The Diffusion of International Norms: A Field Experiment on the Role of Common Knowledge*

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Abstract

How do organizations, such as International Organizations (IOs), promote social norms at the grassroots level? In particular, what are the microfoundations and mechanisms underlying the diffusion of such norms? Agents may provide information about norms and persuade individuals to accept them (i.e., individual channel). Additionally, they may indirectly inform listeners about what other people are learning, creating common knowledge, and thus operate as a coordination and peer pressure mechanism (i.e., social channel). I disentangle these effects with a field experiment in Mexico, examining attitudes and norms surrounding violence against women. To do so, I analyze the effect of a UNESCO norms intervention when it is implemented individually and privately versus when it is implemented through social and public outlets. I find no evidence supporting the individual mechanism. The social channel, however, increased personal and perceived social rejection of violence against women, increased support for gender equality roles, while also increased pessimism on whether violence will decline in the future.

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1 Introduction

A central concern in the International Relations (IR) literature is the different ways in which international actors, and the norms they promote, influence state behavior (e.g., Finnemore and Sikkink, 1998).[1] In particular, many scholars have investigated the different ways in which International Organizations (IOs) are able to promote international norms as well as the diffusion of such norms (e.g., Pevehouse, 2002; Bearce and Bondanella, 2007; Greenhill, 2015). However, these actors are actively engaged in transnational campaigns to promote norms for which *individuals*, not states, are the primary transgressors (Cloward, 2014).[2] Given the ubiquity and relevance of this type of norms promotion, it is striking that we know little about the *microfoundations* of norms diffusion, as well as about the role of IOs, at the *grassroots level*. That is, what are the mechanisms behind the diffusion of international norms at the grassroots level? And how do IOs promote such norms?

The process underlying norm diffusion at the grassroots level can be broadly decomposed into two potential effects: (1) an individual or direct effect, and (2) a social or indirect effect. In the former, organizations such as IOs provide information about new norms and persuade individuals to accept them. Here, individuals go through a process of learning and belief formation (DellaVigna and Gentzkow, 2010; Bandura, 1986). In the latter, the information provided also serves as a coordination device. Coordination is needed since one can conceptualize social norms as coordination problems, that is, situations in which each person wants to participate only if others participate as well (Mackie, 1996; Chwe, 1998). If this is the case, the provision of *public* information can enhance coordination on that norm through the creation of common knowledge (Chwe, 2001; Mackie, 1996).[3] Hence, I argue that information about norms has a differential effect when it is transmitted *individually and privately* (for example, through individual leaflets) than when it is transmitted through more *social or collective outlets* (such as mass media or public meetings). That is, *how* norm information is provided is important to fully understand the mechanisms behind its influence.

This paper provides evidence from a randomized field experiment, conducted in partnership with the UNESCO. The experiment was designed to asses the microfoundations and disentangling the mechanisms behind norm diffusion by analyzing the effects of a UNESCO norms campaign –a media (audio soap-opera) intervention– on a particular set of values and behaviors, namely attitudes and norms surrounding violence against women. The issue of violence against women and the role of UNESCO is an important and well suited case for studying the diffusion of grassroot norms and the influence of IOs for three main reasons.[4] First, violence against women is a global concern. It is a violation of human rights and has extensive pernicious consequences that range from the direct physical and mental harm for women and their children to economic losses at the individual and national level, and it has also been

[1] The most standard definition of a norm in the IR literature is a "shared standard of behavior appropriate for actors with a given identity" (Finnemore and Sikkink, 1998).

[2] This is because behavior that is transgressive to these norms –such as human rights violations– often happens at the hand of individuals, be them private citizens or agents of the state. This is the case regardless on whether elites share these norms or not, and whether behavior is outlawed or not (Bracic, forthcoming).

[3] A fact or event is common knowledge among a group of people if everyone knows it, everyone knows that everyone knows it, everyone knows that everyone knows that everyone knows it, and so on. This is important for coordination because each person will participate only if others do. As such, for a norm intervention to be successful, each person must not only know about it, each person must also know that each other person knows about it. In fact, each person must know that each other person knows that each other person knows about it, and so on; that is, the information must be common knowledge (Chwe, 1998).

[4] Also note that UNESCO in particular has been the subject of study in norm promotion (see Finnemore, 1993).

linked to other macrolevel ocurrences such as conflict and war (Hudson et al., 2012).[5] Second, in past years, development programs aimed at improving women's economic, political, and social status have attracted substantive attention from researchers and policy-makers alike (e.g., Duflo, 2012; Beath, Christia, and Enikolopov, 2013; Bush, 2011). In this vein, a wide range of IOs have put forward a diverse set of policies to address issues of gender equality in general, and violence against women in particular. For example, in 2008, the UNSG launched the campaign *UNiTE to End Violence Against Women* "with the overall objective to raise public awareness and increase political will and resources for preventing and responding to all forms of violence against women and girls in all parts of the world." These type of efforts are not exclusive of UN agencies. In 2012, USAID issued an updated policy on 'Gender Equality and Female Empowerment,' which includes reducing gender-based violence as one of its three outcomes.[6] Among these organizations, UNESCO has markedly put the issue of gender at the forefront of their efforts as well. Since 2008 gender equality has been one of the two UNESCO's global priorities (UNESCO, 2014). Finally, these types of intervention –i.e., social norms campaigns, with a special emphasis on 'edutainment' (e.g., Paluck, 2009; Paluck and Green, 2009)– are perfectly suited to analyze the role of common knowledge behind norms diffusion.[7] Existing evidence supports the link between media and social norms related to violence against women. Jensen and Oster (2009) show that the introduction of cable television in India exposed viewers to new information about the "outside world and other ways of life," decreasing the reported acceptability of violence toward women. But this effect could also be explained by the publicity of the media, which can plausibly influence social norms via coordination.[8] Moreover, closely related to the intervention analyzed in this paper, one of the leading programmes pursued by UNESCO involves working with media: the 'Global Alliance on Media and Gender' (GAMAG). Overall, it is crucial to enhance our understanding of the mechanisms behind these programs in order to improve their design and efficacy.

The intervention analyzed here was implemented in San Bartolomé Quialana, a small rural, indigenous community in Oaxaca, Mexico, during May-June 2013. This community is broadly representative of communities in the states of Oaxaca and Chiapas, where violence against women is a serious problem (UNESCO, 2012). The audio soap-opera program employed here –which was broadcast via the community loudspeaker– was designed to challenge norms of gender roles and, in particular, discourage violence against women. While holding the soap-opera content fixed, the experiment manipulated the social context in which individuals were able to receive the program.

The research design uses a randomization process which interacts with exogenous topography conditions that precluded part of the community from accessing the broadcast. The area outside the loudspeaker's reach provides the leverage to test the individual mechanism. Within this area, households were randomly invited to listen to the program, individually and

[5] See also McDermott (2015).

[6] Examples include the development of the U.S. National Action Plan on Women, Peace, and Security or PEPFAR's Gender-based Violence Scale-Up Initiative and Evaluation (USAID, 2012).

[7] Social norms campaigns are often labeled as social norms marketing, and include marketing techniques, such as mass media and face-to-face campaigns, that are designed to alter individuals' perceptions of social norms, specifically perceptions of attitudes and behaviors that are typical or desirable in their community. Rather than directly targeting personal attitudes or beliefs, social norms marketing targets perceptions of the prevalence of certain attitudes or beliefs in the community. 'Edutainment,' the integration of educational messaging with popular entertainment, is a common form of social norms interventions (for a review see Paluck and Ball, 2010).

[8] As noted before, this is because attitudes and behavior surrounding this type of violence can be understood as a coordination problem where strategic complementaries arise, namely participating in the cultural rejection of violence is contingent upon the participation of others.

privately, using an audio CD (*Individual broadcast*). Here, individuals were unaware of others listening to the program, precluding common knowledge creation and coordination, thus isolating the individual effect. On the other hand, the area within the loudspeaker's reach allows us to test the social mechanism. In this area, all households were able to listen to the program (*Public broadcast*). In addition, households were also randomly invited to listen to the program, but in a common place (*Group broadcast*). This might facilitate the generation of common knowledge and, importantly, aims to match the invitation-component of the *Individual broadcast* treatment. As such, the design created four treatment conditions as shown in Table 1.

[Table 1 about here.]

I measure norms and attitudes –including a behavioral indicator– with a survey of 340 individuals in 200 households. I find that the diffusion of social norms is driven by social effects rather than individual persuasion. I also find that social interactions such as community meetings are not always necessary conditions for such social effects. The evidence suggests that the social channel decreased personal and perceived social acceptance of violence against women and increased support for gender equality roles while also increasing pessimism on whether violence will decline in the future. In contrast, the results show that the individual channel had no effect.

A central empirical concern is that systematic differences may exist between the areas within and outside the loudspeaker's reach, which could potentially affect beliefs and behaviors related to violence against women. I argue that this does not appear to be the case, showing that a battery of individual and household characteristics are balanced between the two areas. Given the small size of the town and the nature of the treatment conditions, another concern is that the design could have been vulnerable to spill-overs. However, as I further discuss below, the experiment was designed to address this issue to the greatest extent possible, and most importantly, the presence of spill-overs would bias against the findings of the paper.

This study joins the vast literature on international norms diffusion as well as the growing literature of experiments in IR (see Hyde, 2015; Findley, Nielson, and Shaman, 2013). It contributes to them by empirically disentangling the mechanisms behind social norms diffusion at the grassroots level. This is important for several reasons. First, it improves our understanding of the mechanisms via which IOs impacts attitudes and social norms; these estimates provide empirical microfoundations to the theoretical literature on norm diffusion and socialization. Second, such estimates are critical for thinking about questions of policy interventions. For instance, knowing the magnitudes of these two effects would allow designers of social norms interventions to better assess whether they should focus on public or private programs; these estimates might help resolve an extant puzzle in the burgeoning literature on norms as to why some interventions work while others do not (see for example Beber et al., 2015). Finally, it also sheds light on the way the diffusion of norms, even as a result of normatively driven IO interventions, may have pernicious effects.

