conflict. We asked the participants in our experiment about their willingness to pay (WTP) for coffee produced by ex-combatants. We measure discriminatory preferences as the impact of marginal changes in the probability of receiving coffee from an ex-combatant or a farmer's cooperative on the WTP. In the second stage of the experiment, we implemented a variation of the experiment of Dana et al. (2007). We asked individuals about their WTP in a scenario where they could avoid knowing the identity of the coffee producer. When we compare the WTP before and after information treatment, we expect individuals to engage in moral wiggle room by paying a significantly different amount after avoiding the information.

According to our findings, the WTP for ex-combatants' coffee is, on average, lower than the WTP for coffee from two different farmer cooperatives in the placebo group. Moreover, participants reduce their WTP as the probability of receiving coffee from ex-combatants' cooperatives increases. Overall, participants demand a 17% discount on ex-combatants' coffee. In our analysis, we exploited the repeated measures nature of our data to classify individuals into three groups based on their responses to changes in the probability of receiving coffee from former combatants. The results indicated that 45% of the participants do not exhibit discriminatory preferences, 22% are willing to pay a premium for ex-combatants' coffee, and 33% showed negative discriminatory preferences. Moreover, we find that attitudes of distrust towards ex-combatants are correlated with negative discriminatory preferences. As for moral wiggle room, we find evidence that individuals disregard negative discriminatory preferences and avoid feeling guilty about questionable behavior. 20% of

the participants chose not to reveal the identity of the producer in order to pay more for the coffee produced by ex-combatants.

1.2.3. Chapter 4: *Broken Promises and Repeated Conflicts. On the Moral Hazard Problem in Peace Agreements.*

This chapter examines decision-making in the aftermath of conflict from a macroeconomic perspective. It is estimated that in 40% of peace agreements, peace does not last after ten years of signing (Walter, 2004; Collier et al., 2008). The literature has identified aspects, such as the number of provisions included in a peace agreement, as strong predictors of the durability of peace (Mattes & Savun, 2009; Badran, 2014). Instead, we focus on the government's implementation of a peace agreement that constitutes a separate phase of the peace process, generally occurring over several years after rebels are disarmed (Knight & Özerdem, 2004). We argue that if rebels surrender their weapons, the government has little incentive to implement costly concessions without the expectation of punishment, which could threaten stable peace. We hypothesize that third parties can reduce this classical moral hazard by further punishing the government for failing to implement the promised provisions (e.g., through sanctions or withholding development assistance) and thus reduce the likelihood of war returning.

In this chapter, we theoretically conceptualize the peace process into a three-stage game and further distinguish between implementation in autarky and implementation accompanied by an (international) third party. We solve our theoretical model analytically via backward induction and show that peace is only possible if the government implements the promises and those are big enough to cover the rebels' expected fighting utility. However, allowing a third party to play a role can increase the chances of peace. Furthermore, we empirically test our hypothesis using a sample of 51 government-rebel dyads that signed a peace agreement between 1991 and 2004. The analysis relies on the post-double-selection LASSO (PDSL) model (Belloni et al., 2014). Our results do not support the existence of moral hazard. However, our results suggest that third parties, particularly aid, can play an important role in reducing government under-implementation.

Chapter 2

Gender and Value of Decision-making Within the Household: Experimental Evidence from Colombia

2.1. Introduction

Expanding women's access to income-generating opportunities is essential for sustainable development (UN General Assembly, 2015). Research suggests that income in women's hands can positively influence human development by increasing investment in children's education and health (Quisumbing & Maluccio, 2003; Duflo & Udry, 2004; Doss, 2006; Robinson, 2012; Schultz, 2002; Rubalcava et al., 2008). Furthermore, when women have control over income, they tend to increase their food consumption, have better health outcomes (Beegle et al., 2001; Li & Wu, 2011), experience less intimate partner violence (Panda & Agarwal, 2005; Rao, 1997), and invest more in their daughters' nutritional status (Duflo, 2003). As women's opportunity cost of time increases, fertility rates tend to decrease, whereas income per capita, savings, and asset accumulation increase (Schuler & Hashemi, 1994; Dupas & Robinson, 2013). However, access to income-generating opportunities does not necessarily imply that women are empowered to influence household decisions. Social norms may suggest that men control the resources generated by women (Doepke et al., 2012; Jayachandran, 2015); in that case, a critical aspect is understanding intra-household decision-making processes.

In this study, we examine the process of intra-household decision-making and decision-making outside the household. We assess individuals' preferences over allocation decisions on a private and a public budget and investigate individuals' motivations to demand agency and contest the decision rights of the partner. We compare individuals' decisions when matched with their spouses and a stranger. Following Sen (1985), we conceptualize agency as the individual's capacity to use their voice to influence decisions. Non-cooperative models of intra-household decision-making assume that household members are independent decision-makers living side by side (Z. Chen & Woolley, 2001; J. J. Chen, 2013). However, while these models implicitly assume women's agency, this conjecture has not been tested. Alternatively, unitary and cooperative intra-household models focus on the outcomes of resource allocation rather than the decision-making process. In these models, the black box of decision-making is not addressed; instead, the allocation of rival goods is used to proxy power in decision-making (or the altruistic preferences of the benevolent dictator) (Browning & Chiappori, 1998; Chiappori, 1988, 1992, 1997; McElroy & Horney, 1981). In addition, Lundberg & Pollak (1993) argue that individuals follow social norms in gendered spheres of responsibility. Hence, they exercise agency in their relevant domains. Even so, little is known about individuals' value of agency.

Consistent with the idea that agency has both an instrumental (i.e., means to achieve some ends) and an intrinsic value (i.e., is value in its own right) (Bartling et al., 2014; Owens et al., 2014), we design an economic experiment with charitable donations that allow us to disentangle three potential motives behind the value of agency: power, freedom, and non-interference. Power - the situation in which one party has the contractual right to make decisions that influence the rewards and potential choices of another party (Aghion & Tirole, 1997; Dessein, 2002; Fehr et al., 2013; Grossman & Hart, 1986; Hart & Moore,

1990) - has been recognized as playing an essential role in economics (Marx, 1867), society (Weber, 1978), and personal relationships (Dahl, 1957). Freedom - conceptualized as the capabilities of individuals to lead the kind of lives they value - has been considered the ultimate goal of development (Sen, 1999). Finally, non-interference refers to the capacity to live outside the manipulative or distorting preferences of others (Neri & Rommeswinkel, 2014).

This study was conducted in rural Antioquia, Colombia. Rural Antioquian women tend to make decisions less individually and are more vulnerable than urban women (DANE, 2020). They have, on average, four years less education, own smaller land properties than men, and have a significant 15 percentage points gap between ownership and participation in decision-making over land. Regarding their participation in household decisions, the Colombian Time Use Survey shows that rural women tend to make fewer decisions individually than urban women (DANE, 2022b). We visited 775 households and included 1332 individuals in our experiment.

The results of our study indicate gender differences in the motivations to exert agency within the household. First, we find that agency has an intrinsic value for both men and women. Individuals are willing to buy decision rights even though the choices of the partners would lead to identical outcomes. However, we also find that men value agency significantly more when they have freedom, in comparison to non-interference, over their wives. Men are willing to pay 14% more for the possibility of deciding their outcomes rather than delegating the decision to their wives. Conversely, if women can decide for themselves and their husbands, they value agency significantly less than men. Our results are robust after controlling for altruism (i.e., the individual's donation in the first stage), risk aversion (i.e., aversion to uncertain consequences), and after considering the instrumental value of the decision right.

The current study contributes to the existing literature on intra-household decision-making. Various studies support the positive effect of programs that expand female control over income on female empowerment, proxied by increased say in economic decisions and freedom of movement (Karimli et al., 2021; Pitt et al., 2006). Evidence also points out that women are willing to incur an efficiency cost to hide income from their husbands (Castilla, 2019). We expand on the literature and focus on the demand for agency, measured as the willingness to make decisions on behalf of the husband.

We also contribute to the growing literature investigating the process of allocation of decision rights within the household (Iversen et al., 2011; Mani, 2020; Abbink et al., 2020; Almås et al., 2018). Unlike these studies, we consider the intrinsic value of decision rights. Our work is close to that of Afzal et al. (2022) and Bakhtiar et al. (2022). In particular, Afzal et al. (2022) investigate the demand for agency in Pakistan. Their findings show that agency has an instrumental value that varies with the agent's cost and anticipated instrumental benefit. However, individuals also demand agency when they know their partner has assigned them their preferred choice, suggesting an intrinsic value for agency.

Bakhtiar et al. (2022) evaluate the impact of an unconditional cash transfer (UCT) program in Nigeria on demand for agency. They find that women are more likely than men to consult their husbands, defer their decisions, and accommodate their husbands' wishes. Further, the UCT increases female agency and treated women are less likely to defer the decision, but only when this information is private. We complement this line of research by disentangling the different motivations behind demand for agency.

Finally, we contribute to the literature on intrinsic motivations to keep decision rights. Using different lab experiments, Bartling et al. (2014) and Ferreira et al. (2017) show that individuals derive utility from practicing a sense of control over their outcomes and assign a positive intrinsic value to maintain decision rights. This result is corroborated by Neri & Rommeswinkel (2014), who disentangle the preferences for autonomy, self-reliance, and power in a lab experiment as individuals' motivations to maintain decision rights.Their findings suggest a strong preference for non-interference, whereas there is no evidence for power. Similarly, Ferreira et al. (2017) find that power does not seem to be a reason for retaining decision rights but rather the will to implement a decision that results from one's rational deliberation. However, while recent studies show that individuals attempt to preserve decision rights, they do not consider how decisions are made within the household, nor do they analyze gender differences.

The rest of the paper is structured as follows. Section 2.2 presents the conceptual framework. In Section 2.3, we present the experimental design and hypothesis. Section 2.4 discusses the context of the study. Section 2.5 describes the data and presents the results. Section 2.6 presents the robustness checks. Section 2.7 discusses and concludes.

2.2. Conceptual Framework

A pair of individuals, i and j, share an endowment Y and own a private endowment y_k for $k = \{i, j\}$. A share of the joint endowment can be donated to a third party, g_k, or kept by the pair.

Once that j has taken a donation decision, g_j, i needs to decide whether to accept the allocation decision of the delegate (d) or buy (b) the decision right from j.

Assuming that individual i is purely altruistic and values the utility that the third party receives from the donation, her utility V_d of delegating the decision to j is:

$$V_d = U(Y + y_i - g_j) + \lambda(g_j) \tag{2.1}$$

Where the utility function of private consumption U and the utility function of the donation λ are concave functions.

If, on the contrary, the individual i decides to buy the decision right, she decides on the value she is willing to pay, wtp_i, to overrule j's allocation. The willingness to pay, wtp_i,

determines the probability p that the decision right ends up being bought. We assume that the probability of becoming decisive, p, increases linearly with wtp_i. Let g_i be the value that individual i donates when overruling $j's$ allocation. Besides, we consider that individuals derive an intrinsic value, a_i, from decision rights. Overall, we can view a_i as the intrinsic utility an individual enjoys from exerting agency and deciding freely and without interference on the preferable allocation. Alternatively, the parameter a_i can also reflect the warm glow of giving. If individual i overrules j's allocation, the expected utility of exerting agency, V_b, is given by the expected utility of actually becoming a delegate:

$$V_b = p(wtp_i)[U(Y + y_i - g_i - wtp_i) + \lambda(g_i) + a_i] + (1 - p(wtp))[U(Y + y_i - g_j) + \lambda(g_j)] \quad (2.2)$$

With a probability $p(wtp)$, the individual i becomes the delegate and implements her preferred donation g_i, but overall reduces the income available for private consumption in wtp_i. With probability $(1 - p)$, she does not become the delegate, and decisions are implemented according to the preferences of j.

The individual i buys the decision right from j if the expected utility of buying is greater than the utility of delegating. That is, $\Delta V = V_b - V_d > 0$. ΔV can be simplified as follows:

$$\Delta V = p[U(Y + yi - g_i - wtp_i) - U(Y + y_i - g_j) + \lambda(g_i) - \lambda(g_j) + a_i] \quad (2.3)$$

When the individual decides whether to buy the decision right or not ($wtp = 0$), at the margin, when the donation allocation of i is greater than j's (that is, $g_i > g_j$), the desire to buy the decision right increases in the degree of altruism λ. When $g_i < g_j$, individuals who care about their consumption would like to buy the decision right if the net marginal utility of consumption and donating are equal. Lastly, if $g_i = g_j$, on the margin, when individuals decide to increase the probability of becoming decisive, only those with $a > 0$ would be willing to pay to buy the decision right since $\Delta U < 0$.

Conditional on wanting to buy the decision right, the individual maximizes the expected utility of buying, $E[V_b]$, by deciding on the amount she is willing to pay, wtp. The formal solution to this optimization problem is presented in Appendix 2.A.1.

The first-order condition for an interior solution requires that:

$$p'[U(g_j - g_i - wtp_i) + \lambda(g_i - g_j) + a_i)] = p[U'(g_j - gi - wtp_i)] \quad (2.4)$$

When an individual wants to buy the decision right, the amount paid to keep the decision right increases in the intrinsic value a. The effect of a marginal increase in donations g_i and g_j cannot be determined. Therefore, the willingness to pay wtp_i in the case $g_i = g_j$, corresponds to the individual's intrinsic value of decision-making.

In the next section, we explain the experimental design, which uses different levels of how much the individual can affect the payoff of the other person to quantify the different motivations for the intrinsic value a_i.

2.3. Experimental Design & Hypothesis

2.3.1. Experimental Design

We implement an experiment that allows between- and within-subject comparisons to measure the intrinsic value of decision-making placed by women and men within and outside the household, and as their preferences for the motivations that drive them to retain decision rights. In a two-stage experiment, we elicit participants' preferences for a charitable donation and their willingness to pay to retain the right to make that decision. After the experiment, we conduct a post-experimental survey to gather information about participants' risk preferences, the importance they place on the donation, their views on decision-making within the household, their intention to spend the outcome of the experiment, and their beliefs about their partner's individual and joint donation decisions. The structure of the experiment is shown in Figure 2.1.
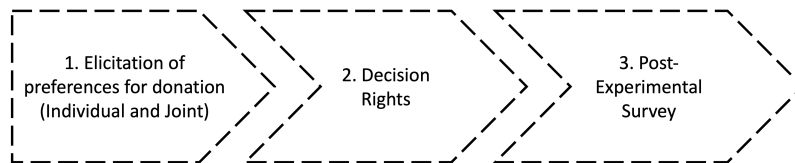
Figure 2.1: Structure of the experiment

First Stage: Elicitation of donation preferences

In the first stage of the experiment, we elicit participants' preferences for making a charitable donation to the Red Cross in Colombia through two separate tasks: an individual income donation task and a joint income donation task. In the individual task, participants are asked to decide whether to donate and, if so, how much to donate from a low budget of 20,000 COP (4 USD) and a high budget of 40,000 COP (8 USD). This allows us to assess the individual's level of altruism. In the joint donation task, the participants are randomly paired with a stranger or their spouse. As the representative of the couple, participants are asked to decide whether each member would donate 0 or 4,000 COP (0.80 USD) out of the low budget.[1]

Second Stage: Decision Rights

In the second stage of the experiment, we elicit participants' willingness to retain their

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[1]Note that in the experiment, a stranger partner could be another woman or another man, but randomization into the two groups was not balanced, with only 173 individuals paired with another man. Figure 2.A1 in the appendix shows no statistically significant difference in behavior regarding the willingness to retain the decision right when comparing participants assigned to a stranger woman and a stranger man. As a result, we have combined this group and referred to this partner as a stranger.

decision rights over the donation. After revealing their preferred donations in the first stage, participants are unexpectedly informed that the other person in the couple is now the delegate. This means that participants can either donate according to the preferences of the other person (0 or 4,000 COP) or pay to become the delegate and retain decision-making rights over the donation, which would allow them to donate according to their own preferences. We use the strategy method to ask participants for their willingness to pay to keep decision rights in two situations:(a) if the other person's donation is the same as their own, and (b) when the other person's donation is different. Participants can pay between 0 and 5,000 COP (1 USD) in increments of 1,000 COP to keep the decision rights.

To determine whether decision rights will be purchased, we use the Becker-DeGroot-Marschak (BDM) incentive-compatible mechanism (G. M. Becker et al., 1964). Participants are informed that their stated WTP will be compared with a value between 0 and 5,000 COP randomly selected by a computer. The participant will only retain the decision rights for the pair if they submit a value equal to or higher than the one randomly selected by the computer after expressing wanting to buy the decision right.

At the end of the experiment, one of the decisions made by the participants was randomly selected for payment, and the participants were informed of this process in advance. To avoid post-experimental effects and potential conflict between partners, we added one condition in which the allocated income could be zero. Hence, individuals could not known whether an unfavorable outcome was due to luck or the partner decision.As a result, the final payment amount could vary between couples and may not necessarily reflect the outcomes of their decisions. Instead, this may be due to chance. Furthermore, the participants did not know that their decision was actually implemented because the final decision maker was only selected a couple of days after the completion of the experiment when establishing the payments and the final donation. We were careful to explain both the procedure and the potential outcomes of the experiment to reduce any potential conflicts when the couples receive different payments.

Treatments

The decision rights stage is made under three treatments within subjects that vary in the degree of control individuals exert on others' payoff. This allows us to identify the role of preferences for non-interference, freedom, and power in retaining decision rights. Subjects responded to all three treatments presented in random order. The comprehension of the task does not systematically vary between treatment groups but may not have allowed participants to identify differences when explanations were presented.[2] Our results consider a between-subjects analysis in which we account for response bias by considering only the first treatment presented to an individual. Table 2.1 presents the description of the treatments with the number of participants per treatment.

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[2]Figure 2.A2 in the appendix shows the distribution of the WTP when considering all three treatments for each individual.

Table 2.1: Treatments description

Treatment	Donation Decision	Motivation			Obs
		Non-Interference	Freedom	Power	
T1	Donation is a fixed amount selected exogenously	✓			473
T2	Donation according to own preferences	✓	✓		391
T3	Donation decision for the couple	✓	✓	✓	468

In the first treatment (T1), purchasing the decision right implies **non-interference** from any other participant in the donation decision or the outcome of the individual. In this case, participants are told that buying the decision right results in both individuals donating a fixed amount equal to 4,000 COP determined endogenously. The non-interference motivation captures how much an individual is interested in avoiding the other person's influence on his/her outcome.

Treatment two (T2) implies that buying the decision right allows the participant to determine her/his own payment. The new decision-makers would donate according to their preferences, as expressed in task two of the first stage. In this case, the other person in the couple would donate a fixed amount chosen endogenously. Therefore, the participant enjoys **freedom** in addition to **non-interference** of the other person in the couple. T2 captures additional individual preferences to determine their outcome.

Finally, in treatment three (T3), buying the decision rights means that the individual makes the donation decision for the couple. If the decision right is bought, the participant donates according to her preference, avoiding her outcome being influenced by the other person and also influencing the payment of the other. Therefore, in this procedure, the new decisive player exerts **power** over the other person, in addition to enjoying **freedom** and **non-interference**. T3 measures an additional preference to influence the outcome of the other person.

2.3.2. Hypothesis

Recent studies in behavioral economics have argued that individuals value decision rights beyond their instrumental benefits (Bartling et al., 2014; Owens et al., 2014). Agents are willing to sacrifice some of their earnings to retain authority, which suggests a preference for decision rights (Fehr et al., 2013). We expect individuals' WTP to keep the decision rights to be positive even when donations of the other person are the same as their donation.

Hypothesis 1. *Individuals' WTP is larger than zero, even when donations of the other person are the same as their own. That is, decision rights have an intrinsic value.*

Different factors have been related to why people value decisions beyond their instrumental benefits. From a psychological perspective, human needs such as power (McClelland, 1975) or autonomy (Deci & Ryan, 1985) could constitute the source of intrinsic value. From an economic perspective, recent research has investigated motivations for maintaining decision

rights. Neri & Rommeswinkel (2014), for example, investigate whether individuals could be motivated by the utility obtained as a consequence of one's actions (freedom), someone else's actions (power), or not the consequence of a choice at all (Non-Interference). The authors find evidence that individuals in the lab prefer non-interference over freedom, meaning that individuals dislike other individuals interfering with their outcomes. Similarly, Ferreira et al. (2017) study the rationale behind the intrinsic value of decision-making in a laboratory experiment. The authors used the preference for independence from others, the desire for power, and the preference for self-resilience in a cross-cultural analysis by comparing French and Japanese students. They find that individuals express a clear desire to implement their decision, and the French assign an even higher value than Japanese students. Regarding motivations, the authors find that both cultures are motivated by self-resilience, the will to implement a decision that results from one's rational deliberation.

The literature on gender differences in decision-making provides valuable information for analyzing of motivations to retain decision rights. Despite the lack of research specifically focusing on the gender dimension of this topic, previous studies have highlighted disparities in how men and women perceive their decision-making processes. For example, S. Becker et al. (2006) found that in Guatemala, women tend to underestimate their power to influence decisions at home relative to their husbands. Similarly, Acosta et al. (2020) conclude that in northern Uganda, men are more likely to report sole male decision-making, whereas women are more likely to report joint decision-making or sole female decision-making. Furthermore, research by Anderson et al. (2017) in rural Tanzania and Ghuman et al. (2006) in five South Asian countries revealed that husbands tend to attribute more decision-making authority to their wives than they do to themselves. These findings underscore the importance of considering the gender dimension in studying of motivations for retaining decision rights. Based on this empirical evidence, we derive the second hypothesis:

Hypothesis 2. *The motivations for retaining decision rights vary between women and men, with women being more motivated by intrinsic values such as non-interference and men being more motivated by intrinsic values related to power.*

In addition, the fact that decisions are intrinsically valuable is expected to be highly situation-dependent and affected by the stake size of the decision and the conflict of interest between the agents involved. Bartling et al. (2014) show that decision rights are valued about twice as high in high-stakes games. Therefore, the intrinsic value of decision rights is not simply a small fixed value but is actually scaled with the stakes involved in the decision. Furthermore, the lower the conflict of interest between the principal and the agent, the higher the intrinsic value of decision rights. We expect the intrinsic value to be higher when the other person in the couple is unknown.

Hypothesis 3. *The intrinsic value of retaining decision rights is higher when matched with a stranger than with the spouse.*

2.3.3. Experimental Procedure

Data collection took place between November 2021 and February 2022 using Open Data Kit Collect (ODK). ODK is a computer-assisted personal interviewing (CAPI) tool that allows participants to submit their answers directly to data storage units, thus reducing the risk of revealing the decisions made to enumerators or their partners (Hartung et al., 2010). To ensure that participants could self-administer the survey, a tablet and headphones were provided to each individual, which allowed them to read and listen to part of the instructions.

The sample was selected using a two-step procedure. First, a representative sample of 22 municipalities in Antioquia were drawn. Within these municipalities, community leaders provided a complete list of couples in the villages. All couples had to meet the following three demographic criteria to participate in the study: (i) both individuals had to be at least 18 years old; (ii) they had to reside in one of the 22 selected municipalities; and (iii) both husband and wife had to be present on the day of the survey. A map showing the location of the municipalities is provided in the appendix (see Figure 2.A3).

The enumerators made appointments with the couples to participate in the study and offered a 10,000 COP participation fee (approximately 2 USD). Due to the remote locations of the sampled municipalities and the division of labor in rural households, scheduling appointments convenient for both members of the couple was a logistical challenge. Most interviews were conducted after multiple visits, either early morning or evening. Although 215 individuals (representing 16.08% of the sample) could not be interviewed with both spouses present, their responses were still included in the analysis. The analysis excluding individuals whose partner was absent does not change the main results.[3]

During the appointment, the enumerators brought the necessary equipment, explained the rules and procedures, and collected sociodemographic characteristics and general household information at the beginning of the interview. Each individual completed the experiment separately, without the possibility of communicating, to ensure that the participants answered the experiment independently and without communicating with each other. Further details on the procedure can be found in the Appendix (Section 2.A.3).

2.4. Context

Women play an important role in the livelihood and well-being of rural communities. Increasingly, they are part of the formal and informal labor force (ILO, 2018; ILO, 2019) and are responsible for most of the household's unpaid care and domestic work (Jayachandran, 2015). However, rural women also face significant challenges associated with disproportionately multidimensional poverty, structural barriers, and social norms that affect their ability to participate in household and community decision-making. On the one hand, access to

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[3]See Table 2.A3 in the appendix.

land and resources is limited for women in many countries, reducing their ability to obtain economic autonomy (DANE, 2022a; Guereña, 2017; IGAC, 2012). On the other hand, most of the work they do remains hidden and with little or no pay (Jayachandran, 2015), making them more vulnerable to poverty and food insecurity (Gobernación de Antioquia, 2016).

The setting for this study is rural Antioquia, Colombia, which is the department with the largest rural population in the country.[4] It is located northwest of the heart of the Andes region. Rural economic activity in Antioquia is based on coffee production, livestock, and mining. Unlike the urban demographic composition, census data show that women are a minority, 48.16% versus approximately 52% of men (DANE, 2020). Additionally, rural communities are primarily young, as evidenced by the fact that 37.5% of women and 37.2% of men are under 20 years old. Furthermore, the historical Colombian armed conflict has disproportionately affected women in rural areas. According to Gobernación de Antioquia (2016), in Antioquia, as of 2016, crimes against freedom and sexual integrity were committed against women at a rate 13 times higher than that of men.

Concerning to education and labor participation, there are significant gender gaps. The average number of years of schooling for women in rural Antioquia is 6.3 years, equivalent to the sixth year of high school.[5] 24% of the women between 6 and 21 years of age expressed that they had to do household chores as the main reason for not attending school. Women in this area have significantly lower employment rates (29%) than men and women in rural areas, 67% and 41%, respectively. Only 28% of rural women reported receiving a salary, compared to 63% of men.

In addition, women in rural areas face many challenges that prevent them from having equitable access to and control over land and productive resources. Rural women own smaller production units than men. On average, women own the smallest properties with common use (DANE, 2022a). 60% of the production units where women make decisions are 3 hectares (ha) or less compared to 46% of the production units of men. These gender gaps widen when measuring the quality of production of these properties. Women work on self-consumption tasks in their production units. These activities are generally characterized by low productivity, mainly due to input use and access differences, smaller benefits, and little pay. Lastly, women's access to land and decision-making over it show significant gender bias. Approximately half of Antioquia's landowners are male only, compared to a fifth owned by female owners, and there is a 15% gap between the percentage of female owners and their participation in decision-making (DANE, 2022a).

Within households, the decision-making process of rural couples also shows signs of inequality. Rural women report making fewer decisions individually than rural men and urban women (DANE, 2022b). For example, while 53% of women in rural areas express that they have chosen individually to have a salaried job, urban women make this decision at a rate of 60%.

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[4]According to the National Administrative Department of Statistics, rural Antioquia amounts to 11.83% of the total rural population (DANE, 2018).

[5]In contrast, urban women in Antioquia have almost 10 completed years of education, according to DANE (2020).

Finally, while 12% of men in rural areas plan or make individual financial investments, only 7.7% of men in urban areas do so.

2.5.   Data & Results

2.5.1. Sample Characteristics

The sample consists of 1332 individuals living in 775 households. The basic characteristics of the households are presented in Panel A of Table 2.2. Our participants were 51% females, with an average household size of 3.7 individuals and an average of 1.4 children per household. Participants belong to low-income households, reporting a subjective economic status of 2.3 on a scale of one to six, where six represents the richest and one represents the poorest.[6] Additionally, the subjective economic status is positively correlated with the wealth index (Pearson correlation p-value=0.0001) which was calculated using principal component analysis (PCA) following the construction of the wealth index of the Demographic and Health Survey (DHS Survey) (Rustein & Johnson, 2004). The wealth index is based on 11 variables related to the characteristics of the house and the assets that the households reported having.[7]

Panel B of Table 2.2 presents the socioeconomic characteristics of the individuals in our sample by gender. Significant imbalances between male and female respondents in the sample are revealed in Column 5 of the table, which displays the p-values of an independent group t-test. On average, respondents are 44 years old, with men being four years older than women. This difference is statistically significant at the 1% level. It is also shown that 92% of the men declared themselves to be the head of the household compared to only 5% of the women. There are also significant differences between men and women regarding their highest levels of education. 9% of the sample reported having no education or only preschool education. However, the proportion of men without education was twice as high as that of women (12.7% versus 6%). Most of the sample (49%) had completed elementary school, with 53% of men and 44% of women in this category. In contrast, more women than men completed middle school, high school, and some form of higher education. These differences are 3.4 percentage points (17.7% versus 13.9%), 8.4 percentage points (24.6% versus 16.1%), and 4.2 percentage points (7.0% vs. 2.9%), respectively. At all education levels, the gaps between men and women are statistically significant (p-value < 0.1), except for preschool education. Regarding economic activity, 44% of the sample reported doing house chores, with 83% of women and only 3% of men in charge of this activity. Male participants were 15.5 percentage points more likely to have a formal contract and reported

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[6]Low income refers to households belonging to the first two economic strata in Colombia. Traditionally, in Colombia, residents of higher strata (5 and 6) pay more for utilities that subsidize the first three strata. This scale is widely recognized.

