Truth and Absolution in Colombia: For FARC's sake*

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Abstract

How can a state demobilize militants during a civil war? We study the effects of an information campaign to demobilize FARC rebels, when the Colombian government aired short information segments during games of the national football team between 2007 and 2016. Exploiting the quasi-random assignment of matches, we isolate the causal effect on demobilizations across all 1,122 Colombian municipalities. Exploring quasi-exogenous variation in kick-off times and rain across municipalities, our results reveal sizeable effects of these messages that reached out to rebels, offering them the opportunity to reintegrate into the Colombian society. Thousands of FARC rebels demobilized without the need to fire a bullet.

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1 Introduction

Twenty percent of the world's population has been affected by internal conflicts at some point and one of the identifying characteristic of these types of wars has been their ability to tear apart the social tissue of a society (Blattman and Miguel, 2010). Discovering and understanding mechanisms, such as the use of propaganda, that can help us end these conflicts, without further dividing people or causing extra harm, might well be one of the most important anti-insurgency contributions we can provide. The problem with propaganda, as an anti-insurgency measure, is that exposing rebel soldiers to pro-demobilization messages could not only be ineffective, given their rigorous ideological training, but could also backfire, by allowing rebel leaders to twist the narrative of broadcasted messages, providing them with new instruments to reinforce the ideological commitment of their soldiers (Mance, 2008).

We focus on the Colombian civil war and exploit the case of a long lasting propaganda campaign, set in place by the Colombian government in order to demobilize rebel soldiers. We examine the effect that exposure to pro-demobilization messages had on soldiers of the main rebel group at war with the state, The *"Fuerzas Armadas Revolucionarias de Colombia"*, The Revolutionary Armed Forces of Colombia, (FARC). By taking advantage of FARC's soldiers taste for football (soccer), we exploit the radio broadcasts of the national football team matches, containing pro-demobilization messages, to explore the potential effects of exposure to propaganda on rebel soldiers' demobilizations. This paper addresses the question as to whether or not the usage of pro-demobilization messages are an effective way to fight insurgency and to what extend the demobilization of FARC members were affected by the exposure to these propaganda messages. We concern ourselves with the quantification of the magnitude of the effect that exposure to these messages had on rebel soldiers' individual decision to surrender. If simple messages can create a significant response within members of the world's oldest guerrilla, the potential of propaganda as a war-ending tool cold represent an extremely effective and cost effective measure to resolve conflicts without the need to resort to violence.

Ending civil wars, has traditionally been difficult due to the involvement of civilians in armed conflict; its of-tendency to wreck infrastructure and domestic institutions; and

its propensity to relapse into violent spirals once it seemed to be over (Blattman and Miguel, 2010). The traditional view on war has taken the approach of allowing a *winning side* to dominate over a shattered enemy, imposing their will over a subjugated opponent. This approach claims to foster peace by means of the eradication of one of the opposing sides (Luttwak, 1999). The issue with this thought process is that it essentially renders the post-war scenario to a state in which new violence is not considered.

It has been shown that recidivism, following the end of a civil war, is not only common but also an important element contributing to the stability and longevity of any ensuing peace (Podder, 2017; Kaplan and Nussio, 2018). In this new approach to war, great focus has been put into the mechanisms that drive peace stability and the institutional capabilities of the state to promote a smooth transition into a successful post-war state. For example, evidence has shown that Truth and reconciliation Commissions can play an important role to ensure a long lasting peace (Madariaga and Zachary, 2016). With this in mind, one of the important questions that arises concerns about the role of systematic rebel surrenders or demobilizations as a mechanism, not just to help resolve civil wars, but also to increase the chances of a successful post-war reintegration into civilian life.

Research has shown that rebel disengagement can play an important role, contributing to the weakening weakening of insurgent's internal structures, so they make deserting from rebel ranks as dangerous and costly as possible, usually by means of death threats to members that try to flee from rebel ranks (McLauchlin, 2015; Hafez, 2017; McLauchlin and Parra-Pérez, 2018; Oppenheim and Söderström, 2018; Richards, 2018). Knowing this, is it possible to promote rebel disengagement trough propaganda? And with it, bring civil conflicts closer to an end, by giving post-conflict scenarios a better chance to succeed? Ingram (2016) shows that propaganda was been used extensively all across history as a way to shift public opinion and radically change the outcome of war (Osgood, 2002). For example, In a letter to H. Niles, John Adams wrote:

> The people of America had been educated in an habitual affection for England, as their mother country [...] But when they found her a cruel beldam, willing like Lady Macbeth, to 'dash their brains out', it is no wonder if their filial affections ceased, and were changed into indignation and horror. This radical change in the principles, opinions, sentiments, and affections of the people, was the real American Revolution.
>
> To this end, it is greatly to be desired, that young men of letters [...] would

> undertake the laborious, but certainly interesting and amusing task, of searching and collecting all the records, pamphlets, newspapers, and even handbills, which in any way contributed to change the temper and views of the people, and compose them into an independent nation[1].
>
> John Adams
> Second President of the United States
> Founding Father

This reflection, by one of America's founding fathers, is interesting because is shows that colonists saw themselves as British citizens and a shift in the collective imaginary was necessary to develop the laying grounds of the American Revolution.

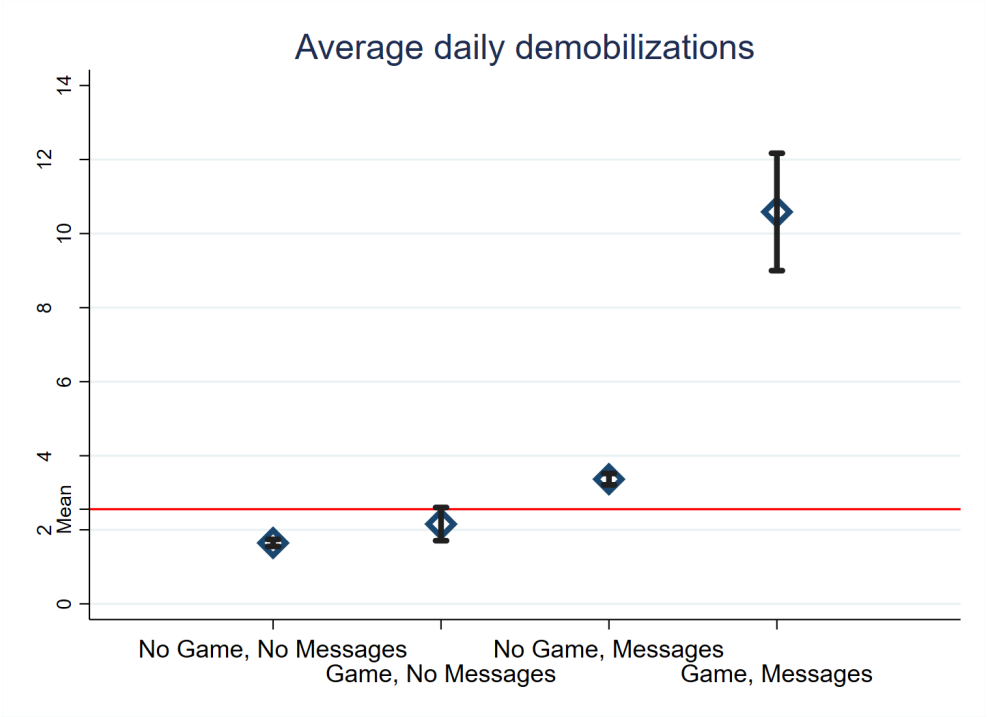
We choose the Colombian scenario to investigate the effects of propaganda because *a priori* is not clear if these efforts would be successful in driving rebel soldiers to demobilize. Years of ideological training and a profitable connection to illegal business made FARC members an specially difficult audience for propaganda messages, but at the same time, their isolation from their families and relative young base, made the messages specially appealing (Fattal, 2018).