2 The Diffusion of International Norms

Many IR scholars have emphasized the role and importance of international norms, and particularly the promotion of international norms by different types of actors through a process of transnational advocacy (e.g., Finnemore, 1993; Finnemore and Sikkink, 1998; Keck

and Sikkink, 1998; Risse and Sikkink, 1999). Norms are important because they are standards of behavior that are based on widely shared beliefs of how individual group members ought to behave in a given situation. As such, these customary rules of behavior coordinate individuals' interactions with others (Young, 2008). Because of this, social norms are highly influential in shaping individual behavior, including discrimination and violence against a specific group, such as women. Norms can protect against violence, but they can also support and encourage the use of it. For instance, acceptance of violence is a risk factor for all types of interpersonal violence (Krug et al., 2002). Indeed, behavior and attitudes related to violence toward women are shaped and reinforced by social norms in general, and gender stereotypes and expectations within the society in particular. These norms persist within society because of individuals' preference to conform, given the expectation that others will also conform (Lewis, 1969; Mackie, 1996). That is, participation in such norms and behaviors (or the diffusion of new ones) is a coordination problem. This is because people are motivated to coordinate with one another when there are strategic complementarities: Social approval is only accrued by an individual if a sufficient number of people express their attitudes and behave in a similar way. Conversely, social sanctions can be inflicted on those with different expressed attitudes and behaviors if others do not join them (Coleman, 1990; Young, 2015).[9] In short, *beliefs* about the acceptability of a given behavior are a key factor in explaining their occurrence (Mackie, 1996).

Because of these considerations, numerous policies and programs have embarked on ambitious campaigns to address social issues –such as violence against women– by promoting changes in social norms (Tankard and Paluck, 2015). However, successfully promoting international norms can be a fraught process (Cloward, 2014; Beber et al., 2015). New norms will never enter a normative vacuum (Finnemore and Sikkink, 1998; Mackie, 1996) As such, transnational activists may promote international norms, for instance against violence against women, in communities who subscribe to strong local norms supporting such behavior. Hence, for local behavior change to occur, individuals must reject the existing norms and embrace the new ones. As such, these efforts raise fundamental questions about the extent to which and the conditions under which interventions, such as IOs norm promotion interventions, can indeed influence social norms in general, and about the microfoundations of such process in particular.

Overall, understanding the mechanisms underlying the local-level diffusion of international norms is important for two main reasons. First, a large and influential literature analyzes both policy converge and norm diffusion.[10] Building upon this, a burgeoning research agenda has emerged where IR scholars have put at test the ideas behind norm diffusion. Indeed, the main empirical regularity is that norm diffusion occurs in a wide range of cases, mostly considering how states are influenced by IOs. While several potential mechanisms are discussed in the literature –most of them falling under the rubric of 'socialization'– the precise underlying process behind such socialization is unclear. Two, these channels might be different when trying to change norms at the grassroots level. Most cases analyzed in the literature focus on elites' interactions within IOs. However, recent research suggests that

[9]For instance, these sanctions can take the form of shaming, shunning, or any other form of social ostracizing (Paluck and Ball, 2010). Other scholars argue that norms are self-sustaining irrespective of the threat of punishment. Two other mechanisms sustaining norms are (i) negative emotions such as guilt or shame that are triggered when norms have been internalized and (ii) the desire to avoid intrinsic costs that would result from coordination failure (Young, 2008).

[10]For a review, see Graham, Shipan, and Volden (2013).

diffusion of norms at the elite-level might be different that diffusion at the grassroot-level.[11] Beber et al. (2015) study the interaction between UN peacekeepers and host country women. They show that an elite-driven program (from the UNSC) to change norms 'on the ground' "appears to have had little effect on how individual peacekeepers treat women in their host country." Greenhill, Mosley, and Prakash (2009) highlight the extent to which norm diffusion on labor standards is not the same between de jure and de facto labor practices. Relatedly, Findley et al. (2015) provide evidence of the divergent preferences and perceptions of elites and citizens, examining the case of foreign aid projects.

2.1 The Role of International Organizations

A number of scholars have discussed the idea that IOs play a role in the international diffusion of norms among their member states. Most of the mechanisms by which norms are diffused among member states fall under the intuitive, yet sometimes underspecified rubric of 'socialization'. In particular, most of the literature discusses socialization among elites and peer pressure among states (Finnemore and Sikkink, 1998; Risse and Sikkink, 1999).[12]

Recent empirical studies have provided evidence in support of the idea that IOs can indeed influence state behavior through a socialization process. Pevehouse (2002, 2005) discusses the extent to which socialization within IOs can promote democratization. Bearce and Bondanella (2007) study convergence in UNGA voting among states who shared IO membership. Greenhill (2010, 2015) discusses the role of IOs in the diffusion of human right practices –including women's rights. Overall, the evidence points out to processes via which IOs can influence norms and state behavior. However, little attention has been paid to how norms are diffused, not at the elite-level, but at the individual or grassroots level. Not only this is theoretically and policy relevant, but also pushes us to better specify the microfoundations of such diffusion.

2.2 Microfoundations of Grassroots Norms Diffusion

Understanding the microfoundations of norm diffusion requires us to understand how norms can change. Norm diffusion can be broadly decomposed into two effects: (1) an individual or direct effect, and (2) a social or indirect effect.

Individual or direct effect. The diffusion of social norms can occur as an individual or direct effect that relies on *persuasion*. The emphasis is on the persuasive power of the content, which ignites an individual learning process, updating personal values and beliefs (DellaVigna and Gentzkow, 2010; Staub and Pearlman, 2009). This 'individual educational process' is in line with arguments put forward by social learning theory,[13] where the educational effect of a social norm campaign works via educational role models (Bandura, 1986). These educational role models are able to perform an instructive function, and transmit knowledge, values and behaviors among others.

[11] On elite behavior at the grassroot-level see also Mackie (1996) and Cloward (2015).

[12] See also Wendt (1994); Checkel (1999, 2005). See also other arguments for norm diffusion such as signaling among states (Hyde, 2011), alignment with a powerful state (Abbott and Snidal, 1998) or the 'California effect' (Cao, Greenhill, and Prakash, 2013; Greenhill, Mosley, and Prakash, 2009; Prakash and Potoski, 2006).

[13] Also referred to as social cognitive theory.

Social or indirect effect. Social norms can also be diffused via a *social mechanism*. Here, the driving force underlying norms diffusion is rooted in the fact that social norm interventions can provide information in a way that enhances coordination on a norm or action through the creation of common knowledge (Chwe, 2001). For instance, this is the case with media-related interventions; this is because media's method of delivery is a public one. Information that is known to be publicly available helps individuals to form an understanding of their shared beliefs (Mutz, 1998). Public information not only causes individuals to update their personal beliefs, but also allows them to update their beliefs about how widely these beliefs are shared (Morris and Shin, 2002). That is, public information is used to know that others received the information, and that everyone who received the information knows that everybody else that received the information knows this, and so on, creating common knowledge. In this vein, some authors argue that "attempts to change public behaviors by changing private attitudes will not be effective unless some effort is also made to bridge the boundary between the public and the private." (Miller, Monin, and Prentice, 2000, p. 113).

Given this, I argue that the method of norm promotion –i.e., how information about these norms is disseminated– is a significant driver of individuals' beliefs (and higher order beliefs), and consequently, of the diffusion of grassroots norms. A *public* transmission of information –vis-à-vis a *private* one– facilitates the creation of common knowledge, thus increasing its influence on social norms.[14] This is the main hypothesis of this paper:

Hypothesis 1 (Common Knowledge). *The diffusion of grassroots norms is greater when norms are promoted publicly.*

A public method of dissemination helps bring about, but by no means guarantees, common knowledge and coordinated action (Chwe, 1998). In reality, individuals might not know with certainty that others received the information, and thus everyone who received such information might not know with certainty that everybody else that received the information knows that others received the information, and so on. In other words, a public promotion may nonetheless be affected by some degree of uncertainty about whether others received the information. However, this degree of uncertainty is influenced by the type of social interactions created by the conditions under which norms' promotion is received. In particular, certainty can be bolstered through *face-to-face* interactions, such as community meetings (Chwe, 2001). Indeed, public community meetings have proven to be effective in achieving attitudinal and behavioral changes. Mackie (1996) describes the abandonment of female genital mutilation (FGM) practices and points out to the role of town meetings where the commitment to abandon FGM was publicized to the entire community. A recent field experiment in Benin finds that public meetings discussing programmatic platforms reduce the extent of clientelism (Fujiwara and Wantchekon, 2013).