[7]The 11 variables used to construct the wealth index include the presence of the following items in the household: a television, a refrigerator, a washing machine, a microwave, a cellphone, a computer, drinking water, electric power, internet connection, satellite connection, and the main material used for the floor of the house.

Table 2.2: Descriptive statistics

Panel A: Household Characteristics

	(1) Mean	(2) S.D.	(3) Skewness
Women	0.514	0.499	-0.057
Number of Children	1.407	1.178	0.782
Household size	3.675	1.328	0.786
Subjective economic status	2.332	0.917	0.489
Wealth Index	-0.008	1.455	0.610
Total Number of Households	775		

Panel B: Socioeconomic Characteristics by Gender

	(1) Full Sample	(2) Men	(3) Women	(4) Diff. in means	(5) p-value
Age	44.138	46.301	42.095	4.2064	0.000
Married	0.544	0.539	0.548	-0.009	0.728
HH Head	0.473	0.923	0.048	0.874	0.000
Highest Education Level					
None	0.092	0.127	0.060	0.066	0.000
Preschool	0.006	0.008	0.004	0.003	0.432
Elementary-School	0.487	0.535	0.442	0.092	0.000
Middle-School	0.160	0.139	0.177	-0.038	0.058
High-School	0.205	0.162	0.246	-0.084	0.000
Higher-Education	0.050	0.029	0.070	-0.041	0.000
Economic Activity					
Household Chores	0.439	0.028	0.827	-0.799	0.000
Formal contract	0.115	0.196	0.041	0.154	0.000
Working Paid Hours (per week)	42.317	45.374	39.528	5.846	0.000
Observations	1332	647	685		

Notes: Columns (1), (2), and (3) refer to the group means. The p-value refers to the p-value from an independent group t-test. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

five more hours of paid work than women. All three differences are statistically significant (p-value < 0.01).

In Table 2.A1 in the appendix, we provide summary statistics and balance tests for the sample with respect to the type of partner with which individuals are randomly paired (either their spouses or a stranger). As noted above, the differences between types of partners are small in magnitude and mostly statistically insignificant. There are two notable exceptions: participants assigned to their spouse are older than those assigned to a stranger (p-value=0.075) and have fewer formal contracts (p-value=0.014). In addition, in Table 2.A2 in the appendix, we provide the summary statistics of the participants in each treatment and the orthogonality test to show that the groups are balanced in all characteristics except the level of education. We control for education in our analysis.

2.5.2. Willingness to Keep Decision Rights

We use the willingness to maintain decision rights as revealed in the second stage of the experiment. If the participant decides not to buy the decision right (i.e., WTB=0), s/he accepts donating what the other person, as the delegate of the couple, has decided. If the participant decides to buy the decision right, the higher the WTP, the higher the probability that the participant will become the decision-maker. We begin by pooling the data over

all treatments and all individuals' decisions. Figure 2.A4 in the appendix presents the distribution of individuals' willingness to keep the decision by gender. Overall, 54% of the participants in our sample do not want to buy the decision right. Furthermore, significantly more men than women are willing to buy the decision rights. Employing a two-sample Mann-Whitney rank-sum test confirms the graphical inspection (p-value=0.093).

Next, we pool the data over all treatments and separate them into two scenarios: (1) when the two people in the couple donate the same amount and (2) when the donations are different. Figure 2.2 presents the mean unconditional WTP for becoming the new decision maker for the whole sample, separated by women and men. Overall, individuals were willing to pay 1.93 units to keep the decision right. The bar graph indicates that individuals were willing to pay more in the scenario of different donations compared to the same donation scenario. Using a two-sample Mann-Whitney rank-sum test, we find that this difference is significant at the five percent level (p-value=0.045). Most importantly, the WTP is significantly greater than zero in both scenarios (two-sided t-test p-value=0.0001). This result suggests that individuals assign a positive intrinsic value to the possibility of keeping agency over the donation decision in the couple, even when this implies sacrificing part of their budget.
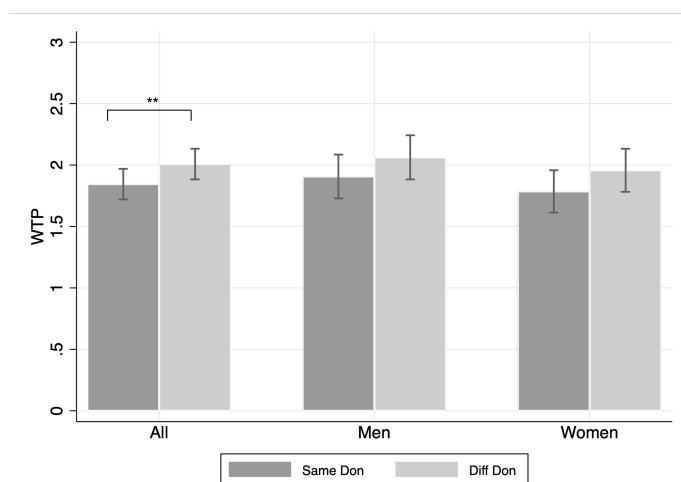
Figure 2.2: Willingness to pay to become the decision maker. Notes: This graph shows the average unconditional WTP individuals would be willing to pay to become the decision maker. The WTP is a discrete variable that ranges from 0 to 6. A WTP equal to zero represents when the participants' WTB the decision right was zero. The graph displays confidence intervals of 95%. *p<0.10, **p<0.05, ***p<0.01

To analyze gender differences in WTP, Figure 2.2 presents the averages for women and men in our sample. As stated in Section 2.2, we use the WTP expressed where donations are equal to measure the intrinsic value of decision rights (IVDR). Thus, considering only this case, the IVDR is, on average, 1.84 units. We do not find a statistically significant difference between genders (two-sample Wilcoxon rank-sum test p-value = 0.29).

Result 1. *Individuals assign a positive intrinsic value to retain decision rights; therefore, our results support Hypothesis 1.*

2.5.3. Motivations to Keep Decision Rights

We now analyze the gender differential effect of motivations to keep decision rights. The choice to keep the decision right is the result of a sequential process: first, to buy or not the decision right; and second, the amount the individual is willing to pay for it, conditional on wanting to buy the decision right in the first place. Therefore, we use a double-hurdle model that explicitly models the WTB in the first hurdle (the extensive margin) and the WTP to keep the decision right in the second hurdle (the intensive margin) (Cragg, 1971). The hurdle model is our preferred econometric specification for two main reasons. First, we have a high percentage of zeros. They do not represent unobserved outcomes but rather a preference of individuals not to buy the decision right (i.e., WTB = 0) or pay zero to buy the decision right (i.e., WTP = 0). In a double-hurdle model, two separate stochastic processes determine the discrete and continuous choices. Second, it can also be shown that double hurdle models provide consistent and asymptotically efficient coefficients for the parameter of interest (Burke, 2019).

Based on the conceptual framework presented in Section 2.2, our measure of the IVDR corresponds to the willingness to pay to keep decision rights when donations from both individuals in the couple are the same. Therefore, we use this scenario to study the intrinsic motivations for maintaining decision rights and estimate the following regression:

$$Y_{it} = \sum_{k=1}^{3} \beta_k T_{tk} \times Female_i + \sum_{k=1}^{3} \alpha_k T_k + \delta Female_i + \sigma X + \gamma_i + \upsilon_{it} \qquad (2.5)$$

Equation 2.5 represents the double-hurdle model to assess motivations to exert agency in terms of both the propensity to buy the decision right and the willingness to pay to keep the decision right. Y_{it} indicates either the willingness to buy the decision right (WTB) in the first hurdle or the willingness to pay (WTP) in the outcome model. WTB is a binary variable equal to one if individual i decides to buy the decision right and zero otherwise. $Female_i$ is equal to 1 if the participant is a woman. T_{ik} represents treatment, equal to one if decision t corresponds to treatment k and zero if it describes any other treatment. X is a vector of individual-level and household controls, and ϵ_i is the error term. We also include municipalities' fixed effects, γ_i.[8] The second hurdle is estimated by fitting a truncated regression model for the amount the participant is willing to pay. WTP is only observed if $WTB = 1$. WTP is a discrete variable between 0 and 6, which describes the amount the individual i is willing to spend to keep the decision right. We use T1 as the baseline treatment since it only measures individuals' preferences for non-interference. We estimate the individuals' preferences for freedom and power by comparing T2 and T3 to

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[8]Individual-level controls include: the age of the participant in years, household head equal to 1 if the participant is the household head, education equal to 1 if the participant has completed higher education or more, the number of hours worked per week, wealth index: an indicator of the wealth level of the household and the number of Adults in the household.

the baseline treatment, respectively. Finally, we estimate the differential treatment effects for women and men, considering the partners with whom they were matched. We estimate the regression above separately for participants matched with their spouses and strangers.

We begin by focusing on the first hurdle decision, which analyses whether to buy the decision right. The estimated coefficients and the average marginal effect (AME) are presented in Table 2.3. Column 1 shows the results of gender differential effects on the motivations to retain decision rights. Columns 2 and 3 present the results of the differential estimation by the partner with whom the participant was randomly matched. Compared to men, we find that women in T1 are nine percentage points less likely to be willing to buy the decision right from the other person (p-value<0.1). We find no differences between women and men when comparing their preferences in T2 and T3 with respect to the baseline. Regarding partners, on average, women are 20 percentage points less likely than men to be willing to buy the decision right when matched with a stranger in all treatments (see Column 3). Finally, we find that men are not more likely to buy the decision right among the treatments from any partner.

Table 2.3: Intrinsic value motivations to keep decision rights (First hurdle)

	(1)			(2)			(3)		
	All			Spouse			Stranger		
	Coeff	SE	AME	Coeff	SE	AME	Coeff	SE	AME
Women	-0.308*	(0.053)	-0.089	-0.038	(0.263)	0.039	-0.621**	(0.259)	-0.215
T2	-0.080	(0.127)	-0.029	-0.018	(0.184)	-0.006	-0.078	(0.185)	-0.027
T3	-0.084	(0.123)	-0.031	-0.065	(0.178)	-0.024	-0.110	(0.180)	-0.037
T2 x Women	0.128	(0.179)	0.017	0.173	(0.263)	0.057	-0.015	(0.257)	-0.029
T3 x Women	0.072	(0.171)	-0.004	0.255	(0.250)	0.077	-0.082	(0.246)	-0.059
Constant	1.381***	(0.436)		1.070	(0.674)		1.747***	(0.611)	
Women vs. Men (T2)	-0.179	(0.182)		0.136	(0.266)		-0.637**	(0.271)	
Women vs. Men (T3)	-0.236	(0.179)		0.217	(0.264)		-0.703***	(0.263)	
Observations	1332			644			688		

Notes: This table shows the results of the estimation of the first hurdle decision on whether or not to buy the decision right, the extensive margin. AME: Average marginal effects. Control variables consist of a vector of individual and household characteristics: Age refers to the age of the participant in years; Household head is equal to 1 if the participant is the household head; Higher Education is equal to 1 if the participant has completed higher education or more; the number of hours worked per week; Wealth Index is an indicator of the wealth level of the household; Number of Adults in the household. All regressions include municipality fixed-effects. Robust Standard Errors in Parenthesis. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

Next, we analyze the second hurdle decision regarding the WTP to keep the decision rights. Table 2.4 shows the estimated coefficients and the AME. Column 1 shows that men are willing to pay significantly more in T2 and T3 compared to the baseline. A test of coefficients between T2 and T3 leads us to conclude that the intrinsic value of men is driven by freedom (p-value=0.6258), as they are willing to pay 0.4 units more for additional freedom in T2 compared to the baseline (p-value<0.1). This translates into an intrinsic value that is 9% higher for being able to decide on their own rather than letting the other person decide. Additionally, we find that women do not express a difference in

their motivations to retain decision rights. Interestingly, as shown in Column 2, we find that men's preference for freedom is driven by men willing to pay, on average, 0.6 units more for additional freedom in T2 compared to baseline when paired with their spouses. This translates into an intrinsic value of 14% higher for being able to decide on their own rather than let their wives decide for them.[9] Lastly, we find that women's intrinsic value in T3 is 15% lower than that of men when matched with their spouses. Women are willing to pay less to decide on their own and on behalf of their husbands.

Table 2.4: Intrinsic value motivations to keep decision rights (Second hurdle)

| | (1) | | | (2) | | | (3) | | |
| | All | | | Spouse | | | Stranger | | |
	Coeff	SE	AME	Coeff	SE	AME	Coeff	SE	AME
Women	0.337	(0.296)	-0.054	-0.052	(0.438)	-0.463	0.444	(0.411)	0.184
T2	0.360*	(0.217)	0.360	0.566*	(0.306)	0.566	0.055	(0.321)	0.055
T3	0.468**	(0.208)	0.468	0.615**	(0.290)	0.615	0.197	(0.297)	0.197
T2 x Women	-0.535*	(0.312)	-0.174	-0.531	(0.451)	0.034	-0.338	(0.447)	-0.28
T3 x Women	-0.683**	(0.298)	-0.215	-0.675	(0.429)	-0.061	-0.526	(0.422)	-0.329
Constant	3.959***	(0.667)		4.080***	(1.068)		3.961***	(0.879)	
Women vs. Men (T2)	-0.197	(0.309)		-0.583	(0.442)		0.106	(0.437)	
Women vs. Men (T3)	-0.346	(0.300)		-0.727*	(0.431)		-0.082	(0.437)	
Observations	1332			644			688		

Notes: This Table shows the results of the estimation of the second hurdle decision regarding the WTP to keep decision rights, the intensive margin. AME: Average marginal effects. Control variables consist of a vector of individual and household characteristics: Age refers to the age of the participant in years; Household head is equal to 1 if the participant is the household head; Higher Education is equal to 1 if the participant has completed higher education or more; the number of hours worked per week; Wealth Index is an indicator of the wealth level of the household; Number of Adults in the household. All regressions include municipality fixed-effects. Robust Standard Errors in Parenthesis. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

The analysis above reveals that men expressed a preference for freedom in their willingness to retain decision rights; they are motivated by the possibility of donating according to their preferences. Conversely, women revealed they want less than men to exercise decision rights outside or within their homes.

Result 2. *Men are willing to pay more to retain their decision rights motivated by freedom in addition to non-interference. The women's intrinsic value of decision rights does not correlate with a particular motivation. Therefore, our results reject Hypothesis 2.*

Result 3. *Men are more willing to retain decision rights, motivated by freedom when facing their spouses. Women express a lower intrinsic value than their husbands when having the possibility of deciding on their own and on their behalf. Our results do not support Hypothesis 3.*

2.6. Robustness Checks

The following section provides robustness checks of the previous results. First, we address potential concerns with our main analysis by examining the donation decisions made in the

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[9]Test of coefficients between T2 and T3 p-value=0.8731.

first stage of the experiment. The results may be driven by the individual's importance of the donation rather than the pure utility derived from being the one making the donation decision. If participants express significantly high levels of altruism toward donation, they would have no reason to be willing to pay significantly different values among treatments to retain the decision right. However, they would still be willing to pay significantly more to be the decision-maker. To address this concern, we first examine the individual donations made in the first stage of the experiment. Figure 2.A5 in the appendix shows the interquartile range of individual donations from women and men as proportions of low and high budgets. On average, individuals donate approximately 35 % of their endowment when receiving a low budget and only approximately 29 % of their endowment when receiving a high endowment (mean comparison test, p-value = 0.000). This difference is also found within women and men.

Regarding the joint budget, participants had to decide whether to donate 0 or 4,000 COP to the Red Cross once they were paired with their spouse or a stranger. We found no differences in the proportion of participants who decided to donate between partner treatments, spouses, or strangers; approximately 94 % of our sample decided to donate to the Red Cross. However, the gender differences were statistically significant, with 95 % of women and 93 % of men deciding to donate (test of proportions, p-value < 0.001). Participants rated the importance of the donation at 4.40 on a scale from 1 to 5, and there were no gender differences. To control for the additional effect of altruism and the importance of donations, we include the individual donation for the low endowment in the first stage of the experiment as a further control in our estimations. The results are presented in Table 2.A4 in the appendix. Individual donation in the first stage of the experiment is positively and statistically correlated with the WTP; however, the main results remain unchanged.

Second, we examine whether individual behavior is affected by risk aversion. It might be that if individuals have an aversion to options with uncertain consequences, this will lead risk-averse participants to be willing to pay more to keep decision rights since this will increase the probability of becoming the delegate of the couple and reduce the uncertainty regarding the donation and, ultimately their outcome. Risk aversion was measured in the post-experimental survey following Cardenas & Carpenter (2013). Participants were shown a ring of six possible binary lotteries and were asked to pick one to play with. Lotteries were numbered clockwise from one to six in order of increasing riskiness; the average choice in the sample is 3.5, indicating that participants are rather risk-neutral. To account for the potential effect of risk aversion, we include the risk-choice lottery as an additional control in our estimations. The results are presented in Table 2.A5 in the appendix. Surprisingly, risk lovers are more likely to be willing to buy the decision rights, particularly when facing a stranger. However, the chosen lottery is not significantly correlated with the amount that participants were willing to pay. Our main results remain.

Finally, we examine potential concerns regarding the appropriateness of our intrinsic value measure. In Section 2.2, we argue that the WTP of individuals when donations from the

two subjects within a matched pair are the same represents the intrinsic value to keep decision rights. Conversely, the case where the donations of the two matched participants are different represents a combination of the instrumental and intrinsic values of decision rights. Therefore, we repeat our entire analysis for the case in which the donation of the other person was different. We expect the coefficients to be higher and to remain statistically significant in this estimation. The results are presented in Table 2.A6 in the appendix. The results regarding the first hurdle in the WTB the decision rights remain. Women are significantly less likely to be willing to buy the decision right in T1 than men, particularly when matched with a stranger. Regarding WTP, the magnitude of the coefficients for men's motivations are, as expected, higher, leading to the same conclusion. Men are willing to pay significantly more for additional freedom compared to the baseline when matched with their spouses. Additionally, we find that women's intrinsic value, in comparison to men, in T2 is lower and statistically significant. Since the majority of our participants wanted to donate, this difference in donation means that the other person is not donating; in that case, women will let their husbands decide in order not to donate.

2.7. Discussion and Conclusion

Economists and policymakers have recognized the importance of increasing women's participation in the economy so they can get involved in their communities and contribute more to economic, social, and power-sharing arrangements. However, significant gaps remain in women's access to resources, job opportunities, political representation, and decision-making power, particularly in rural areas (Cornwall, 2016). Men continue to be the primary decision-makers at the household and community levels. Therefore, it is necessary to understand the intra-household decision-making process and what motivates women and men to keep their decision rights. In this study, we measure the intrinsic value of retaining individual decision rights and how motivations to exert agency differ between women and men, both within and outside the household. We conducted our study in rural Antioquia, Colombia, a context characterized by women's unequal access to economic resources and decision-making.

We use a two-stage lab-in-the-field experiment with charitable donations to elicit gender differences in the motivations of the intrinsic value of decision rights. In the first stage, 1332 adults were asked to make a donation decision on an individual and a joint endowment. In the second stage, participants chose to delegate or not the decision to an external device or a randomly selected partner, either the spouse or a stranger. We vary the control over the other player's payoff to identify the motivations explaining agency. We particularly focus on the participants' preferences for freedom, power, and non-interference. Previous studies have only elicited motivation to retain decision rights in the lab and have not considered gender or the intra-household dimensions (Neri & Rommeswinkel, 2014; Ferreira et al., 2017).

Our results show that while the intrinsic value for decision rights is not different between women and men, gender differences emerge when analyzing the motivations to keep decision rights and, more importantly, within the household. Contrary to our hypothesis, men are willing to pay more to decide on their own, for additional freedom, particularly from their spouses. Conversely, women are willing to pay less to decide on their own and on behalf of their husbands. We acknowledge the potential roles of altruism and risk aversion in driving our results. As a robustness check, we control for individual donation decisions made in the first stage of the experiment and for risk preferences using an additional incentivized game following Cardenas & Carpenter (2013). The main results are robust to additional controls.

Taken together, these findings highlight important aspects of intra-household decision-making dynamics that policymakers should consider carefully. In our study, women prefer to delegate decisions to their husbands rather than deciding on their outcomes following their own preferences and appear more willing to consider their partner's opinions and preferences than men. In particular, decision-making has not traditionally been a social role assigned to women. Providing women with access to cash transfers or loans has resulted in more investments in education, children's nutrition, and savings for the household (Duflo, 2003, 2012), but this does not necessarily translate into women exercising agency over these resources. Therefore, policies that promote women's agency as a social norm are needed to complement those on access to resources if the ultimate goal is to improve gender inequality.

2.A. Appendix

2.A.1. Comparative Statistics of The Theoretical Framework

The decision on buying the decision right depends on the solution to the maximization problem:

$$Max_{wtp} \ V_b = p(wtp_i)[U(Y + y_i - g_i - wtp_i) + \lambda(g_i) + a_i] + (1 - p(wtp))[U(Y + y_i - g_j) + \lambda(g_j)]$$

(2.6)

the first order condition are

$$\frac{\partial V_b}{\partial wtp} = p'[U(g_j - g_i - wtp_i) + \lambda(g_i - g_j) + a] - p[U'(g_j - g_i - wtp)] \geq 0 \qquad (2.7)$$

The second condition for an optimum is:

$$\frac{\partial^2 V_b}{\partial wtp^2} = p''[U(\cdot) + \lambda(g_i - g_j) + a] - p'[U''(\cdot)] - p'[U'(\cdot)] + pU''(\cdot)] \leq 0 \qquad (2.8)$$

We can dirententiate the first order condition 2.7, to investigate the effect of the various parameters on the amount the individual is willing to pay. From this, we can show that the willingness to pay is increasing in the intrinsic value a. We cannot determine the sign of the effect of the amount donated g_i and g_j:

$\frac{\partial wtp}{\partial a} = p' > 0$

$\frac{\partial wtp}{\partial g_i} = p'(-U'(\cdot) + \lambda) + pU''(\cdot)$

$\frac{\partial wtp}{\partial g_j} = p'(U'(\cdot) - \lambda) - pU''(\cdot)$
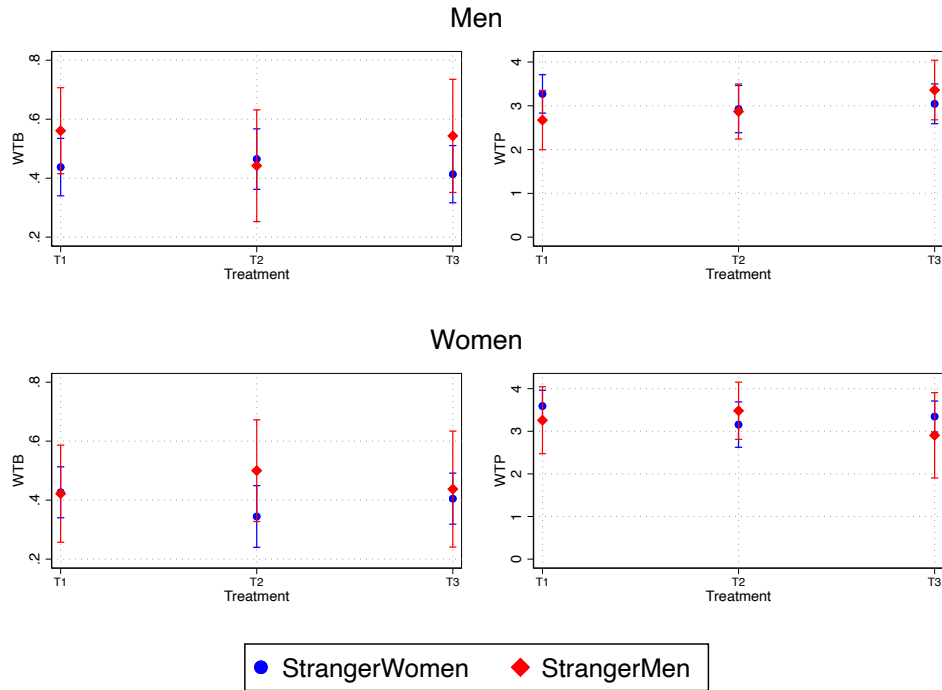
Figure 2.A1: Behavior in exercising the decision-right by the stranger partner. Notes: This figure shows the average WTB and WTP of men and women matched with a female stranger and with a male stranger. The y-axis corresponds to the two decisions: WTB and WTP, respectively, for each of the three treatments. It shows that the willingness to keep decision rights is not statistically different when comparing participants assigned to each partner.
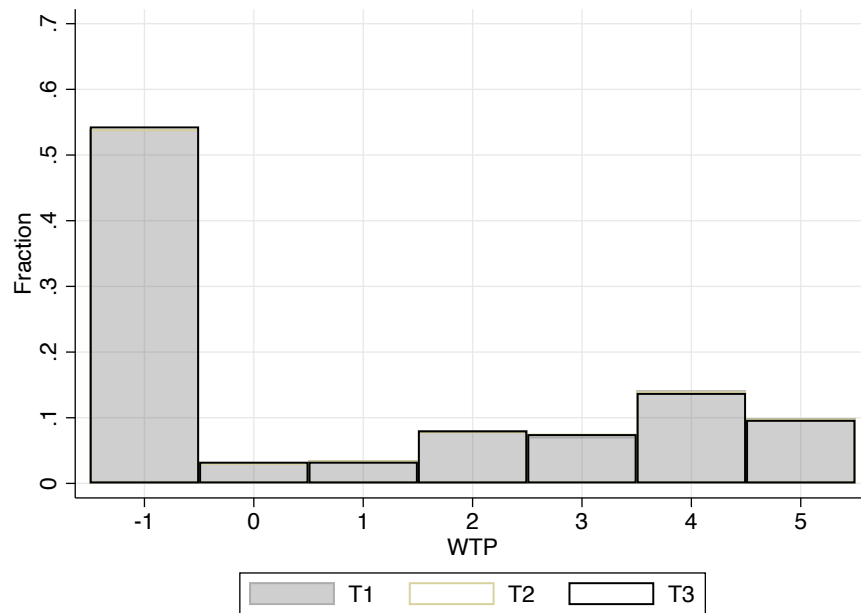
Figure 2.A2: WTP of keeping decision rights (within-subject design). Notes: This figure shows the average WTP of individuals when considering all three treatments per individual. WTP=-1 corresponds to individuals that did not want to buy the decision right. It shows individuals

Table 2.A1: Balance test by matched partner

	(1) Full Sample	(2) Spouse	(3) Stranger	(4) Diff. in means	(5) p-value
Women	0.514	0.495	0.532	-0.037	0.182
HH Head	0.473	0.497	0.451	0.046	0.091
Age	44.138	44.825	43.496	1.329	0.075
Married	0.544	0.554	0.535	0.019	0.476
Household size	3.675	3.651	3.698	-0.047	0.518
Highest Education Level					
None	0.092	0.101	0.084	0.017	0.287
Preschool	0.006	0.006	0.006	0.000	0.922
Elementary-School	0.487	0.489	0.485	0.004	0.895
Middle-School	0.159	0.129	0.186	-0.057	0.005
High-School	0.205	0.223	0.189	0.034	0.128
Higher-Education	0.050	0.051	0.049	0.002	0.869
Economic Characteristics					
Subjective economic status	2.332	2.324	2.340	-0.016	0.766
Household Chores	0.439	0.430	0.448	-0.018	0.519
Formal Contract	0.115	0.092	0.136	-0.044	0.014
Working Paid Hours (per week)	42.316	43.317	41.379	1.938	0.142
Comprehension	1.894	1.888	1.900	-0.012	0.696
Observations	1332	644	688		

Notes: Column 5 reports p-value from joint orthogonality test of the partner participants were randomly assigned to.