The use of propaganda as a war tool has been studied in the past and researchers have made important contributions exploring the consequences of media exposure in the context of war, relating it to violence and political outcomes (DellaVigna et al., 2014; Yanagizawa-Drott, 2014). Unfortunately, one characteristic of these studies is their focus on the aftermath of war and the overall effects of media, impeding our understanding of inter-temporal dynamics and the contemporary effects of it.

We introduce an approach to study the these effects of propaganda, following the entire set of Colombian municipalities (1,122), with daily data from 2003 to 2018. We provide causal estimates of rebel demobilizations due to propaganda exposure by offering three alternative empirical approaches, recognizing that omitted variable bias may play an important role and could otherwise drive our results either way. For example, rebels could have a sense of renewed nationalistic feeling after listening to a game, inducing them to demobilize and biasing our results upwards. On the other hand, games might serve as a bonding activity between FARC members, reenforcing their interpersonal bonds and

[1]John Adams letter to H. Niles, 13 February 1818, https://teachingamericanhistory.org/library/document/john-adams-to-h-niles/

Figure 1: Comparison of the average demobilizations on a regular day and the day after a game day, during the periods with and without propaganda.



driving them to remain in the rebel forces, introducing a downward bias into our demobilization estimates. Thus, in order to account for these biases, we introduce identification strategies based on (*i*) the quasi-random assignment of matches, following the idea that the likelihood of propaganda exposure increases during football matches (Samper, 2017; Fattal, 2018); (*ii*) the quasi-exogenous variation in kick-off times, hypothesising that FARC members are more likely to listen to a match that falls within their leisure time (LA FM Noticias, 2016; Fattal, 2018) and (*iii*) the quasi-exogenous variation in rain across municipalities, utilizing the disruptive effect that rain has on radio and TV communications (Lin, 1973; Crane, 1975; Ippolito, 1981; Ishimaru et al., 1982; Tewari et al., 1990; Qingling and Li, 2006).

Following these strategies, our results suggest that exposure to pro-demobilization messages increase the number of demobilizations the day after a game to ten times the daily average and suggest that pro-demobilization messages are responsible for approximately 14% of all FARC demobilizations. This result emerges consistently in a range of empirical specifications, employing alternative (*i*) identification strategies; (*ii*) rebel

groups;[2] (*iii*) measures and sources of rain; (*iv*) econometric models; (*v*) time frames (e.g., weekly instead of daily data); (*vi*) panel data units of measure (e.g., states instead of municipalities); as well as (*vii*) different control variables.

Overall, this paper aims to contribute to two main fields of research. First, our methodology and results speaks to the literature on the effects of media in general and propaganda in particular, by providing what we believe to be the first systematic approach to the study of the immediate effects of it. Given our increasing exposure to media sources and social media channels, we hope these results shed some light on the potential effects that propagandistic messages have on their audiences. Second, our findings may enrich the growing literature on the dynamics of civil war and counter-insurgency efforts, by providing evidence on the motivations and social attitudes of rebel soldiers. We find that even highly ideologically invested individuals, such as FARC members, are subject to the effects of well tailored messages, suggesting that propaganda represents an effective anti-insurgency alternative to the overall traditional view on war. Our results suggest that propaganda is not only comparable to major military actions, in terms of surrendering power, but also a tool for state building in a post-conflict scenario. The success of these campaigns should not only be measured on its ability to help end a long lasting conflict, but on its promise of helping a fractured society get back on its feet.

To the best of our knowledge, we present the first data driven assessment of a grand scale experiment with such war practices, with records comprising the entire duration of an information campaign, lasting nearly a decade. The reminder of the article is structured as follows. Section two provides background information on the Colombian conflict and the propaganda campaigns. Section three describes the data together with our empirical strategies. Section four presents the results. Section five goes through a variety of robustness tests and checks and Section six concludes.

[2]Although FARC is the main armed group at war with the state, the are some minor groups that show similar behaviour e.g, the *"Autodefensas Unidas de Colombia"*, the United Self-defence groups of Colombia (AUC), the *"Ejército de Liberación Nacional"*, the National Liberation Army (ELN) and the *"Ejército Popular de Liberación"*, the Popular Liberation Army (EPL)

2 Background

2.1 Civil War

The infrastructural damage that civil conflict leaves behind makes the recovery, not only a hard task to archieve in the first place, but also a difficult situation to maintain in the long run (Blattman and Miguel, 2010). It has been shown that the success of a smooth transition towards peace, following a civil conflict, depends on the ability to guarantee a long lasting peace and to discourage recidivism into a new violent spiral (Collier et al., 2008; Kaplan and Nussio, 2018; Oppenheim and Söderström, 2018). Given the importance of this question, research has mostly focused on how conflict ends and the mechanisms it imposes towards a long lasting peace (Mason and Fett, 1996; Licklider, 1995; Walter, 1997; Fearon, 2004; Toft, 2010; Flores and Vargas, 2018).

Following Blattman and Miguel (2010), we argue that, while the implications of the way a conflict ends are important, effective anti-insurgency policies should receive more attention, not only as a tool to end civil conflict, but also as a way to understand the underlying causes of it.

The use of information campaigns as tools in war is not new, but still today these war practices remain more of an interesting historical fact, rather than a relevant policy tool. The lack of reliable data to accurately measure their impact and the impossibility of seeing immediate results have severely hindered their implementation as an effective anti-insurgency tool and have relegated them to a last-resort role (Osgood, 2002).

2.2 The Role of Information

Ever since Stigler (1961) and Akerlof (1978) introduced the importance of information in economics, the field has been growing with increasingly interesting applications for it's role in market outcomes analysis. Nowadays the concept of *information* in economics in an incredibly broad term that captures all sorts of implications, for our purposes, we focus on information as messages transmitted and consumed through mass media.

With this definition in mind, recent research has proven that the impact information have on social outcomes can be sizable. For example, La Ferrara et al. (2012) and

Kearney and Levine (2015) show that exposure to certain TV shows can affect family-forming decision; Farré and Fasani (2013) make the case that it could also affect your decision to migrate; Olken (2009) suggests access to mass media can erode social ties all together; and looking at the electoral outcomes, DellaVigna and Kaplan (2007) and Enikolopov et al. (2011) provide excellent examples of the persuasive power of media when in comes to voting turnout. Is it possible however, that information also plays a role in war outcomes?

DellaVigna et al. (2014) shows that in a post-war scenario, cross-border nationalistic radio sparks animosity between rival groups, and in an indirect way, Adena et al. (2015), makes the case that media played a major role on the uptake of Nazi power in Weimar's Germany. Perhaps more closely to us, Yanagizawa-Drott (2014) shows that a single radio station was responsible for 10% of deaths in the Rwandan genocide. With this in mind, we set up to investigate the role that information can have on the systematic surrender of insurgents in the context of the Colombian conflict.

2.3 Historical Background

For the most part of the twentieth century and still until today, Colombia has been the scenario of one of the longest civil conflicts in recent history (Richani, 1997). What started as a political dispute, between Colombia's two major political parties has now become an asymmetric war between the government and a variety of armed groups (Richani, 1997). According to the *"Centro de Memoria Historica"*, The Center for Historical Memory, more than 170,000 civilians and 98,000 combatants were killed and over 4,000,000 internal forced displacements have taken place, reflecting what has been a true humanitarian disaster.

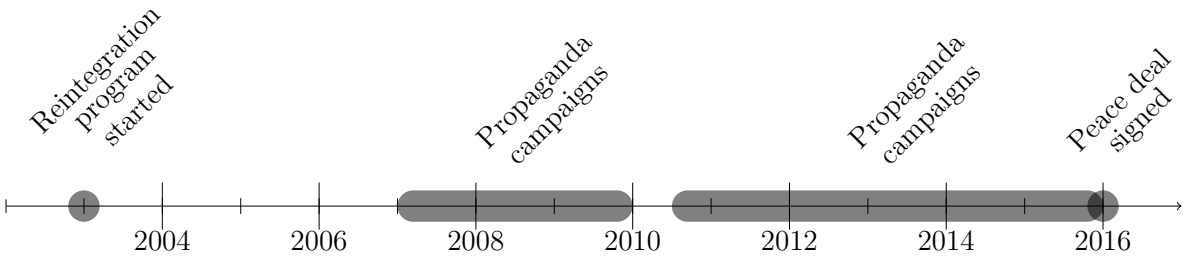
The main illegal group at war with the state has been FARC, a communist guerrilla, formed during the bipartisan violent period of *La Violencia* (Molano, 2000). FARC started as a peasant self-defence group, but today, after signing a peace deal with the government in 2016, has transformed itself into a political party. In the last decade, FARC suffered a series of important military defeats, reducing its rank, from an estimated 20,000 soldiers, at its peak, in 2001 to 6,200 in 2016. These set-backs hindered their capacity

to operate as a unified front and effectively forced them into negotiating the 2016 peace deal (Pachico, 2011).