To address this heterogeneity within the public dissemination of information, one might also seek to explore the extent to which different levels of uncertainty and potential social interactions moderate the diffusion of norms. Thus, within the common knowledge framework, I analyze whether the publicness of the information is a sufficient condition for norms diffu-

[14] Arguably, 'strong' and 'weak' hypotheses can be derived. The strong hypothesis would imply that only by increasing the publicness of the information above a certain threshold one should expect an effect –i.e., a 'tipping-point' argument (Finnemore and Sikkink, 1998). The weak version would postulate that by increasing publicness one is able to increase the effect. Differentiating between these two is beyond the scope of this paper. See also Cao, Greenhill, and Prakash (2013); Gottlieb (2015).

sion and whether face-to-face interactions enhances such diffusion. That is, I disaggregate Hypothesis 1 into two secondary hypothesis:

Hypothesis 2a (Public Signal). *A public promotion of grassroots norms is a sufficient condition for grassroots norms diffusion (i.e., no social interaction is required).*

Hypothesis 2b (Face-to-Face). *A public promotion of grassroots norms with face-to-face interaction enhances the diffusion of grassroots norms.*

3 UNESCO's Campaign: A media intervention in San Bartolomé Quialana

As noted above, achieving gender equality is one of the two current UNESCO's global priorities, and a key component of such goal is the prevention of violence against women (UNESCO, 2014). Strategies and development programs to address this type of violence take many forms, but many of them are inspired in social norms change. In particular, many of these strategies for social change take the form of media-driven interventions, such as TV or radio soap operas, where information about 'new' norms is provided (see Paluck and Ball, 2010). For instance, media interventions had been conducted by specific UNESCO country offices such as the UNESCO Office in Afghanistan. In 2007 they implemented the Radio *Quyaash* program, and in 2014, jointly with the UN Assistance Mission in Afghanistan (UNAMA), organized another radio program on women literacy and violence against women under the UNiTE's campaign.

This study was conducted in partnership with the UNESCO Office in Mexico under a UN Joint Program to prevent violence against women.[15] The overall initiative was implemented in a handful of communities in the states of Oaxaca and Chiapas, but this media driven norms intervention was specifically devised for San Bartolomé Quialana.

San Bartolomé Quialana (or simply Quialana) is a small rural, indigenous community located in the state of Oaxaca. The key features of San Bartolomé Quialana are broadly characteristic of rural municipalities in the rest of Mexico. As of 2010, Quialana had a population of 2,470 habitants with 591 households.[16] Approximately 4 out of 5 people speak both Spanish and Zapotec (the local indigenous language) while the rest speak only Zapotec. Around 47% of the population lived under the national poverty line, which was slightly above the median percentage for municipalities in the region.[17] In regards to media exposure, approximately

[15]This program, "Construcción y Evaluación de un Modelo Integral para la Prevención de la Violencia de Género, en Poblaciones Indígenas de México desde un Enfoque Intercultural", was put forward by UNDP, UNICEF, UNFPA, ECLAC, and UNESCO. See `http://www.onu.org.mx/proyectos.html`. Last accessed: November, 2015.

[16]Unless otherwise noted, data in this section is from the 2012 National Housing Inventory. The Appendix provides additional demographic information about Quialana. Table A1 shows the population distribution by age and gender and Figure A1 shows the population distributed across blocks, data which was used when designing the sampling.

[17]The CONEVAL (National Council for the Evaluation of Social Development Policy) considers a person to be below the (multidimensional) poverty line when the exercise of at least one of her six social rights is not guaranteed *and* if she also has an income that is insufficient to buy the goods and services required to fully satisfy her needs. These six social rights are: education (access and years completed), access to health services, access to social security, housing (quality and space), basic services (water, sewer, electricity) and food security. As of 2012, CONEVAL defined the income based component of poverty in rural areas as those surviving on no more than USD 113 per month. The median population percentage under the poverty line in Oaxaca was 41.35% (mean = 39.92, s.d. = 19.22) and in Chiapas was 39.57% (mean = 43.39, s.d. = 17.47).

83% of the households own a radio.[18] This proportion is actually similar to the national average, estimated to be 77% in 2013 (INEGI, 2014).[19] However, at the time of the intervention, Quialana did not have a local community radio, and part of the UNESCO program involved providing the necessary skills and equipment to start one.[20]

Although issues of gender equality are salient throughout Mexico, they are particularly so in the Southwestern States of Oaxaca and Chiapas. Levels of gender inequality and violence against women in San Bartolomé Quialana are broadly comparable with other municipalities in the region. As of 2005, its Gender Inequality Index (GII) was 0.66, slightly below the median for the State of Oaxaca (0.70) and equal to the median for the State of Chiapas (UNDP, 2009).[21] Furthermore, UNDP's (2009) report emphasizes that a big determinant of such inequality is gender-based violence. Surveys conducted by INEGI (2013) show how pervasive and entrenched violence against women is. In Oaxaca, 43.1 per cent of women reported having suffered some form of violence. However, only 10.1 per cent of them ask for help or file a complaint with the authorities.[22]

For the purposes of this paper, an important aspect of Quialana is its cultural homogeneity. For instance, as of 2010, out of the 2,470 habitants, 2,412 were born and raised in Quialana. Another example of Quialana's cultural homogeneity is found in its habitants' religion, where approximately 90% are catholic. This is important since the ability to focus on a single community, holding cultural and social aspects 'constant,' makes it easier to isolate the individual-level informational mechanisms that drive media influence on attitudes and social norms.[23]

3.1 The Soap-opera

The media intervention consisted of an audio soap-opera designed to challenge gender role norms and discourage violence against women. Entitled *Un nuevo amanecer en Quialana* (*A new dawn in Quialana*) it was produced in conjunction with a regional partner NGO and it included 4 episodes of approximately 15 minutes each, for a total running time of 57 minutes. The soap-opera was embedded in the local context featuring common reference points such as 'Tlacolula's market'. Framing the soap-opera in a way that makes it easy for the viewers to directly relate to the situations portrayed can increase its effect (La Ferrara, Chong, and Duryea, 2012).[24] The plot evolved around a young couple who fell in love and started a family in Quialana. The narrative was developed such that the leading male character gradually transformed from a loving and caring husband to a violent and aggressive figure. Research in the 'entertainment-education' literature shows that the male figure should not be displayed as

[18]The most popular radio stations, *Asi Se Oye 91.5 FM* and *La Zapoteca 88.9 FM*, are located in Tlacolula and their radio programming is based almost entirely on music.

[19]The national average has been decreasing over the last decade, from around 90% in 2005, as a result of substitution toward other technologies such as personal computers and internet (INEGI, 2014).

[20]A few weeks after the intervention, on July 17, the UNESCO Office provided Quialana with a state-of-the-art audio equipment. See `http://www.cinu.mx/noticias/mexico/la-oficina-de-la-unesco-en-mex/`. Last accessed: November, 2015.

[21]The GII measures gender inequality in three areas, namely health, education, and income. A value of 1 implies perfect gender equality while a value of 0 implies maximal inequality. Mean values (and s.d.) were .70 (.07) for Oaxaca, and .66 (.07) for Chiapas.

[22]National averages were very similar: 44.9 per cent for reporting having suffered some form of violence, and 9.5 per cent of them asked for help or file a complaint with the authorities. These results correspond to women 15 years old or older that were ever married or in civil union, or continue to be.

[23]See Cloward (2014) for a similar argument on her experiment in rural Kenya with the Maa-speaking community.

[24]See also Acharya (2004).

a completely violent character from the outset so that listeners can create a rapport with him and not disregard his behavior as an exception (Singhal et al., 2003). In the same vein, the language of the script used injunctive norms (Paluck and Ball, 2010). For instance, instead of arguing "*beating women is wrong*" the soap-opera would say "*the citizens of Quialana believe that beating women is wrong*". This actually biases against the main hypothesis of this paper since those in the *Individual Broadcast* treatment are exposed to these injunctive norms. One caveat of the narrative, however, is that because of structural constraints it did not contain *channel factors* to act out these norms.[25]

Un nuevo amanecer en Quialana was broadcasted using the community loudspeaker. A particular feature of this loudspeaker was the variation in its reach. I leveraged this peculiarity in my research design, which I describe next.

4 Research Design

The research design combines two sources of variation to manipulate the method of delivery and the social context in which people are able to receive the norm intervention. In particular, the publicness of the information is approximated by (1) exploiting arguably exogenous variation generated by the topography of the community (i.e., within community variation of 'broadcast access'), and (2) conducting a completely randomized field experiment to manipulate the social context in which the norm intervention was implemented. I further describe each one below.

4.1 The Loudspeaker: Topography & Sound Check

While Quialana did not have a local radio at the time of the intervention, it did posses a loudspeaker –located on top of the Town Hall, in the center of the community. Before the intervention, this loudspeaker primarily and sporadicly announced sales of small-scale household goods, such as construction materials, like bricks, or other livestock, like donkeys or pigs.

The design exploits arguably exogenous variation in the loudspeaker's reach to define two areas within Quialana: (1) the area *within the loudspeaker's reach*, and (2) the area *outside the loudspeaker's reach*. Only the latter provides a fertile ground to test the individual mechanism. This within community variation is mainly a product of topography conditions: from one end of the municipality to the other there is an altitude difference of more than 500 feet. That is, the source of variation is *not* a function of distance to the loudspeaker per se, but mainly of altitude difference.[26] To determine the precise boundaries between the two areas, I conducted a sound check to measure the loudspeaker's reach.

[Figure 1 about here.]

Figure 1 shows the loudspeaker's reach. Households on the bottom-left of the dividing line are within the loudspeaker's reach, whereas those on the upper-right side are not.

[25] Channel factors are small but critical factors that facilitate or create barriers for behavior. One example of a successful channel factor was the promotion of a telephone hotline number that provides information to callers and can refer them to service providers (Singhal et al., 2003).

[26] In other words, two households can be located at the same distance from the loudspeaker and still one of them can fall within the loudspeaker's reach and not the other.

4.1.1 Balance

A valid concern is that systematic differences may exist between those in the area within the loudspeaker's reach vis-à-vis those located in the area outside the loudspeaker's reach, which could potentially be correlated with attitudes and norms related to violence against women. While one of the advantages of conducting the study within a single community is precisely being able to leverage the cultural homogeneity and ameliorate concerns about structural differences, it is yet necessary to back-up this argument with evidence. To do so, I rely on data from the 2012 National Housing Inventory.[27] I use a battery of individual characteristics (e.g., economically active female, born outside Quialana, catholic religion, etc.) and household characteristics (e.g., male head of household, 3 or more occupants per room, radio and television ownership, etc.), covering both social and economic indicators. Table 2 shows t-test statistics for difference in means of these variables. None of them show statistically significant differences at conventional levels, providing compelling evidence on the balance between the two areas.