Table 2.A2: Balance test by treatment

	(1) T1	(2) T2	(3) T3	(4) Orth. test p-value
Women	0.512	0.499	0.530	0.654
Spouse	0.446	0.494	0.513	0.110
HH Head	0.474	0.491	0.457	0.614
Age	43.901	44.355	44.197	0.882
Married	0.545	0.552	0.536	0.893
Household size	3.628	3.678	3.720	0.567
Highest Education Level				
None	0.114	0.095	0.068	0.051
Preschool	0.004	0.000	0.013	0.044
Elementary-School	0.475	0.513	0.479	0.482
Middle-School	0.157	0.169	0.152	0.776
High-School	0.203	0.169	0.237	0.049
Higher-Education	0.047	0.054	0.051	0.884
Economic Characteristics				
Subjective economic status	2.305	2.345	2.348	0.747
Household Chores	0.440	0.412	0.462	0.343
Formal Contract	0.100	0.128	0.119	0.420
Working paid hours per week	43.938	41.055	41.730	0.173
Comprehension	1.875	1.898	1.910	0.600
Observations	473	391	468	

Notes: Column 4 reports p-value from joint orthogonality test of the treatments
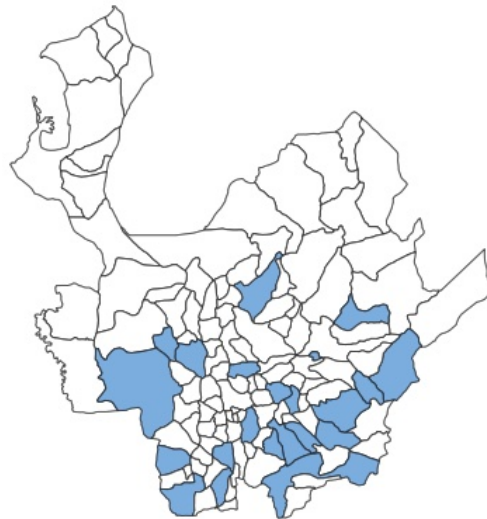
Figure 2.A3: Municipalities part of the study. Notes: The figure shows a map of the department of Antioquia, Colombia. The blue areas correspond to the 22 municipalities where the study took place.

Table 2.A3: Robustness: Intrinsic value motivations to keep decision rights (Double-Hurdle Model)

	(1) All b/se	(2) Spouse b/se	(3) Spouse b/se
PANEL A: WTB			
T2	-0.230*	-0.214	-0.200
	(0.138)	(0.195)	(0.208)
T3	-0.165	-0.137	-0.230
	(0.134)	(0.189)	(0.195)
Women	-0.305	-0.108	-0.583**
	(0.196)	(0.284)	(0.273)
T2 × Women	0.319	0.427	0.192
	(0.196)	(0.283)	(0.288)
T3 × Women	0.108	0.274	-0.003
	(0.187)	(0.275)	(0.271)
Constant	1.347***	0.845	1.611***
	(0.428)	(0.669)	(0.597)
PANEL B: WTP			
T2	0.476**	0.587**	0.266
	(0.221)	(0.278)	(0.375)
T3	0.498**	0.570**	0.363
	(0.218)	(0.270)	(0.332)
Women	0.328	-0.132	0.590
	(0.314)	(0.426)	(0.480)
T2 × Women	-0.611*	-0.376	-0.608
	(0.327)	(0.455)	(0.481)
T3 × Women	-0.734**	-0.610	-0.680
	(0.325)	(0.448)	(0.441)
Constant	3.482***	3.187***	3.650***
	(0.621)	(1.080)	(0.859)
Women vs. Men (T2)	-0.283	-0.508	-0.018
	(0.336)	(0.484)	(0.495)
Women vs. Men (T3)	-0.407	-0.741*	-0.090
	(0.309)	(0.426)	(0.474)
Observations	1117	549	568

Notes: Regressions exclude 215 participants for which their spouse was not present for the experiment. Control variables consist of a vector of individual and household characteristics: Age: age of the participant in years; Household head: 1 if the participant is the household head; Higher Education: 1 if the participant has completed higher education or more; the number of hours worked per week; Wealth Index: an indicator of the wealth level of the household; Number of Adults in the household. All regressions include municipality-fixed effects. Robust Standard Errors in Parenthesis. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.
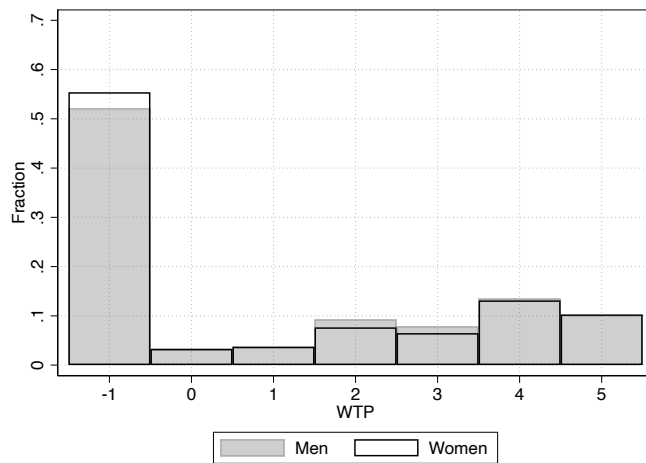
Figure 2.A4: Distribution of the willingness to keep decision rights by gender. Notes: WTP=-1 indicates individuals that decided to delegate the decision right (i.e, WTB=0). Wanting to buy the decision right required to state a WTP between 0 and 5.

2.A.2. Robustness Checks
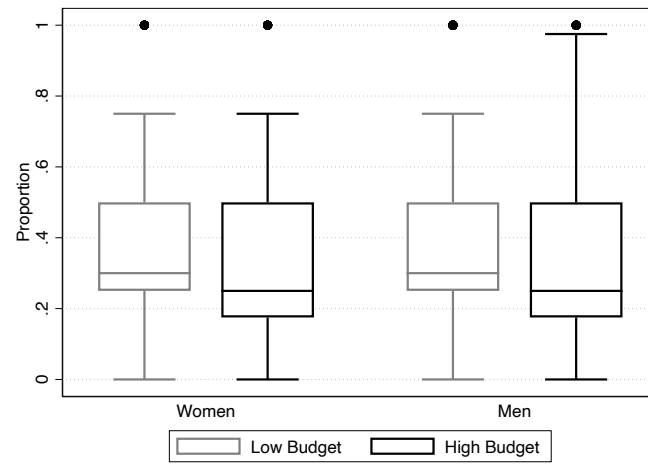
Figure 2.A5: Individual donation from first-stage. Notes: The figure shows, the women's and men's donations as a proportion of total endowment. Two endowments were possible: low budget and high budget.

Table 2.A4: Robustness check: Intrinsic value motivations to keep decision rights considering individual donation (Double-Hurdle Model)

	(1) All b/se	(2) Spouse b/se	(3) Stranger b/se
PANEL A: WTB			
Women	-0.346*	-0.085	-0.643**
	(0.183)	(0.270)	(0.260)
Individual Donation	0.079	0.167	-0.099
	(0.207)	(0.311)	(0.298)
T2	-0.127	-0.066	-0.087
	(0.127)	(0.182)	(0.186)
T3	-0.058	-0.088	-0.119
	(0.128)	(0.177)	(0.180)
T2 × Women	-0.008	0.220	-0.010
	(0.179)	(0.262)	(0.258)
T3 × Women	0.2183	0.283	-0.062
	(0.171)	(0.252)	(0.246)
Constant	0.505***	-0.459	1.209
	(0.439)	(0.894)	(0.757)
PANEL B: WTP			
Women	0.325	-0.048	0.417
	(0.293)	(0.426)	(0.432)
Individual Donation	0.909**	1.535***	0.871*
	(0.393)	(0.579)	(0.500)
T2	0.328	0.503*	-0.001
	(0.216)	(0.285)	(0.344)
T3	0.442**	0.609**	0.134
	(0.208)	(0.264)	(0.320)
T2 × Women	-0.551*	-0.572	-0.276
	(0.302)	(0.440)	(0.427)
T3 × Women	-0.655**	-0.647	-0.454
	(0.303)	(0.432)	(0.420)
Constant	3.462***	2.748*	3.769***
	(0.864)	(1.536)	(1.064)
Women vs. Men (T2)	-0.219	-0.632	0.144
	(0.312)	(0.464)	(0.435)
Women vs. Men (T3)	-0.327	-0.690*	-0.038
	(0.296)	(0.418)	(0.445)
Observations	1332	644	688

Notes: Intrinsic value of decision rights controlling for individuals' donation in the first stage. Control variables consist of a vector of individual and household characteristics: Age: age of the participant in years; Household head: 1 if the participant is the household head; Higher Education: 1 if the participant has completed higher education or more; the number of hours worked per week; Wealth Index: an indicator of the wealth level of the household; Number of Adults in the household. Robust Standard Errors in Parenthesis. All regressions include municipality fixed effects. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

Table 2.A5: Robustness check: Intrinsic value motivations to keep decision rights considering risk lottery (Double-Hurdle Model)

	(1) All b/se	(2) Spouse b/se	(3) Stranger b/se
PANEL A: WTB			
Women	-0.332*	-0.079	-0.640**
	(0.184)	(0.272)	(0.265)
Risk lottery	0.042**	0.015	0.085***
	(0.020)	(0.030)	(0.029)
T2	-0.099	-0.062	-0.097
	(0.128)	(0.183)	(0.187)
T3	-0.091	-0.090	-0.099
	(0.124)	(0.177)	(0.180)
T2 × Women	0.150	0.219	0.012
	(0.179)	(0.262)	(0.259)
T3 × Women	0.079	0.280	-0.085
	(0.171)	(0.252)	(0.248)
Constant	0.318	-0.443	0.694
	(0.566)	(0.888)	(0.774)
PANEL B: WTP			
Women	0.342	-0.053	0.448
	(0.290)	(0.415)	(0.432)
Risk lottery	0.034	0.016	0.048
	(0.038)	(0.052)	(0.055)
T2	0.356	0.541*	0.073
	(0.216)	(0.287)	(0.343)
T3	0.462**	0.599**	0.205
	(0.207)	(0.261)	(0.319)
T2 × Women	-0.527*	-0.512	-0.336
	(0.304)	(0.444)	(0.430)
T3 × Women	-0.678**	-0.669	-0.515
	(0.303)	(0.433)	(0.422)
Constant	3.547***	3.556**	3.620***
	(0.901)	(1.564)	(1.167)
Women vs. Men (T2)	-0.181	-0.571	0.113
	(0.312)	(0.459)	(0.438)
Women vs. Men (T3)	-0.334	-0.718*	-0.067
	(0.293)	(0.409)	(0.444)
Observations	1332	644	688

Notes: Risk lottery corresponds to the lottery chosen numbered from 1 to 6 in order of increasing risk. Control variables consist of a vector of individual and household characteristics: Age: age of the participant in years; Household head: 1 if the participant is the household head; Higher Education: 1 if the participant has completed higher education or more; the number of hours worked per week; Wealth Index: an indicator of the wealth level of the household; Number of Adults in the household. All regressions include municipality fixed effects. Robust Standard Errors in Parenthesis. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

Table 2.A6: Robustness check: Intrinsic and instrumental value motivations to keep decision rights (Double-Hurdle Model)

	(1) All b/se	(2) Spouse b/se	(3) Stranger b/se
PANEL A: WTB			
Women	-0.395**	-0.204	-0.619**
	(0.180)	(0.260)	(0.251)
T2	0.116	0.220	0.104
	(0.128)	(0.184)	(0.187)
T3	-0.067	-0.155	0.070
	(0.124)	(0.176)	(0.181)
T2 × Women	0.021	0.158	-0.226
	(0.179)	(0.263)	(0.258)
T3 × Women	0.232	0.465*	0.009
	(0.172)	(0.249)	(0.246)
Constant	1.068*	0.816	1.375*
	(0.552)	(0.883)	(0.740)
PANEL B: WTP			
Women	0.211	0.101	0.100
	(0.281)	(0.398)	(0.401)
T2	0.298	0.766***	-0.241
	(0.207)	(0.247)	(0.330)
T3	0.458**	0.731***	0.198
	(0.194)	(0.249)	(0.285)
T2 × Women	-0.612**	-0.767*	-0.205
	(0.301)	(0.408)	(0.459)
T3 × Women	-0.647**	-0.713*	-0.526
	(0.279)	(0.407)	(0.382)
Constant	5.316***	4.945***	5.790***
	(0.854)	(1.433)	(1.041)
Women vs. Men (T2)	-0.399	-0.668*	-0.103
	(0.291)	(0.393)	(0.463)
Women vs. Men (T3)	-0.435	-0.611	-0.426
	(0.272)	(0.387)	(0.389)
Observations	1332	644	688

Notes: Double hurdle model for the case when donations of the partner are different. Control variables consist of a vector of individual and household characteristics: Age: age of the participant in years; Household head: 1 if the participant is the household head; Higher Education: 1 if the participant has completed higher education or more; the number of hours worked per week; Wealth Index: an indicator of the wealth level of the household; Number of Adults in the household. All regressions include municipality-fixed effects. Robust Standard Errors in Parenthesis. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

2.A.3. Experimental Instructions.

(This is a translation, original language was Spanish)

You will receive - 10 thousand pesos - for your participation in the survey. In this activity you will have the possibility of receiving money in addition to the 10,000 pesos. How much money will you receive? That will depend on the choices you make - and on luck. It is also possible - that you will receive a different value than other people you know. This activity has 4 parts where you have to make different decisions. At the end we will randomly choose one of the decisions to make the payment. What does this activity consist of? We are going to hold a lottery to determine if you get additional money in addition to the 10,000 pesos - which you will receive for participating in the survey. The value you can get in the lottery is 20,000, 40,000 or zero pesos. If you win, you can decide whether or not to donate part of this money to the International Committee of the Red Cross. An international non-profit organization that provides protection and humanitarian assistance, and promotes respect for human rights in Colombia and around the world. You are free to decide the value you want to donate. You may also decide not to make a donation. All your decisions are strictly confidential. All money from donations - will be given to the International Red Cross.

Remember:

- At any time you can decide - not to continue the activity. In this case we cannot make payments.

- Only at the end we will calculate the money you will receive

X1. Did you understand?

1. Yes, continue

2. No, go back to the explanation

Part One

Let's start the first part of the activity.

IL1. If you received 20,000 pesos in the lottery, how much would you like to donate? (number between 0 and 20,000 in units of 1000)

IH1. If you received 40,000 pesos in the lottery, how much would you like to donate? (number between 0 and 40,000 in units of 1000)

Part Two

Let's start the second part of the activity. (Show images Part Two)

You and one other person will form a group. One of you will be chosen by chance to represent the group and make decisions about donating to the Red Cross. For this part

we are going to assume that you have been randomly selected as the representative of the group. The other person must accept the decisions you will make. (Replace X with one of the following Xi: X1. Your husband/wife, X2. Another woman, X3. Another man)

GL1a. The other person is [X] In this case, if each of you received 20,000 pesos, how much of the 20,000 pesos would you like each of you to donate to the Red Cross?

1. 0

2. 4.000

Xp23. In this part of the activity you do not have to make any decisions. The donation you each make is the 4,000 pesos indicated on this ballot.

Part Three

Now let's start the third part! (Use images Part Three, corresponds to the text in blue)

You and one other person will form a group. One of you will be chosen by chance to represent the group and make decisions about donating to the Red Cross. In this part, let's assume that the other person was randomly selected as a representative of your group. From the 20,000 pesos that each person received, the other person decided on a value to donate to the Red Cross. You can:

1. accept the decision that the other person makes for you. That is, the other person will be the representative of the group and will make the decision about donating to the Red Cross.

2. You can pay so that the other person does not decide for you about the donation.

If you prefer option B, you should indicate the maximum amount you are willing to pay so that the other person does not make the decision for you. You can pay: zero, one thousand, two thousand, three thousand, four thousand or five thousand pesos. This value will be deducted from the initial 10 thousand pesos you received for participating in this survey.

The value you are willing to pay for the other person not to decide for you will be compared to a value between zero and five thousand pesos chosen at random by a computer.

Please note:

- If the maximum value you are willing to pay is greater than or equal to the number indicated by the computer, you will pay the value indicated by the computer, and the other person will not decide for you.

- If the value you are willing to pay is less, you will not pay. But in this case, the other person will still make decisions for your group about the donation.

Let's look at an example:

If you select A, the other person will be the representative of your group and decides how much each of you should donate. But if you Select B, pay so that the other person does not decide for you, you must indicate the maximum value you are willing to pay between 0 and 5 thousand pesos.

Suppose you are willing to pay a maximum of 4 thousand pesos, and the number the computer chooses is one thousand pesos. The value you indicated (4 thousand pesos) is greater than the number the computer chose (one thousand pesos). Then your offer is accepted. You will pay 1,000 pesos, which is the value chosen by the computer, and the other person will not decide for you.

Now let's suppose that you are willing to pay 2 thousand pesos and the value that the computer chose is 4 thousand pesos. The value you indicated (2 thousand pesos) is less than the value the computer chose (4 thousand pesos). Then your offer is not accepted and the other person remains the representative and decides the value to donate.

We want to verify that we have been clear with the explanation, please answer the following questions:

Suppose you are willing to pay a maximum of 3,000 pesos so that the other person does not decide for you and the value the computer chooses is 4,000 pesos.

X2. Who is the representative in this case?

1. I

2. The other person

3. I don't know

X3. What is the minimum value you should indicate for you to become the representative?

1. 4,000 pesos

2. 2,000 pesos

3. I don't know

X4. When are you more likely to become a representative? When you pay 4,000 pesos or when you pay 2,000 pesos?

- 2,000 pesos

- 4,000 pesos

- I don't know.

Who chooses the value to donate?

Suppose you choose the other person to be the group representative. Then, the other person chooses the value that you both donate.

But you can pay so that the other person does not decide for you, and then your donations and the other person's donations can be determined according to three procedures:

Procedure 1 You decide the value that you and the other person donate.

Procedure 2: You decide the value you donate. The value that the other person donates is 4 thousand pesos which indicates a ballot.

Or procedure 3 The value that you donate and the other person donates is 4 thousand pesos which indicates a ballot.

For each of the above procedures we are going to ask you whether you prefer option A, that the other person continue to be the agent, or whether you prefer B, to pay so that the other person does not decide for you. In addition, we will ask you about your preferences, when the other's donation is zero pesos or 4 thousand pesos. To help you make the decision, we will present the value each receives when the other is the agent or when you pay for the other not to decide for you. This value includes:

1. Your payment for completing the survey - 10 thousand pesos.

2. The value you receive from the lottery - 20 thousand pesos.

3. The Value of Donation

4. The payment you make so that the other person does not decide for you.

Chapter 3

Discrimination in Peacebuilding. The Role of Moral Wiggle Room.

3.1. Introduction

Reintegration of ex-combatants after conflict has been proposed as an essential strategy for peacebuilding (Kingma, 2001, 1997). In order to promote ex-combatants' reintegration, a lot of effort has been focused on improving their income opportunities (Subedi, 2014; Knight & Özerdem, 2004) as well as ensuring that they are allowed to pursue their objectives through democratic processes (Humphreys & Weinstein, 2007). While improving average incomes is crucial to preventing ex-combatants from reenrolling in fighting activities, alleviating frustration and dissatisfaction among receiving communities is necessary for post-conflict reconstruction (Walter, 2004; Verwimp et al., 2019; Blattman & Miguel, 2010; Justino, 2009; Gilligan et al., 2013). However, reintegration may be hindered by the lack of trust within the receiving community, their experience with conflict, and their beliefs about what the ex-combatants did during the war (Collier, 2003). Further, the receiving community might consider the concessions, such as education, health, and employment support, that formal rebels receive in the reintegration program as unfair (Tellez, 2018). Despite the crucial role of citizens in the successful reintegration of ex-combatants, there is considerably limited research on citizens in peace processes (Haass et al., 2022; Ditlmann et al., 2017).

Our study examines whether receiving communities are willing to support the reintegration efforts of former rebels after a conflict has ended. In conflict situations, kin selection and parochial biases are intensified (Choi & Bowles, 2007; Bauer et al., 2014; Osborne et al., 2018; Mironova & Whitt, 2016; Cassar et al., 2013), resulting in divisions among citizens between "offender and victim" (Cilliers et al., 2016) that may persist after conflict is over. The degree and nature of this discrimination are important, particularly when efforts to achieve sustainable peace are a two-way process that involves the reintegration of ex-combatants and transforming communities together (Rhea, 2014).

The objective of this paper is twofold. First, we measure discrimination against ex-combatants and examine its heterogeneity. Second, we investigate how information regarding ex-combatants' identities affects and changes individuals' discriminatory preferences. To answer these questions, we conduct an online experiment in which we ask individuals about their willingness to pay (WTP) for coffee in six different scenarios. Each scenario is a lottery that varies the probability that two cooperatives produce coffee: a farmers' cooperative and an ex-combatants cooperative. Varying the probabilities allows us to measure discrimination as the impact of a marginal change in the probabilities on the WTP. Empirical evidence has shown that individuals may be influenced by situational pressures to give in certain situations instead of having a preference for a fair outcome and may attempt to exploit situational justifications for behaving selfishly (Dana et al., 2007). We hypothesize that individuals use information avoidance to disregard their discriminatory preferences by exploiting 'moral wiggle room'. In our experiment, we allow two-thirds of the participants to voluntarily decide whether or not to resolve the uncertainty about the producer's identity, at zero cost, before stating their WTP in a last scenario. Similar to G. M. Becker et al. (1964), we use an incentive-compatible mechanism to obtain true

preferences. To test the robustness of our results, we compare our results from the *ExComb* group with a *Placebo* group. Participants in the *Placebo* group are presented with two different coffees produced by farmers' cooperatives. Further, we elicit attitudes towards ex-combatants and exposure to conflict in a post-experimental survey.

We conducted our online experiment in Colombia, an appropriate context to study since the country recently started the implementation of the peace agreement signed with the guerrilla group Revolutionary Armed Forces of Colombia (FARC) in November 2016. Four years of negotiations ended more than 50 years of conflict but left the country divided and polarized. In October 2016, 50.21% of the voters in the referendum said they would not support the agreement with the rebel group. Despite significant opposition, the FARC group created its own political party (Comunes). Around 13,000 ex-combatants were registered to the Demobilization, Disarming, and Reintegration (DDR) program under two possibilities of reintegration. The first is an individual path, and the second is collective reintegration, with the latter being preferred and defended by ex-FARC members. In fact, 96% of ex-combatants preferred a collective productive project over finding a job on the labor market (Ideas para la Paz, 2019). Accordingly, 4,000 ex-combatants are part of a productive project, producing various goods, such as coffee, clothes, and beer, and engaging in tourism, using their ex-combatants' identity as a label outside the armed forces.

We find that, on average, the WTP in the *ExComb* group is lower than in the *Placebo* group. Additionally, participants in the *ExComb* group reduce their WTP when the probability of receiving coffee from ex-combatants' cooperatives increases. Overall, participants demand about a 17% discount for ex-combatants' coffee. We exploit the repeated measures nature of our data (i.e., the six different scenarios) and use generalized linear latent and mixed models to explore the heterogeneity of our results. Individuals are classified into three groups according to their response to the changes in the probability of receiving coffee from ex-combatants. Among the participants, 45% do not display discriminatory preferences, 22% are willing to pay a premium for ex-combatants' coffee, and 33% revealed Negative Discriminatory Preferences against ex-combatants' products. Next, we test for factors explaining these discriminatory preferences and find that attitudes of distrust towards ex-combatants increase the likelihood of negative discriminatory preferences. Regarding information avoidance, about 20% of the participants decided not to reveal the producer's identity. We find evidence of moral wiggle room to disregard negative discriminatory preferences and avoid feeling guilty about questionable behavior. Last, only individuals holding negative discriminatory preferences that revealed, used the additional acquired information to pay even less for the coffee of ex-combatants.

This paper contributes additional empirical evidence to the relatively scarce yet inconsistent literature on discrimination against ex-combatants in post-conflict societies. For instance, Bauer et al. (2018) do not find evidence of mistrust or preference-based discrimination against former soldiers in Uganda. However, according to Osborne et al. (2018) 15% fewer resources are committed to ex-combatants in Uganda than to other community members. Similarly, Cárdenas et al. (2014) find that ex-combatants in Colombia not only expect but

also receive lower transfers compared to the victims and the control group. More closely related to our paper, Unfried et al. (2022) use a crowdfunding campaign in private and public universities in Colombia to study discriminatory behavior against former members of illegal groups. The authors do not find evidence for discriminatory behavior against ex-combatants but do find evidence for a Not-in-my-backyard (NIMBY) phenomenon using the attitudinal gap index and implicit association measures. These previous studies have used dictator or trust games in the lab to measure discrimination against ex-combatants, which have some caveats. Particularly in dictator games, responses might be strongly biased towards expected appropriate behavior (Bardsley, 2008; Dellavigna et al., 2012). Our study differs from previous studies in that it uses a more natural set-up, involving willingness to pay and an actual purchase decision. Moreover, we assess discrimination against ex-combatants employing a novel design where repeated measures are applied to each individual to recognize heterogeneity in preferences.

Our study also relates to the literature on information avoidance and antisocial behavior. Dana et al. (2007) demonstrate that when individuals can avoid information about the consequences of their actions, many behave selfishly. The main reason for this behavior is argued to be an inherent dislike of appearing unfair to themselves and others. According to Golman et al. (2017), the lack of information about the consequences of agents' actions might be used as an excuse by agents, giving them moral wiggle room to behave in a self-interested manner while maintaining an impression of fairness. We extend this literature and show that information avoidance can reduce discrimination against ex-combatants. Individuals with negative discriminatory preferences might not want to obtain information since they may fear obtaining it will make them feel more culpable for negligent or ethically questionable behavior.

Last, this paper relates to the literature on the challenges in the transition from war to peace. Although economic recovery has been recognized in the literature as a necessary step after conflict to reduce the likelihood of returning to war (Collier, 2009; Collier et al., 2008), its positive effects are only observed in the long run. Therefore, additional strategies such as disarmament, demobilization, and reintegration of ex-combatants have been increasingly recognized as a mechanism to reduce the risk of renewed conflict (Collier, 2003) and benefit the society as a whole. D'Aoust et al. (2013) show that cash payments received by ex-combatants in Burundi have a positive direct impact on purchases and investments of beneficiaries and indirect impacts on non-beneficiaries. However, both direct and indirect impacts vanish in the long run. We provide evidence of the existence of discrimination against ex-combatants as a critical aspect of peacebuilding that could be hindering the positive effects of reintegration programs in the long run.

3.2. Study Design

3.2.1. Experimental Design

The experiment follows a between-subjects design and involves two stages and a post-experimental survey. In Stage 1 of the experiment, we ask individuals their WTP for coffee in six different scenarios to measure discriminatory preferences. Each scenario is a lottery that varies the probability, p, of purchasing a coffee produced by one of two cooperatives: a farmers' or an ex-combatants' cooperative. When setting the probabilities, we include both relatively small and large changes in probability in an attempt to capture more extreme preferences. The probability p is set at the following levels: $p = \{0, 0.01, 0.3, 0.7, 0.99, 1\}$, and they are presented in a random order to the participants. For the experiment, each subject is endowed with 20 korus[1]. Participants can state a WTP value between 0 and 20 korus in intervals of 1 unit. Under these six scenarios, there is no feedback on which coffee was selected for payment before participants reveal their WTP, which allows us to investigate whether changes in the probability of receiving a particular coffee affect participants' WTP. Discriminatory preferences are measured as the effect of a marginal change in the probabilities on the WTP.

In Stage 2 of the experiment, we investigate whether participants avoid information about the producer's identity and use moral wiggle room to disregard their discriminatory preferences. We implement a variation of the experiment of Dana et al. (2007) and ask individuals their WTP in a last scenario. This time, participants are randomized into one of four treatment arms that vary on (1) the type of feedback on the producer's identity and (2) the likelihood that coffee from ex-combatants is selected. The feedback related to the producer's identity is either exogenously or endogenously given. Under the Exogenous Feedback Treatment *(Exo)*, the computer plays a lottery, and the participants are informed about who produced the coffee before revealing their WTP. All participants assigned to this treatment know the value of p and the selected coffee. In contrast, participants in the Endogenous Feedback Treatment *(Endo)* can decide, at no cost, whether or not to receive information on who produced the good before revealing their WTP. Participants in the *ExComb* group face a lottery with a low (LowProb, $p = 0.3$) or high (HighProb, $p = 0.7$) probability of receiving coffee produced by the ex-combatants' cooperatives. If individuals choose not to know about the identity of the coffee's producer, they will proceed directly to making their offer. This allows participants to remain ignorant about the origin of their purchased good and use this moral wiggle room to avoid acting in accordance with their discriminatory preferences. Suppose higher probabilities in Stage 1 lead to increases in the WTP. In that case, we expect individuals to reveal the product's origin and show no significant changes in their willingness to pay. If participants seek to use moral wiggle room as an excuse not to feel compelled to give, we expect participants to choose to avoid information and reduce the WTP. We compare the WTP before and after information treatment and expect individuals

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[1]korus is the experimental currency used in the online platform (approximately 2 euros)

to use moral wiggle room by paying significantly differently from Stage 1 after avoiding the information.

To distinguish whether risk affects the valuation of coffee produced by ex-combatants differently than any other type of coffee, we consider a *Placebo* group. Participants in this group answered all questions from Stage 1 and Stage 2 but compared coffees produced by two different farmers' cooperatives. Therefore, participants in the *Placebo* group were not exposed to coffee produced by ex-combatants at any moment during the experiment.