In their last years as guerrillas, FARC turned to more aggressive enrolment techniques, including recruitment of child-soldiers and forced drafting of combatants (Bjørkhaug, 2010).[3] As a consequence, the majority of FARC's lower-ranking officials became victims of their own organization and were no longer as ideologically invested in revolutionary ideas as they once were (Sokoloff, 2014). Taking advantage of this internal division, the government started an amnesty program, aimed at those soldiers who wanted to return to civilian life. The demobilization program not only guaranteed absolution for non-war crimes, but also education and financial aid to those who decided to come back (Hollain, 2010). Starting in 2003, the program was met with disbelief by FARC's soldiers. Facing this response, in 2007, the Ministry of Defence decided to experiment with a communication strategy, based on heartfelt messages, designed to nudge them into demobilization (Sokoloff, 2014). Using a variety of advertisement-like campaigns, that included Christmas trees in the middle of the jungle; luminous presents on rivers; throwing football balls, signed by the national team, in the middle of the jungle; and radio messages, the government made an effort to appeal to individual soldiers and get them to reconsider their life as part of the guerrilla (León, 2014; El Comercio, 2014).

Pro-demobilization messages that ran during football matches, unlike other forms of advertisement, allows us to understand the timing of exposure, so that we can isolate the corresponding effect. Therefore, we exclusively focus on the role of these messages as opposed to other forms of propaganda.

Figure 2: Timeline of propaganda campaigns



[3]It is estimated that 30% of FARC's soldiers where under 18 years old

The number of individual FARC demobilizations reached almost 17,000, during the period 2001-2016, enough to demobilize the combined FARC forces of 2014, 2015 and 2016. Nevertheless, the impact that the information campaigns had on it has been uncertain (Oppenheim et al., 2015). We set up to investigate whether or not these campaigns were effective on their own and the role that they had on the overall number of demobilizations.

3 Data and Empirical Strategy

3.1 Empirical Strategy

> We were forced to listen to the news, so with the excuse of being informed, we asked our superiors for some radios, but we actually used them to listen to the games[4] [5].
>
> Gabriel Angel
> 30 years in FARC
> 19th front

By the time information campaigns began, in early 2007, FARC had been long characterized by a high degree of isolation. This decision made each squadron a disconnected group within the organization and isolated them from the world (Molano, 2000; Pachico, 2011; Fattal, 2018). It is known, from former members and kidnappees, that one of the few ways low-ranking officials had to contact the outside world, was through radio. Knowledge of radio use by FARC members was so extensive that there even was a radio program [6], late at night, that allowed families to broadcast messages to their kidnapped relatives. (Mance, 2008).

> Ever since the demilitarized zone [1998-2001] we where not able to watch TV anymore, everything was through radio. There, we have heard the campaigns that have aired[7].
>
> Sargent Robinson Salcedo
> Kidnapped by FARC
> Released 2 Apr. 2012

[4] Gabriel Angel, during an interview for "Voces desde el secuestro", https://www.elespectador.com/colombia2020/pais/podcast-asi-vivian-las-farc-el-futbol-en-tiempos-de-guerra-articulo-856818

[5] Authors' translation from Spanish. All other Spanish texts quoted below are also our translation.

[6] http://lasvocesdelsecuestro.com

[7] Focus group with members of SSP3 Lowe

FARC members would routinely gather to listen to it and had dedicated leisure time, at the end of the day, where radio was one of the main forms of entertainment (LA FM Noticias, 2016; Fattal, 2018). It was also not uncommon for them to have their own radio and use it before going to bed (Mance, 2008).

> There [the jungle] we could hear everything that was on AM. [radio]. *"Candela"* [a radio station] sounded perfectly during the night; *"Antena 2"* [RCN sports radio station] for the games... specially in the morning between 5 and 7 and from 17 until 20, because during the middle of the day everyone is very busy[8].
>
> A.K.A *"Cremallera"* (The "Ziper")
> 21 years in FARC
> Third in command, 16th front

Nevertheless, the uncertainty regarding the tastes and timing of their listening remained an issue for the government's intention of delivering pro-demobilization messages. It was virtually impossible to know what kind of radio shows the soldiers would tune in to and thus, to properly target the messages (Fattal, 2018). Yet, there was an exception to this rule: The Colombian national team football matches (Samper, 2017).[9] Based on the nature and content of the campaigns and by the extensive use of radio during the football matches we know that the government was actively targeting the radio broadcastings of the national team's games, as a way to deliver pro-demobilization messages (Fattal, 2018).[10]

3.1.1 Quasi-random assignment of matches

Football matches are used as random shock, because of their exogenously scheduled nature. International Football matches are played around the year, with the *"Fédération Internationale de Football Association"*, the International Federation of Football Association (FIFA) assigning five to seven international breaks a year, then, within each of those breaks, the local confederation arranges the schedule for the competition (FIFA, 2013).

[8] Focus group with members of SSP3 Lowe

[9] "Market research by the PAHD and Lowe/SSP3 revealed that guerrillas often manajed to whatch major soccer matches, especialy those of the national team." (Fattal, 2018, p. 267)

[10] At different points in time featured football-themed advertisement spots with some of the most prominent national team's football stars(Sokoloff, 2014; Samper, 2017; Fattal, 2018)

For example, Colombia plays within the *"Confederación Sudamericana de Fútbol"*, the South American Football Confederation (CONMEBOL), which exogenously assigns their calendar within the five to seven exogenously chosen international windows that FIFA opens every year (FIFA, 2013).

We take advantage of the quasi-random assignment of the matches to derive the impact that pro-demobilization messages, contained in the games, had on the surrendering decision of the soldiers. We take days with games that fell in the periods where the information campaign were active and compare them with days with games outside the these periods.

$$Demo_{i,t} = \beta_1 Message_{t-1} + \beta_2 Game_{t-1} + \beta_3 (Message_{t-1} \times Game_{t-1}) + \beta_4 \lambda_i + \beta_5 \gamma_t + \mu_{i,t} \quad (1)$$

Our coefficient of interest is β_3 and, if our intuition is correct, we should expect a positive and statistically significant effect. λ_i represents municipality-fixed effects, allowing us to control for time invariant unobservables; γ_t includes a linear and quadratic time trend, allowing us to control for inter-temporal changes in our dynamic process; and $\mu_{i,t}$ constitute the error term for municipality i and day t.

3.1.2 Quasi-exogenous variation in kick-off times

We exploit the hour of the game as a source of exogenous variation, which is independently chosen by the local football federation (FIFA, 2013). The Colombian football matches are not only determined by whether or not the national team is playing as local, but also the tournament they are playing at and the time difference with Colombia. For example, if Colombia is playing Argentina, during a qualifying game for the world cup, and the game is being played in Argentina, the Colombian federation has no influence over the time the game is played and the Colombian local broadcast is affected by the two hour difference between the two countries.