[Table 2 about here.]

4.2 Randomization: Group & Individual Broadcasts

Leveraging the two areas described above, I conducted a randomized field experiment. Within each area, households were randomly invited to listen to the soap-opera via systematic sampling, creating the *Group* and *Individual Broadcast* treatments. Here, the experiment was able to hold the content of the media program constant while varying the social context in which it was received. In the area within the loudspeaker's reach, households were invited to listen to the program in the cafeteria next to the Municipal building (i.e., *Group Broadcast*). In the area outside the loudspeaker's reach, households were invited to listen to it in their homes using a CD-rom (i.e., *Individual Broadcast*). The regional partner NGO served as the public face of the treatments, which were presented as part of an initiative to create a local radio station.

In order to test the individual mechanism, the invitation to listen to the soap-opera (via the CD-rom) had to be privately delivered to the household. Here, caution was taken to prevent households from believing that other households were also receiving the program –although as argued before, this would bias against my hypotheses.[28] CD-roms were handed out along with a short questionnaire meant as a listening-check device: the enumerator would leave the CD-rom and questionnaire sheet and then stop by a couple of hours later to pick up the sheet, and based on this, compliance was 100%.[29] To test the social mechanism, the design created a comparable treatment group, the *Group Broadcast*, were the invitation to listen the soap-opera (via the community meeting) matches the invitation component of the *Individual Broadcast*.

Moreover, the *Group Broadcast* provides leverage to explore the effects of public information. By creating a very particular form of social interaction (or at least the knowledge about it), namely the group meeting, the *Group* treatment might increase the level of certainty individuals' have about others receiving the information, and so on. At the same time, this

[27] Web: `http://www3.inegi.org.mx/Sistemas/Mapa/Inv/Default.aspx?i=en`

[28] Enumerators were trained to keep away from sight all CD-roms but the one delivered to the household.

[29] The questionnaire consisted on rating the soap-opera, asking the name of the character with whom they identified the most, and providing space for comments.

common knowledge mechanism might be confounded by other potential interactions facilitated by the meeting, such as deliberation. Inasmuch these interactions are indeed facilitated by the creation of common knowledge, the design is able to disentangle the social and individual mechanisms of media influence. However, to fully understand the social mechanism, one needs to explore whether the public transmission of information is a *sufficient* condition to influence norms as well the extent to which the face-to-face interactions can *enhance* the effect on norms. To potentially address this, the design created a public treatment without imposing such social interactions: households who were able to listen to the broadcast by being within the loudspeaker's reach but were not in the Group condition constitute the *Public Broadcast* treatment. Finally, households outside the loudspeaker's reach who did not receive the CD-rom represent the *baseline group*. These four conditions, with the number of households assigned to them, are summarized in Table 1.

An unbiased estimation of the mechanisms relies on two dimensions: facilitating the creation of common knowledge in the social conditions and precluding it in the individual condition (i.e., no spillovers). First, for the broadcast to facilitate the creation of common knowledge, it should be the case that people who listens to it know that other people are hearing it too. This is less of a concern in the *Group Broadcast* treatment since information is explicitly given to the household, so they know that others are also receiving the invitation, and so on. However, a person in the *Public Broadcast* treatment might believe that she has heard the broadcast, say because she lives close to the Town Hall or because she believes she has particularly good hearing but that few of her neighbors actually have heard it. I attempt to address this in two ways. First, I include distance to the Town Hall as a control covariate in the empirical analysis. Second, as discussed below, the empirical strategy relies on the estimation of intention-to-treat effects (ITT) precisely because individuals might fail to comply with the treatment –in the case of the *Public Broadcast*, individuals might not listen to the program nor realizing that others are listening to it as well, and so on. As such, it represents a conservative or lower bound estimation.

The second dimension related to the unbiased estimation is linked to the notion that those who receive the individual treatment should be unaware of other treatments. Given the small size of the town and the nature the treatment conditions, the design was vulnerable to spillovers. However, such spill-overs would bias *against* the main hypothesis of the paper. This is because those in the individual condition might find out that other people were also receiving the soap-opera. Nevertheless, in order to minimize potential spill-overs, invitations for the *Group Broadcast* were given out on a Friday. Both treatments were administered the next day: the *Individual Broadcast* treatment was conducted on Saturday –starting early in the morning, and the *Group* and *Public* Broadcast was also implemented during that evening.

Similarly, the design faced a trade-off between minimizing these spill-over concerns and maximizing the intensity of the treatment. For the former, the ideal was to minimize the time between the treatments and the survey. For the latter, an alternative was to implement a weekly soap-opera over several weeks or months. Since the main goal of this study was to analyze the underlying mechanisms of media influence, I prioritized addressing the spill-over concerns at the expense of a limited intensity of the treatment. Nonetheless, experiments where only one day or even one hour interventions were implemented have found profound effects (e.g., Paluck and Shepherd, 2012; Tanguy et al., 2014). Given these considerations, the norm intervention was implemented as a one day event only, and the surveys were administered over the following few days.

4.3 Outcome measurement

The regional partner NGO also served as the public face of the survey, presented as a mean to retrieve the opinion of Quialana citizens to inform an initiative for starting a community radio.[30] In the survey, three questions measured respondents' beliefs and estimation of others' beliefs and actions with respect to violence against women, and three other questions measured attitudes and individual actions related to it. Hence, I evaluate six outcomes of interest, which I describe in detail below.

The first dependent variable is a measure of *Personal beliefs* aimed at capturing the extent to which people believe and are willing to state that violence against women is a recurring problem in the community. The question asked was *"Do you think that violence against women is something that happens here in Quialana?"* and it was coded from 1 (*"No, this never happens here in Quialana"*) to 5 (*"This happens too much in Quialana"*). Given the qualitative evidence that violence is pervasive in Quialana (UNESCO, 2012) this item was designed to capture the respondent's personal beliefs about the desirability of (and hence, willingness to expose) certain actions. In other words, the intuition behind this question is to capture the shift from a perception where 'husbands are never violent to their wives –they might engage in some aggressive behavior but that is not violence' to a situation in which 'that' type of behavior is recognized as violence, and moreover, it is socially appropriate to judge it as serious problem.

The second variable of interest captures the *Perceived social rejection*. That is, the extent to which an individual believes that the community believes violence is a problem. The question was *"Do you think that that the community, the neighbors, and other families see violence against women as a serious problem here in Quialana?"* with responses coded from 1 (*"No, they do not see it as a problem at all"*) to 4 (*"They see it as a serious problem that needs to change"*). As in the previous question, this item aims to measure the shift in norm perception from a norm where violence is tolerated (e.g., the community experiences violence but sees it a routine and excusable) to a norm where violence is rejected. In other words, while the previous question indirectly captures the perceived social norm, this item does so directly.

The third variable, *Expectations about the future*, measures individual expectations that this type of violence will decline in the future. The question was *"Do you think the next generation of Quialana males...?"* with answers being coded from 1 (*"Will abuse women more"*) to 4 (*"Will never abuse women"*). That is, higher values represent more optimistic views about the future.

While these three measures are able to retrieve individuals' perception about norms surrounding violence against women, they do not directly measure individual attitudes, beliefs, nor actions regarding gender roles or domestic violence. Outcomes four through six address this, including a behavioral outcome embedded in the survey.

The fourth outcome, *Value Transmission*, measures the extent to which the respondent would educate a child with gender equality values. This captures the parents' decisions concerning which values to inculcate in their children, which are affected by perceived prevailing values in the society (Tabellini, 2008). In particular, it focuses on attitudes towards equality regarding household chores, which is seen by many as one of the key challenges for achieving gender equality (World Bank, 2012). The question was *"Would you educate your child so that domestic chores, such as doing laundry and cooking, are as much a responsibility of the men as they are of the women?"*, with the answer being coded 1 if the respondent supports this type of education, 0 otherwise.

[30] Surveys were collected from June 3 to June 5. Enumerators were aware of the treatment differences but they were blind to the research hypotheses.

The fifth variable captures the individual *Reaction to an episode of violence*. The question was *"If you see or hear a neighbor's wife being beaten by her husband, what would you do?"*. Responses are collapsed into a binary variable in the following way: *Reaction to violence* takes a value of 1 if the respondents answers that they would interrupt the couple so to stop the violence and/or call the police so they intervene, and is coded 0 if the answer implies that they would not take any action at the moment.[31]

The sixth variable retrieves a behavioral outcome. Survey respondents were asked if they would sign a petition to support the creation of a violence against women support group: the variable *Petition signature* is coded 1 if they signed the petition, 0 otherwise.[32]

Finally, to account for multiple testing I also analyze an *Index* variable created using standardized inverse-covariance-weighted (ICW) averages of the aforementioned outcomes as proposed by Anderson (2008). ICW averaging provides an optimal way to construct a linear index of different indicators that all measure a common latent factor (O'Brian, 1984; Anderson, 2008). The scale of the resulting index is in control group standard deviations, and higher values can be interpreted as higher levels of rejection and perceived rejection of violence against women and increased support for gender equality.

Moreover, three key covariates were collected, namely an indicator for *Female* gender, respondent's *Age*, and *Education*. A total of 201 households were surveyed. When available, both the male and female heads of the households were surveyed. This generated a maximum of 340 observations. Table A7 in the Appendix shows descriptive statistics.

4.3.1 Randomization Check

Before moving on to the discussion of the empirical strategy and results, this section briefly discuss the evidence regarding the soundness of the randomization procedure.

I use a multinomial logistic regression in which the dependent variable indicates the assignment to one of the four experimental groups and check whether any baseline survey covariate predicted membership to one of the treatment groups. The results (shown in the Appendix) indicate that the randomization was indeed successful.