The post-experimental survey asks participants about their exposure to conflict, risk aversion, risk ambiguity, and Attitudes Towards Ex-combatants (ATX). ATX is an index similar to the Attitudes Toward Prisoners Scale (ATP) and the Community Attitudes Toward Sex Offenders Scale (CATSO) presented by Melvin et al. (1985) and Church et al. (2008), respectively. Because of the online setting of the experiment and concerns about limited attention, heterogeneity in cognitive ability, and potential loss of control, we include questions to control attention during the experiment and experience with the online platform. The experiment design involves probabilities and raises concerns about the linearity of individuals' preferences between risky prospects; therefore, we include questions to control for non-linear probability weighting. We also collect data on socio-economic characteristics such as education and employment and control for how much individuals like coffee.

3.2.2. Recruitment and General Procedures

Data were collected for three weeks between November and December 2020 using Netquest database. Netquest offered a panel with 115,000 subscribers in Colombia from all different regions in the country, with age, gender, and socio-economic income mirroring the national Census.[2] The online experiment considers subscribers to the platform from the 21 main cities in Colombia.[3] A stratified random sampling approach was used to select the sample. First, we determined the number of individuals to sample proportional to the potential voters in each city. Second, we required 50% of the sample in each city to be women. Third, subscribers between the ages of 24-50 were randomly selected to receive an invitation via email to participate in our experiment. A total of 9,863 invitations were sent, 72% of which were never answered by the participants, leading to a response rate of 28%.[4] After identity validation and bots checks, 1,963 participants completed the survey.

Participants received a 20 korus reward for participating and finalizing the survey and 20

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[2]There were 115,737 active panelists by the time of the study. According to the ISO-Norm-20252, Netquest considers active panelists to be those who have participated in a survey in the last 12 months and have responded to at least one of the 11 invitations received, considering that participants receive an invitation approximately every 15 days. Further details on the Netquest Panel can be found at https://www.netquest.com/en/online-surveys-investigation

[3]47% of the Colombian voters live in 23 main cities in Colombia. The list of the 21 cities included in the study can be found in Table 3.A1 in the appendix.

[4]Basic characteristics of the participants invited to the sample and the final sample can be found in Table 3.A5 in the appendix.

korus as an endowment to use in the experiment. To make decisions incentive-compatible, only one of the seven scenarios was selected for payment. Nevertheless, participants were only informed about the selected scenario at the end of the experiment. To incentivize the true revelation of preferences, we used the Becker–DeGroot–Marschak (BDM) auction mechanism (G. M. Becker et al., 1964) and selected the selling price from a uniform distribution of 0 to 20 korus. If the randomly selected selling price was higher than the stated WTP in the selected scenario for payment, participants kept the endowment (20 korus), which they will later exchange on the online shopping platform. On the contrary, if the randomly selected selling price was below the stated WTP, participants purchased the coffee at the selling price. The remaining korus (Endowment - selling price) were transferred to each participant's Netquest account at the end of the experiment. To reduce transaction costs, we sent the coffee via mail directly to the participants who had purchased the coffee (i.e., participants who stated a WTP higher than the randomly selected selling price). In total, 52 % of the participants purchased the coffee and paid, on average, 12.5 korus.

The online experiment lasted approximately 30 minutes. Complete instructions were given at the beginning of the experiment. We made sure that participants understood the procedure and the incentives; therefore, after reading the instructions, they were required to answer comprehension questions. The questions tested whether the subjects understood both cases, where the stated WTP was lower than the selling price and where the stated WTP was higher than the selling price. We did not allow individuals to continue with the experiment until they had answered all comprehension questions correctly.[5] To avoid house money bias, the endowment of 20 korus was given after answering all the comprehension questions correctly and two real effort tasks: the slider and the matrix task.

The coffee that individuals could purchase was a bag of 250 grams that only varied on the producer's identity. To avoid order effects, we randomly allocated the farmers' and ex-combatants' cooperatives in the roles of coffee Type W and Type Z. Further, we reversed the experiment sequence. Half of the participants responded first to the second stage and were then introduced to the first stage. Participants were informed that both coffees were similar in quality: Arabic coffee, produced under sustainable conditions, friendly to the environment, and graded as premium coffee. Today, the coffees are sold and distributed on a small scale, mostly in regional markets or online, ensuring that participants are unfamiliar with any specific brand. The market price of a bag of coffee is around 3.50 euros.

3.3. Hypotheses

Recent empirical evidence has shown that after a conflict, societies are fragmented, and new social categories that identify individuals as different, are developed (Osborne et al., 2018). Trust is reduced (Cassar et al., 2013; Conzo & Salustri, 2019; De Juan & Pierskalla, 2016), and even when ex-combatants pursue their reintegration, beliefs about ex-combatants being

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[5]Participants could try up to three times to answer the comprehension questions

unable to change their criminal activities might persist (Church et al., 2008). We expect individuals to be willing to pay less for coffee produced by ex-combatants cooperatives than for coffee produced by farmers' cooperatives.

Hypothesis 1. *Individuals' WTP decreases when the probability of receiving coffee produced by ex-combatants increases.*

Certainly, not all people in a conflict-ridden setting had the same experience, which can shape their attitudes towards reconciliation. According to Tellez (2018), civilians in Colombia who have lived in conflict zones are more supportive of the peace process and more willing to grant concessions to former rebels. The author argues that individuals exposed to conflict may be more concerned about their security and reduce their exposure to violence. Furthermore, Cárdenas et al. (2014) argue that citizens in conflict-affected areas face distributional dilemmas, where they must balance the need to sanction perpetrators with the need to protect the victims. Through experimental games, the authors show the existence of a sanction function in the Colombian case. Following this empirical evidence, we expect to see heterogeneous discriminatory preferences against the products of ex-combatants.

Hypothesis 2. *A change in probability affects the WTP differently for different groups of individuals.*

If the product's origin affects individuals' WTP, participants may disregard their discriminatory preferences when they can avoid this information. Individuals may be reluctant to disclose such information in our setting for various reasons. First, individuals might want to avoid dynamic inconsistency by not knowing the outcome so that they can commit themselves to their preliminary behavior (Golman et al., 2017). Moreover, individuals may fear that receiving the information will make them feel responsible for their unethical or questionable behavior, leading to self-condemnation; for this reason, they may avoid the information to avoid potential repercussions. By not knowing the consequences of one's actions or by remaining uncertain about others' outcomes, moral wiggle room has been found to encourage selfish behavior (Dana et al., 2007). Therefore, our third hypothesis is this:

Hypothesis 3. *When individuals avoid information about the coffee's origin, they reduce their willingness to pay compared to their offer at Stage 1.*

3.4. Data

3.4.1. Measures

In the analysis, there are three main outcomes of interest: discrimination preferences against products of ex-combatants, the factors explaining discriminatory preferences, and

the use of information avoidance to disregard discriminatory preferences. Our dependent variable, discrimination against ex-combatants, is measured in Stage 1 of the experiment. We estimate econometrically the effect of the producer's identity (i.e., increases in the probability of receiving coffee from ex-combatants) on the WTP for coffee.

Second, we use the experience with conflict and attitudes towards ex-combatants to study the factors explaining the discriminatory preferences of the participants. We use the answers to three questions to measure self-reported exposure to conflict and the intensity of conflict exposure. Exposure to conflict is a dummy equal to one if participants have answered yes to at least one of the three following questions: (1) Did any member of your family have to take refuge or leave their place of residence due to the conflict in the country? (2) Have you lost a family member or close relative due to the armed conflict in the country? and (3) For reasons of the armed conflict, was any member of your family recruited by force? The intensity of conflict exposure is a categorical variable that ranges from no exposure to highly exposed (1 to 4) depending on the number of these questions answered affirmatively. To measure attitudes towards ex-combatants, we ask individuals for their opinions on 20 statements using a 4-point Likert scale.[6] We combine these statements in a principal component analysis and find that two factors account for 48% of the total variance in the data (Scree plot of eigenvalues is presented in Figure 3.A1 in the Appendix). After factor rotation, we found that the common factors of attitudes towards ex-combatants can be grouped into attitudes of distrust and attitudes toward social sanctions/punishment towards ex-combatants (see the factor loading's of each statement in Table 3.A3 in the Appendix). We code distrust as a dummy variable equal to one if a participant holds attitudes of trust towards ex-combatants below the mean and punishment as a dummy equal to one if a participant holds attitudes for social sanctions above the mean.

Third, our information avoidance and behavior consistency measures are assessed in Stage 2 of the experiment. Our study uses a modification of the experiment presented by Dana et al. (2007) where half of the sample can decide whether to reveal the producer's identity before they are asked to state their WTP once again. The first measure is the proportion of individuals who avoid or seek this information, non-revealers and revealers. A second measure corresponds to the consistency of the behavior of the WTP after the information is avoided. Therefore, we estimate the change in the willingness to pay before and after the information treatment. We calculate ΔWTP, the difference between the WTP in Stage 2 and the WTP in the scenario in the first stage paired by probability (High or Low probability).

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[6]The list of the 20 statements used for the principal component analysis can be found in Table 3.A2 in the Appendix

3.4.2. Descriptive Statistics

We recruited 1,963 Colombians through the online platform. Among these, 136 participants failed to answer the attention check questions and were excluded from the analysis.[7] Our final sample consists of 1833 participants. Two-thirds of the participants (1,150) were randomly assigned to the *ExComb* group, and one-third (683) were assigned to the *Placebo* group. Randomization into treatment was stratified by city. Table 3.A4 in the Appendix presents the socio-economic characteristics, risk attitudes, and taste for coffee of the participants in the two groups. Column (3) presents the p-values of balance tests of the two groups. Men represent 49.1% of the sample. On average, the participants are 35 years old, 79% belong to low or middle-income groups, and 81.2% of the participants have completed higher education. Our participants are rather risk-averse, reporting a value of 2.9 from a maximum of 6.[8] On average, the participants like coffee, reporting an 8.07 taste for coffee (on a scale from 1 to 10). We find significant differences across the two groups in age, employment status, ambiguity aversion, and time spent in the survey. We will control for these variables in the analysis to account for these differences.

On average, 35% of the participants are direct or indirect victims of conflict. However, on average, the intensity of the conflict experienced is low (1.43 on a scale from 1 to 4). According to the principal component analysis presented earlier, the participants' attitudes towards ex-combatants are largely explained by their attitudes of distrust and beliefs that social sanctions should be imposed. Among the participants, 47% expressed distrust towards ex-combatants, and 55% expressed the need for sanctioning ex-combatants.

3.5. Results

In this section, we outline the results of our online experiment. First, we investigate whether individuals hold discriminatory preferences against goods produced by ex-combatants compared to other farmers' cooperatives. Next, we investigate the heterogeneity in our sample, classify individuals by their discriminatory preferences, and explore the factors explaining these preferences. Later, we examine the information acquisition decision related to the producer's identity and explore whether participants disregard discriminatory preferences.

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[7]Two attention check questions were included in the survey. Participants needed to answer the question correctly according to the instructions. A participant was excluded from the final sample if both questions were answered incorrectly.

[8]Risk preferences were measured following the method by Cardenas & Carpenter (2013). Participants were asked to select their preferred lottery out of six binary lotteries presented in the form of a ring. Each lottery had two possible outcomes. The lottery pattern was chosen so that the mean and the variance of the two payoffs increase as one moves clockwise. Choosing the last lottery indicates risk-seeking behavior

3.5.1. Empirical Strategy

To evaluate the degree of discrimination against the products of ex-combatants, we first fit a two-level linear fixed effects model to our data following Equation 3.1:

$$WTP_{ij} = \beta_0 + \beta_1 prob_{ij} + \beta_2 ExComb_i + \beta_3 (prob_{ij} \times ExComb_i) + \beta_X X_i + \gamma_i + \epsilon_{ij} \qquad (3.1)$$

the outcome variable WTP_{ij} at scenario j for person i is regressed on the probability $prob_{ij}$; the group the participant was randomly assigned, $ExComb_i$ equal 1 if participant i is assigned to the $ExComb$ group; and the interaction term between $prob_{ij} \times ExComb_i$. We include city fixed effects γ_i and a vector X_i of essential individual characteristics such as ambiguity aversion, time spent in the survey, taste for coffee, gender, age, employment status, socio-economic status, and education. Multi-level modelling is necessary since scenarios j (level 1) are nested within individuals i (level 2).[9]

The model above accounts for the repeated-measures nature of our data. However, it assumes that the effect of changes on the probability of receiving ex-combatants' coffee is the same for all individuals belonging to one or the other group. To test the hypothesis that the effect of expected changes in the probability of receiving coffee given the producer's identity varies between individuals, we use generalized linear latent and mixed models (GLLAMM). GLLAMM is ideal for our analysis since it is used to examine hierarchical, grouped data or repeated measures, as well as latent variables that are to be defined by a set of items (Rabe-Hesketh et al., 2004b,a). Therefore, we fit a random-coefficients regression model of the form:

$$WTP_{ij} = \beta_0 + (\beta_1 + \eta_i) prob_{ij} + \beta_X X_i + \gamma_i + \epsilon_{ij} \qquad (3.2)$$

The outcome variable is the expected WTP_{ij} at scenario j for person i. It is explained by the probability of receiving coffee $prob_{ij}$ and an additional person-level random coefficient η_i. The regression includes city fixed effects γ_i and a vector X_i of essential individual characteristics. Since taste for coffee does not statistically differ across groups, we believe that participants' initial WTP for coffee (when the probability of receiving coffee from ex-combatants is zero) only depends on their taste. Therefore, our preferred model includes random coefficients and excludes random intercepts. Moreover, a likelihood-ratio test that compares the random-coefficient model with the random intercept model leads to the conclusion that the random coefficient variance is highly significant; therefore, different probabilities vary significantly between individuals (corrected p-value from the X_2^2 is 0.0000). Table 3.A6 in the appendix presents the results of the likelihood-ratio test.

To explore the heterogeneity of our data, we relax the assumption that the random coefficient η is normally distributed and use non-parametric maximum likelihood estimation. This corresponds to the assumption that the population falls into a finite number of latent classes

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[9]Intraclass correlation coefficient ICC=0.8 confirms the appropriateness of multi-level modelling

or types. Following Rabe-Hesketh et al. (2004b) in a first step, we will estimate how many points or masses reach the largest possible likelihood. We start by using the one-class model with a random coefficient. We then use the Gateaux derivative method to check whether introducing an additional class leads to a larger maximum likelihood. We add classes until we identify the model with the best fit.[10] After identifying the best class model, we assign each individual to a specific class based on her or his posterior probability.

We expand the analysis and examine the factors explaining the discriminatory preferences of the participants. To establish the association between discriminatory preferences with conflict and attitudes toward ex-combatants, we estimate the following multinomial logistic model:

$$DiscPref_i = \beta_0 + \beta_z Z_i + \beta_X X_i + \gamma_i + \epsilon_i \tag{3.3}$$

where $DiscPref_i$ is a categorical variable for the different discriminatory preferences. Z_i are the covariates of interest that could explain discriminatory preferences towards purchasing coffee produced by ex-combatants, including 1) being a victim of conflict, 2) intensity of conflict, 3) distrust attitudes towards ex-combatants, and 4) attitudes about social sanctions towards ex-combatants above the mean. City fixed effects γ_i are considered, and ϵ_i represents the individual error term. We include socio-demographic characteristics X_i as controls, and the results are adjusted for multiple tests using Bonferroni correction.

Finally, we analyze Stage 2, where half of the individuals are randomly assigned to the endogenous information treatment. In this treatment, participants could actively decide whether or not to receive information regarding the producer's identity. Individuals were also exposed to a high (70%) or low (30%) probability of receiving coffee from ex-combatants. We are interested in exploring whether individuals avoid information regarding the coffee producer's identity and use this moral wiggle room to disregard their discriminatory preferences. Therefore, we first estimate the change in the WTP before and after the information treatment. We calculate ΔWTP in Equation 3.4 as the difference between the $WTP_{i(info)}$ in Stage 2 and the $WTP_{ij(stage1)}$ in the scenario j in Stage 1 paired by probability (high or low probability).

$$\Delta WTP_i = WTP_{i(inf)} - WTP_{ij(stage1)} \tag{3.4}$$

After, we estimate the model presented in Equation 3.5

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[10]The Gateaux derivative method is used to determine the number of classes needed to achieve the non-parametric maximum likelihood estimator. The likelihood is maximized starting with the smallest number of points. A further point is introduced if a location can be found where introducing a new mass increases the likelihood when all other parameters are held constant at their previous maximum likelihood values. This procedure is repeated until no location can be found at which the introduction of a small class increases the likelihood

$$\Delta WTP_i = \beta_0 + \beta_D DiscPref_i + \beta_{Inf} Inf_i + \beta_{DInf} DiscPref_i \times Inf_i + \beta_X X_i + \gamma_i + \epsilon_i \quad (3.5)$$

where Inf_i refers to the individuals' decision to avoid information on the producer's identity that takes the following values: $0 = $ reveal information and $1 = $ No reveal information. The coefficient β_{DInf} of the interaction term $DiscPref_i \times Inf_i$ estimates whether avoiding information regarding the coffee producer's identity affects the consistency of behavior over discriminatory preferences compared to the base group. X_i is a vector of individual characteristics, γ_i considers city fixed effects, and ϵ_i represents the individual error term. As a robustness check, the equations 3.2, 3.3, 3.4, and 3.5 are estimated separately for the *Placebo* group.

3.5.2. Discrimination

Willingness to Pay for Coffee

First, we examine the willingness to pay for coffee - (WTP) in Stage 1 of the experiment. Participants received an endowment of 20 Korus and were asked to specify their WTP in six scenarios that varied in the probability of receiving coffee from ex-combatants. The probabilities p were set at the following levels: $p = \{0, 0.01, 0.3, 0.7, 0.99, 1\}$. On average, WTP for coffee is lower in *ExComb* group than in the *Placebo* group (9.59 korus versus 9.92 korus, respectively). About 1.55% of the sample (31 participants) always offered zero korus, regardless of the changes in the probability. Therefore, when calculating the mean WTP conditional on wanting the coffee, the differences in the WTP are even larger, 9.74 korus in the *ExCom* group and 10.1 korus in the *Placebo* group. Figure 3.1 presents the average WTP for coffee in each of the six different probabilities for both the *ExComb* and *Placebo* groups. We find that participants in the *ExComb* group are, on average, willing to pay less when the probabilities of receiving coffee from ex-combatants are higher. The opposite is true for the *Placebo* group presented with two coffees from different farmers' cooperatives. Moreover, Figure 3.A2 in the Appendix presents the estimated kernel density functions of the WTP for both groups, *ExComb* and *Placebo*. A Kolmogorov-Smirnov test for the equality of the distributions reveals that the two group distributions of the WTP for coffee are statistically different.[11] This already provides a hint of the existence of discriminatory preferences in the *ExComb* group and heterogeneity on the effect of identity on WTP.

Next, we test the hypothesis that the identity of the coffee's producer influences the WTP for coffee in a regression framework. The results from the estimation of Equation 3.1 are presented in Table 3.1. We find that a higher probability of receiving coffee from ex-combatants reduces the WTP. Overall, participants in the *ExComb* group demand about a 17% discount for ex-combatants' coffee. This finding is consistent with the above descriptive results and allows us to accept Hypothesis 1.

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[11]The approximate asymptotic p-value for the combined test is 0.005
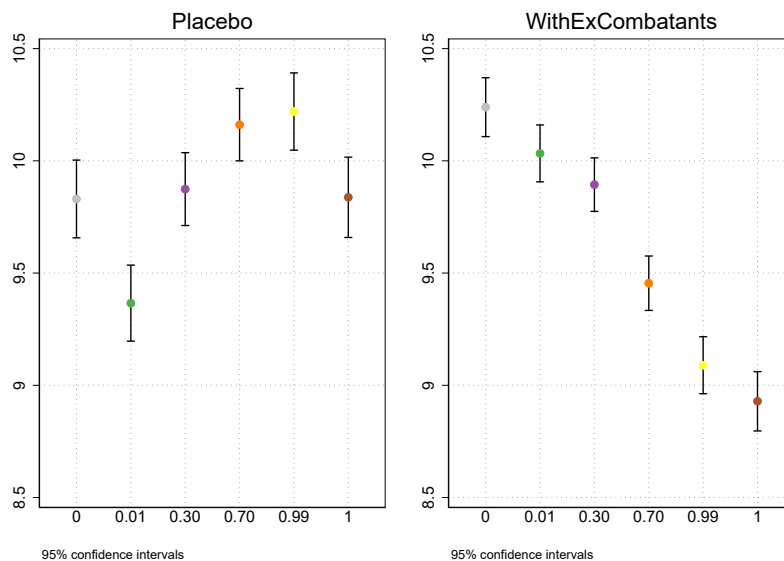
Figure 3.1: WTP by probability of receiving coffee in Stage 1. Notes: The graph presents the average WTP for coffee in each of the six different probabilities. The left-hand side figure refers to the Placebo group, presented with two coffees from different farmers' cooperatives. The right-hand side figure refers to the ExCombatants group presented with a farmers' cooperative and ex-combatants' cooperative.

Table 3.1: Two-level Fixed-effects Model

	(1)
Prob of receiving coffee	0.450***
	(0.10)
Group Ex-Comb	0.582*
	(0.23)
Group Ex-Comb × Prob of receiving coffee	-1.585***
	(0.15)
Constant	5.339***
	(0.77)
χ^2	419.76
p	0.000
Observations	10932

Note: This table shows the results of the estimation of a two-level linear fixed effects model. The probabilities (level 1) are nested within individuals (level 2). Estimations were obtained by using xtmixed command in Stata. The outcome variable corresponds to the WTP. The control variables include ambiguity aversion, time spent in the survey, taste for coffee, gender, age, employment status, socio-economic status, and education. The regression includes city fixed-effects. Robust standard errors in parenthesis. *p < .05. **p < .01. ***p < .001.

Heterogenous Discriminatory Preferences

This study measures discrimination based on the effect of the producer's identity (i.e., increases in the probability of receiving coffee from ex-combatants) on the WTP for coffee. To analyze the hypothesis that the effect of changes in the probability might have affected individuals differently, we use a multiclass GLLAMM model and classify individuals in the *ExComb* group based on their individual effect of probability on WTP using each individual's posterior probability. Table 3.A7 in the appendix presents the results for the GLLAMM model with random coefficients for different classes. Following the Bayesian information criterion (BIC), considered the most reliable fit statistic in latent class analysis (Weller et al., 2020), a three-class model with the lowest BIC is preferred.

We use the posterior probability to classify individuals into a specific class, that is the likelihood of subjects falling into a specific group. Figure 3.2 shows the predictions from the three-class random coefficient model and the proportion of individuals that were assigned to each class. We labeled each of the three classes based on the slope sign resulting from the estimation. Class 1, *Negative Discriminatory Preferences* corresponds to 33% of the individuals. This class includes individuals that reduced their WTP when the likelihood of receiving ex-combatants' coffee increased. Next, 45% of the participants are classified in Class 2, *Indifferent Discriminatory Preferences*. For members of this class, changes in the probability of receiving coffee from ex-combatants have no statistically significant effect on their WTP. Lastly, the remaining 22% of the participants are in Class 3 *Positive Discriminatory Preferences*. For this class, increases in the probability of receiving coffee from ex-combatants are positively correlated with their *WTP*. Thus, we find evidence for supporting Hypothesis 2, as there is heterogeneity in the effects of the producer's identity on the WTP for coffee of ex-combatants.

Factors Explaining Discriminatory Preferences

Participants reacted differently to changes in the probability of receiving coffee from ex-combatants. We classified individuals into three groups according to their discriminatory preferences. To investigate the factors explaining the correlation between WTP and the probabilities of receiving coffee from ex-combatants, we focus on two main dimensions that likely affect the preferences towards products of ex-combatants: experience with conflict and attitudes towards ex-combatants.

Figure 3.3 reports the predicted marginal effects of a multinomial logistic model following Equation 3.3, which estimates the effect of exposure to conflict, attitudes of distrust towards ex-combatants, and higher preferences for sanctions against ex-combatants, on the likelihood of holding a specific discriminatory preference. We find that exposure to conflict is not correlated with any of our three discriminatory preferences. Concerning attitudes towards ex-combatants, we find that only attitudes of distrust increase the likelihood of holding Negative Discriminatory Preferences while decreasing the likelihood of holding Positive Discriminatory Preferences.
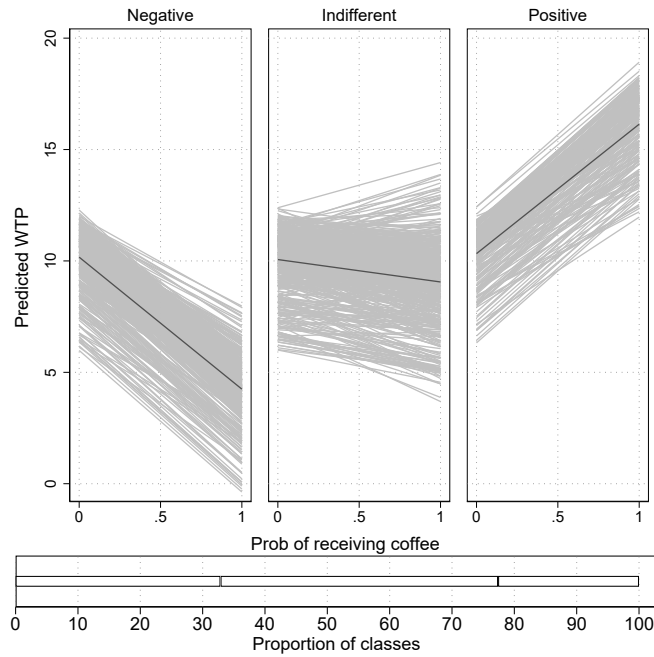
Figure 3.2: Predictions from random slope model and distribution of discriminatory preferences. Note: N=1157. The figure illustrates the predicted WTP for the different probabilities of the three classes estimated. Of the individuals, 33% of the individuals are classified in the first class as holding Negative Discriminatory Preferences. 45% of the individuals are classified in the second class as holding Indifferent Discriminatory Preferences; and the remaining 22% are classified in the third class as holding Positive Discriminatory Preferences.
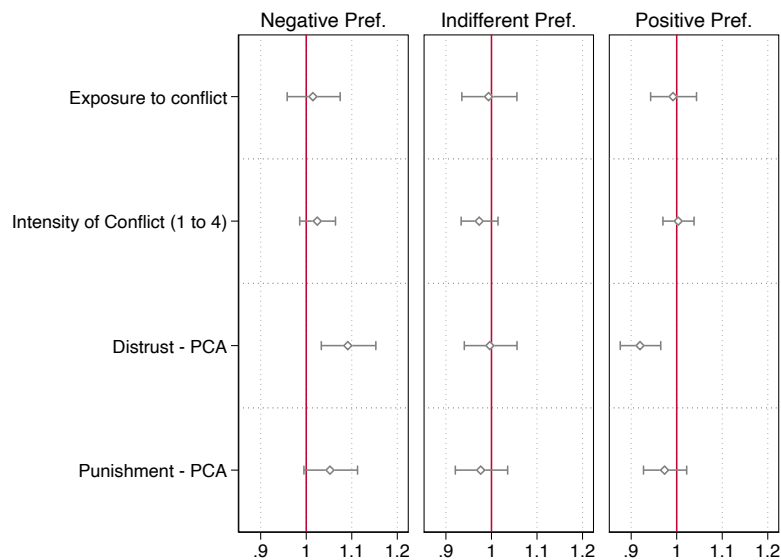
Figure 3.3: Predicted marginal effects of factors explaining discriminatory preferences. Notes: This figure reports the predicted marginal effects of a multinomial logistic model. The dependent variable corresponds to a categorical variable for the different discriminatory preferences: Negative Preferences, Indifferent Preferences, and Positive Preferences. The regressions considered city fixed-effects. Results are adjusted for multiple test using Bonferroni corrections.

3.5.3. Information Avoidance

We now analyze Stage2 of the experiment. We are particularly interested in investigating whether individuals prefer to avoid information related to the coffee producer's identity and whether they use this moral wiggle room to disregard their discriminatory preferences. We, therefore, reduced our sample to 767 individuals randomly assigned to the Endogenous Feedback Treatment (*Endo*), where participants could actively decide whether or not to receive information regarding the producer's identity. Individuals were also exposed to either a high or low probability of receiving one coffee or the other.