Here, we focus on the matches played at dusk to specifically target the time of the day at which FARC members would be more likely to be listening to the games (LA FM Noticias, 2016; Fattal, 2018).[11] With a similar specification as before, we now add the comparison between the two types of games, the Dusk games and all others that where

[11] We define dusk as the time between 16:00h and 20:00h

played at a different (Colombian) time:

$$Demo_{i,t} = \beta_1 Message_{t-1} + \beta_2 Other\_game_{t-1} + \beta_3(Message_{t-1} \times Other\_game_{t-1}) + \beta_4 Dusk\_game_{t-1} + \beta_5(Message_{t-1} \times Dusk\_game_{t-1}) + \beta_6\lambda_i + \beta_7\gamma_t + \mu_{i,t} \quad (2)$$

Where the coefficient of interest is β_5 and, if our intuition is correct, we should not only expect a positive and statistically significant effect, but also we should see that $\beta_5 > \beta_3$. As before, λ_i represents municipality-fixed effects; γ_t includes a linear and quadratic time trend and $\mu_{i,t}$ is the error term for municipality i and day t.

3.1.3 Quasi-exogenous variation in rain across municipalities

AM radio waves are prone to environmental interference, specially rain, in a phenomenon known as *"Rain Scattering"* or *"Rain fade"* (Lin, 1973). The basic intuition behind the phenomenon is that rain acts as both a sponge and a mirror, absorbing and refracting the microwaves carrying the radio broadcast. In this section we introduce an identification based on this phenomenon, following the idea that during a given game, guerrilla soldiers are differentially exposed to pro-demobilization messages, conditional on whether or not they where able to listen to the game, given the rain conditions in their municipality. For example, two guerrilla camps located in different parts of Colombia might experience different weather conditions during the time of a game, if it is raining in one of those guerrilla camps, rebels will not be able to use their radios to keep up with the radio broadcast, and thus they will not be exposed to the pro-demobilization messages. We can take advantage of that difference in exposure to derive the effect that the messages had.[12]

Our third strategy relies on a model that only takes into account periods for which the messages were available and relates the football matches with rain conditions at the time of each game, helping us understand the effect of differential exposure to the messages, due to weather conditions, and derive the causal effect that they had on demobilizations. Again, we focus on the matches played at dusk to specifically target the time of the day

[12]See Lin (1973), Crane (1975), Ippolito (1981), Ishimaru et al. (1982), Tewari et al. (1990), and Qingling and Li (2006) for an in-depth explanation of the physical phenomenon of radio-signal attenuation due to rain and https://en.wikipedia.org/wiki/Rain_fade for an glimpse at the intuition behind it.

at which FARC members would be more likely to be listening to the games.

$$Demo_{i,t} = \beta_1 Rain_{i,t-1} + \beta_2 Other\_game_{t-1} + \beta_3(Rain_{i,t-1} \times Other\_game_{t-1}) + \beta_4 Dusk\_game_{t-1} + \beta_5(Rain_{i,t-1} \times Dusk\_game_{t-1}) + \beta_6 \lambda_i + \beta_7 \gamma_t + \mu_{i,t} \quad (3)$$

Where the coefficients of interest is β_5, which give us the effect of the underexposure to the messages due to rain, if our intuition is correct, we should expect a negative and statistically significant effect. λ_i represents municipality-fixed effects; γ_t includes a linear and quadratic time trend and $\mu_{i,t}$ is the error term for municipality i and day t.

3.2 Data

3.2.1 Data on Demobilized Soldiers

We rely on data provided directly by the Colombian Government through the *"Agencia para la Reincorporación y la Normalización"*, the National Agency for Reincorporation and Normalization (ARN). ARN is a government agency tasked with the reintegration process of former guerrilla soldiers into civilian life, which allows them to keep track of every fighter from the very moment of their demobilization. We employ the 2019 update of ARN's data, comprising records of over 60,000 former fighters, demobilized between January 2001 and December 2018.

There are mainly two kinds of demobilizations, defined by ARN. Collective demobilizations, where a whole squadron negotiates a collective surrendering; and individual demobilizations, when a single soldier (or a hand full of them) decide to escape from their squadrons and individually surrender. Our main outcome variable focuses only on the individual demobilizations of former FARC members and measures the number of cases in a given municipality and day.

3.2.2 Data on the Information Campaigns

In order to identify periods at which messages where being broadcasted, we rely on contractual information between the Colombian Ministry of Defence and the two virtual duopolies firms, controlling the AM radio market in Colombia, Caracol Radio and RCN Radio (Dinero, 2018). Stored as individual contracts under the *"Sistema Electrónico para*

Table 1: Summary statistics for all 1,122 municipalities and 5,844 days (= 6,556,968 observations).

	Mean	Std. Dev.	Min	Max	N	Source & Definition
Message period	0.516	0.500	0	1	6,556,968	SECOP, =1 if day is in period contracts were active
Demobilised FARC	0.003	0.115	0	50	6,556,968	ARN, FARC demobilized troops
Game day	0.035	0.183	0	1	6,556,968	=1 if a game is played that day
Dusk game	0.007	0.083	0	1	6,552,480	=1 if a game is played that day at dusk (16h-20h)
Rain	0.329	1.064	0	67.130	6,509,696	NASA, Average rainfall 16:00h-19:00h, in mm/h

Notes: [a]We miss data on the hour of 12 games. [b]We miss data for 32 days on different parts of the grid. [c]We do not present rain data for the two municipalities outside mainland Colombia: San Andres & Providencia Islands. SECOP: "Sistema Electrónico para la Contratación Pública" https://www.colombiacompra.gov.co/secop-ii; ARN: "Agencia para la Reincorporación y la Normalización" http://www.reincorporacion.gov.co; NASA: "National Aeronautics and Space Administration" https://trmm.gsfc.nasa.gov.

la Contratación Pública" The Electronic System for Public Contracting (SECOP). Such information was confirmed by analyzing individual matches to guarantee the presence of demobilization messages and using interviews and anecdotal evidence from the advertising agency hired to run the campaigns (El Comercio, 2014; Corona, 2017; Samper, 2017). The variable "Messages" consists of a dummy that takes the value of one if a day falls within the periods the contracts were active and zero otherwise.[13] There are two major cycles of uninterrupted campaigns (2007-12/2009 & 07/2010-2016), separated by a six month period at the beginning of 2010. Such period was characterized by a contractual dispute between the Ministry of Defence and the advertisement agency and does not respond to an underlying conjuncture regarding the state of the conflict (Corona, 2017). Unfortunately, no games were played during this break, impeding its utilization.

[13]It is worth mentioning that even though we can not be certain of the presence of messages in a specific day, we are certain of the presence of messages during the games that fall in the propaganda period.

3.2.3 Football data

We rely on several independent sources of information for our football data. With that in mind, the majority comes from "World Football", which unlike most data, keeps records of kick-off times, making it especially useful for our purposes. We cross-check this information with a variety of other sources, including FIFA and news reports, and ultimately, with individual video evidence of the matches (Wallace, 2014; Noticias Caracol, 2015; Caracol Radio, 2015).

Our variable "Game_day" is a binary indicator, which takes the value of one if a game was played that day and zero otherwise. For "Dusk_game" a two hour buffer-zone (the length of a typical football match) was set around 18:00h to guarantee that any match that could be watched during FARC's leisure time was taken into consideration. Thus, "Dusk_game" is a subset of "Game_day", which takes the value of one if a game was played between 16:00h & 20:00h, Colombian time (Colombia only has one time zone).

3.2.4 Data on Rain

We collect our rainfall data from NASA's Tropical Rainfall Measuring Mission (TRMM). TRMM is a joint climate research mission between NASA and the Japan Aerospace Exploration Agency. We take advantage of the last two satellites of the mission, still in orbit, to obtain our rain estimates.

We use the highest resolution offered by the mission, 0.25 latitude $\times$ 0.25 longitude degrees ($\approx 27km^2$), grided rain predictions, based on cloud formation. These measures are available on a 3-hour basis and are expressed as average mm/h during that time, providing us with eight different measures of rain per day. See https://trmm.gsfc.nasa.gov/3b42.html for an in-depth explanation of the TRMM's work.

For our purposes, we take the measure of rain that overlaps with the games played at dusk (4:00-7:00 pm). This measure is a grided map, which we use to locate the set of Colombian municipalities and obtain their hourly rain measures that we then use to identify the weather conditions at each municipality during the time of the games.