As an additional check on the quality of the sample, I analyze its representativeness on age and gender with data from the 2010 National Census (shown in Table A1). Table A6 shows a simple frequency comparison. The evidence convincingly points to a high level of representativeness, suggesting that the overall sampling process was also successful.

5 Empirical Strategy

The empirical strategy relies on estimating intention-to-treat effects (ITT). ITT is the appropriate estimation when analyzing the gross impact of any given intervention and when noncompliance patterns may arise.[33] In this particular set up, however, the invitation to the *Group Broadcast* (i.e., the assignment to treatment) matches the theoretical motivation behind the treatment itself. That is, the invitation provides specific information about how the

[31] Answers that take the value of 1 are of the type "call the police" and/or "interrupt them to stop it", while answers coded 0 are "do nothing, since it's a private matter between husband and wife" or "do nothing at the moment, but ask what happened later".

[32] Not all respondents who responded yes to the question actually signed the petition. I further analyze this in the Appendix.

[33] For instance, people from roughly 1 in 4 households invited to the *Group Broadcast* actually went to the cafeteria –i.e., received the Group treatment.

soap-opera is going to be disseminated (i.e., there will be a broadcast and an event where people are able to receive the program together) thus facilitating the creation of common knowledge.[34]

I conduct the analysis using OLS, with two empirical strategies, namely (1) *Group* versus *Individual* Broadcast and (2) all four treatment conditions.[35]

5.1 Social and Individual Mechanisms: Group versus Individual Broadcast

The first empirical strategy focuses on testing the *Group* and *Individual* Broadcast treatments against each other, as follows:

$$Y_{i,h} = \phi + \alpha GroupBroadcast_h + \mathbf{X}_{i,h}^{'}\theta + \epsilon_{i,h} \tag{1}$$

where i indexes individuals and h households; $Y_{i,h}$ represents the outcomes of interests aforementioned (continuous variables are expressed in standard deviations of the distribution of responses in the *Individual Broadcast* condition); $GroupBroadcast_h$ is an indicator for whether the household was invited to the *Group Broadcast*. In this estimation, those in the *Individual Broadcast* treatment –i.e., living outside the loudspeaker's reach *and* invited to listen to the CD-rom– constitute the baseline category. For efficiency gains, I include a vector of controls, $\mathbf{X}_{i,h}^{'}$, which consist of an indicator for *Female* gender, respondent's *Age*, and *Education* which denotes a schooling indicator for whether the respondent (1) never attended school, (2) attended but did not finish primary school, or (3) finished primary school. I also include as a control the natural logarithm of the *Distance* in meters between the household h and the Town Hall. Finally, the error term $\epsilon_{i,h}$ is an individual error term allowed to be arbitrarily correlated within households but independent otherwise. Having assigned the treatments to households, I cluster the standard errors at the household-level.

The coefficient of interest in Equation (1) is α; it captures the social mechanism underlying norms diffusion. In particular, Hypothesis 1 predicts $\alpha > 0$. Nonetheless, I test it with a two-sided test.

5.2 All treatment conditions: Full sample

The estimates of the *Group Broadcast* are able to isolate the social effects induced by common knowledge. However, they might be influenced by the increased certainty created by the face-to-face interaction, and might potentially be confounded by other social interactions –facilitated by the community meeting– such as deliberation. To address this and understand the extent to which a public method of delivery is a sufficient condition to influence norms, I rely on the full sample. Analyzing the full sample allows estimating the effect of each treatment by comparing it to the control group. To do so, I use the following estimation:

$$\begin{aligned} Y_{i,h} =& \phi + \alpha GroupBroadcast_h + \gamma PublicBroadcast_h + \beta IndividualBroadcast_h \\ &+ \mathbf{X}_{i,h}^{'}\theta + \epsilon_{i,h} \end{aligned} \tag{2}$$

[34] This also has implications for estimating local average treatment effects (LATE) since it may be read as a violation of the exclusion restriction. As such, it precludes an unbiased estimation of the LATE.

[35] Results using (ordinal and binary) logistic models are substantially the same and are presented in the Appendix.

As in the previous section, $Y_{i,h}$ represents the aforementioned outcomes variables (continuous variables are expressed in standard deviations of the distribution of responses in the baseline condition) and $\mathbf{X}_{i,h}^{'}$ is the vector of controls. In the same vein, $GroupBroadcast_h$ is an indicator for whether the household was invited to the *Group Broadcast*; $IndividualBroadcast_h$ is an indicator for whether the household was instead invited to the *Individual Broadcast*.[36] $PublicBroadcast_h$ is an indicator for whether a household is within the loudspeaker's reach but was *not* invited to the *Group Broadcast*. Finally, those living in the individual area without treatment represent the *baseline category*.

In Equation (2), the coefficients of interest are α, β, and γ. They measure the effect of the norm intervention and, by design, can shed light on the different potential mechanisms. In this case, Hypothesis 1 predicts $\alpha > \beta$ and $\gamma > \beta$, and more specifically, Hypothesis 2a predicts $\gamma > 0$ while Hypothesis 2b predicts $\alpha > 0$ with $\alpha > \gamma$. Again, I test the hypotheses with a two-sided test.

6 Results

6.1 Social and Individual Mechanisms: Group versus Individual Broadcast

This sections examines the extent to which media influence is driven by the social vis-à-vis the individual mechanism. Table 3 displays the results for each outcome of interest using two different specifications. The first one displays the simplest specification possible, using only the *Group Broadcast* indicator (i.e., α), while the second one includes control covariates (i.e., Female, Age, Education, Distance). A summary of the results is illustrated in Figure 2.

[Table 3 about here.]

[Figure 2 about here.]

Results regarding to the influence on Personal beliefs suggest that those invited to the Group Broadcast were more likely than those invited to the Individual Broadcast to state that violence against women is a recurring problem in Quialana. The parameter estimate gains precision when introducing controls but remains stable ranging from .33 to .35 standard deviations relative to the Individual Broadcast condition, and is (weakly) statistically significant ($p = 0.065$ and $p = 0.052$, respectively).

When looking at the Perceived social rejection, the evidence points in the same direction: there is strong evidence supporting the social mechanism. The estimates are remarkably stable (.66 and .65) and statistically significant ($p < 0.01$).

The estimates of the Group Broadcast invitation on Expectations about the future are negative, very stable ($-.48$ and $-.49$) and statistically significant at conventional levels, suggesting that those invited to the Group Broadcast were more pessimistic about the decrease of violence in the future. This arguably perverse effect could be explained by several factors. One explanation might be that, while the Group Broadcast induced coordination around a new injunctive norm (i.e., people in Quialana should reject violence) it also raised awareness and facilitated coordination around a more subtle descriptive norm, namely that violent behavior is prevalent in the community. This more precise belief about the current situation of the community, coupled with the fact that the soap-opera did not offer any channel factors to

[36] *Individual Broadcast* was the baseline category in the previous empirical strategy.

act upon it, might have induced pessimistic expectations for the future extent of violence. Another explanation is that, as a result of the new common knowledge, individuals in the Group Broadcast treatment may foresee an increase opposition to violence against women, which in turn may potentially lead to a backlash effect. For instance, more women may speak out and oppose violence, creating a more violent response from a subset of men. While the data does not allow me rule out or pin down a particular explanation, it nonetheless shows that this effect is driven by the social mechanism.

The analyses of individual actions also support the social mechanism. Those invited to the Group Broadcast were 16 percentage points more likely (based on Model 8) than those invited to the Individual Broadcast to say they would educate their children on gender equality values. Similarly, the Group treatment also increased the probability of reacting to a violent event: treated respondents were 20 percentage points more likely (based on Model 10) to say they would try to stop a domestic dispute. The results for the Petition signature indicator, namely the behavioral measure of whether the petition to create a support group was signed or not, are displayed in Columns 11 and 12. The estimates suggests that those in the Group Broadcast treatment were 20 percentage points more likely (based on Model 12) to sign the petition that those in the Individual Broadcast.

The last two Columns show the results for the ICW Index. The substantial result is the same as before. Subjects invited to the Group Broadcast have an Index of responses .45 standard deviations higher than those invited to the Individual Broadcast. These results are all statistically significant at conventional levels.

The overall evidence is clear. Norm diffusion, captured by changes in attitudes and norms, is driven by the social channel. However, creating common knowledge might also facilitate a more precise belief of the status quo, thus setting negative expectations about future change, as suggested by the evidence on beliefs about the future prevalence of violence.

6.2 All treatment conditions: Full sample

This section presents the results from the second empirical strategy, using the full sample. Table 4 displays the results for each outcome using two estimations –as before. The first one only includes the treatment indicators. The second one adds control covariates (i.e., Female, Age, Education, and Distance). The results of the second estimation are graphically summarized in Figure 3.

[Table 4 about here.]

[Figure 3 about here.]

The analyses on Personal and Perceived social rejection show that the diffusion effects on beliefs and norms are driven entirely by the social mechanisms. The first four columns show estimates ranging from $.29$ to $.64$ standard deviations from the baseline condition, and they are statistically significant at conventional levels. In contrast, the Individual Broadcast parameter has a negative sign and is far from statistical significance.

When analyzing the Expectations about the future, the estimated parameters for social treatments are similar in size, ranging from $.20$ to $.24$, and once again are negative and (weakly) statistically significant ($p < 0.10$). In contrast, the Individual Broadcast parameters are positive but far from statistically significant.

These first set of results support both the Group and Public treatments. While the analyses of individual attitudes and actions also support the social mechanism, the evidence in this

case is stronger for the Group Broadcast –supporting Hypothesis 2b. The results for Value Transmission, Reaction to Violence, and the Petition signature are as expected: they show a positive effect of the social treatments. However, with the exception of Reaction to Violence, only the Group Broadcast treatment is statistically significant at conventional levels. The same pattern emerges when analyzing the ICW Index on Columns 13 and 14.