The decision regarding information acquisition in the *Endo* Treatment for the *ExComb* group is presented in Figure 3.4. Panel A presents the proportion of participants who decided to avoid the information when they received a High or a Low probability. Panel B presents the proportion of participants who avoided information in each of the three categories of discriminatory preferences. Overall, about 22% of the participants in the *ExComb* group decided not to acquire information related to the identity of the coffee's producer. However, we find no significant differences in the information avoidance decision between probabilities to receive coffee from ex-combtatants' cooperative (Test of proportions, p-value = 0.397). Neither did we find differences in the decision of information avoidance between the categories of discriminatory preferences (multiple comparison test, test of ANOVA p-value = 0.748).
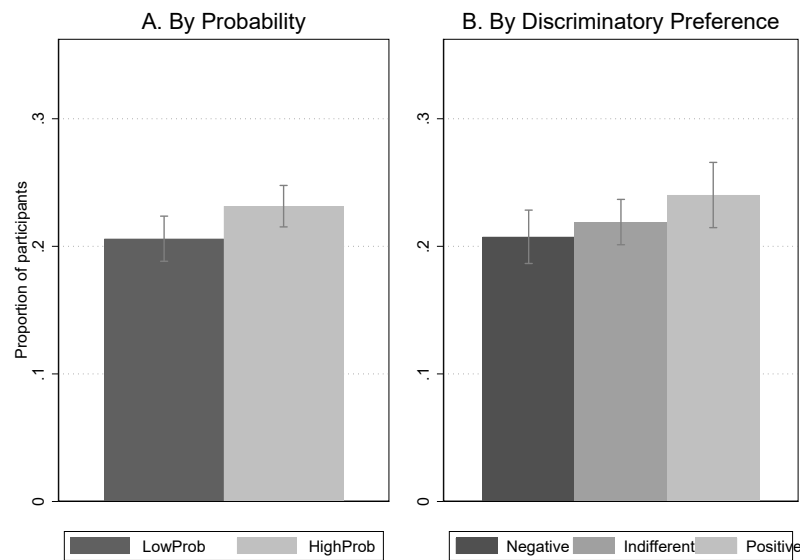
Figure 3.4: Proportion of participants avoiding information. Note: The figure reports the proportion of participants that decided to avoid information regarding the identity of the coffee in the *Endo* Treatment and in the *ExComb* group. In total, 779 participants are in these treatments.

To analyze whether avoiding information related to the producer's identity is used to disregard discriminatory preferences, we calculate ΔWTP_i following Equation 3.4 and estimate the model according to Equation 3.5. We expected participants to use this moral

wiggle room to disregard their discriminatory preferences by significantly changing their WTP from the one stated in Stage 1 of the experiment. We can partly confirm Hypothesis 3. Figure 3.5 shows the predictive marginal effects of the linear model for the *ExComb* group. Compared to non-revealers in the LowProb group, Revealers do not significantly change their WTP from Stage 1 in any of the discriminatory categories. Similarly, participants holding Indifferent and Positive Discriminatory Preferences in the HighProb group do not change their behavior after the information treatment. However, non-revealers holding Negative Discriminatory Preferences in the HighProb group pay, on average, 1.39 korus more than in the first stage and disregard their discriminatory preferences. This difference is statistically significant at the 5% level (p-value=0.012).
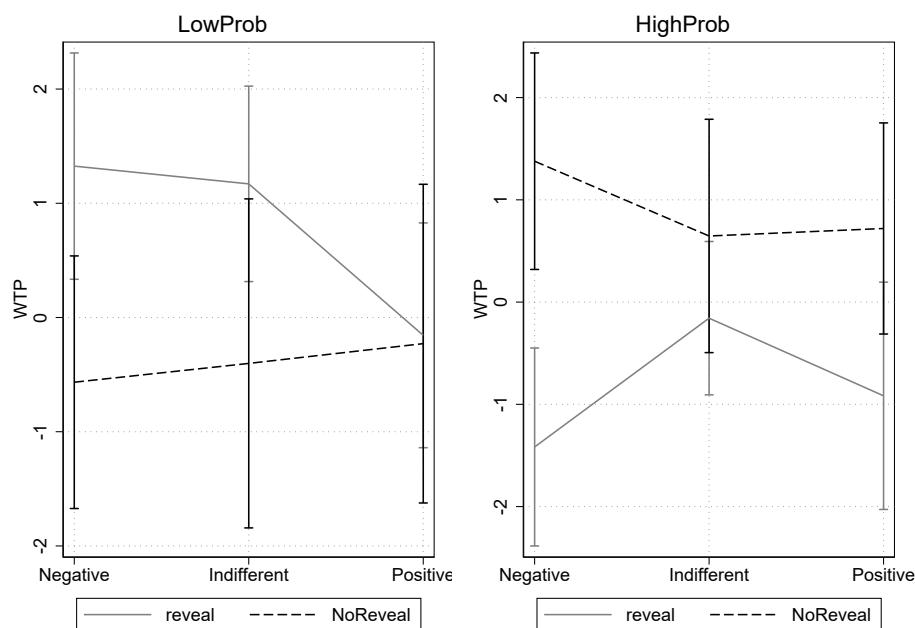
Figure 3.5: Behavior after information treatment. Note: This figure presents the predictive marginal effects of avoiding information on the change of the WTP from Stage 1. Control variables include ambiguity aversion, survey duration, taste for coffee, gender, age, employment status, socio-economic strata, and whether the participant has completed higher education. The graphs display confidence intervals of 95%.

To summarize, our results show that only a small proportion of participants avoid information regarding the producer's identity, and only those participants holding Negative Discriminatory Preferences use this moral wiggle room as a mechanism to disregard their discriminatory preferences.

3.5.4. Robustness Checks

The following section provides some robustness checks of the previous results. First, we repeat the entire analysis for the *Placebo* group presented with two coffees produced by farmers' cooperatives. Therefore, we expect that discriminatory preferences in this group

result only from taste for coffee or preferences for higher probabilities, that participants would be indifferent between revealing or not revealing information, and that there are no significant changes in the stated WTP after information treatment. Similarly to the *ExComb* group, the results of the multi-level GLLAMM for the *Placebo* group indicate a three-class solution (See Figure 3.A3 in the Appendix). One class decreases the WTP when the probability of receiving one coffee over the other increases. A second class in which probability increases do not affect the WTP and a third class in which WTP increases when the probabilities of receiving coffee are higher. However, we find no significant effects when looking at the determinants (i.e., experience with conflict and attitudes of distrust and sanctions) of these discriminatory preferences (See Figure 3.A4 in the Appendix). These results suggest that the identity of the coffee producers affects discriminatory preferences.

Next, we look at information avoidance and consistency of participants' behavior in the *Placebo* group. Our results revealed that the proportion of individuals avoiding information in the *Placebo* group is lower and statistically different from the proportion in the *ExComb* group (test of proportions, p-value = 0.055). Since participants in this group would receive one of two coffees produced by farmers' cooperatives, we expect that revealing the cooperatives' identity would not give participants any additional information. In this case, wanting to reveal information is a matter of curiosity. Therefore, there should not be any difference in the proportion of avoiders between the categories of discriminatory preferences. Moreover, their stated WTP after receiving the information should not differ significantly from the WTP offered in the first stage. Our results show that about 20% of all participants in the *Placebo* group decided not to acquire the information, and there are no significant differences regarding the probability of receiving one coffee or the other. Moreover, the proportion of avoiders does not differ between categories of discriminatory preferences (multiple comparison test, p-value = 0.958), and no statistical differences are found in the stated WTP after revealing or not revealing.

As a second robustness check, we test whether the effect of the identity of coffee and information avoidance on the WTP is robust to how the categories of discrimination are constructed. First, we consider whether the results change if we use a different approach to classify individuals by their discriminatory preferences. We estimate individual ordinary least square regressions of the form $WTP_j = \beta_0 + \beta_p Probability_j + \beta_X X + \epsilon$. We classify individuals into three different groups according to the sign and statistical significance of β_p: individuals holding Negative Discriminatory Preferences (if $\beta_p < 0$), Positive Discriminatory Preferences (if $\beta_p > 0$), and Indifferent Discriminatory Preferences (if $\beta_p = 0$). The distribution of the discriminatory preferences for the *ExComb* and the *Placebo* group is presented Figure 3.A6 in the Appendix. For the *ExComb* group, the Indifferent Discriminatory Preferences group contains the largest proportion of subjects, representing 68% of the participants. Meanwhile, 23% of the participants hold Negative Discriminatory Preferences, while 9% hold Positive Discriminatory Preferences in the *Ex-Comb* group. Additionally, we find that results on the factors explaining this discrimination are robust to the importance of attitudes of distrust towards ex-combatants. However, in this case,

experience with conflict and attitudes toward punishment significantly explain Positive Discriminatory Preferences (See Figure 3.A7 in the Appendix). Nevertheless, we believe that fitting a generalized linear latent and mixed model GLLAMM is preferable to Ordinary Least Squares (OLS) to classify individuals for two reasons. First, by using a multi-level model, we can account for the dependence of the observations and reduce the probability of a Type-I error (Hox & Mass, 2005). The dependence problem arises with the nature of our experimental design, in which the data are a series of repeated measurements nested within individuals. Second, our variable of interest, discriminatory preferences, is not directly observed. Rather, it is measured by a response variable stacked in a single vector. A linear mixed model allows for specifying the relationship between observed responses (or indicators) and latent and observed explanatory variables (Rabe-Hesketh et al., 2004a) and has proved to result in less biased standard errors and more consistent parameter estimates compared to using constructed scores as proxies for latent variables (Skrondal & Laake, 2001).

3.6. Discussion and Conclusion

This paper studies discrimination against ex-combatants in the aftermath of conflict. We elicit discriminatory preferences using a two-stage online experiment. Recognizing the limitations of previous studies using dictator and trust games, we use a novel repeated measures design to assess discrimination in a more natural set-up, using the willingness to pay in a real purchase decision. Further, we analyze the role of information avoidance in exacerbating discrimination. The study is conducted in Colombia, a country that signed a peace agreement with one of the oldest guerilla groups in Latin America in 2016, reintegrating about 13,000 ex-combatants into the society.

Our results show that, on average, participants demand a 17% discount for coffee from ex-combatants. This finding, although in line with other studies that also showed the presence of discrimination against ex-combatants (Osborne et al., 2018; Cárdenas et al., 2014), analyzes the heterogeneity of this discrimination. We use generalized linear latent and mixed models that allow us to use the repeated measure nature of our design to explore the effect of increases on the probability of receiving coffee from ex-combatants for different groups of individuals. We show that participants can be classified into one of three classes of discriminatory preferences. 33% of the individuals discriminate negatively, 45% are indifferent, and 22% hold Positive Discriminatory Preferences. Although these results could suggest that a peace label might not benefit ex-combatants and that anonymous participation in the market might be preferable, we believe these results need to be interpreted with caution.

First, a large proportion of the participants expressed being indifferent or even willing to pay a premium price for ex-combatants' coffee. Moreover, we find that attitudes of distrust towards ex-combatants are positively correlated with negative discrimination. Second,

we find that, in our setting, about 20% of the participants decided to avoid information regarding the identity of the coffee producer. However, information avoidance does not exacerbate discrimination. When given the option of using moral wiggle room to behave selfishly, only participants holding Negative Discriminatory Preferences significantly changed their offers, but they behaved more pro-socially. Last, the proportion of avoiders in our experiment is slightly lower than the proportion of individuals avoiding information in Dana et al. (2007) experiment. The lower proportion may be due to an inherent curiosity, as suggested by Golman & Loewenstein (2015). Since the information provided in the experiment after revealing was only related to the producer's identity, the large amount of revealers points out that participants may want to know more than the producer's identity. We can confirm this since more participants within the discrimination, indifferent, and positive categories revealed information but did not use that information statistically differently than the no-revealing participants in these categories.

Therefore, reintegration initiatives that involve direct contact with the receiving community, such as the production and distribution of goods produced by ex-combatants, may increase the possibility that individuals get to know the ex-combatants and their work. Future research should explore whether a peace label that provides information about the product's story may serve as a tool to promote attitudes of trust toward ex-combatants.

3.A. Appendix

Table 3.A1: Cities in Colombia where the experiment took place and the number of participants per city

Code	Department	City	n per City	women
11001	Bogotá, D.C.	Bogotá, D.C.	680	348
05001	Antioquia	Medellín	184	95
76001	Valle del Cauca	Cali	203	106
08001	Atlántico	Barranquilla	124	64
13001	Bolívar	Cartagena	87	42
54001	Norte de Santander	Cúcuta	65	32
68001	Santander	Bucaramanga	58	28
73001	Tolima	Ibagué	50	25
47001	Magdalena	Santa Marta	40	21
20001	Cesar	Valledupar	34	17
50001	Meta	Villavicencio	38	19
23001	Córdoba	Montería	39	19
66001	Risaralda	Pereira	46	24
17001	Caldas	Manizales	41	21
52001	Nariño	Pasto	32	16
41001	Huila	Neiva	32	16
19001	Cauca	Popayán	26	12
63001	Quindio	Armenia	31	16
70001	Sucre	Sincelejo	23	12
44001	La Guajira	Riohacha	15	7
15001	Boyacá	Tunja	15	8
Total			1963	948
				50.89%

Note: This Table presents the list of the 21 cities included in the study, the number of participants in each city and the total number of women in each city.

3.A.1. Principal Component Analysis

Table 3.A2: Attitudes towards ex-Combatants

	Statement	Mean	SD
1	FARC ex-combatants are different from most people *	2.865	0.699
2	Only the minority or none of ex-FARC combatants are seriously dangerous	2.738	0.756
3	It is not wise to trust FARC ex-combatants too much *	2.713	0.716
4	FARC ex-combatants need affection just like anyone	3.294	0.622
5	Trying to reinstate a former FARC combatant is a waste of time and money *	3.158	0.655
6	FARC ex-combatants are not better or worse than other people	3.018	0.720
7	If you treat a former FARC combatant with respect, he / she will do the same to you	3.149	0.614
8	There are some ex-FARC combatants that could be trusted	3.010	0.645
9	Many ex-FARC combatants cannot lead a life of legality *	2.539	0.759
10	I wouldn't mind if a former FARC combatant is my neighbor	2.972	0.747
11	Most ex-FARC combatants have the same values as the rest of us	2.864	0.751
12	I would never let my child date someone who was in the FARC guerilla *	2.676	0.780
13	FARC ex-combatants are immoral *	2.954	0.666
14	FARC ex-combatants are just bad people *	3.120	0.615
15	Most FARC ex-combatants will be able to reintegrate	3.037	0.672
16	Some of the ex-FARC combatants are good people	3.144	0.611
17	I would like to have contact with some of the FARC ex-combatants	2.606	0.812
18	Former FARC combatants will maintain their violent strategies, and will continue to be involved in criminal proceedings instead of reintegrating into society *	2.853	0.690
19	FARC ex-combatants deserve a second chance	3.278	0.627
20	Ex-combatants should not be rewarded for the crimes they committed *	1.961	0.838

Note: 20 statemates used to measure individuals attitudes towards ex-combatants. We ask participants for their opinion using a 4-point Likert scale. *Indicates reverse scored item.
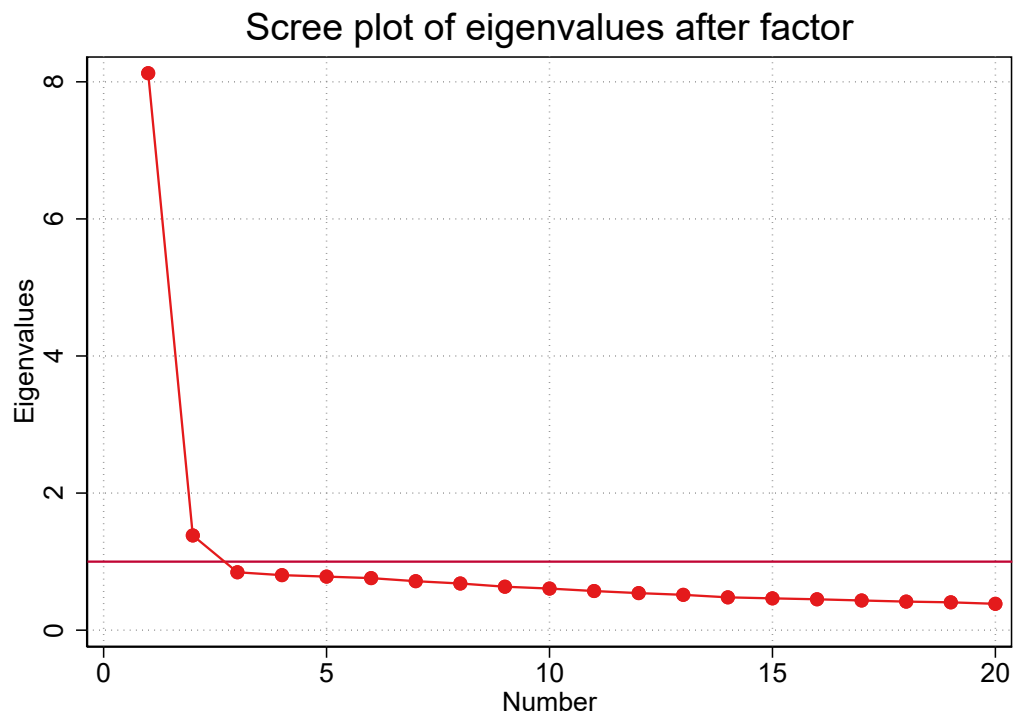
Figure 3.A1: Scree plot of eingenvalues. Note: N=1183. Figure ilustrates the results of the principal component analysis. The Kaiser-Meyer-Olkin (KMO) statistic indicates marvelous adequacy correlated variables (KMO=0.9671). To decide the number of factor we used the Kaiser criterion, that extracts all the factors with eingenvalues larger than 1. The figure supports the results of a two-factor solution, two factors exhibit eingenvalues larger than 1. The first two components account for 48% of the variance in the data

Table 3.A3: Factor rotation output

Statement	Factor1	Factor2	Uniqueness
1	0.2147	0.5442	0.6567
2	0.5118	0.1579	0.7132
3	0.3789	**0.6534**	0.4295
4	**0.7216**	0.1720	**0.4497**
5	0.5024	0.5246	0.4724
6	0.5510	0.1759	0.6655
7	0.6581	0.2148	0.5208
8	**0.7205**	0.1656	**0.4534**
9	0.1191	0.6009	0.6247
10	**0.6087**	0.3907	**0.4768**
11	0.5397	0.3444	0.5902
12	0.3617	**0.6232**	0.4808
13	0.3483	0.5852	0.5362
14	0.5513	0.4869	0.4590
15	0.6182	0.2592	0.5507
16	**0.7500**	0.0780	**0.4314**
17	0.5507	0.4220	0.5187
18	0.3733	**0.6519**	**0.4357**
19	**0.6962**	0.3221	**0.4116**
20	-0.0562	0.6190	0.6136
Label	Punishment	Trust	

Notes: Table shows the factor loadings of each statement after orthognal rotation. We assigend each statement to a certain factor based on its maximun absolute factor loading. We have selected the statements that belong to each factor after evaluating the Goodness-of-fit of the Factor Solution - i.e., the uniqueness value is lower than 0.50.

3.A.2. Results

Table 3.A4: Descriptive statistics

	(1) Placebo	(2) WithExCombatants	(3) p-value
Male	0.493	0.490	0.874
	(0.500)	(0.500)	
Age	35.558	34.601	0.009***
	(7.590)	(7.618)	
Employment	0.793	0.758	0.087*
	(0.405)	(0.428)	
Low-Mid income	0.789	0.797	0.707
	(0.408)	(0.403)	
High education (=1)	0.818	0.808	0.574
	(0.386)	(0.394)	
Risk choice (1 to 6)	2.931	2.826	0.182
	(1.693)	(1.593)	
Ambiguity aversion	0.300	0.260	0.063*
	(0.459)	(0.439)	
Non lineal probability	0.805	0.830	0.190
	(0.396)	(0.376)	
Minutes spent in the survey	35.655	37.030	0.056*
	(13.998)	(15.363)	
Experience in platform (years)	3.266	3.307	0.605
	(1.620)	(1.622)	
Taste for coffee	8.138	8.036	0.397
	(2.497)	(2.490)	
Comprenhension	1.722	1.724	0.945
	(0.751)	(0.754)	
Observations	683	1150	1833

Notes: Low-Mid income is a dummy variable equal 1 if participant reports an economic strata equal or lower than 3, in a scale from 1 to 6. Risk choice gives the selected lottery out of six binary lotteries presented in the form of a ring. Each lottery had two possible outcomes. Higher values indicate a high risk loving behavior. Ambiguity aversion is a dummy equal 1 if participants take fewer risk in a new set of six lotteries where the possible outcomes are the same but the chances of either the good or bad out- come are uncertain. Non lineal probability is a dummy equal 1 if a participant underweights high probabilities and overweights very low probabilites. Taste for coffee gives the subjective evaluation of how much the participant likes to drink coffee on a scale from 1 to 10. Comprehension gives the number of times a participant needed to correctly answer the questions regarding the comprehension of the task. p-values reported from a two-sided t-test.

Table 3.A5: External validity

	(1) Census	(2) (Invited Sample)	(3) Final Sample
Women	0.512	0.529	0.501
Employment	0.544	0.656	0.771
Low-Mid income	0.820	0.763	0.691
High education (=1)	0.300	0.608	0.833
Total		8031	1833

Notes: This table shows basic characteristics of Colombians from the Census 2018, participants invited to participate in the study, and the final sample.

Table 3.A6: Models fit

Models	Model fit criteria				
	LL(initial)	LL	df	AIC	BIC
Random-intercept	.	-18274.29	25	36598.58	36769.36
Random-coefficient	.	-17923.41	32	35910.81	36129.42

Notes: This table shows the results of a likelihood-ratio test to compare the random-coefficient model with the random-intercept model. LL= Log-likelihood. AIC= Akaike information criterion. BIC=Bayesian information criterion.

Table 3.A7: Evaluating Class Solution

Models	Model fit criteria				
	LL(initial)	LL	df	AIC	BIC
2 Class	.	-20253.37	13	40532.73	40621.54
3 Class	-20253.37	-20147.49	15	40324.99	**40427.46**
4 Class	-20147.49	-20145.16	17	40324.31	40440.45

Note: This table shows the results of a likelihood-ratio test to campare the GLLAMM model with random coefficients for different classes. Sample size=1157 individuals. LL = Log-likelihood. AIC = Akaike information creterion. BIC = Bayesian information criterion.
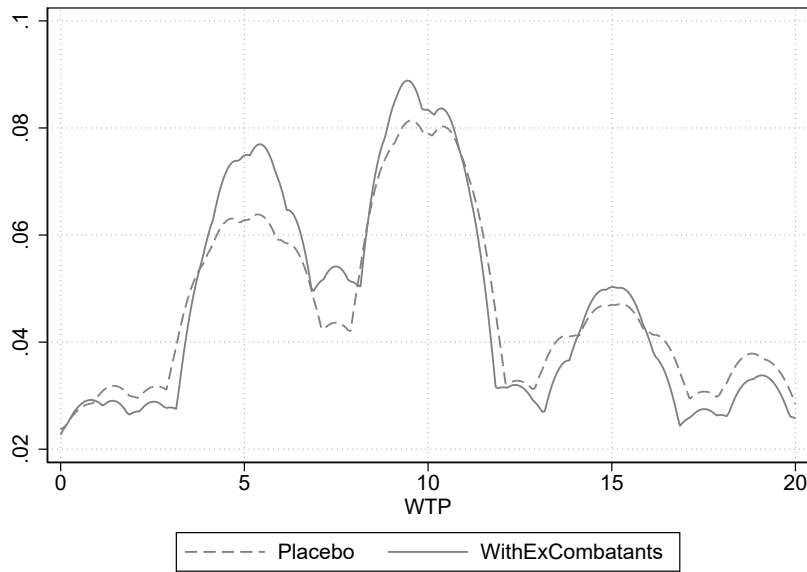
Figure 3.A2: Distribution of WTP

3.A.3. Results for the Placebo Group
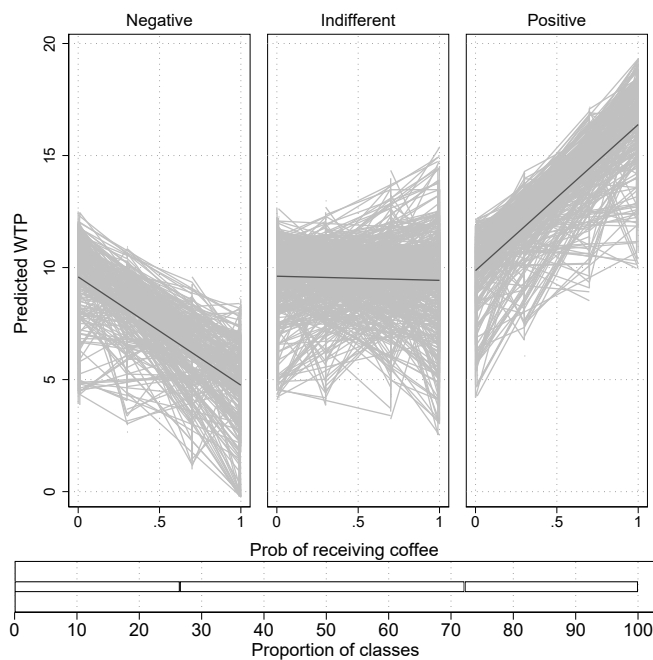
Figure 3.A3: Predictions from random slope model and distribution of discriminatory preferences - Placebo Group. Note: N=695. Figure ilustrates the predicted WTP for the different probabilities of the three classes estimated. 26% of the individuals are classify in the first class as holding negative discriminatory preferences. 46% of the individuals are classify in the second class, as holding indifferent discriminatory preferences. The remaining 28% are classify in the third class, as holding positive discriminatory preferences.
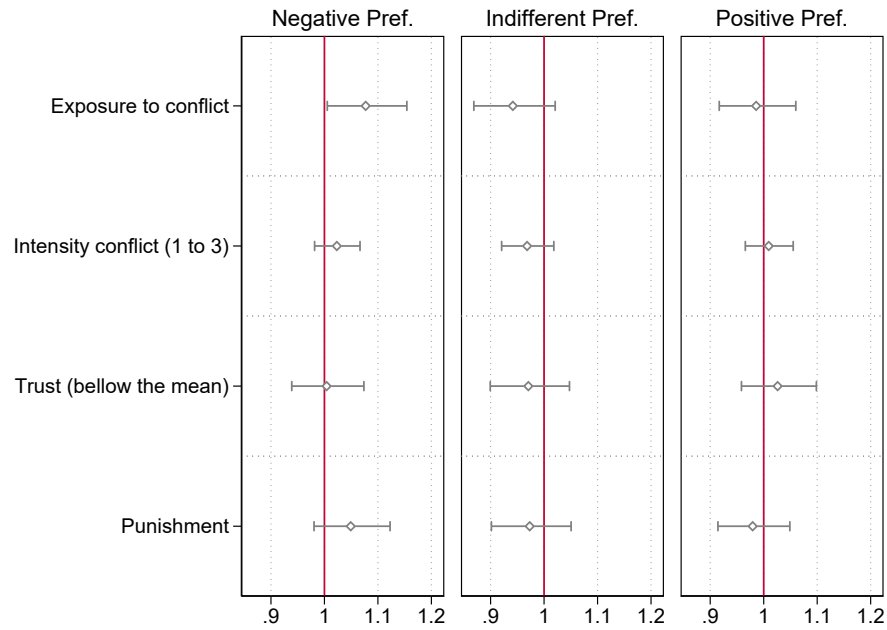
Figure 3.A4: Predicted marginal effects of factors explaining discriminatory preferences - Placebo Group. Notes: This figure reports the predicted marginal effects of a multinomial logistic model. The dependent variable correspond to a categorical variable for the different discriminatory preferences. The regression considers city fixed-effects. The results are adjusted for multiple test using Bonferroni corrections.
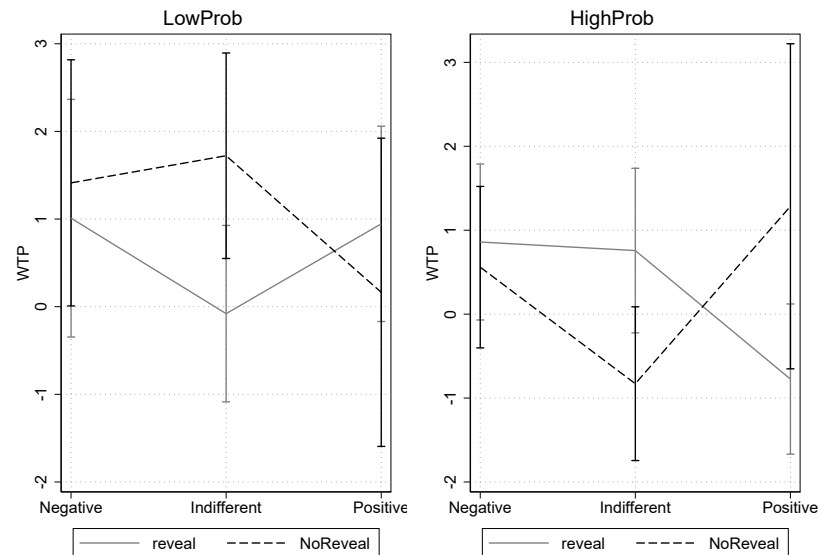
Figure 3.A5: Behavior after information treatment - Placebo Group. Notes: This figure presents the predictive marginal effects of avoiding information on the change of the WTP from Stage 1. The graph displays confidence intervals of 95%

3.A.4. Robustness Checks
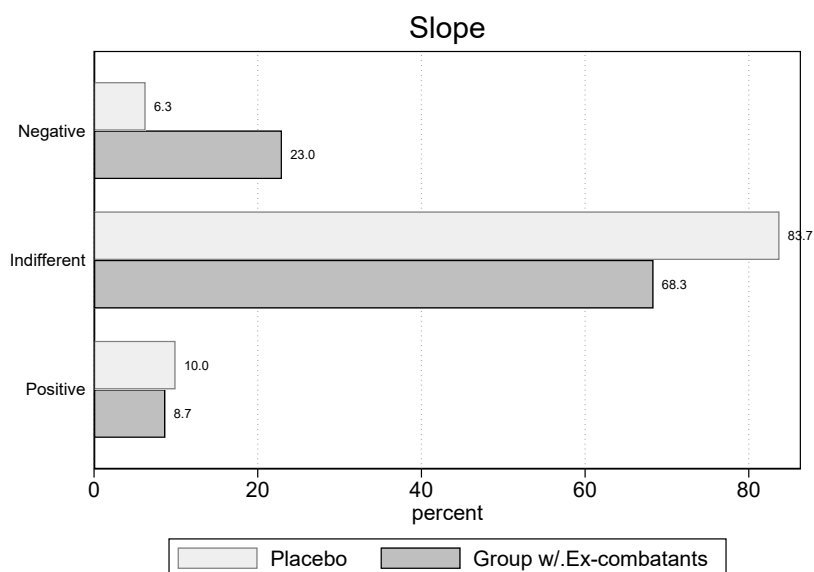
Figure 3.A6: Comparing discrimination classification. Notes: This graph shows the distribution of the discriminatory preferences after estimating individual ordinary least square regressions.
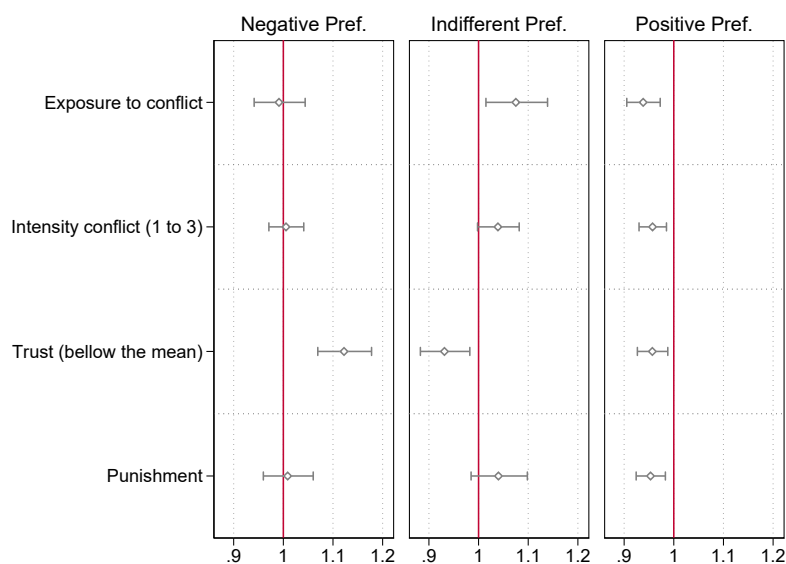
Figure 3.A7: Predicted marginal effects of factors explaining discrimination - Alternative discrimination. Notes: This figure reports the predicted marginal effects of a multinomial logistic model. The dependent variable correspond to a categorical variable for the different discriminatory preferences. The regression considers city fixed-effects. The results are adjusted for multiple test using Bonferroni corrections.