4 Results

4.1 Quasi-random assignment of matches

Table 2 reports our base empirical findings, using the assignment of matches. Column (1) documents findings from a univariate regression, predicting the number of demobilizations per day and municipality for the day after a game. The corresponding coefficient is positive and statistically significant at a 1% level, but remains correlational and could bias our results either way. For example, rebels could have a sense of renewed nationalistic feeling after listening to a game, inducing them to demobilize and biasing our results upwards. On the other hand, games might serve as a bonding activity between FARC members, reenforcing their interpersonal bonds and inducing them to stay in the rebel forces, introducing a downward bias into our demobilization estimates. Column (2) introduces the periods for which the messages where available, with a positive and significant effect, but correlational, once again.

Columns (3) & (4) introduce our first causal estimates of the effect of messages on individual demobilizations, with column (4) introducing municipality-fixed effects as well as a linear and quadratic time trend.

Table 2: Quasi-random assignment of matches

Dependent variable: Demobilized FARC				
	(1)	(2)	(3)	(4)
Game day$_{t-1}$	0.0034***	0.0035***	0.0005***	0.0005***
	(0.0007)	(0.0007)	(0.0002)	(0.0002)
Messages period$_{t-1}$		0.0014***	0.0012***	0.0001
		(0.0002)	(0.0002)	(0.0002)
Game day$_{t-1}$ × Message period$_{t-1}$			0.0059***	0.0059***
			(0.0014)	(0.0014)
Municipality-fixed effects				
Time trend[a]				Yes
Observations	6,552,480	6,552,480	6,552,480	6,552,480
Municipalities	1122	1122	1122	1122
Years	2003-2018	2003-2018	2003-2018	2003-2018
R^2	0.000	0.000	0.000	0.026

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

We find that the exposure to propaganda during games leads to 6.6 extra demobilizations, meaning that, the day after a game we observe, roughly four times the average daily demobilizations. The corresponding coefficient is positive and statistically significant at a 1% level.

4.2 Quasi-exogenous variation in kick-off times

In order to relax the implicit assumption that periods with and without propaganda presence are comparable, we introduce an alternative identification based on the time of the day at which the games were played, essentially shifting our counterfactual from games without propaganda to games played within the propaganda periods, but which FARC members are less likely to listen to.

Again, table's 3 columns (1) & (2) present correlational estimates of the effect of the different games and periods on demobilizations, with positive and significant coefficients. Columns (3) & (4) present the causal estimates of the exposure to propaganda in the form of games, with dusk games having an effect five time bigger, compared to games played at a different time.

We find that a game, played at dusk during the propaganda period, accounts for 16.9 extra demobilizations the day after a match, meaning that, the day after a dusk game we observe, about eight times more demobilizations than in a regular day.

4.3 Quasi-exogenous variation in rain across municipalities

Aiming towards a counterfactual that relies on the same match, rather than on different games, we introduce a third identification strategy based on rain, utilizing the disruptive effect that it haves on both TV and radio transmissions.

In table 4 we focus exclusively on the periods with propaganda presence and look at the demobilization outcomes depending on the weather conditions of the day of the game. Columns (1) & (2) present positive and significant correlational estimates of the effect, while columns (3)-(6) present causal estimates of the differential exposure to propaganda due to individual rain conditions at each municipality. We document negative and significant effects for the interaction term between rain and games, while rain itself doesn't

Table 3: Quasi-exogenous variation in kick-off times

Dependent variable: Demobilized FARC				
	(1)	(2)	(3)	(4)
Other game$_{t-1}$	0.0017***	0.0017***	0.0002	0.0003
	(0.0003)	(0.0003)	(0.0002)	(0.0002)
Dusk game$_{t-1}$	0.0103***	0.0102***	0.0013**	0.0013**
	(0.0023)	(0.0023)	(0.0006)	(0.0006)
Message period$_{t-1}$		0.0013***	0.0012***	0.0001
		(0.0002)	(0.0002)	(0.0002)
Other game$_{t-1}$ × Message period$_{t-1}$			0.0030***	0.0030***
			(0.0009)	(0.0009)
Dusk game$_{t-1}$ × Message period$_{t-1}$			0.0153***	0.0151***
			(0.0033)	(0.0033)
Municipality-fixed effects				
Time trend[a]				Yes
Observations	6,552,480	6,552,480	6,552,480	6,552,480
Municipalities	1122	1122	1122	1122
Years	2003-2018	2003-2018	2003-2018	2003-2018
R^2	0.000	0.000	0.000	0.026

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

have any effect, supporting the hypothesis of rain interference with radio signal.

We find that a game played at dusk, with no rain interfering, accounts for 20 extra demobilizations the day after a game, or ten times the daily average, while an increase of 1% in rain rates decreases the number of subsequent demobilizations by 9.2.

4.4 Cumulative Effect

Perhaps as important as the exposure itself is the lasting effects of propaganda. One major concern about our results is the possibility of propaganda not actually demobilizing more rebels, but merely collapsing future demobilization into a unified wave, potentially leaving a negative or neutral net effect in the days to come. To explore weather our results correspond to a wave of demobilizations or they do indeed, cause demobilizations, we explore the possibility of allowing the effect to be exploited in alternative time windows. Figure 3 presents the evolution over time of our benchmark estimates for the three different identifications strategies. Panel 4a depicts the *"Game Day × Messages"* coefficient of our first identification strategy; panel 4b the *"Dusk Game × Messages"* coefficient of our

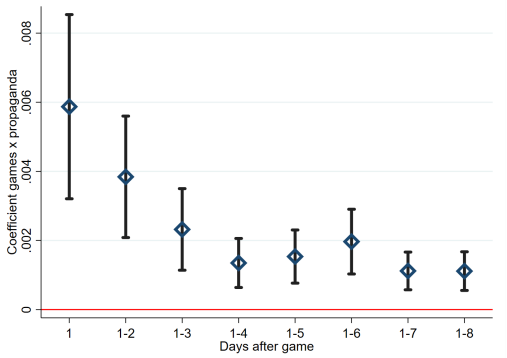
Table 4: Quasi-exogenous variation in rain across municipalities.

Dependent variable: Demobilized FARC soldiers						
	(1)	(2)	(3)	(4)	(5)	(6)
Game day$_{t-1}$	0.0064***	0.0064***	0.0068***	0.0068***		
	(0.0014)	(0.0014)	(0.0014)	(0.0014)		
Other game$\dot{}t-1$						
($\neq$ 16h-20h)					0.0031***	0.0032***
					(0.0006)	(0.0006)
Dusk game$_{t-1}$					0.0184***	0.0179***
(16h-20h)					(0.0040)	(0.0040)
Rain$_{t-1}$		0.0000	0.0001	-0.0000	0.0001	-0.0000
		(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0001)
Game day$_{t-1}$ $\times$ Rain$_{t-1}$			-0.0017**	-0.0020***		
			(0.0008)	(0.0007)		
Other game$_{t-1}$ $\times$ Rain$_{t-1}$					0.0007	0.0003
					(0.0010)	(0.0008)
Dusk game$_{t-1}$ $\times$ Rain$_{t-1}$					-0.0085***	-0.0083***
					(0.0026)	(0.0026)
Municipality-fixed effects						
Time trend[a]				Yes		Yes
Observations	3,381,708	3,375,680	3,375,680	3,375,680	3,375,680	3,375,680
Municipalities	1,120	1,120	1,120	1,120	1,120	1,120
Years	2007-2016	2007-2016	2007-2016	2007-2016	2007-2016	2007-2016
R^2	0.000	0.000	0.000	0.027	0.000	0.027

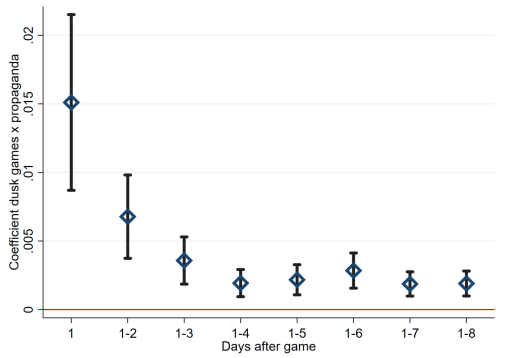
Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

second identification and panels 4c & 4d present both the coefficients for *"Dusk Game"* and *"Dusk Game × Rain"* in our third identification strategy.