Additionally, I estimated several F-test of equality of coefficients. When comparing either one of the social conditions, Group (α) or Public (γ) Broadcasts, to the Individual Broadcast (β), they tend to show a statistically significant difference at conventional levels. Overall, these results provide strong evidence in support of Hypothesis 1. When pushing further the analysis of the social mechanism, the evidence shows that publicness in and of itself can be a sufficient condition to diffuse norms, in favor of Hypothesis 2a. At the same time, some of the evidense also suggests that face-to-face interactions can indeed ehance such effect, providing some support for Hypothesis 2b.

Overall, the findings discussed here replicate the ones from the previous section, suggesting that social mechanisms are the main drivers behind the diffusion of norms.

7 Discussion

A valid concern when interpreting the results is the extent to which they represent a one-off case in a unique setting. As noted before, in many aspects, Quialana is similar to many other municipalities in Mexico as a community with high levels of media consumption and issues with gender inequality and violence against women. Similarly, as a large and diverse society aiming to empower women so to overcome social challenges, Mexico has much in common with other developing and even developed countries. For instance, Mexico ranks 31 out of 60 countries on the *World Values Survey (WVS) Wave 6 (2010-2014)* Index on whether it is ever justifiable for a man to beat his wife, with very similar scores to countries such as Germany, Qatar, Russia and Peru.[37] In the same line, Mexico is also broadly representative on the prevalence of violence against women. This is confirmed by evidence from the *Violence against Women Prevalence Data (VAWPD)*, compiled by UN Women. Drawing data from international surveys (Center for Disease Control and Prevention Reproductive Health Surveys, Demographic and Health Surveys, and the WHO Multi-Country Study) and national population-based surveys, the VAWPD shows the percentage of intimate partner violence during a lifetime for a wide set of countries.[38] While 43.1 percent of women in Oaxaca and 44.9 percent of women in Mexico reported having suffered some form of violence during their lifetime, the mean for the 70 countries in the VAWPD is 45.6 percent (s.d = 12.7). Finally, media consumption in Mexico –defined as listening to the radio (for news) daily– is also very similar to that of a wide range of countries. Evidence from the *WVS Wave 6* shows that Mexico ranks 38 out of 57 countries in terms of intensity of media consumption.[39] In particular, 35.4% of Mexicans listen to the radio daily, proportion which is comparable to several and diverse countries, such as South Korea (30.3%), Brazil (35.1%), United States (36.7%), India (40.1%) or Russia (40.8%). Taking all together, this evidence suggests that the context of the case analyzed here is not unusual in other countries.

[37] Mexico's score is 1.82, Germany 1.68, Qatar 1.85, Russia 1.88 and Peru 1.89. This index is the mean of responses where 1 implies that is never justifiable for a man to beat his wife and 10 implies that it is always justifiable. The full set of countries is displayed in the Appendix.

[38] Available at: `http://www.endvawnow.org/uploads/browser/files/vawprevalence_matrix_june2013.pdf`

[39] The full set of countries is displayed in the Appendix.

Yet, to what extent are the results from this study externally valid in the sense that they generalize beyond Quialana and Mexico? Answering such a question is difficult in that it requires conjecture on how the results would actually differ had this study been implemented in other populations or contexts. While there are numerous variations in context or treatment design that could change the estimates presented here, the results nonetheless speak to a plausibly general phenomenon. The notion that public information, via common knowledge and coordination, can induce differences in norms and behavior is often stated as a general proposition instead of stated as applying to a particular set of context. For instance, Chwe (2001) discusses a wide range applications across history and cultures, ranging from the introduction of the Apple Macintosh during the 1984 Super Bowl to how social media can facilitate protest. As such, this study employs a particular context and design to provide a proof of concept for such plausibly general phenomenon. Critically, the results suggest that social norm diffusion is primarily driven by a social mechanism and not individual persuasion. This is not to say that persuasion does not play a role but rather that norm promotion conducted in a public setting can more easily influence attitudes and norms.

These findings are also consistent with evidence emphasizing the role of norms as drivers of social change (Tankard and Paluck, 2015). For example, voter mobilization experiments have found that turnout is highest among individuals who are told that their electoral participation would be publicized to neighbors (Gerber, Green, and Larimer, 2008). More specifically, the findings provide individual-level evidence supporting studies suggesting that informational interventions work primarily through a social mechanism (Paluck, 2009; Gottlieb, 2015). The results also complement existing research on the link between media and norms about violence against women (Jensen and Oster, 2009) by specifying a particular channel via which media affects these norms, as well as supporting the link between media and violent behavior in general (Yanagizawa-Drott, 2014).

Two particular results merit further exploration. First, the negative results on Expectations about the future was surprising. Further understanding the conditions under which these type of backlashes occur and can be precluded (e.g., emphasizing *channel factors*) is both theoretically and policy relevant. Second, the mixed results on the Public Broadcast point to the need for more inquiry into the conditions under which public information is a sufficient condition to influence norms and the conditions under which securing common knowledge via social interactions is actually necessary.

Finally, from a strictly policy perspective, there are potential concerns about whether the changes in reported attitudes, represent changes in behaviors, or just in reporting. Despite the behavioral evidence on the *petition signature*, one may be still concerned that exposure to the public treatments only changes what the respondent thinks other people want to hear and see about the acceptability of violence, but does not actually change the incidence of abuse. Without directly observing people in their homes, however, it is difficult to conclusively separate changes in reporting from changes in behavior. However, if media interventions only change what is reported, it still represents social norms change and progress. Changing social norms is a necessary (Jensen and Oster, 2009) and can be sufficient step toward changing the desired outcomes (Paluck and Green, 2009; Mackie, 1996).

8 Concluding Remarks

An increasingly relevant and widespread phenomenon is the extent to which IOs are involved in programs and campaigns to influence a wide range of attitudes and behavior. This

phenomenon can be better understood under the rubric of international norms diffusion. However, less is known about the microfoundations behind such diffusion. This paper examines two mechanisms –an individual one based on persuasion, and a social one based on higher order beliefs and coordination– and disentangles their effects at the individual level by studying attitudes and norms toward violence against women. To do so, I partnered with the UNESCO Office in Mexico to conduct a field experiment in San Bartolomé Quialana, a small, rural, indigenous community in Oaxaca, Mexico,

The experiment consisted of a UNESCO norm intervention (an audio soap-opera) designed to promote gender equality and discourage violence against women. To test the alternative mechanisms, I relied on two sources of variation to manipulate *how* individuals were able to receive the program. First, I leveraged exogenous topography conditions that precluded part of the community from listening to the soap-opera broadcast. Second, I implemented a randomization process that varied how households were invited to listen to the soap-opera. Given these two dimensions, the research design created two social treatment conditions (*Group* and *Public Broadcast*), an individual condition (*Individual Broadcast*) and a baseline condition.

The evidence presented here shows a very consistent story: the diffusion of social norms is driven mainly by social effects rather than individual persuasion. First, I show that a public method of delivery was able to decrease personal and perceived social acceptance of violence against women and increased support for gender equality roles, whereas a private delivery had no discernible effects. I also show that public information is no panacea as it also increased pessimism on whether violence will decline in the future. Second, I present evidence that a pure public method of delivery (i.e., one that does not entail social interactions such as face-to-face interactions) can be a sufficient condition for norm diffusion.

All in all, a deeper understanding of the interaction between individual beliefs and perceptions, and different types and sources of information can shed further light on the specific aspects of the social mechanism purported here.