3.A.5. Protocol Questionnaire and Experiment

This is a translation, original language was Spanish.

This survey is divided into 3 sections. You will have the opportunity to gain extra Korus in addition to those corresponding to the survey. The exact number of Korus will depend on the decision that you make, so pay attention to the following instructions.

What is this survey about?

In the first section, you will do two exercises that will allow you to earn an extra 20 Korus in addition to those corresponding to the survey. The Korus will only be effective after completing the entire survey.

You will make economic decision in the second section with the 20 Korus that you earned.

You will indicate the maximum value that you would be willing to pay for a product.

In the third section, you will be asked to answer some questions about your personality and opinions.

We will provide you with detailed instructions at the beginning of each section.

Section 1

In this first section, you will do 2 exercises that will allow you to earn an extra 20 Korus in addition to those corresponding to the survey.

Exercise 1: You will see 20 bars on the screen. Each bar has values ranging from 0 to 100. You have to position each bar exactly at number 50. The position will be displayed to the right of each bar.

Exercise 2: In this second exercise you will see 10 tables on the screen. You have to find and mark all the "1" in each table.

Section 2

In this section, you will have to take some economical decisions with the 20 Korus from the first section.

What do you have to do?

- You are asked to indicate how much you would be willing to pay for a product.
- The lowest value that you can pay is **0 Korus,** and the maximum is **20 Korus.**
- If the price you indicate exceeds the **sales price**, you will pay the price and receive the product in addition to the remaining Korus.
- If the price you indicate is less than the **sales price**, you will not receive the product and will keep the 20 Korus.

We want to make sure that you understood the instructions before continuing with the activity. Please pay attention to the following example. You will be asked follow-up questions to verify your understanding.

You have 20 Korus. Suppose you indicate that you would be willing to pay 18 Korus for the product, and the sales price is 5 Korus.

Would you receive the product?

Yes, the sales price (5) is less than your indicated price (18). Hence, you would receive the product.

How much would you pay for the product?

You would pay the sales price of 5 Korus.

How many Korus would you have left for the activity?

You would have 15 Korus (20-5 = 15 Korus) left for the activity.

Now, suppose you indicate that you are willing to pay 5 Korus for the product and the sales price is 18 Korus.

Would you receive the product?

No, the sales price (18) is higher than the price you indicated (5). Hence, you would not receive the product.

How much would you pay for the product?

You pay nothing and take the 20 Korus.

How many Korus would you have left for the activity?

You would have 20 Korus left for the activity.

Now please answer the control questions to verify your understanding.

You have 20 Korus. Suppose you indicate that you are willing to pay 10 Korus for the product.

Q1. If the sales price is 5 Korus

    a. *Would you receive the product? _____(1) Yes_____ (2) No_____ (3) Don't know*
    b. *How much would you pay for the product? _____*
    c. *How many Korus would you have left for the activity? _____*

Now suppose you indicate that you are willing to pay 5 Korus for the product.

Q1. If the sales price is 10 Korus

    a. *Would you receive the product? _____(1) Yes_____ (2) No_____ (3) Don't know*
    b. *How much would you pay for the product? _____*
    c. *How many Korus would you have left for the activity? _____*

Excellent! You can continue with the activity.

What is the product that you can purchase with the 20 Korus?

You can purchase high-quality Arabica coffee that is produced with sustainable technologies that respect the environment, and the cup rating categorizes them as "exemplary regional plus" coffees. The coffee can be produced by one of two cooperatives:

Coffee W is produced by a cooperative of ex-combatants of the FARC.

Coffee Z is produced by a peasant cooperative.

The coffees W and Z are produced by two different cooperatives.

- *We will present you 7 scenarios with different probabilities of purchasing coffee W and coffee Z.*
- *We will use 100 cards with the letters W or Z written on them to present the probabilities.*
- *For each of the scenarios, you will have to indicate the maximum price that you are willing to pay to purchase half a pound of coffee.*
- *You can indicate a price between 0 and 20 Korus.*

- *At the end of the survey, one of the 7 scenarios will be selected, and you will receive the type of coffee based on that scenario.*
- *If the card with the W is selected, you will buy coffee W and if the card with the Z is selected, you will receive coffee Z.*
- *The product's sales price will be determined randomly and is between 0 and 20 Korus. The sales price will be compared with the maximum value you indicated you were willing to pay.*

Remember that:

- *If the sales price is prices is lower than the maximum value you indicated you were willing to pay, **you will receive the product and the sales price will be subtracted from your 20 Korus.***
- *If on the contrary the sales price is higher than the maximum value you indicated you were willing to pay, **you will not receive the coffee and only receive the 20 Korus.***

Let's begin!

1. *You have 20 Korus. Indicate the value that you are willing to pay for half a pound of one of these two types of coffee if there are:*

   Picture Café W   *Picture Café Z*

   100 cards   *0 cards*

   _____ *(Remember that you can indicate a value between 0 and 20 Korus.)*

2. *You have 20 Korus. Indicate the value that you are willing to pay for half a pound of one of these two types of coffee if there are:*

   Picture Café W   *Picture Café Z*

   0 cards   *100 cards*

   ____ *(Remember that you can indicate a value between 0 and 20 Korus.)*

3. *You have 20 Korus. Indicate the value that you are willing to pay for half a pound of one of these two types of coffee if there are:*

   Picture Café W   *Picture Café Z*

   1 cards   *99 cards*

   ____ *(Remember that you can indicate a value between 0 and 20 Korus.)*

4. *You have 20 Korus. Indicate the value that you are willing to pay for half a pound of one of these two types of coffee if there are:*

   Picture Café W   *Picture Café Z*

   30 cards   *70 cards*

   ____ *(Remember that you can indicate a value between 0 and 20 Korus.)*

5. *You have 20 Korus. Indicate the value that you are willing to pay for half a pound of one of these two types of coffee if there are:*

   Picture Café W   *Picture Café Z*

   70 cards   *30 cards*

_____ *(Remember that you can indicate a value between 0 and 20 Korus.)*

6. *You have 20 Korus. Indicate the value that you are willing to pay for half a pound of one of these two types of coffee if there are:*

        Picture Café W   *Picture Café Z*

        99 cards   *1 cards*

        _____ *(Remember that you can indicate a value between 0 and 20 Korus.)*

7. *This time we will consider the scenario that contains:*

        Picture Café W   *Picture Café Z*

        30 cards   *70 cards*

Now let us choose one of the two coffees, keeping in mind that the probability of acquiring coffee type W is 30% and the probability of acquiring coffee type Z is 70%.

[Button] "Choose coffee."

The coffee of the ___ cooperative has been selected by the lottery.

Q5. You have 20 Korus. Indicate the value that you are willing to pay for half a pound of the selected coffee ___. (Remember that you can indicate a value between 0 and 20 Korus.)

7. *This time we will consider the scenario that contains:*

        Picture Café W   *Picture Café Z*

        30 cards   *70 cards*

Now let us choose one of the two coffees, keeping in mind that the probability of acquiring coffee type W is 30% and the probability of acquiring coffee type Z is 70%. Later, you are asked to indicate the maximum value that you are willing to pay.

The lottery has selected one of the two types of coffee.

Q.4 Select one of the following options:

a. *Show the type of coffee that was selected before indicating the maximum amount that I am willing to pay*
b. *Indicate the maximum amount that I am willing to pay.*

<div align="center">

Picture Café Z

</div>

Q.5 You have 20 Korus. Indicate the value that you are willing to pay for half a pound of the selected coffee ___. (Remember that you can indicate a value between 0 and 20 Korus.)

Picture of unprinted coffee bag

Q.5 You have 20 Korus. Indicate the value that you are willing to pay for half a pound of the selected coffee ___. (Remember that you can indicate a value between 0 and 20 Korus.)

Section 3

In this last section you will see some questions about your personality and opinions

P1. How much do you like to drink coffee?

Use this scale from 1 to 10, 1 being "Not at all" and 10 "A lot"

Not at all |__ |__ |__ | __|__|__ |__ |__ |__ |__ | A lot

         1 2 3 4 5 6 7 8 9 10

P2. How often do you drink coffee?

(1) Every day
(2) 2 or 3 times a week
(3) Once a week
(4) Less than once a week
(5) Never

Q6. In general, how satisfied are you with your life?

(1) Very satisfied
(2) Somewhat satisfied
(3) Somewhat unsatisfied
(4) Very unsatisfied

Q7. Some people feel that they have complete choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. How much freedom of choice and control do you feel you have over the way your life turns out?

Use this scale from 1 to 10, where 1 means "No options" and 10 means "Many options"
No options |__ |__ |__ | __|__|__ |__ |__ |__ |__ | Many options
        1 2 3 4 5 6 7 8 9 10

Q8. Now think about your interactions with other people. How much do you agree with the following statements?

(1) Strongly agree   (2) Agree   (3) Disagree   (4) Strongly disagree

Q8.a1. Helping others is a waste of time 1/2/3/4

Q8.a2. Helping people in need is very important to me 1/2/3/4

Q8.a3. I try to offer my help in community activities 1/2/3/4

Q8.a4. Helping others is not so good because people get used to depending on others 1/2/3/4

Q8.b1. In general, forgiving someone depends on the offender asking for forgiveness and making some changes 1/2/3/4

Q8.b2. There are times when people should not be forgiven 1/2/3/4

Q8.b3. Over time I can understand the other when they have made a mistake 1/2/3/4

Q8.b4. If someone treats me badly, I treat that person the same 1/2/3/4

Q8.c1. In general I am a patient person 1/2/3/4

Q8.d1. If someone does me a favor, I always return the favor 1/2/3/4

Q8.d2. I am always willing to help someone who has helped me in the past 1/2/3/4

Q9. How willing are you to take risks?

Use a scale from 1 to 10, where 0 means "Not at all willing to take risks" and 10 means "Very willing to take risks"

Not at all willing to take risks |__|__|__|__|__|__|__|__|__|__| Very willing to take risks
                  1 2 3 4 5 6 7 8 9 10

Q10. Now you will see 6 circles. Each circle corresponds to a lottery. Each half of the circle shows a possible event and the number of Korus to win associated with each event. Each event occurs with the same probability. Suppose you can choose only one of the 6 lotteries.

Loteria F: 0 | 95
Loteria A: 33 | 33
Loteria E: 4 | 91
Loteria B: 25 | 47
Loteria D: 11 | 77
Loteria C: 18 | 62
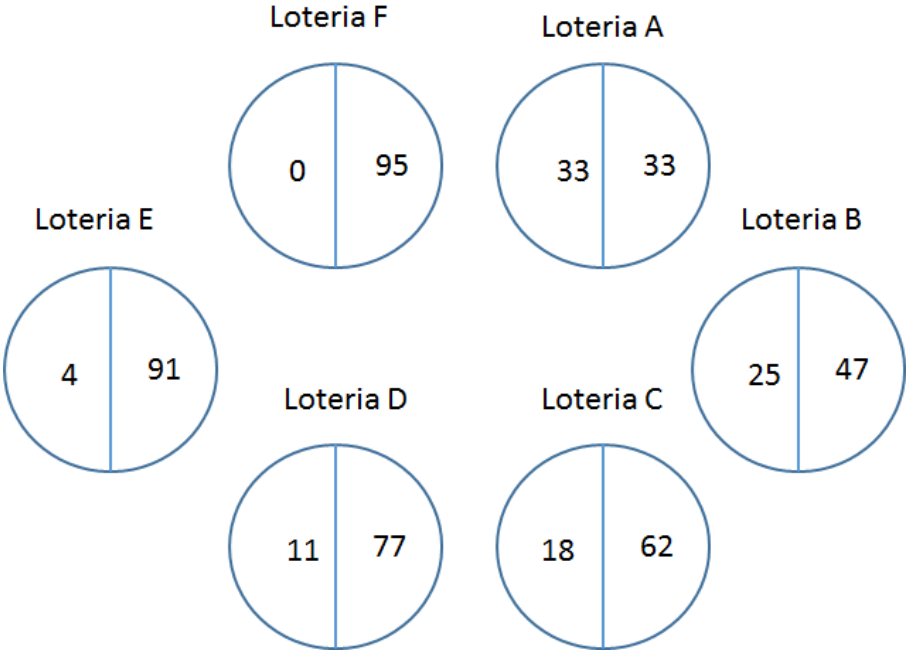
Payment is determined by selecting a ball from a bag containing 10 balls: 5 blue balls and 5 yellow balls.
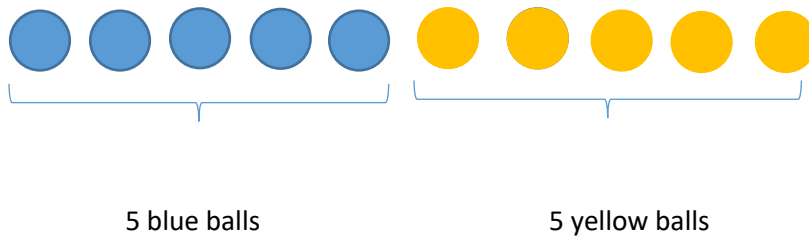
5 blue balls   5 yellow balls

If the ball drawn from the bag is blue, the event to the left of the lottery you have chosen will be executed. If, on the other hand, the ball is yellow, the event to the right of the lottery would be executed. For example, if you choose lottery F and the ball is blue, you would win 0 Korus. If the ball is yellow, you would earn 95 Korus. Which lottery would you choose?

Which of the following lotteries would you choose?

(1) Lottery A
(2) Lottery B
(3) Lottery C
(4) Lottery D
(5) Lottery E
(6) Lottery F

Q.11 The following circles show 6 lotteries. The possible payments are the same from the previous activity but the probability with every event is different. Again, you can only choose one of the 6 lotteries.
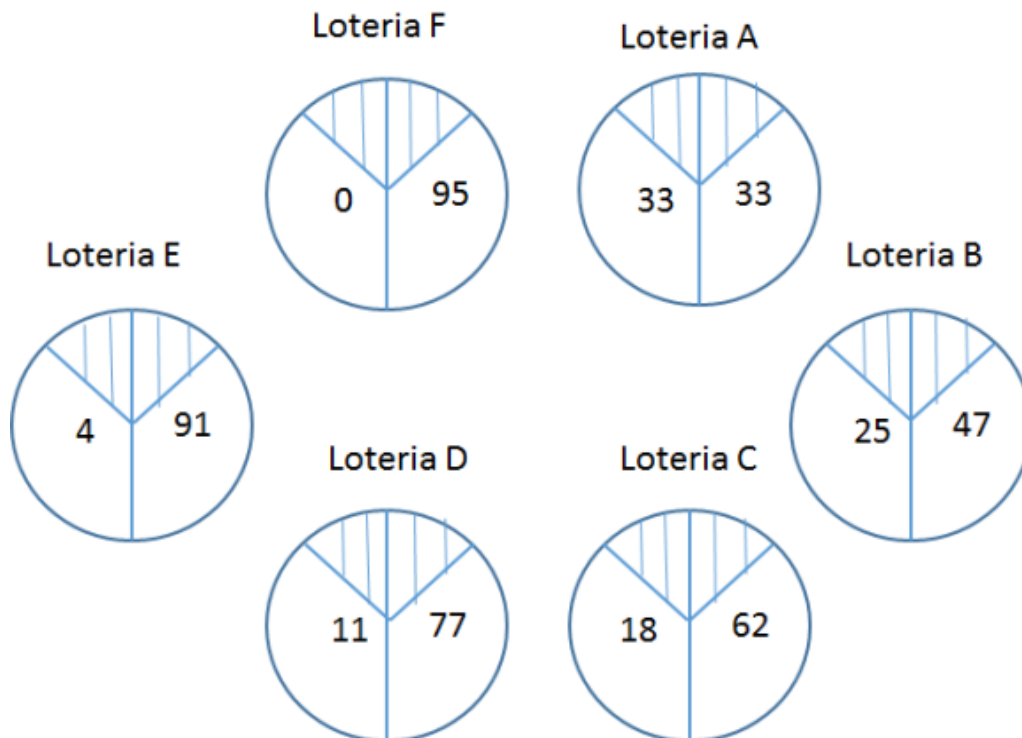
Payment is determined drawing one ball from a bag containing at least 3 blue balls and at least 3 yellow balls. The color of the remaining 4 balls is unknown, that is, they can be blue or yellow, as shown in the image.
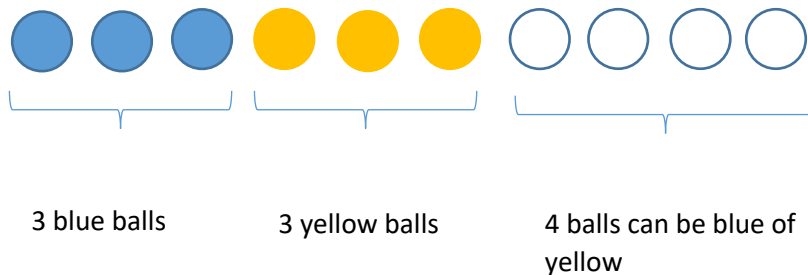
3 blue balls   3 yellow balls   4 balls can be blue of yellow

If the ball drawn from the bag is blue, the event to the left of the lottery you have chosen will be executed. If, on the other hand, the ball is yellow, the event to the right of the lottery would be executed. For example, if you choose lottery F and the ball is blue, you would win 0 Korus. If the ball is yellow, you would earn 95 Korus. Which lottery would you choose?

Which of the following lotteries would you choose?

(1) Lottery A
(2) Lottery B
(3) Lottery C
(4) Lottery D
(5) Lottery E
(6) Lottery F

Q.18 Suppose there are two lotteries with the opportunity to win 250 Korus. One lottery offers a 5% probability of winning the price, the other offers a 30% probability of winning the price.

A. You can improve your probability of winning the first lottery from 5% to 10%

B. You can improve your probability of winning the second lottery from 30% to 35%

Which one of the options, or increments, do you consider more significant?

(1) A
(2) B
(3) I'm indifferent.

Q.19 Suppose there are two lotteries with the opportunity to win 250 Korus. One lottery offers a 65% probability of winning the price, the other offers a 90% probability of winning the price.

C. You can improve your probability of winning the first lottery from 65% to 70%

D. You can improve your probability of winning the second lottery from 90% to 95%

Which one of the options, or increments, do you consider more significant?

(1) C
(2) D
(3) I'm indifferent.

Q.20 Suppose there are two lotteries with the opportunity to win 250 Korus. One lottery offers a 30% probability of winning the price, the other offers a 65% probability of winning the price.

E. You can improve your probability of winning the first lottery from 30% to 35%

F. You can improve your probability of winning the second lottery from 65% to 70%

Which one of the options, or increments, do you consider more significant?

(1) E
(2) F
(3) I'm indifferent.

Q12. How interested are you in the following topics?

(1) Very interested   (2) Somewhat interested   (3) Not very interested   (4) Not interested at all

Q12A. Political and social issues in the country   1/2/3/4

Q12B. International policy   1/2/3/4

Q12C. Economic issues of the country   1/2/3/4

Q12D. 1/2/3/4 Community Issues   1/2/3/4

Q12E. The peace process in the country   1/2/3/4

Q13. How much do you agree with the following statements about peace and law enforcement?

(1) Strongly agree   (2) Agree   (3) Disagree   (4) Strongly disagree

Q13E. Giving employment to ex-guerrillas is important for peace   1/2/3/4
Q13F. The political participation of ex-guerrillas is important for peace   1/2/3/4
Q13LK1. FARC ex-combatants are different from most people *   1/2/3/4
Q13LK2. Only the minority or none of ex-FARC combatants are seriously dangerous 1/2/3/4
Q13LK3. It is not wise to trust FARC ex-combatants too much *   1/2/3/4
Q13LK4. FARC ex-combatants need affection just like anyone   1/2/3/4
Q13LK5. Trying to reinstate a former FARC combatant is a waste of time and money * 1/2/3/4
Q13TRAMPA1. To confirm that you are paying attention, please select "strongly agree" here. 1/2/3/4
Q13LK6. FARC ex-combatants are not better or worse than other people   1/2/3/4
Q13LK7. If you treat a former FARC combatant with respect, he / she will do the same to you 1/2/3/4
Q13LK8. There are some ex-FARC combatants that could be trusted   1/2/3/4
Q13LK9. Many ex-FARC combatants cannot lead a life of legality *   1/2/3/4
Q13LK10. I wouldn't mind if a former FARC combatant is my neighbor   1/2/3/4
Q13LK11. Most ex-FARC combatants have the same values as the rest of us   1/2/3/4
Q13LK12. I would never let my child date someone who was in the FARC guerilla *   1/2/3/4
Q13LK13. FARC ex-combatants are immoral *   1/2/3/4
Q13LK14. FARC ex-combatants are just bad people *   1/2/3/4
Q13LK15. Most FARC ex-combatants will be able to reintegrate   1/2/3/4
Q13TRAMPA1. To confirm that you are paying attention, please select "disagree" here. 1/2/3/4

Q13LK16. Some of the ex-FARC combatants are good people   1/2/3/4
Q13LK17. I would like to have contact with some of the FARC ex-combatants   1/2/3/4
Q13LK18. Former FARC combatants will maintain their violent strategies, and will continue to be
involved in criminal proceedings instead of reintegrating into society *   1/2/3/4
Q13LK19. FARC ex-combatants deserve a second chance   1/2/3/4
Q13LK20. Ex-combatants should not be rewarded for the crimes they committed *   1/2/3/4

Q16. Do you support the final Agreement to end the conflict between the national government and the
FARC group?
    (1) Yes
    (2) No
    (99) I prefer not to answer

Q17. Do you participate in any organization, group or committee that helps implement the peace
agreements reached between the Government and the FARC?
    (1) Yes   (2) No   (99) I prefer not to answer

How well do the following statements apply to your current situation?

C1. Do you get nervous when you think about the current circumstances related to the COVID-19
pandemic?

(1) Strongly agree   (2) Agree   (3) Disagree   (4) Strongly disagree

C2. Are you worried about your own health and that of your family in the context of the COVID-19
pandemic?

(1) Strongly agree   (2) Agree   (3) Disagree   (4) Strongly disagree

C6. How would you assess your current stress level?

Use this scale from 1 to 10, where 0 means "Not stressed at all" and 10 means "Very stressed"

Not stressed at all |__|__|__|__|__|__|__|__|__|__| Very stressed
               1 2 3 4 5 6 7 8 9 10

C7. How would you assess the level of tension between members of your household?

Use this scale from 1 to 10, where 0 means "There is no tension" and 10 means "A lot of tension"

There is no tension |__|__|__|__|__|__|__|__|__|__| A lot of tension
              1 2 3 4 5 6 7 8 9 10

C8. In the past 4 weeks, did you have difficulties in paying your bills?

Use this scale from 1 to 10, where 0 means "Without difficulties" and 10 means "A lot of difficulties"

Without difficulties |__|__|__|__|__|__|__|__|__|__| A lot of difficulties
             1 2 3 4 5 6 7 8 9 10

SD3. What is the highest degree of education completed?

    (1) No education
    (2) Primary (1st - 5th)
    (3) Secondary (6th - 11th)
    (4) Higher or university

(88) I don't know
(99) I prefer not to answer

SD4. What do you mainly do?
(1) Freelance work
(2) Dependent employment
(3) Unemployed
(4) Student
(5) Household chores
(6) Retired, pensioner
(99) I prefer not to answer

SD5. What socioeconomic stratum does your home belong to?

1 ___ 2 ___ 3 ____ 4____ 5____ 6____ Rural without stratification ____

SD6. How often do you attend religious services?

(1) More than once a week   (2) Once a week   (3) Once a month

(4) Once or twice a year   (5) Never or almost never   (99) I prefer not to answer

PA1. Do you currently sympathize with any political party?

(1) Yes   (2) No   (99) I prefer not to answer

EC1. Did any member of your family have to take refuge or leave their place of residence due to the conflict in the country?

(1) Yes   (2) No   (88) I don't know   (99) I prefer not to answer

EC2. Have you lost a family member or close relative as a result of the armed conflict in the country? (Applies if you have a missing family member).

(1) Yes   (2) No   (88) I don't know   (99) I prefer not to answer

EC3. Has any member of your family been forcibly recruited for reasons of the armed conflict?

(1) Yes   (2) No   (88) I don't know   (99) I prefer not to answer

CE1. Do you personally know someone who was in the guerrilla?

(1) Yes   (2) No   (88) I don't know   (99) I prefer not to answer

In section 2, after you gained 20 extra Korus, you indicated how much you were willing to pay for the products (coffee) that were shown in different situations.

Now one of these situations that you have seen before will be selected to determine whether you acquire the coffee. This can be either one of the 7 scenarios from section 2.

Click "Determine sales price" to see which option corresponds to you.

1	4	7	10	13	16	19
2	5	8	11	14	17	20
3	6	9	12	15	18	0

Determine price

The sales price is ____

The following scenario has been selected: ____

The coffee that was selected was from the ____ cooperative.