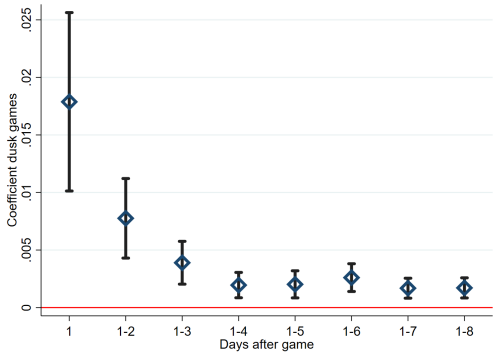
Figure 3: Fading of the effects



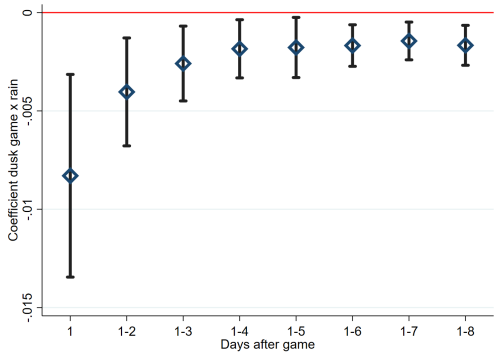
(a) Quasi-random assignment of matches estimation. "Game day × Messages" coefficient variation across time



(b) Quasi-random assignment of matches. "Dusk game × Messages" coefficient variation across time



(c) Quasi-exogenous variation in rain across municipalities. "Dusk game" coefficient variation across time



(d) Quasi-exogenous variation in rain across municipalities. "Dusk game × Rain" coefficient variation across time

Two important results pan out of this exercise, depicted by figure 3. First, our results suggest that the demobilizations caused by the exposure to propaganda do not hinder future demobilizations and thus, do not correspond to a wave effect. Second, although the biggest effect is present the day after the exposure took place, we can trace remnants of the effect even a week after the match was played, highlighting the magnitude of the overall effect. We find that the number of demobilizations, in the week following exposure, account for approximately 14% of the total number of surrenders, equivalent to 36% of the FARC force, demobilizing in 2016 after the peace deal.

4.5 Auxiliary results

In order to put our results into perspective, we turn to one of the most powerful known demobilization drivers: the killing of a major FARC leader. Table 5 presents the comparison between the point estimates for demobilizations the day after a match and the day after a major leader is killed by the Colombian army.

Table 5: Comparison between the demobilization effects of a game with propaganda and the killing of a major FARC leader during a military operation.

Dependent variable: Demobilized FARC soldiers			
	(1)	(2)	(3)
Other game$_{t-1}$	0.0032***		0.0033***
	(0.0008)		(0.0008)
Dusk game$_{t-1}$	0.0161***		0.0148***
	(0.0036)		(0.0033)
Leader killed$_{t-1}$		0.0368***	0.0321***
		(0.0085)	(0.0075)
Municipality-fixed effects			
Time trend[a]	Yes	Yes	Yes
Observations	3,381,708	3,381,708	3,381,708
Municipalities	1,120	1,120	1,120
Years	2007-2016	2007-2016	2007-2016
R^2	0.027	0.027	0.027

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

We find that while a dusk game accounts for an additional 16.6 demobilizations, the killing of a leader drives 36 extra demobilizations. Meaning that a game played at dusk has 46% of the demobilizing power of a major military operation, the kind of which has only been possible three times in the entire conflict history. In other words, the entire military efforts that went into the planning and execution of this operations account only for 15% of the effect that exposure to propaganda through games had on demobilizations.[14]

[14]Note that we refer to successfully military operations, if we could account for the resources that presumably went into unsuccessful major military operations, the comparison between the demobilization rates of pro-demobilization messages and military approaches would be much realistic in terms of returns over the resources invested.

5 Robustness

Our benchmark results, depicted in column (4) of table 2, for our identification based on the assignment of matches; column (4) of table 3, for our identification based on kick-off times and column (6) of table 4, for the identification based on rain, remain consistent among a range of empirical specifications, employing alternative (*i*) rebel groups; (*ii*) measures and sources of rain; (*iii*) econometric models; (*iv*) time frames; (*v*) panel data units of measure; as well as (*vi*) different control variables.

In particular, we use and additional set of estimations including all the remaining rebel groups at war with the state (AUC, ELN, EPL and some other minor groups) and if anything we find a slightly bigger effect of the exposure to the messages. We also estimate our models using a Poisson regression, accounting for the fact that we use a dependent count data variable, with essentially the same outcome. Out of concern of the the precision of the gridded rain estimations, we use local measures of rain, collected directly from the *"Instituto de Hidrología, Meteorología y Estudios Ambientales"*, the Hidrology, Metorology and Weather Studies Institute (IDEAM), allowing us to obtain precise rain measures of 73% of the Colombian municipalities that have IDEAM's presence, confirming our initial findings. Additionally we aggregate all data into seven-day periods, in order to account for residual demobilizations from the same exposure. We also introduce a set of estimations using the next level of Colombian administrative aggregation (departments instead of municipalities) in order to aliviate concerns regarding the municipality a given individual might decide to use to demobilize. Additionally we introduce a range of control variables including day of week, month and year fixed effects; military activities both from FARC and the state army; changes in the Colombian government and variables related to the games such as score and competition being played.

6 Conclusions

This article provides evidence of the causal effect of propaganda in civil conflict in general, and the individual decision of rebel soldiers to demobilize in particular. The results show that the state-sponsored pro-demobilization campaigns, aired during the Colombian

national team matches, significantly increased individual demobilizations. The counterfactual estimates suggest that the number of FARC soldiers demobilized as a result of exposure to pro-demobilization messages is approximately 34% of size of the rebel force that signed the 2016 peace deal with the government and 14% of the demobilized FARC rebels.

Based on a daily panel of all Colombian municipalities from 2003 to 2018, covering the entire length of the pro-demobilization campaigns (2007-2016), this paper introduces three separate identification strategies in order to isolate the causal effect of exposure to propaganda on demobilizations. We employ (*i*) the quasi-random assignment of matches; (*ii*) the quasi-exogenous variation in kick-off times and (*iii*) the quasi-exogenous variation in rain across municipalities to provide consistent estimates of rebel demobilizations.

To the best of our knowledge, this is the first empirical analysis to utilize the entire extend of a major propaganda campaign to quantify and isolate the systematic effect that exposure to propaganda has on enemy forces.

While our results show that propaganda is an effective counter-insurgency measure, comparable with major military actions, at a much lower monetary cost, the true value of these campaigns is measured in human lives. A demobilized soldier is not only one less enemy in the battlefield, but also a reintegrated member of society. In a country coming out of civil war, any effort in repairing the damaged social tissue is vital to ensure a long lasting peace. We hope our research provides useful insights on measures that can help towards this goal.

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7 Appendices

7.1 Additional Controls

Table 6: Quasi-random assignment of matches: Additional Controls

Dependent variable: Demobilized FARC soldiers				
	(1)	(2)	(3)	(4)
Message period$_{t-1}$	0.0001	0.0001	0.0001	-0.0006**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Game day$_{t-1}$	0.0005***	0.0005***	0.0005***	-0.0005**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Game day$_{t-1}$ × Message period$_{t-1}$	0.0059***	0.0059***	0.0059***	0.0053***
	(0.0014)	(0.0014)	(0.0014)	(0.0013)
Control set I[a]	Yes	Yes	Yes	Yes
Control set II[b]		Yes	Yes	Yes
Control set III[c]			Yes	Yes
Control set IV[d]				Yes
N	6,556,968	6,556,968	6,556,968	6,556,968
R^2	0.026	0.026	0.026	0.027

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes municipality FE and a linear and a quadratic term. [b] Includes FARC attacks in a given day and municipality. [c] Includes Government military actions in a given day and municipality. [d] Include Year, month and day of the week FE.