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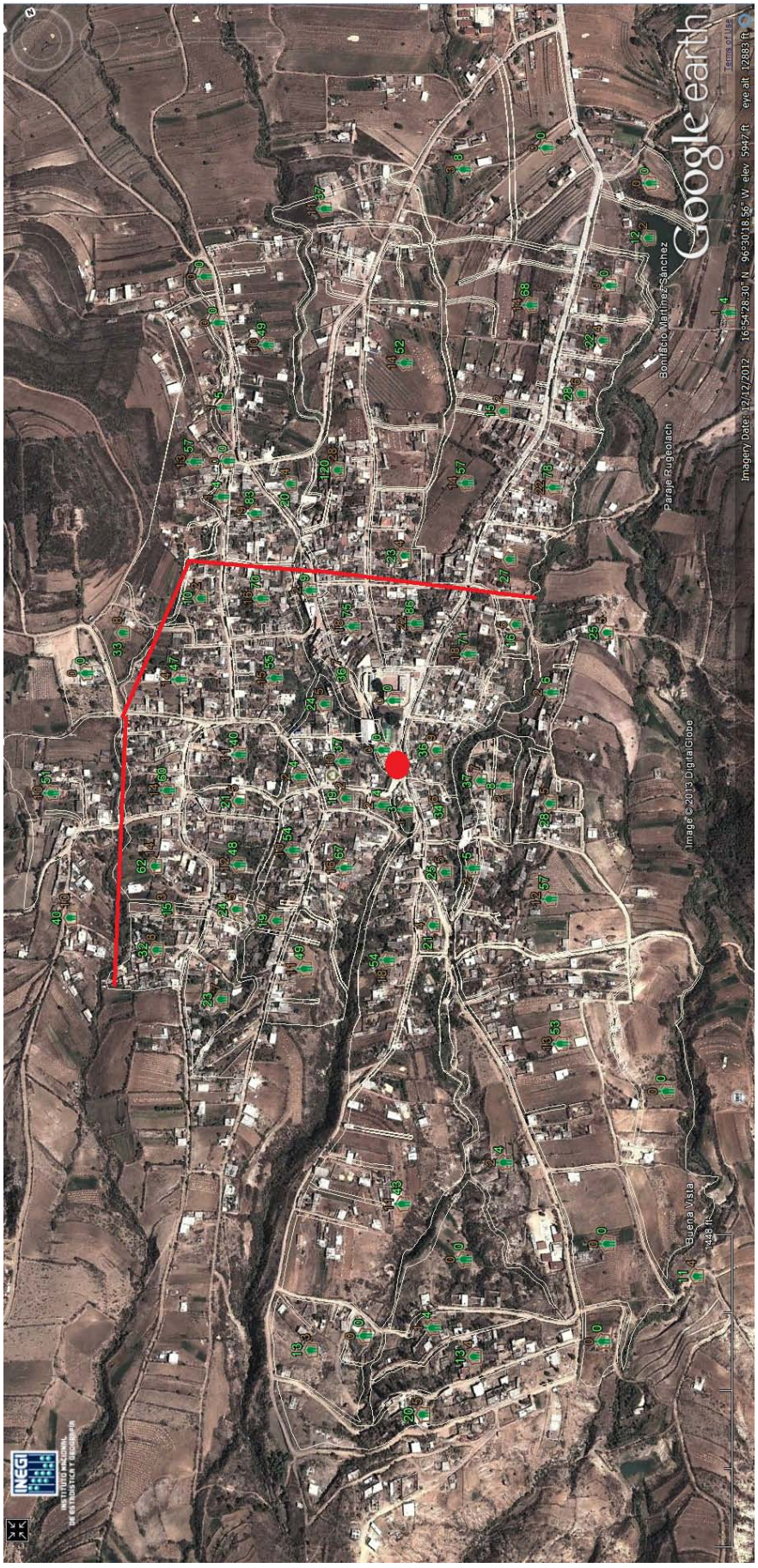
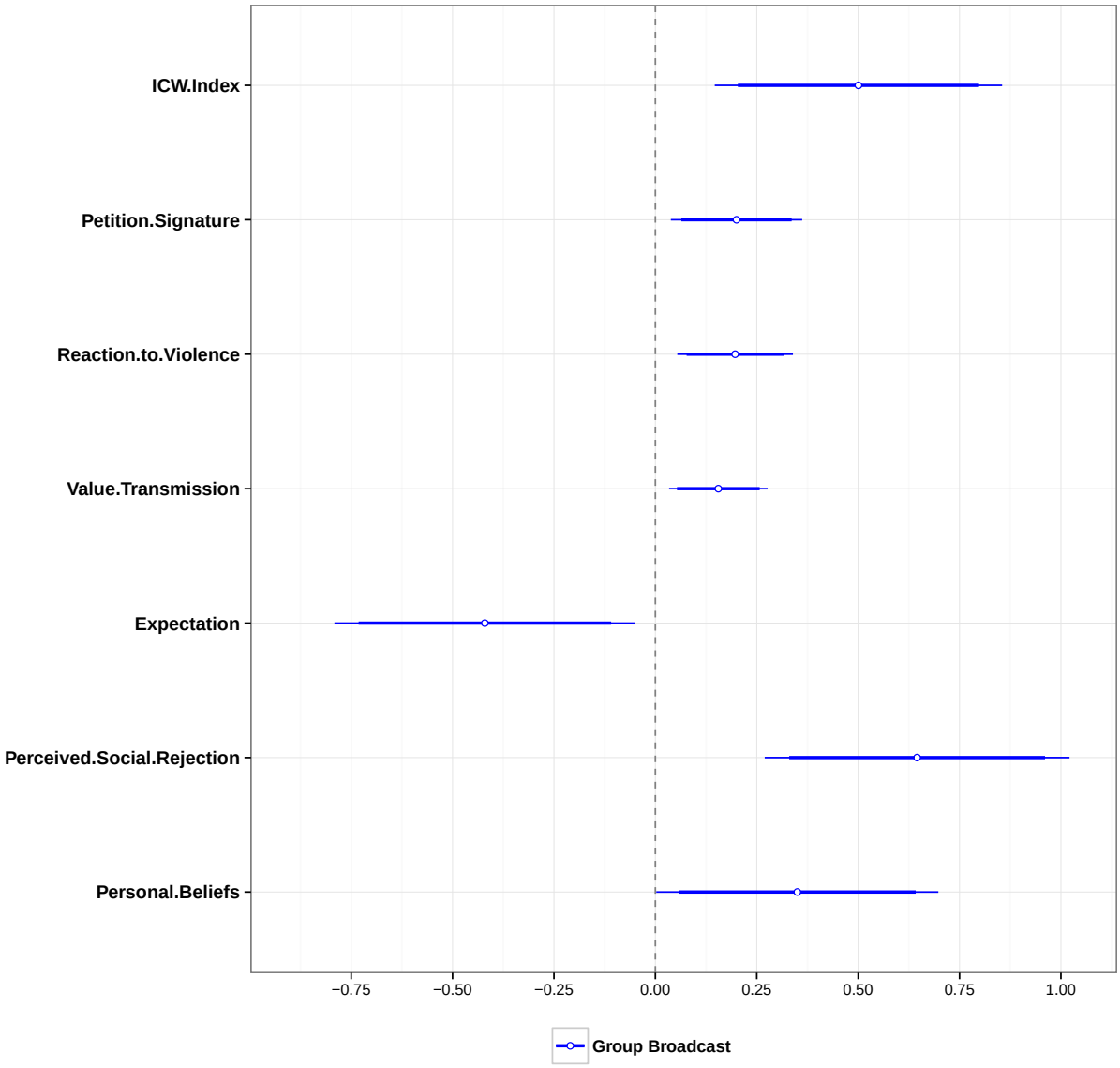


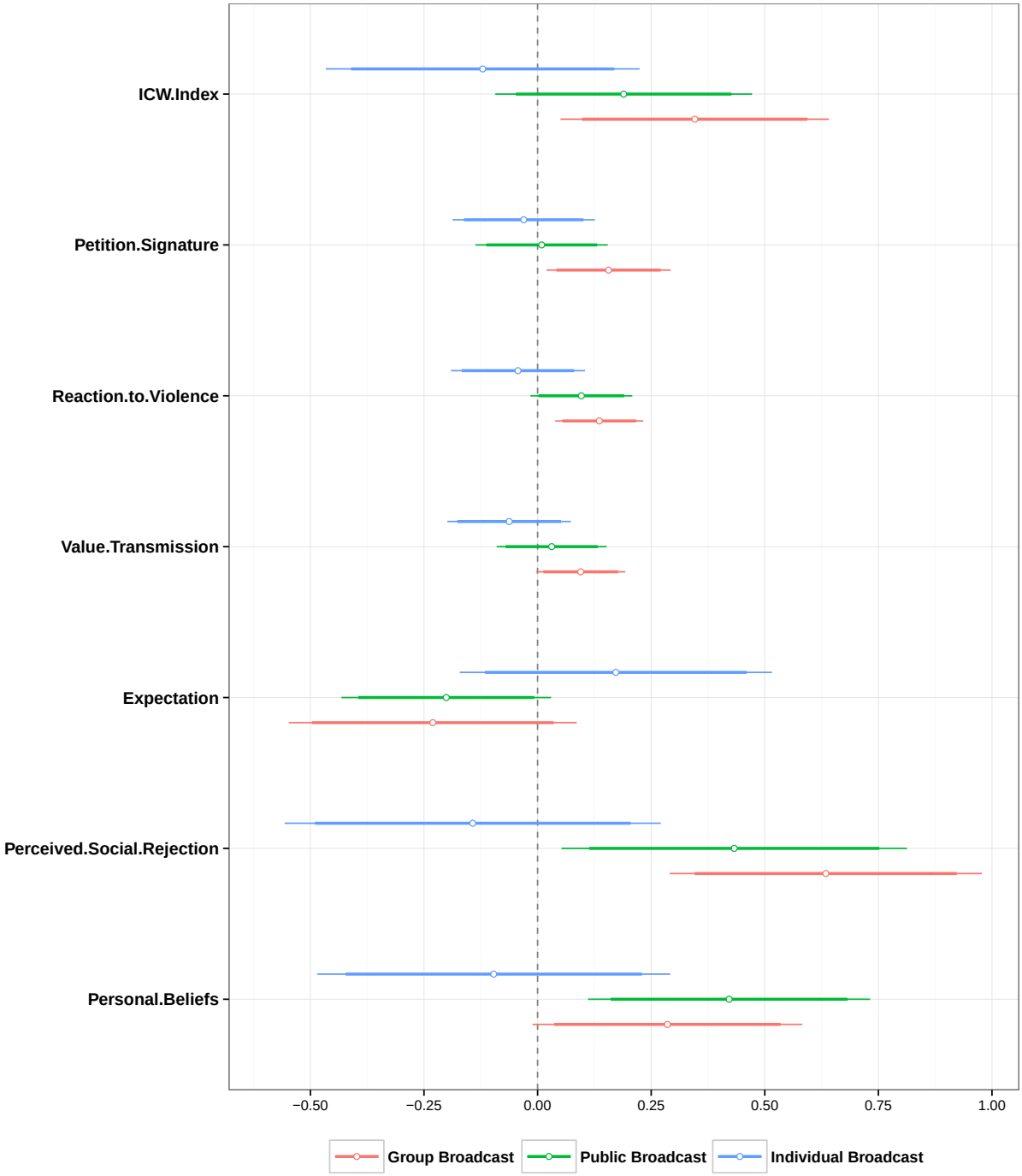
Figure 1: Total population (green). Number of households (brown). Solid red line: loudspeaker's reach. Red filled circle: Location of the loudspeaker

Figure 2: **Social and Individual Mechanisms: Group versus Individual Broadcast**



Note: Effects of each treatment condition on each of the outcomes of interest. Effects for continuous variables are expressed in standard deviations of the distribution of responses in the baseline group. Solid thin (thick) lines represent 95% C.I (90% C.I.)