The price that you indicated you were willing to pay was ____. This price is (higher/lower) than the sales price, which is why you (will receive the coffee together with the remaining Korus/will only receive the Korus). The remaining Korus are ____ / This means you will get the 20 extra Korus plus those that you receive for participating in the survey.

Please state the address where we can send the coffee.

(Pending to define address lines for Colombia)

_____

NOTE: Thank you very much! The coffee will be delivered to your stated address. However, due to the current circumstances (COVID-19), the delivery might be delayed. Thank you very much for your understanding!

END

Chapter 4

Broken Promises and Repeated Conflicts On the Moral Hazard Problem in Peace Agreements

4.1. Introduction

A civil conflict between a national government and a rebel group can end in two ways: either one side admits defeat and surrenders, or the adversaries sign a peace agreement. Recently, peace agreements have emerged as the preferred way to end civil wars (Toft, 2010; Kreutz & Nussio, 2019). However, about 40% of peace agreements cannot consolidate peace for ten years or longer (Walter, 2004; Collier et al., 2008). The literature has agreed that the design of peace agreements (i.e., the number and types of provisions included) is a strong predictor of the durability of peace (Mattes & Savun, 2009, 2010; Badran, 2014; Karl Derouen et al., 2009; Brancati & Snyder, 2013). However, research on the implementation of a peace agreement and its role in promoting stable peace has received far less attention (Hoddie & Hartzell, 2003; A. K. Jarstad & Nilsson, 2008; Joshi & Quinn, 2017). We theoretically and empirically examine the decision-making process of governments and rebels during the implementation of peace agreements and its implications for the return to conflict.

In this paper, we argue that rebels and the government find themselves in a classical moral hazard dilemma, where governments would be incentivized to lessen the implementation of the promised concessions, with little fear of retaliation, after the rebels have decided to disarm. Governments commonly fear surprise attacks by rebels during peace due to unresolved historical grievances and high returns on unexpected warfare (Murshed & Verwimp, 2008). Therefore, they prefer disarming stipulations to be part of an agreement. When rebels surrender their weapons and dissolve their command structures, they increase their costs of resorting to violence. At the same time, the government has little incentive to implement costly concessions without a significant expectation of punishment. Granting political participation or local autonomy that might aim for stability might also cause a loss in influence, and redistribution measures generate direct financial costs (Karl Derouen et al., 2009). Additionally, cooperation with (former) perpetrators of violence can harm the public opinion of the government (see Tellez, 2019, for a recent discussion). Therefore, slowing down on its commitments is the government's rational choice, which is likely to make forward-looking rebels return to arms and even unlikely to agree to a peace agreement that requires them to surrender their weapons with a low expected payoff in return. This moral hazard dilemma makes it difficult to find a peaceful solution to the conflict in autarky. We claim that rebels would only agree to disarm if neutral third parties can incentivize the implementation of the government's promises.

The international community has the opportunity to provide such incentives for the government. For example, Dreher et al. (2015) show that membership in international organizations (IOs) constitutes a commitment device for time-inconsistent governments. Furthermore, governments that depend more on the international community show higher respect for human rights (Dreher et al., 2012). Hence, an external commitment device, such as international (financial) support conditional on a successful peace process, can be valuable in enforcing peace agreements. If the government's decision to adhere to its promises during the peace process depends not only on its fear of retaliation from the (weakened) rebels but

also on financial incentives from third parties, the cost of under-implementation increases and the moral hazard problem is reduced. Recent work from Karreth et al. (2023) shows evidence in this direction. The authors use 34 comprehensive peace agreements and conclude that extensive ties to intergovernmental organizations (IGOs) and higher volumes of foreign aid in the past can provide incentives and guarantees for implementation.

We model the implementation process as a principal-agent problem, where the rebels (the principal) depend on the government (the agent) to adhere to its promises after signing a peace agreement. Our theoretical model breaks down the peace process into a three-stage game, wherein the rebels and the government alternately select their optimal strategy. We let the rebels choose first whether to engage in a peace agreement and, if so, whether to agree to disarm or not. The rebels expect fewer concessions for a peace agreement without disarming stipulations but formulate higher demands if they agree to surrender their weapons. In the next stage, the government takes the rebels' disarming decisions and concession demands as given and decides whether or not to implement the demanded concessions. Finally, the rebels observe the government's implementation decision and decide whether to remain at peace or re-arm and go back to civil war. Each decision comes with different costs and potential payoffs, most of which we assume to be exogenously determined. Importantly, we further distinguish between peace agreements in autarky and peace agreements accompanied by an (international) third party, which can punish the government for not implementing the promised provisions (e.g., via sanctions or withholding development assistance).

We analytically solve the game via backward induction. We allow for asymmetric information between rebels and governments concerning their beliefs about the effectiveness of the disarming process and the level of implementation of the promises made in the peace agreement. Even though the parties formally agree on a certain level of disarming, the actual disarming effectiveness can be significantly lower (e.g., due to hidden weapon depots or foreign assistance only known to the rebels). Similarly, the government could choose which concessions to implement first or at all, considering the associated non-transferable private benefit it might receive. The results from the model show that peace is only possible if the government implements the promise and if those promises are substantial enough to cover the rebels' expected utility of fighting. Nevertheless, if we allow for a third party's involvement, the government is incentivized, allowing the rebels to expect higher implementation levels, ultimately reducing the likelihood of war.

We empirically test the hypotheses derived from our model using a sample of 51 government-rebel dyads that signed peace agreements between 1991 and 2004. Our dataset is based on information from three different sources. First, we obtain the number and types of provisions included in a peace agreement from the UCDP Peace Agreement dataset (Sundberg & Melander, 2013) and combine this information with information on the state of implementation five years after the agreement was signed, which is provided by the Implementation of Pacts (IMPACT) dataset (D. N. Jarstad Anna & Sundberg, 2012). Additionally, we include information from the Peace Agreement Database and Dataset PA-

X (Bell & Badanjak, 2019) on whether disarmament provisions were part of the agreement, what type of disarmament was mentioned, and whether international third parties promised to provide funds during the peacebuilding process. Additionally, we use the mean ratio between aid and GDP of a country, reported by the World Bank, to include aid dependency five years before the peace agreement.

Our analysis relies on a post-double-selection LASSO (PDSL) model (Belloni et al., 2014) to overcome two main challenges in our study. First, the inclusion of disarming provisions and implementation of the agreement are not randomly assigned, and there could be factors associated with both the independent variables and the outcome. Second, including a large number of confounding variables to overcome the omitted variable problem leads to a greater number of parameters relative to our small sample size. The estimation occurs in two steps. The first stage uses a LASSO-type procedure for variable selection to predict the dependent and main independent variables separately. The LASSO systematically selects from a set of 75 variables (12 and their first-order interaction). In the second step, the effect of interest is estimated using a logistic regression of the outcome variables on the main independent variables and the union of the set of variables selected in the first stage.

The first part of our analysis evaluates whether the inclusion of disarmament provisions in a peace agreement leads to a lower rate of implementation by the government and, further, whether support from third parties in the form of international funds and aid dependency significantly increases the government's implementation. Although coefficients are of the expected sign, results on the existence of a moral hazard problem are not statistically significant. However, our results suggest a potential role third parties could play, particularly regarding aid, in reducing the likelihood of low government implementation and moral hazard. Finally, we analyze how disarming provisions in peace agreements might indirectly impact peace stability by inducing a low implementation from the government. While we find that low implementation significantly increases the likelihood of war, this analysis does not provide sufficient empirical evidence to support our hypothesis.

Our study contributes to several strands of the literature. First, commitment and coordination problems have been identified as significant reasons why it is difficult for parties to agree to disarm and why civil conflicts re-emerge (Walter, 1997; Stedman, 2002; Murshed & Verwimp, 2008; Mattes & Savun, 2009). Overall, failures during the bargaining process commonly undermine the efforts to reach a sustained peace (Walter, 1999, 2009). Furthermore, governments' lack of commitment to the peace process after negotiations end is a common obstacle to peacebuilding (Walter, 2015; Joshi & Quinn, 2017). We argue that if commitment problems are solved and a peace agreement is achieved, disarmament might induce a moral hazard problem, constituting another severe obstacle to sustained peace.

Second, the literature concerning the implementation of a peace agreement and its role in stable peace remains scarce (Hoddie & Hartzell, 2003; A. K. Jarstad & Nilsson, 2008; Joshi & Quinn, 2017; Cederman & Vogt, 2017). We extend this discussion by analysing the interdependence between rebels' disarmament decisions and governmental commitments as

a fundamental reason why even well-designed peace agreements might fail.

Finally, our paper extends the insights into how third parties can mediate civil conflicts and contribute to lasting peace. The current literature identifies mediation and assistance from foreign countries or international organizations as crucial for commencing peace talks and finalizing peace agreements (Fortna, 2004; Gartner & Bercovitch, 2006; Loyle & Appel, 2017; Rohner et al., 2018). We emphasize one additional mechanism by which the international community can improve the sustainability of peace agreements. If third parties provide international funds tied to observable implementation steps during the peace process, they can mitigate the moral hazard problem on the government's side. International engagement can help overcome commitment problems by putting pressure on the government and incentivizing higher efforts (Hartzell et al., 2001; Brück & Ferguson, 2020). Therefore, conditional assistance provides an additional tool for mediation, which is fundamental to reducing post-agreement violence (Walter, 1999; Ehrenfeld et al., 2003; Beardsley et al., 2019). Our results support this premise, and the recent empirical evidence presented by Karreth et al. (2023)

The rest of the paper is structured as follows. In Section 4.2, we outline and analytically solve the theoretical model of how disarmament provisions can induce moral hazard among government officials and how this can provoke retaliatory warfare by rebels. Section 4.3 presents the empirical evidence and discusses the results. Section 4.4 concludes.

4.2. Theoretical Model

We set up a three-stage model that views a peace agreement (PA) as a contract between two actors, the rebels (R) and the government (G). Following the game tree in Figure 4.1, the rebels and the government alternately decide to take action after observing the other party's prior decisions. W.l.o.g., we let the rebels decide first between three options. They can agree to sign a peace agreement that includes disarmament provisions (D) or does not include the requirement to disarm (d). Finally, the rebels have the outside option not to agree to a peace agreement (No PA) and keep fighting.

In the event that the war continues without a peace agreement (No PA), both parties aim to take control of the country's available resources (e.g., direct control over local production sites or the formation of the government). We denote the rebels' expected chances of winning the war by π, with $0 \leq \pi \leq 1$. Similarly, $(1 - \pi)$ denotes the incumbent government's expected chances to win. Furthermore, staying at war guarantees the rebels additional income g, (e.g., from illegal businesses, via kidnappings or drug cultivation). For both sides, fighting comprises costs $0 \leq c^R, c^G \leq 1$. Hence, the rebels' outcome from not signing a peace agreement and instead resuming fighting is:

$$U_R(NoPA) = \pi + g - c^R, \tag{4.1}$$

While, similarly, the expected payoff for the government is:

$$U_G(NoPA) = (1 - \pi) - c^G \tag{4.2}$$
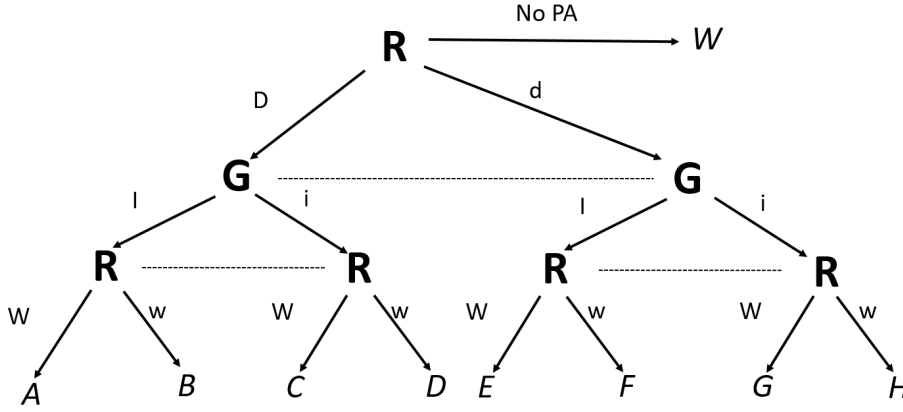
Figure 4.1: Decision tree. Note: This figure shows the game's decision tree between the rebels and the government. Nodes labeled "R" depict the Rebels' decisions, and nodes labeled "G" depict government's decisions. "D" refers to the disarming of the rebels; "d" refers to a peace agreement without disarming. "I" refers to implementation from the government; "i" refers to not implementation. "W" refers to resort to war; "w" refers to remain in peace. The outcomes associated with final nodes A-H and W are depicted in Table 4.1

.

If, instead, the rebels agree to a peace agreement, the government promises to implement provisions in return. These provisions include political, territorial, or monetary/fiscal concessions, such as a voice in government decisions, local autonomy, or reparation payments. Overall, we can view these provisions as the government forfeiting a share ρ of the country's resources to the rebels. For a peace agreement wherein the rebels agree to disarm (D), the rebels demand a larger resource share than for a peace agreement without disarmament stipulations (d). We denote this larger share by ρ_+, with $0 \leq \rho < \rho_+ \leq 1$. We model these provisions as equilibrium negotiation outcomes. That is, ρ_+ and ρ resemble the minimum required share of resources the rebels demand to settle for a peace agreement with or without disarming provisions, respectively, instead of continuing the war. This minimum required share follows the rebels' expected returns from fighting and includes an exogenous parameter denoting the rebels' "greediness" $\epsilon > 0$. Hence, the provisions are endogenously determined via:

$$\rho = min(1, \pi + g - c^R + \epsilon) \tag{4.3}$$

The provisions ρ_+ for a peace agreement, including disarming provisions, must be higher than ρ therefore:

$$\rho_+ = min(1, \rho + \nu) \tag{4.4}$$

where $\nu > \epsilon$ denotes the rebels' higher demands in return for disarming. Disarming makes it more difficult for the rebels to return to war afterward. Therefore, we denote by α with $0 \leq \alpha \leq 1$ the rebels' reduction in relative fighting capacity from disarming. The parameter α mirrors the fact that disarmament is imperfect. That is, despite publicly disarming, the rebels' threat to the government does not fully dissipate since rebels may, for example, still have weapons in hiding or retain the possibility to rapidly re-arm via popular support.[1] In addition, the government incurs further costs, γ, from implementing the provisions promised in the peace agreement. These implementation costs can involve direct costs (e.g., via losing influence over policy decisions or passing on rent-seeking efforts) and indirect costs in the form of deteriorating public opinion and hence lower re-election chances (Tellez, 2019). These costs γ depend on the number of provisions given ρ. Together with the implementation costs and facing the potential retaliation by the (weakened) rebels, the government then decides whether to implement (I) the provisions or not implement them (i). In the final stage of the game, the rebels then observe the (non-)implementation of the government and decide whether to resort to war (W) or remain at peace (w). Table 4.1 depicts all nine potential game outcomes.

Our main argument states that disarming provisions in peace agreements reduce the risk of retaliation by the rebels, constituting a standard moral hazard problem. Since the government has little incentive to follow through on its costly commitments once the rebels concede their military threat, third parties can provide additional incentives to help overcome this moral hazard problem.

Therefore, we introduce the parameter σ, which increases the government's payoff if it implements the concessions promised in the peace agreement. We can think of σ as, for example, providing development finance conditional on a successful peace process or withholding sanctions in case of non-implementation. If σ is provided to the government, rebels' credibility on the commitments is now higher.

Table 4.1: Potential game outcomes

	U_G	U_R
W	$(1-\pi) - c^G$	$\pi - c^R + g$
A	$\alpha(1-\pi) - c^G - c_n^G - \gamma\rho_+ + \sigma$	$(1-\alpha)\pi - c^R + g - c_n^R$
B	$(1-\rho_+) - c_n^G - \gamma\rho_+ + \sigma$	$\rho_+ - c_n^R$
C	$\alpha(1-\pi) - c^G - c_n^G$	$(1-\alpha)\pi - c^R + g - c_n^R$
D	$1 - c_n^G$	$-c_n^R$
E	$(1-\pi) - c^G - c_n^G - \gamma\rho + \sigma$	$\pi - c^R + g - c_n^R$
F	$(1-\rho) - c_n^G - \gamma\rho + \sigma$	$\rho - c_n^R$
G	$(1-\pi) - c^G - c_n^G$	$\pi - c^R + g - c_n^R$
H	$1 - c_n^G$	$-c_n^R$

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[1] The literature has termed this characteristic "multiple sovereignty" (see David Mason et al. (2011)).

4.2.1. Model Results

We use backward induction to solve the model analytically. Following the scheme in Figure 4.1, we start with the rebels' final decision about war or peace and let them choose at each branch the outcome with their highest expected utility (that is, A vs. B, C vs. D, E vs. F, G vs. H). At each higher-level branch, the government then chooses whether to implement the peace agreement, again selecting the node that promises the highest expected utility. The government selects whether or not to implement the peace agreement based on its expectation of the rebels' decision down the decision tree and its private beliefs regarding the rebels' capacity to rearm. That is, the government does not entirely know from which node of the tree they are making a move.

We start by solving the last decision of the rebels in autarky when enforcement is absent ($\sigma = 0$). Details on the analytical solution to the model are presented in Figure 4.A1 in the appendix. Without implementation (i), the rebels' optimal choice is to return to war, as the payoffs for choosing war, C and G, are higher than the payoffs D and H, respectively. If the government implements the concessions (I), the rebels' best choice is to avoid war (payoffs B and F) if the expected gains from fighting are smaller than the implemented concessions. This condition is captured by Equations 4.5 and 4.6. If, on the other hand, the expected gains from fighting are greater than the concessions, the rebels will choose to go back to war (payoffs A and E).

$$(1 - \alpha)\pi - c_R + g \leq \rho_+ \tag{4.5}$$

$$\pi - c_R + g \leq \rho \tag{4.6}$$

However, as we pointed out, the peace agreement changes the relative gains from fighting and the relative fighting capacities of rebels, but the specifics of these changes are unknown for both sides. The gains from war, following disarmament, will depend mianly on the rebels' loss of fighting capacity, α. If α is sufficiently high, the rebels may be unable to rearm and regain their former strength, thereby reducing the expected gains from fighting. Under these circumstances, the rebels may determine that the costs of re-arming and resuming conflict outweigh the potential benefits, making war unattractive.

Next, given the rebels' first decision, the government evaluates the expected payoffs associated with each potential disarmament decision: D (disarmament) and d (no disarmament). Based on this evaluation, the government decides whether or not to implement the concessions promised in the peace agreement. Suppose the rebels choose to disarm (D). In that case, the government compares the payoffs associated with choosing peace (B) versus choosing war (C), as well as the payoffs associated with a return to war (A versus C). On the other hand, if the rebels refuse to disarm (d), the government compares the payoffs associated with implementing concessions to avoid war (F) versus the payoffs associated

with not implementing and returning to war (G), as well as the payoffs associated with a return to war (E and G). The government will only implement the peace agreement if the cost of implementation is lower than the expected costs of returning to fighting. This condition is captured by Equations 4.7 and 4.8.

$$(1 + \rho_+) - \gamma\rho_+ \leq \alpha(1 - \pi) - c_G \tag{4.7}$$

$$(1 + \rho) - \gamma\rho \leq \alpha(1 - \pi) - c_G \tag{4.8}$$

In the last stage, assuming implementation from the government, rebels will decide between the payoffs associated with peace (B and F) and no agreement at all (W). Choosing peace is the best option for the rebels, as it yields a higher payoff than continuing the war $(B > F > W)$. However, suppose the rebels do not believe the government will follow through on its commitment to implementing the peace agreement. In that case, the expected payoffs associated with continuing in war (W) may be higher than those from returning to war after signing a peace agreement $(C < G < W)$. That is, forward-looking rebels may be unwilling to agree to a peace agreement in the first place and may choose to return to war even if a peace agreement has been signed.

We now account for the role of outside parties in enforcing the contract with $\sigma > 0$. In this case, the government's outcome is positively affected if it implements the agreement. If the rebels believe that the involvement of a third party increases the likelihood that the government will follow through on its commitment to implement the agreement, the rebels' optimal decisions are reduced to the payoffs associated with choosing peace (B and F) versus returning to war (A and E). Outside enforcement can significantly impact the odds of achieving peace since rebels may be more willing to agree to a peace deal and disarm, knowing that a third party is ensuring that the government keeps its promises.

4.3. Empirical Evidence

4.3.1. Data Sources

Our analysis relies on a sample of 51 government-rebel dyads that signed peace agreements between 1989 and 2004.[2] We combine information from different datasets. First, we take information on the date and the names of governments and rebel groups involved in a peace agreement from the UCDP Peace Agreement Dataset (Pettersson & Öberg, 2020). Peace agreements vary in the number of rebel groups participating in negotiations and signing contracts. For example, the Yumbe Peace Agreement in 2002 concerned only the government of Uganda and the rebel group UNRF II, while the 2002 Arusha Peace and Reconciliation Agreement for Burundi involved two rebel factions. To take account of

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[2]Table 4.A1 in the Appendix lists the government-rebel dyads in our sample.

group-specific differences, we conduct our analysis at the government-rebel dyad level. Additionally, we combine information from the "Implementation of Pacts" (IMPACT) dataset (D. N. Jarstad Anna & Sundberg, 2012), which includes 68 peace agreements signed between 1989 and 2004. The IMPACT dataset assesses whether the government successfully implemented the provisions within five years of signing the agreement. The dataset evaluates three types of provisions: (1) political (if rebels are promised a role in the government), (2) military (if rebels are integrated into the military), and (3) territorial (if rebels are granted regional autonomy). The dataset further divides these categories into three subcategories and evaluates whether or not the government implemented its concessions for each subcategory.[3] We calculate the share of implemented concessions for each peace agreement and create a binary variable for low implementation (*LowImp*) equal to 1 if the government implemented less than 50% of the promised concessions (this roughly resembles the median of the distribution).

We add further information from the Peace Agreement Database and Dataset (PA-X) on disarming conditions and third-party commitments included in a peace agreement (Bell & Badanjak, 2019). The PA-X dataset distinguishes between two types of disarming conditions: demilitarization (*Demil*) requires rebels to surrender their arms while disarming, demobilisation and reintegration programs (*DDR*) outline specific step-by-step procedures to support rebels in laying down their weapons and to integrate former fighters into the military or other social organizations. Regarding third-party commitments, we use two measures. The first is whether other governments or international organizations pledged financial assistance to implement the peace agreement (*InfFu*) from the PA-X dataset. The second is aid dependency as the mean ratio between aid and GDP in the five years before the peace agreement was signed from the World Development Indicators provided by the World Bank (WorldBank, 2016). Finally, we link the dyads that signed a peace agreement to the UCDP Conflict Dataset (Sundberg & Melander, 2013) to collect detailed information on the number of conflict events and battle deaths five years after the peace agreement. From this information, we code our binary outcome variable *ReturnWar*, equal to 1 if a dyad reported at least 25 battle deaths. Additionally, we include a set of control variables regarding country-level characteristics for the 25 countries in our sample, conflict characteristics, and information on the peace agreement's provisions from multiple sources. Table 4.A2 in the Appendix presents more details on these variables.

Descriptive statistics of the main variables are shown in Table 4.A3 in the Appendix. About 22% of the dyads in our sample reported at least 25 battle deaths within five years after signing the peace agreement. The inclusion of demilitarization is quite common. About one in five agreements oblige rebels to surrender their weapons and ammunition to the government (*Demil*), while about 65% of agreements outlined a detailed *DDR* program. International parties pledge financial assistance in 47% of peace agreements (*IntFu*). Aid

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[3]For example, the territorial provision category is separated into (a) "Did the rebels retain control of their own territory?", (b) "Were efforts made to implement territorial decentralization?" and (c) "Did decentralization come into force?" (D. N. Jarstad Anna & Sundberg, 2012, p. 5).

dependency in our sample ranged from 0 to 51%. Table 4.A4 in the Appendix presents further details on the frequencies of these events in our sample.

4.3.2. Empirical Strategy and Results

We hypothesize that disarming obligations in peace agreements can have unintended consequences for the post-agreement period. Whereas the surrounding of arms and the dissolution of military hierarchies among the rebels likely decrease the likelihood of a return to conflict (see, e.g., Walter, 1999), they may also incentivize the government to shirk on the implementation of terms agreed upon in the peace agreement. A stable peace may become less likely if this implementation failure increases grievances among the former rebels.

Estimation and inference of whether including disarming provisions in peace agreements has unintended consequences for the stability of peace due to a lower implementation level by the government pose several challenges. First, the decision to include such provisions is not random but responds to the negotiation process. Muggah & O'Donnell (2015) argue that the new generation of DDR programs is a complex bargaining process influenced by local conditions, peace operations, justice, and security reforms. Therefore, the real parameters of a DDR program may be defined by national state representatives, former combatants, and even the international and local communities. Similarly, government implementation levels could be influenced by factors such as the availability of resources and review structures (Joshi & Quinn, 2017). A second concern is the selection bias in peace agreements and the lack of data on their implementation. A small number of peace agreements have been evaluated for their level of implementation, and the assessment requires specific information that may not always be available, leading to a small sample size. There has been little progress in empirical research on the implementation of intrastate peace agreements in recent years (Hoddie & Hartzell, 2003; A. K. Jarstad & Nilsson, 2008; Joshi & Quinn, 2017; Karreth et al., 2023) primarily because of limited data availability on the implementation of peace agreements.

To address the endogeneity problem, it may not be feasible to include all variables related to the outcome in the model since, first, many of the key variables are not observable, and second, including them may result in a large number of regressors exceeding the number of observations in our small sample. Therefore, we employ machine learning techniques, specifically a post-double-selection LASSO (PDSL) procedure, which allows for valid inference after model selection (Belloni et al., 2014). This procedure assumes approximate sparsity, meaning that from a group of control variables, only a small number (relative to the sample size) with non-zero coefficients are selected, allowing for inference of the coefficients of interest.

The PDSL estimation involves three steps. In the first step, we perform separate Lasso regressions of the independent variables on all covariates and their first-order interactions and retain only those interactions identified by the Lasso estimator. In the second step, we

perform a Lasso regression on the outcome variable to ensure the inclusion of additional important variables. Finally, in the third step, we estimate the coefficients of interest using a logistic regression model and the union of the set of all selected variables in the variable selection steps.

We start by evaluating whether, after rebels surrender their arms and hence decrease their threat capability, the government becomes more likely to under-perform in implementing the provisions stated in the peace agreement. Furthermore, we explore the role of third parties in motivating governments to follow through on their promises. We estimate the following model:

$$LowImp_i = \beta_z Z_i + \beta_x X_i + \eta_{yi} + \epsilon_i \qquad (4.9)$$

The dependent variable $LowImp$ is a dummy equal to 1 if the implementation of the government was less than 50% five years after the signing of the peace agreement. Z_i refers to our main dependent variables: $Demil$, the inclusion of demilitarization of the rebels in the peace agreement (i.e., the obligation to surrender weapons and ammunition to the government); DDR provisions (e.g., the notion of disarmament efforts, demobilization and the reintegration of former fighters into the society); and either the inclusion of international funds for the implementation of the peace agreement $IntFu$ or the mean rate of $AIDdependency$ in the five years before the signing of the peace agreement. X_i is the set of control variables and their interactions (See Table 4.A2). ϵ_i is the error term, and η_{yi} is an approximation error term generated in each step of the estimation.

We expect to find a positive relationship between the inclusion of disarmament provisions in the peace agreement and the likelihood of low implementation from the government. Additionally, our theoretical considerations lead us to expect a positive impact of international funds on the implementation level. Our results are presented in Table 4.2.[4]

In Column (1), we test whether including any provisions concerned with the disarmament of rebels affects how much governments follow through on their promises from the peace agreement. We find neither of the variables to have a statistically significant effect on implementation. In Columns (2) and (4), we test whether the inclusion of third parties is correlated with a reduction in the likelihood of low implementation from the government. Our results indicate that a 1% increase in the country's aid dependency five years before the peace agreement signing reduces the likelihood of low implementation by about 24%. The effect is significant at the 1% level. However, this result needs to be interpreted with caution, as it is possible that third-party involvement could lead to a higher likelihood of peace agreement selection in the first place, as our theoretical model also shows. In Columns (3) and (5), we examine whether the inclusion of third-party variables changes the effect of demilitarization and DDR provisions in the low implementation of the government. Overall, we do not find statistical evidence supporting the existence of a moral hazard problem in

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[4]The list of selected variables in each of the models is presented in Table 4.A5 in the appendix

our sample. However, while the results are potentially imprecise, they are consistent with recent evidence suggesting the international community's potential role in incentivizing the government to fulfill its promises (Karreth et al., 2023).