Table 7: Quasi-exogenous variation in kick-off times: Additional controls

Dependent variable: Demobilized FARC soldiers				
	(1)	(2)	(3)	(4)
Message period$_{t-1}$	0.0001	0.0001	0.0001	-0.0006**
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Other game$_{t-1}$				
($\neq$ 16h-20h)	0.0003	0.0003	0.0003	-0.0006*
	(0.0002)	(0.0002)	(0.0002)	(0.0004)
Dusk game$_{t-1}$				
(16h-20h)	0.0013**	0.0013**	0.0013**	-0.0003
	(0.0006)	(0.0006)	(0.0006)	(0.0004)
Other game$_{t-1}$ $\times$ Message period$_{t-1}$	0.0030***	0.0030***	0.0030***	0.0025***
	(0.0009)	(0.0009)	(0.0009)	(0.0008)
Dusk game$_{t-1}$ $\times$ Message period$_{t-1}$	0.0151***	0.0151***	0.0151***	0.0147***
	(0.0033)	(0.0033)	(0.0033)	(0.0032)
Control set I[a]	Yes	Yes	Yes	Yes
Control set II[b]		Yes	Yes	Yes
Control set III[c]			Yes	Yes
Control set IV[d]				Yes
N	6,552,480	6,552,480	6,552,480	6,552,480
R^2	0.026	0.026	0.026	0.027

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes municipality FE and a linear and a quadratic term. [b] Includes FARC attacks in a given day and municipality. [c] Includes Government military actions in a given day and municipality. [d] Include Year, month and day of the week FE.

Table 8: Quasi-exogenous variation in rain across municipalities: Additional Controls

Dependent variable: Demobilized FARC soldiers				
	(1)	(2)	(3)	(4)
Other game$_{t-1}$				
($\neq$ 16h-20h)	0.0032***	0.0032***	0.0032***	0.0017***
	(0.0006)	(0.0006)	(0.0006)	(0.0004)
Dusk game$_{t-1}$				
(16h-20h)	0.0179***	0.0179***	0.0179***	0.0156***
	(0.0040)	(0.0040)	(0.0040)	(0.0035)
Rain$_{t-1}$	-0.0000	-0.0000	-0.0000	0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Other game$_{t-1}$ $\times$ Rain$_{t-1}$	0.0003	0.0003	0.0003	0.0002
	(0.0008)	(0.0008)	(0.0008)	(0.0008)
Dusk game$_{t-1}$ $\times$ Rain$_{t-1}$	-0.0083***	-0.0083***	-0.0083***	-0.0074***
	(0.0026)	(0.0026)	(0.0026)	(0.0025)
Control set I[a]	Yes	Yes	Yes	Yes
Control set II[b]		Yes	Yes	Yes
Control set III[c]			Yes	Yes
Control set IV[d]				Yes
N	3375680	3375680	3375680	3375680
R^2	0.027	0.027	0.027	0.028

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes municipality FE and a linear and a quadratic term. [b] Includes FARC attacks in a given day and municipality. [c] Includes Government military actions in a given day and municipality. [d] Include Year, month and day of the week FE.

7.2 Different Armed Groups

Table 9: Quasi-random assignment of matches: All armed groups

Dependent variable: Demobilized rebel soldiers				
	(1)	(2)	(3)	(4)
Game day$_{t-1}$	0.0046***	0.0046***	0.0018***	0.0018***
	(0.0010)	(0.0010)	(0.0004)	(0.0004)
Message period$_{t-1}$		0.0006*	0.0004	-0.0007***
		(0.0003)	(0.0003)	(0.0002)
Game day$_{t-1}$ × Message period$_{t-1}$			0.0057***	0.0056***
			(0.0012)	(0.0012)
Municipality-fixed effects				
Time trend[a]				Yes
Observations	6,552,480	6,552,480	6,552,480	6,552,480
Municipalities	1122	1122	1122	1122
Years	2003-2018	2003-2018	2003-2018	2003-2018
R^2	0.000	0.000	0.000	0.030

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

Table 10: Quasi-exogenous variation in kick-off times: All armed groups

Dependent variable: Demobilized rebel soldiers				
	(1)	(2)	(3)	(4)
Other game$_{t-1}$				
($\neq$ 16h-20h)	0.0023***	0.0023***	0.0007***	0.0007***
	(0.0004)	(0.0004)	(0.0002)	(0.0002)
Dusk game$_{t-1}$				
(16h-20h)	0.0127***	0.0126***	0.0040***	0.0040***
	(0.0028)	(0.0028)	(0.0015)	(0.0015)
Message period$_{t-1}$		0.0006*	0.0004	-0.0006***
		(0.0003)	(0.0003)	(0.0002)
Other game$_{t-1}$ $\times$ Message period$_{t-1}$			0.0031***	0.0032***
			(0.0009)	(0.0009)
Dusk game$_{t-1}$ $\times$ Message period$_{t-1}$			0.0148***	0.0145***
			(0.0030)	(0.0029)
Municipality-fixed effects				
Time trend[a]				Yes
Observations	6,552,480	6,552,480	6,552,480	6,552,480
Municipalities	1122	1122	1122	1122
Years	2003-2018	2003-2018	2003-2018	2003-2018
R^2	0.000	0.000	0.000	0.030

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

Table 11: Quasi-exogenous variation in rain across municipalities: All armed groups

Dependent variable: Demobilized rebel soldiers						
	(1)	(2)	(3)	(4)	(5)	(6)
Game day$_{t-1}$	0.0074***	0.0074***	0.0079***	0.0078***		
	(0.0015)	(0.0016)	(0.0015)	(0.0015)		
Other game$_{t-1}$						
($\neq$ 16h-20h)					0.0036***	0.0037***
					(0.0007)	(0.0008)
Dusk game$_{t-1}$						
(16h-20h)					0.0210***	0.0203***
					(0.0044)	(0.0042)
Rain$_{t-1}$		0.0001	0.0001	0.0001	0.0001	0.0001
		(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Game day$_{t-1}$ $\times$ Rain$_{t-1}$			-0.0020**	-0.0022***		
			(0.0008)	(0.0007)		
Other game$_{t-1}$ $\times$ Rain$_{t-1}$					0.0010	0.0006
					(0.0011)	(0.0009)
Dusk game$_{t-1}$ $\times$ Rain$_{t-1}$					-0.0102***	-0.0100***
					(0.0027)	(0.0028)
Municipality-fixed effects						
Time trend[a]				Yes		Yes
Observations	3,381,708	3,375,680	3,375,680	3,375,680	3,375,680	3,375,680
Municipalities	1,120	1,120	1,120	1,120	1,120	1,120
Years	2007-2016	2007-2016	2007-2016	2007-2016	2007-2016	2007-2016
R^2	0.000	0.000	0.000	0.027	0.000	0.027

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

7.3 Units of measure: States

Table 12: Quasi-random assignment of matches: States

Dependent variable: Demobilized FARC soldiers				
	(1)	(2)	(3)	(4)
Game day$_{t-1}$	0.1067***	0.1071***	0.0154***	0.0190***
	(0.0242)	(0.0243)	(0.0056)	(0.0060)
Message period$_{t-1}$		0.0590***	0.0521***	-0.0099
		(0.0134)	(0.0121)	(0.0111)
Game day$_{t-1}$ × Message period$_{t-1}$			0.2033***	0.1994***
			(0.0486)	(0.0476)
Observations	216,909	216,909	216,909	216,909
R^2	0.001	0.002	0.003	0.022

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

Table 13: Quasi-exogenous variation in kick-off times: States

Dependent variable: Demobilized FARC soldiers				
	(1)	(2)	(3)	(4)
Other game$_{t-1}$				
($\neq$ 16h-20h)	0.0581***	0.0580***	0.0127*	0.0136**
	(0.0132)	(0.0132)	(0.0067)	(0.0067)
Dusk game$_{t-1}$				
(16h-20h)	0.3221***	0.3178***	0.0367**	0.0392**
	(0.0774)	(0.0765)	(0.0159)	(0.0165)
Message period$_{t-1}$		0.0583***	0.0521***	-0.0094
		(0.0133)	(0.0121)	(0.0111)
Other game$_{t-1}$ $\times$ Message period$_{t-1}$			0.0981***	0.0985***
			(0.0286)	(0.0286)
Dusk game$_{t-1}$ $\times$ Message period$_{t-1}$			0.5279***	0.5202***
			(0.1238)	(0.1221)
Observations	216,513	216,513	216,513	216,513
R^2	0.001	0.003	0.003	0.023

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

Table 14: Quasi-exogenous variation in rain across municipalities: States

Dependent variable: Demobilized FARC soldiers						
	(1)	(2)	(3)	(4)	(5)	(6)
Game day$_{t-1}$	0.0416	0.0431	0.0445	0.0450		
	(0.0351)	(0.0364)	(0.0351)	(0.0357)		
Other game$_{t-1}$						
($\neq$ 16h-20h)					0.0209	0.0230
					(0.0176)	(0.0194)
Dusk game$_{t-1}$						
(16h-20h)					0.1138	0.1101
					(0.0877)	(0.0848)
Rain$_{t-1}$		-0.0106	-0.0105	-0.0006	-0.0105	-0.0006
		(0.0090)	(0.0091)	(0.0014)	(0.0091)	(0.0015)
Game day$_{t-1}$ $\times$ Rain$_{t-1}$			-0.0040	-0.0108*		
			(0.0074)	(0.0056)		
Other game$_{t-1}$ $\times$ Rain$_{t-1}$					0.0092	0.0010
					(0.0144)	(0.0073)
Dusk game$_{t-1}$ $\times$ Rain$_{t-1}$					-0.0324	-0.0351
					(0.0224)	(0.0243)
Observations	99,462	96,448	96,448	96,448	96,448	96,448
R^2	0.000	0.000	0.000	0.031	0.000	0.031

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

7.4 IDEAM Rain

Table 15: Quasi-exogenous variation in rain across municipalities: Measured by IDEAM

Dependent variable: Demobilized FARC soldiers						
	(1)	(2)	(3)	(4)	(5)	(6)
Game day$_{t-1}$	0.0064***	0.0084***	0.0112***	0.0112***		
	(0.0014)	(0.0019)	(0.0027)	(0.0028)		
Other game$_{t-1}$						
($\neq$ 16h-20h)					0.0043***	0.0046***
					(0.0012)	(0.0013)
Dusk game$_{t-1}$						
(16h-20h)					0.0322***	0.0313***
					(0.0078)	(0.0076)
Rain$_{t-1}$		0.0004**	0.0004***	0.0000	0.0004***	0.0000
		(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0001)
Game day$_{t-1}$ $\times$ Rain$_{t-1}$			-0.0021***	-0.0021***		
			(0.0007)	(0.0007)		
Other game˙t-1 $\times$ Rain$_{t-1}$					-0.0001	-0.0003
					(0.0003)	(0.0003)
Dusk game$_{t-1}$ $\times$ Rain$_{t-1}$					-0.0079***	-0.0077***
					(0.0022)	(0.0022)
Observations	3,381,708	2,428,208	2428208	2,428,208	2,428,208	2,428,208
R^2	0.000	0.000	0.000	0.027	0.000	0.027

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

7.5 Poisson Estimations

Table 16: Quasi-random assignment of matches: Poisson

Dependent variable: Demobilized FARC soldiers				
	(1)	(2)	(3)	(4)
Game day$_{t-1}$	0.8795***	0.8882***	0.2362***	0.2898***
	(0.0410)	(0.0417)	(0.0739)	(0.0823)
Message period$_{t-1}$		0.5485***	0.4856***	0.0752
		(0.0974)	(0.1003)	(0.0573)
Game day$_{t-1}$ × Message period$_{t-1}$			0.9092***	0.8387***
			(0.0973)	(0.1010)
N	6,556,968	6,556,968	6,556,968	4,172,616

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

Table 17: Quasi-exogenous variation in kick-off times: Poisson

Dependent variable: Demobilized FARC soldiers				
	(1)	(2)	(3)	(4)
Other game$_{t-1}$				
($\neq$ 16h-20h)	0.5245***	0.5382***	0.1153	0.1730
	(0.0393)	(0.0400)	(0.1130)	(0.1237)
Dusk game$_{t-1}$				
(16h-20h)	1.6550***	1.6194***	0.5327***	0.5858***
	(0.0692)	(0.0666)	(0.1127)	(0.1105)
Message period$_{t-1}$		0.5416***	0.4856***	0.0755
		(0.0968)	(0.1003)	(0.0572)
Other game$_{t-1}$ $\times$ Message period$_{t-1}$			0.6203***	0.5720***
			(0.1523)	(0.1601)
Dusk game$_{t-1}$ $\times$ Message period$_{t-1}$			1.3443***	1.1956***
			(0.1178)	(0.1213)
N	6,552,480	6,552,480	6,552,480	4,169,760

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

Table 18: Quasi-exogenous variation in rain across municipalities: Poisson

Dependent variable: Demobilized FARC soldiers						
	(1)	(2)	(3)	(4)	(5)	(6)
Game day$_{t-1}$	1.1453***	1.1453***	1.1924***	1.1666***		
	(0.0473)	(0.0476)	(0.0419)	(0.0443)		
Other game$_{t-1}$ ($\neq$ 16h-20h)					0.7122***	0.7260***
					(0.0566)	(0.0564)
Dusk game$_{t-1}$ (16h-20h)					1.9824***	1.8311***
					(0.0774)	(0.0856)
Rain$_{t-1}$		0.0007	0.0207	0.0043	0.0207	0.0048
		(0.0506)	(0.0572)	(0.0429)	(0.0572)	(0.0430)
Game day$_{t-1}$ $\times$ Rain$_{t-1}$			-0.2271	-0.3009**		
			(0.1523)	(0.1278)		
Other game$_{t-1}$ $\times$ Rain$_{t-1}$					0.0897	-0.0013
					(0.1412)	(0.1328)
Dusk game$_{t-1}$ $\times$ Rain$_{t-1}$					-0.7478**	-0.7148**
					(0.3392)	(0.3079)
N	3,381,708	3,375,680	3,375,680	1,877,722	3,375,680	1,877,722

Notes: Standard errors clustered at the municipality level are displayed in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. [a]Includes a linear and a quadratic term.

7.6 Mechanisms: Patriotism

An important question that might arise from our results relates to whether demobilizations arises after a game because a renewed sense of nationalism. In table 19 we explore the effects that events within the game have on demobilizations and find that important games, such as world cup matches and games that the national team wins, deteriorate the demobilization effect of the messages. We hypothesise that the more distracting a game is, the less attention rebel soldier could pay to the pro-demobilization messages and thus, they would be less likely to demobilize.

Table 19: Mechanisms: Patriotic effect.

Dependent variable: Demobilized FARC			
	(1)	(2)	(3)
Other game$_{t-1}$			
($\neq$ 16h-20h)	-0.0018***	0.0087***	0.0044***
	(0.0007)	(0.0018)	(0.0010)
Dusk game$_{t-1}$			
(16h-20h)	0.0080***	0.0200***	0.0143***
	(0.0018)	(0.0042)	(0.0030)
Draw	Base		Base
	(.)		(.)
Lost	0.0005		0.0018
	(0.0017)		(0.0018)
Win	-0.0095***		-0.0105***
	(0.0022)		(0.0024)
Friendly		Base	Base
		(.)	(.)
Competitive		-0.0111***	-0.0126***
		(0.0025)	(0.0028)
Municipality FE & Time trend	Yes	Yes	Yes
Observations	114,444	114,444	11,4444
Adjusted R^2	0.066	0.066	0.067

Standard errors clustered at the municipality level are displayed in parentheses
Time trend includes a linear and a quadratic term
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$