Table 4.2: Post-double-selection LASSO models: Low implementation

	(1)	(2)	(3)	(4)	(5)
Demil	0.526		-0.345		-2.120
	(0.878)		(1.160)		(1.506)
DDR	-0.342		-2.007		-3.439
	(0.835)		(1.542)		(2.181)
IntFu		0.132	-0.395		
		(1.314)	(1.497)		
AID dependency				-24.396***	-34.399***
				(8.496)	(13.276)
N	51	51	51	41	41

Notes: This table provides results from post-double-selection LASSO models. The unit of observation is the government-rebel dyad level. The dependent variable is equal to 1 if the government implements less than 50% of the provisions included in the peace agreement five years after the signing. The main explanatory variables indicate whether demilitarization provisions (Demil); the specific demilitarization, demobilization and reintegration program (DDR); and international funds (IntFu) were specified in the agreement. Aid dependency refers to the mean ratio between aid and GDP in the five years before the peace agreement The list of selected variables in each model is presented in Table 4.A5 in the appendix. Robust standard errors are in parenthesis. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

Next, we investigate whether disarmament provisions indirectly increase the odds of a return to war as rebels are upset by the government not following through on its promises during the peace process. We hence estimate the following PDSL model:

$$ReturnWar_i = \beta_v V_i + \beta_x X_i + \eta_{yi} + \epsilon_i \tag{4.10}$$

Our main independent variables V_i refer to: either the share of implementation of the provisions stated in the peace agreement, a variable that ranges from 0 to 1; $LowImp$, a dummy equal to 1 if implementation was lower than 50% five years after the peace agreement was signed; and the disarmament provisions stipulated in the peace agreement $Demil$ and DDR. X refers to the full set of control variables and their first-order interactions. We expect that an estimate of a positive coefficient of low implementation would further reduce the negative relationship between disarmament provisions and the likelihood of war. Results are presented in Table 4.3.[5]

In Columns (1) and (2), we check whether governments' implementation is correlated with the likelihood of rebels returning to war. Although the signs of the coefficients are as expected, they do not reach the 10% significance level threshold. In Column (3), we test whether including any provisions concerned with demilitarization or a DDR program of rebels decreases the odds of a return to war. Although coefficient signs are as expected,

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[5]The list of selected variables in each model is presented in Table 4.A6 in the appendix.

they are not statistically significant. In Column (4), we test whether controlling for the government's low implementation changes the effects of disarming provisions on the likelihood of war. The coefficient of $LowImp$ is positive and significantly correlated with the re-emergence of war (p-value<0.1). Last, in Columns (5) to (7), we test whether even lower thresholds of low implementation show a stronger effect on the likelihood of returning to war. We reduce the threshold from 50% to 20%. After controlling for low implementation, we do not find evidence that disarmament provisions might indirectly affect the likelihood of war. Further evidence will be needed to evaluate whether rebels' disarmament might indirectly affect the return to war via a low implementation level from the government due to moral hazard.

Table 4.3: Post-double-selection LASSO: Return to war

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Implementation (%)	-2.363						
	(1.655)						
LowImp		1.487		1.988*	2.135*	0.960	1.190
		(0.917)		(1.016)	(1.197)	(0.823)	(1.185)
Demil			-0.042	-0.036	0.025	-0.083	0.301
			(1.002)	(1.161)	(1.172)	(1.040)	(1.149)
DDR			-0.916	-0.745	-0.600	-0.965	-1.391
			(0.866)	(1.085)	(0.972)	(0.810)	(1.161)
Implementation Threshold	-	<50%	<50%	<50%	<40%	<30%	<20%
N	51	51	51	51	51	51	51

Notes: This table provides results from post-double-selection LASSO regressions. The unit of observation is the conflict government-rebel dyad. The dependent variable indicates whether at least 25 battle deaths were associated with a given rebel group or related factions in the 5 years after they signed a peace agreement. The main explanatory variable is either the share of implemented promises by the government (Column 1) or an indicator variable that indicates that implementation was below a certain percentage threshold. The list of selected variables in each model is presented in Table 4.A6 in the appendix. Robust standard errors in parenthesis. Robust standard errors are in parenthesis. P-value: *p< 0.1; **p< 0.05; ***p< 0.01.

Overall, our empirical analysis does not support for the existence of a moral hazard problem in peace agreements. Although we use the PDSL model for inference and estimation in a small sample, endogeneity remains a concern. This is partly due to the omitted variables problem, as many key variables that might influence the outcome are unavailable or difficult to measure and, therefore, are not included in our model. Additionally, selection bias may be present, as only some conflicts result in a peace agreement, and the level of implementation has been assessed for a limited number of agreements. Future research could focus on refining implementation measures and addressing the existing data's limitations to understand the dynamics of moral hazard in peace agreements.

4.4. Conclusion

This paper argues that absent external enforcement by international parties, a moral hazard problem prevents sustainable peace agreements wherein rebels surrender their weapons and

governments commit to their promises during peace negotiations. Governments have little incentive to implement costly concessions without fearing retaliation after rebels resolve their troops. Forward-looking rebels anticipate the government's behavior and either 1) do not agree to a peace agreement in the first place or 2) resume fighting once the government shows the first signs of under-implementation. Only additional outside incentives from the international community can assuage this moral hazard problem by motivating governments to make credible commitments.

We provide a formal model that simulates the decisions of governments and rebels during the peace process. In a game with three stages, rebels, and the government alternately decide whether or not to sign a peace agreement with or without disarming stipulations, to implement the committed provisions, and to return to war. We further deal with two types of this game. In the first type, rebels and the government negotiate in autarky; in the second, international donors supply additional incentives to the government, conditional on the successful implementation of the peace agreement. The analytical solution of the model shows that in autarky, the parties are unlikely to sign a peace agreement, and peace is virtually impossible. However, if we allow incentives from third parties in peace agreements wherein rebels surrender their weapons, governments might implement their promises, and the parties remaining at peace become the best outcome.

To test these theoretical considerations empirically, we combined information on disarmament provisions and implementation levels for 51 government-rebels dyads that signed peace agreements between 1991 and 2004. Our analysis relies on post-double-selection LASSO models aiming to account for two main sources of endogeneity: omitted variable and selection bias. We consider a set of 75 control variables for model selection and estimation of our variables of interest. First, with a dummy variable indicating low implementation by the government as the dependent variable, we do not find sufficient evidence of the existence of a moral hazard problem. However, we find suggestive evidence supporting the international community's potential role in incentivizing governments to fulfill their promises. In a second set of regressions, we analyze how disarming affects the rebels' decision to return to war after governments do not follow their promises. Based on our results, we do not find enough empirical evidence supporting the hypothesis that rebels' demilitarization indirectly affects the return to war via a low implementation level from the government as a result of moral hazard.

Our conclusions offer important insights into the role of mediators in peace negotiations. Observing the government's implementation efforts after a peace agreement and conditioning development finance on the government's performance might be a valuable and effective tool to promote lasting peace. However, more data and further research are needed to determine how such conditionalities can be applied in practice and whether other instruments exist that encourage governments not to renege on their promises made during the peace negotiations. In particular, failures in donor coordination can make conditional aid commitments a difficult policy tool (Ehrenfeld et al., 2003). Therefore, further insights into the effectiveness of these tools are needed to understand how international cooperation can accompany

belligerents on the way to sustained peace.

4.A. Appendix

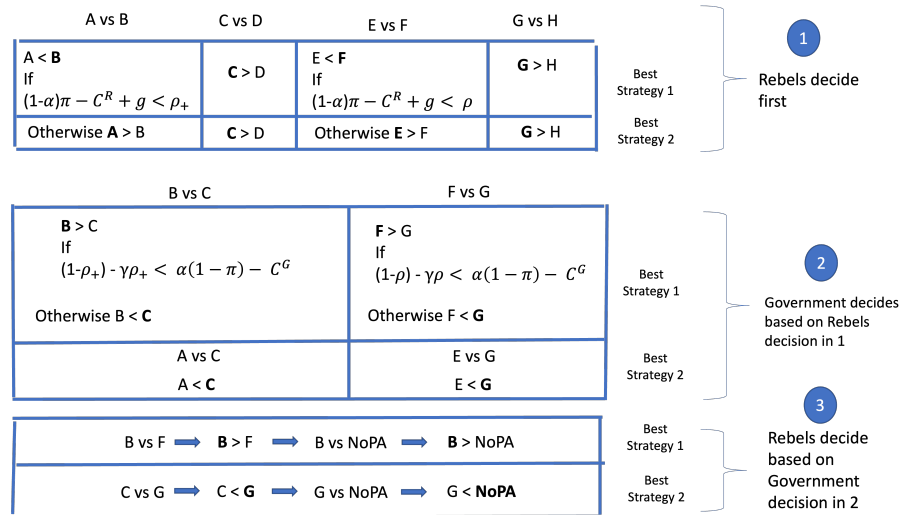## 4.A.1. Model Analytical Solution

Figure 4.A1: Analytical solution of the model. Notes: This figure shows the backward induction steps to analytically solved the model following the game tree in Figure 4.1. The letters A to H refer to the outcomes depicted in Table 4.1. The letters in bold refer to the best choice.

4.A.2. Data

Table 4.A1: Sample of government-rebel dyads

	Case	dyad	Government	PA Name	Pa Year	ReturnWar	LowImp	D	DDR	IntFu
1	469	URNG	Government of Guatemala	The Agreement on the Implementation, Compliance and Verification Timetable for the Peace Agreements	1996-12-29	0	1	0	1	1
2	476	Fatah	Government of Israel	The Wye River Memorandum	1998-10-23	1	1	1	0	1
3	479	PNA	Government of Israel	The Wye River Memorandum	1998-10-23	1	1	1	0	1
4	585	MLC	Government of DR Congo (Zaire)	Inter-Congolese Political Negotiations - The Final Act	2003-04-02	0	0	0	1	1
5	586	RCD	Government of DR Congo (Zaire)	Inter-Congolese Political Negotiations - The Final Act	2003-04-02	0	0	0	1	1
6	593	Palipehutu	Government of Burundi	Arusha Peace and Reconciliation Agreement for Burundi	2000-08-28	0	0	0	1	1
7	595	Frolina	Government of Burundi	Arusha Peace and Reconciliation Agreement for Burundi	2000-08-28	0	0	0	1	1
8	597	CNDD-FDD	Government of Burundi	Global Ceasefire agreement between Transitional Government and the Forces pour la defence de la democratie (CNDD-FDD) of Mr. Nkurunziza	2003-11-16	0	0	0	1	0
9	610	MDD	Government of Chad	Reconciliation agreement	1999-07-03	0	1	0	1	0
10	612	CNR	Government of Chad	Tripoli 1 Agreement	1993-10-16	0	1	0	0	0
11	615	FARF	Government of Chad	Donya agreement	1998-05-07	0	1	0	0	0
12	616	MDJT	Government of Chad	Tripoli 2 agreement	2002-01-07	1	1	0	0	0
13	626	EPL	Government of Colombia	Acuerdo Final Gobierno Nacional-Ejército Popular De Liberación	1991-02-15	0	0	0	1	0
14	644	KR	Government of Cambodia (Kampuchea)	The Paris Agreement	1991-10-23	1	0	0	0	0
15	647	FUNCINPEC	Government of Cambodia (Kampuchea)	The Paris Agreement	1991-10-23	0	0	1	1	1
16	656	MNLF	Government of Philippines	Final agreement on the implementation of the 1976 Tripoli Agreement between the Government of the Republic of the Philippines (GRP) and the Moro National Liberation Front (MNLF)	1996-09-02	0	1	0	1	1
17	691	UNRF II	Government of Uganda	Yumbe Peace Agreement	2002-12-24	0	1	0	1	1
18	692	PIRA	Government of United Kingdom	The Good Friday Agreement	1998-04-10	0	0	0	1	0
19	705	JSS/SB	Government of Bangladesh	Chittagong Hill Tracts Peace Accord	1997-12-02	0	0	0	0	0
20	714	UNITA	Government of Angola	Memorandum of Understanding or Memorandum of Intent	2002-04-04	0	0	0	1	0
21	722	Renamo	Government of Mozambique	The Acordo Geral de Paz (AGP)	1992-10-04	0	0	0	1	1
22	726	Hizb-i Islami-yi Afghanistan	Government of Afghanistan	Mahipar agreement	1996-05-24	0	0	0	0	0
23	732	Hizb-i Wahdat	Government of Afghanistan	Afghan Peace Accord and Annex on the Division of Powers ("Islamabad accord")	1993-03-07	1	0	0	0	0
24	745	SPM	Government of Somalia	Addis Ababa Agreement	1993-03-27	0	1	1	1	1
25	747	USC/SNA	Government of Somalia	The Cairo Declaration on Somalia	1997-12-22	0	1	1	1	1
26	759	NPFL	Government of Liberia	Supplement to the Abuja Accord ("Abuja II Peace Agreement")	1996-08-17	0	0	0	0	1
27	761	LURD	Government of Liberia	Comprehensive Peace Agreement Between the Government of Liberia and the Liberians United for Reconciliation and Democracy (LURD) and the Movement for Democracy in Liberia (MODEL) and Political Parties ("Accra Peace Agreement")	2003-08-18	0	0	0	1	1

Table 4.A1: Sample of government-rebel dyads

	Case	dyad	Government	PA Name	Pa Year	ReturnWar	LowImp	D	DDR	IntFu
28	762	MODEL	Government of Liberia	Comprehensive Peace Agreement Between the Government of Liberia and the Liberians United for Reconciliation and Democracy (LURD) and the Movement for Democracy in Liberia (MODEL) and Political Parties ("Accra Peace Agreement")	2003-08-18	0	0	0	1	1
29	794	GAM	Government of Indonesia	Cessation of Hostilities Framework Agreement	2002-12-09	1	1	1	1	0
30	797	BRA	Government of Papua New Guinea	Bougainville Peace Agreement	2001-08-30	0	0	0	1	1
31	800	MPA	Government of Mali	Pacte National	1992-04-11	0	1	1	0	0
32	803	CRA	Government of Niger	Agreement establishing permanent peace between the government of Niger and ORA	1995-04-15	0	1	0	1	1
33	804	FPR	Government of Rwanda	Arusha Accords	1993-08-04	1	1	0	1	0
34	810	FRUD	Government of Djibouti	Accord de paix et de la reconciliation nationale	1994-12-26	0	0	0	1	0
35	811	FRUD-C	Government of Djibouti	Accord de reforme et concorde civile	2001-05-12	0	0	0	1	1
36	818	RUF	Government of Sierra Leone	Abuja Ceasefire Agreement	2000-11-10	1	1	0	1	1
37	837	Serbian Republic of Krajina	Government of Croatia	The Erdut Agreement	1995-11-12	0	0	1	0	0
38	839	Republic of Abkhazia	Government of Georgia	Declaration on measures for a political settlement of the Georgian/Abkhaz conflict	1994-04-04	0	1	0	0	0
39	841	PMR	Government of Moldova	Memorandum on the Basis for Normalization of Relations between the Republic of Moldova and Transdniestria	1997-05-08	0	1	0	0	0
40	842	UTO	Government of Tajikistan	The Moscow Declaration - General agreement on the Establishment of Peace and National Accord in Tajikistan	1997-06-27	1	0	0	1	0
41	848	Croatian Republic of Bosnia-Herzegovina	Government of Bosnia-Herzegovina	The Washington Agreement	1994-12-20	0	0	0	0	0
42	850	EZLN	Government of Mexico	The San Andrés Accords	1996-02-16	0	1	0	0	0
43	860	MPA/Republic of Anjouan	Government of Comoros	Agreement on the transitional arrangements in the Comoros	2003-12-20	0	0	1	1	1
44	861	Ninjas	Government of Congo	Agreement on Ending Hostilities In the Republic of Congo	1999-12-29	0	1	0	1	1
45	864	Government of Congo	Ntsiloulous	Agreement on Ending Hostilities In the Republic of Congo	1999-12-29	1	1	0	1	1
46	866	Military Junta for the Consolidation of Democracy, Peace and Justice	Government of Guinea-Bissau	Abuja Peace Agreement	1998-11-01	1	0	0	0	0
47	877	UCK	Government of North Macedonia	The Ohrid Agreement	2001-08-13	0	0	1	0	1
48	879	MPCI	Government of Ivory Coast	Accra II	2003-03-07	0	0	0	0	0
49	881	MJP	Government of Ivory Coast	Accra II	2003-03-07	0	0	0	0	0
50	882	FRCI	Government of Ivory Coast	Accra III	2004-07-30	0	1	0	1	0
51	884	ABSU	Government of India	Bodoland Autonomous Council Act, 1993	1993-02-20	0	1	0	1	0

Table 4.A2: Control variables

Variable	Description	Source	Mean	Sd	Min	Max
Country characteristics						
Sub sahara Africa Dummy	Dummy for sub-Saharan African countries	World Bank	0.55	0.50	0	1
Low income Dummy	Dummy for low income country	World Bank	0.45	0.50	0	1
Population size	Log mean of the country's population in the years before the agreement	World Bank	15.96	1.42	13.11	50.60
Conflict characteristics						
Conflict deaths	Total deaths five years before the signature of the peace agreement	UCDP Conflict Dataset	1155.26	1782.38	0	8377
Dispute Territory Dummy	Equal 1 if the conflict was fought over territory	UCDP Peace Agreement Dataset	0.29	0.46	0	1
Duration of conflict	Number of years a country experienced conflict. From 1989 until the signature of the peace agreement	Own calculation based on UCDP Conflict and Peace Agreement Dataset	9.80	3.93	3	16
Peace Agreement characteristics						
Elections Dummy	Equal 1 if the agreement provided for elections or stipulated electoral reforms	UCDP Peace Agreement Dataset	0.57	0.50	0	1
Political sharing Dummy	A stipulated guarantee that offers the combatants seats in a new government at the cabinet level or above, or a specific quota of political power in at least one of the main branches of government. Coded 1 if this was so, otherwise coded 0.	Impact Dataset	0.57	0.50	0	1
Territorial sharing Dummy	A stipulated guarantee that offers "...a provision for some form of regional autonomy (...) if one or both sides was allowed to continue to administer areas under their control, (...) or if specific self-governing zones were established..." (Walter, 2002b). Coded 1 if this was so, otherwise coded 0.	Impact Dataset	0.43	0.50	0	1
Military sharing Dummy	A stipulated guarantee that offers the combatants guaranteed integration into the national armed forces and/or command structures, or a provision that allows the rebels to retain their own separate armed forces. Coded 1 if this was so, otherwise coded 0.	Impact Dataset	0.45	0.50	0	1
Peace Keeping Operations	Deployment of Peace Keeping Operation. Equal to 1 if the agreement provided for the deployment of a peace-keeping operation.	UCDP Peace Agreement Dataset	0.43	0.50	0	1
Past Peace Agreements	Equal 1 if other peace agreements were signed between the government and the dyad rebel group	Impact and UCDP Peace Agreemnt Dataset	0.31	0.47	0	1

Table 4.A3: Summary statistics of main analysis variables

Variable	Mean	Sd	Min	Max	N
ReturnWar	0.22	0.42	0	1	51
Demil	0.20	0.40	0	1	51
DDR	0.65	0.48	0	1	51
LowImp	0.45	0.50	0	1	51
Implementation (%)	0.54	0.35	0	1	51
IntFu	0.47	0.50	0	1	51
AID Dependency	0.07	0.10	0.00	0.512	41

Table 4.A4: Frequency main variables

ReturnWar	LowImp	Demil	DDR	IntFun	n
0	0	0	0	0	4
0	0	0	1	0	6
0	0	0	1	1	10
0	0	1	0	0	1
0	0	1	0	1	1
0	0	1	1	1	2
0	1	0	0	0	5
0	1	0	1	0	3
0	1	0	1	1	5
0	1	1	0	0	1
0	1	1	1	1	2
1	0	0	0	0	3
1	0	0	1	0	1
1	1	0	0	0	1
1	1	0	1	0	1
1	1	0	1	1	2
1	1	1	0	1	2
1	1	1	1	0	1

Notes: This table shows the frequencies of the main variables in our sample. *ReturnWar* indicates whether at least 25 battle deaths were associated with a given rebel group or related factions in the 5 years after they signed a peace agreement. The main explanatory variable are: *LowImp* a dummy variable that indicates if implementation from the government was below 50% five years after the peace agreement; *Demil* Demilitarization provisions; *DDR*, the specific demilitarization, demobilization and reintegration program; and *IntFu* if international funds were specified in the agreement.

Table 4.A5: Selected variables Post-double-selection LASSO: Low implementation

Selected Variables	Model 1	Model 2	Model 3	Model 4	Model 5
$PoliticalSharing(0) * PopulationSize$	✓	✓	✓	✓	✓
$Elections(0)$	✓	✓	✓	-	-
$Elections(1) * DurationConflict$	✓	✓	✓	✓	✓
$PKO(1) * DurationConflict$	✓	✓	✓	✓	✓
$PoliticalSharing(0) * DurationConflict$	-	✓	✓	✓	✓
$SubSaharaAfrica(0) * ConflictDeaths$	-	✓	✓	-	-
$PastPA(0) * PopulationSize$	-	✓	✓	-	-
$TerritorialDispute(1) * ConflictDeaths$	-	✓	✓	-	-
$Demil$	NA	✓	NA	NA	NA
DDR	NA	✓	NA	NA	NA
$DurationConflict$	-	✓	-	-	-
$PKO(0) * PopulationSize$	-	✓	✓	-	-
$SubSaharaAfrica(0) * PopulationSize$	-	-	✓	-	-
$LowIncome(1) * ConflictDeaths$	-	-	-	✓	✓
Number or selected controls	4	12	10	5	5

Notes: This table shows the selected variables from post-double-selection LASSO models from Table 4.2. The selection was done using CV to select an optimal value of the lasso penalty parameter λ for each lasso. * refers to the interaction of variables. Dummy variables have either 0 or 1 as it was selected.

Table 4.A6: Selected variables Post-double-selection LASSO: Return to war

Selected Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
$MilitarySharing(0) * DurationConflict$	✓	-	-	-	-	-	-
$PoliticalSharing(0)$	✓	✓	-	✓	✓	-	-
$SubSaharaAfrica(0) * ConflictDeaths$	✓	-	-	✓	✓	-	-
$SubSaharaAfrica(1) * PopulationSize$	✓	-	-	-	-	-	-
$Elections(1) * DurationConflict$	✓	✓	-	✓	✓	-	✓
$PoliticalSharing(0) * PopulationSize$	-	✓	-	✓	-	-	-
$PKO(1) * DurationConflict$	-	✓	✓	-	-	-	-
$MilitarySharing(1) * DurationConflict$	-	-	✓	-	-	✓	-
$Elections(0)$	-	-	-	✓	✓	-	-
$LowIncome(1) * PopulationSize$	-	-	-	-	✓	-	-
$SubSaharaAfrica(0) * PopulationSize$	-	-	-	-	✓	-	-
$TerritorialDispute(0)$	-	-	-	-	-	-	✓
$SubSaharaAfrica(0)$	-	-	-	-	-	-	✓
$TerritorialDispute(1) * PopulationSize$	-	-	-	-	-	-	✓
$PoliticalSharing(0) * DurationConflict$	-	-	-	-	-	-	✓
$SubSaharaAfrica(1) * ConflictDeaths$	-	-	-	-	-	-	✓
Number of Selected Controls	5	4	2	5	6	1	6

Notes: This table shows the selected variables from post-double-selection LASSO models from Table 4.3. The selection was done using CV to select an optimal value of the lasso penalty parameter λ for each lasso. * refers to the interaction of variables. Dummy variables have either 0 or 1 as it was selected.

Chapter 5

Conclusion and Future Work

This dissertation presents three independent studies investigating decision-making in fragile settings. The studies examine intra-household decision-making in rurality and explore information avoidance and moral hazard in the aftermath of conflict.

The first objective of this research is to analyze gender differences in how individuals value decision rights and investigate intra-household decision-making in a rural context characterized by gender disparities. Chapter 2 investigates what motivates women and men to retain their decision rights using a lab-in-the-field experiment with charitable donations. Our findings reveal that men's intrinsic value of decision-making is motivated by the possibility of making their own decisions, particularly within the household. Meanwhile, women are less willing to pay to retain decision rights than their husbands, consistent with recent research on the issue of agency within the household (Afzal et al., 2022; Bakhtiar et al., 2022). Future work could explore how women's empowerment affects their motivations to keep decision rights outside and within the household, as empowered women may express a higher intrinsic value motivated by a greater degree of freedom and power. Additionally, future research could focus on the role of domestic violence and conflict within the household on women's willingness to delegate decisions to their husbands, which is relevant for fragility, conflict, and violence. Finally, future research could also investigate whether policies that promote social norms changes, where women are given the role of decision-makers, can influence gender decision-making dynamics.

The second research objective of this thesis is to investigate individuals' preferences and discriminatory behavior against ex-combatants during peacebuilding. We investigate how information about ex-combatants' identity affects and changes individuals' discriminatory preferences. Chapter 3 tests the hypothesis that discriminatory preferences are heterogeneous and correlate with the experience of conflict and attitudes towards ex-combatants.

Our results are derived from an online experiment that involves an actual purchase decision. The findings suggest that, on average, participants demand a 17% discount on coffee produced by ex-combatants and that attitudes of distrust towards ex-combatants correlat with negative discriminatory preferences. Future studies could explore the effectiveness of initiatives that promote direct contact between ex-combatants and receiving communities to reduce distrust and encourage more positive attitudes towards former rebels. These initiatives could include product labels or programs to educate individuals on the experiences and challenges ex-combatants face.

The third research objective is to examine the decision-making process of governments and rebels after a conflict has ended and its implications for sustainable peace. In Chapter 4, we argue that if rebels surrender their weapons, the government may have little incentive to implement costly concessions without punishment, which could threaten stable peace. Our hypothesis states that third parties can reduce this classical moral hazard and thus reduce the likelihood of war returning. Our analysis presents a theoretical model to conceptualize the peace process into a three-stage game. Using backward induction, we show that peace is only possible if the government implements the promises and if those are substantial enough to cover the rebels' expected utility of fighting. However, allowing a third party to play a role can increase the chances of peace. Although the results of our empirical analysis do not support the existence of moral hazard, our findings support recent evidence of the important role of third parties in reducing the government under-implementation (Karreth et al., 2023). Future research should analyze how such conditionalities can be applied in practice and whether other instruments, besides aid, can effectively support sustainable peace. Moreover, researchers should continue to document peace agreements and their implementations to enlarge the current datasets and improve analysis accuracy.

There are some limitations to the external validity of our findings. Online experiments allow for data collection in large quantities in real-time and in a very short time. It provides flexibility regarding questionnaire design and the possibility of reaching respondents across national borders. Finally, and particularly useful for the research presented in Chapter 3, online surveys are considered useful when the issues being researched are particularly sensitive (Coomber, 1997). However, the offline population differs from the online population in various dimensions, such as age, gender, race, education, income, health, and political engagement. Although more research is needed, the evidence suggests that Internet-based findings are generally consistent with findings based on traditional methods (e.g., on self-esteem and personality) (Gosling et al., 2004; Grewenig et al., 2018). In Chapter 3, we acknowledge that the final sample and the invited individuals who did not answer our experiment report a higher education and being employed in a higher proportion than the general population. Hence, while we cannot claim that the sample is representative of the whole population, it represents individuals of a higher socioeconomic level who are also able and potentially more interested in purchasing premium and online products.

Concerning field experiments, two main limitations need to be discussed. First, there is a risk of bias in reporting sensitive information. We reduced this risk by designing the survey

and the experiment described in Chapter 2 to be self-administered. Participants were provided with a tablet and headphones, and audio videos were presented with instructions for the different tasks. This allowed participants to answer all questions independently without the intervention of an enumerator. Second, concerns about selection bias were addressed in Chapter 2, where we randomly selected a number of municipalities in the study area from which villages and later households were randomly selected. Our final sample is representative of each cluster in the rural areas of one of the largest departments in Colombia. In addition, the participants were randomly selected into different treatment arms.

Based on these results, several policy recommendations can be formulated, but further evidence is required to fully understand how these policies can be implemented and their impact. First, policies giving women access to resources are important but should be accompanied by initiatives that promote changes in gender norms and beliefs among women and men. This could include programs that provide education on gender equality, promote women's leadership, and challenge traditional gender roles. Additionally, efforts to promote women's economic autonomy, such as increasing women's participation in the labor force or promoting entrepreneurship, can help to shift gender disparities in decision-making dynamics. Second, reintegration efforts of ex-combatants should include promoting more interaction with the community. Initiatives that provide dialogue and understanding may effectively reduce mistrust attitudes and promote reconciliation. For example, providing the product's story can increase the possibility that individuals get to know the ex-combatants and their work. Finally, further instruments of conditional development should be considered as additional mediating tools in peace negotiations and peacebuilding processes. There are, however, limitations that should be considered when implementing them to prevent unintended consequences. Ultimately, I hope that these studies are of interest to other researchers and policymakers to continue research that promotes stability, peace, and development in challenging settings.

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