Figure 3: **All treatment conditions: Full sample**



Note: Effects of each treatment condition on each of the outcomes of interest. Effects for continuous variables are expressed in standard deviations of the distribution of responses in the baseline group. Solid thin (thick) lines represent 95% C.I (90% C.I.)

Table 1: **Treatments constructed by the Research Design**

Treatments	**Within the loudspeaker's reach**	**Outside the loudspeaker's reach**
Invited to listen (How?) [Households/Surveys]	I. Group Broadcast (common place) [58/96]	II. Individual Broadcast (CD-rom) [35/59]
Not invited [Households/Surveys]	III. Public Broadcast (public signal) [48/82]	IV. Baseline [60/103]

Table 2: **Statistical balance between areas within and outside the loudspeaker's reach**

	Outside the loudspeaker's reach		**Within the loudspeaker's reach**				
	N	**Mean**	**N**	**Mean**	**Diff.**	**SE**	**p-value**
Individual Characteristics							
Female	813	0.58	1390	0.59	0.01	0.02	0.77
Economically Active Female	428	0.23	553	0.20	-0.03	0.03	0.25
Born outside Quialana	813	0.00	1390	0.00	-0.00	0.00	0.89
Catholic	813	0.89	1390	0.91	0.02	0.01	0.23
Does not speak Spanish	735	0.15	1293	0.15	0.01	0.02	0.74
High-School Graduate	506	0.03	835	0.03	0.01	0.01	0.57
Disabled (0-14 years old)	156	0.01	356	0.01	0.00	0.01	0.81
Household Characteristics							
Male head of household	189	0.72	335	0.71	-0.01	0.04	0.77
One bedroom house	182	0.37	332	0.40	0.03	0.05	0.51
With 3 or more occupants per room	167	0.41	264	0.38	-0.03	0.05	0.56
Electricity	189	0.97	338	0.98	0.01	0.01	0.50
Bathroom	189	0.93	338	0.96	0.02	0.02	0.23
Fridge	182	0.78	335	0.73	-0.05	0.04	0.20
Washing machine	139	0.32	232	0.28	-0.05	0.05	0.33
Car	130	0.38	252	0.32	-0.06	0.05	0.28
Radio	189	0.79	338	0.85	0.06	0.03	0.09
Television	186	0.77	335	0.79	0.02	0.04	0.61
Computer	144	0.03	188	0.05	0.02	0.02	0.35
Landline	158	0.46	302	0.44	-0.02	0.05	0.61
Cellphone	147	0.38	231	0.39	0.00	0.05	0.93

Note: Data from the 2012 National Housing Inventory.

'Does not speak Spanish' is based on population of 5 years old or more. The number of observations varies since the National Housing Inventory sets random entries as missing values to preserve confidentiality. Using differences in proportions for binary variables does not change the results.

Table 3: **Group versus Individual Broadcasts**

	Personal beliefs		Perceived rejection		Expectation on future		Value Transmission		Reaction to Violence		Petition signature		Index (ICW)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Group	0.33^{+}	0.35^{+}	0.66^{**}	0.65^{**}	-0.48^{*}	-0.42^{*}	0.13^{+}	0.16^{*}	0.15^{*}	0.20^{**}	0.16^{+}	0.20^{*}	0.39^{*}	0.50^{**}
Broadcast (α)	(0.18)	(0.18)	(0.18)	(0.19)	(0.19)	(0.19)	(0.07)	(0.06)	(0.07)	(0.07)	(0.09)	(0.08)	(0.19)	(0.18)
N	154	150	154	150	154	150	150	146	153	149	141	137	137	133
Households	94	91	94	91	94	91	94	90	94	91	92	88	92	88
R-squared	0.03	0.06	0.11	0.11	0.06	0.09	0.04	0.10	0.05	0.12	0.03	0.16	0.05	0.16
Covariates		✓		✓		✓		✓		✓		✓		✓

Robust standard errors clustered at the household level in parentheses. Covariates: Age, Female, Education, Distance. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 4: **All treatment conditions**

	Personal beliefs		Perceived rejection		Expectation on future		Value Transmission		Reaction to Violence		Petition signature		Index (ICW)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Group	0.29^{+}	0.29^{+}	0.64**	0.63**	-0.24^{+}	-0.23	0.10^{+}	0.09^{+}	0.14**	0.14**	0.18*	0.16*	0.34*	0.35*
Broadcast (α)	(0.15)	(0.15)	(0.16)	(0.18)	(0.14)	(0.16)	(0.05)	(0.05)	(0.05)	(0.05)	(0.07)	(0.07)	(0.16)	(0.15)
Public	0.45**	0.42**	0.40*	0.43*	-0.20^{+}	-0.20^{+}	0.06	0.03	0.12*	0.10^{+}	0.06	0.01	0.24	0.19
Broadcast (γ)	(0.16)	(0.16)	(0.19)	(0.19)	(0.12)	(0.12)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)	(0.16)	(0.14)
Individual	-0.08	-0.10	-0.13	-0.14	0.20	0.17	-0.04	-0.06	-0.01	-0.04	0.02	-0.03	-0.05	-0.12
Broadcast (β)	(0.20)	(0.20)	(0.20)	(0.21)	(0.17)	(0.18)	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.20)	(0.18)
N	335	327	335	327	335	327	329	320	336	327	315	307	304	298
Households	200	197	200	197	200	197	200	196	200	197	198	194	197	193
R-squared	0.05	0.06	0.08	0.08	0.04	0.04	0.02	0.07	0.04	0.10	0.02	0.10	0.03	0.11
Covariates		✓		✓		✓		✓		✓		✓		✓
F-test $\alpha = \beta$	0.06	0.06	0.00	0.00	0.01	0.03	0.05	0.01	0.04	0.01	0.07	0.02	0.04	0.01
F-test $\gamma = \beta$	0.01	0.01	0.02	0.01	0.01	0.01	0.21	0.21	0.09	0.06	0.61	0.65	0.11	0.07
F-test $\alpha = \gamma$	0.30	0.41	0.21	0.31	0.75	0.83	0.47	0.20	0.65	0.43	0.14	0.05	0.48	0.28

Robust standard errors clustered at the household level in parentheses. Covariates: Age, Female, Education, Distance. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

The Diffusion of International Norms: A Field Experiment on the Role of Common Knowledge

Supplementary Appendix

November 27, 2015

Contents

A1 Overview

This document is the supplementary appendix for "The Diffusion of International Norms: A Field Experiment on the Role of Common Knowledge". It contains the following information:

- Figure A1 shows a map of San Bartolomé Quialana with population by blocks.
- Table A1 lists the population distribution by age group and gender.
- Tables A2-A5 show that randomization was successful
  - Table A2 simple specification.
  - Table A3 excludes age outliers.
  - Table A4 includes age squared.
  - Table A5 uses cubic splines of age.
- Table A6 shows descriptive statistics
- Table A7 shows the representativeness of the sample.
- Table A8 re-estimate the treatments only estimation using logistic models.
- Table A9 re-estimate the main models using logistic models.
- Table A10 shows the results for different analyses of the petition signature variable.

A2 San Bartolomé Quialana

A3 Randomization Check

I use a multinomial logistic regression in which the dependent variable indicates the assignment to one of the four experimental groups and check whether any baseline covariate predicted membership to one of the treatment groups. The first set of results are shown in Table A2. The Age variable appears to be a significant predictor, while all variables together are jointly insignificant (p-value = .45). However, the result of Age is a product of outlier observations. Table A3 shows that, excluding 7 outliers (Age 80 or above), Age is no longer a statistically significantly predictor of assignment into any of the treatment conditions. As further checks, I re-run the first estimation with the full sample, including the squared term of Age, and alternatively, including cubic splines of Age. Results are shown in Tables A4 and A5, respectively. None of the variables are statistically significant predictors and they are always jointly insignificant (p-values from .45 to .77). Overall, this indicates that the randomization process was indeed successful.

A4 Descriptive Statistics

A5 Analyses using logistic models

Given the ordinal and dichotomous nature of the outcomes variables, I present the analyses using ordered logistic regression as follows[1]:

$$Pr[Y_{i,h} = j] = \Lambda(\alpha_j - \mathbf{X}'_{i,h}\beta) - \Lambda(\alpha_{j-1} - \mathbf{X}'_{i,h}\beta)$$

where the variables in the Social versus Individual strategy are

$$GroupBroadcast_h + Female_i + Age_i + Education_i + Distance_h + \epsilon_{i,h}$$

and in the full sample strategy are

$$\begin{aligned} &GroupBroadcast_h + PublicBroadcast_h + IndividualBroadcast_h \\ &+ Female_i + Age_i + Education_i + Distance_h + \epsilon_{i,h} \end{aligned}$$

and

$$j = 1, \cdots, 4$$

To aid interpretation, all results are shown in odds ratios.

A6 Petition Signature

The *Petition signature* variable measures a behavioral response: Survey respondents were asked if they would sign a petition to support the creation of a violence against women support group. The variable is coded 1 if they signed the petition, 0 otherwise. However, not all respondents who responded yes to the question actually signed the petition. In the subsample of Group and Individual treatments, 114 people responded yes to the questions, but 20 of them did not signed the petition. In the full sample, the numbers are 46 out of 241.

One potential explanation for that gap, as anecdotal accounts from the enumerators suggest, is that many of those who did not sign it, did not do it because they did not know how to write. However, in anticipation of this possibility, enumerators were trained to casually note that the signature could be done by 'signing with a mark, like an x'. In fact, there were three signatures with an x, and several people asked enumerators to write their name and sign on their behalf. Of course, this strategy was only a marginal improvement, and not a solution to this potential consideration.

[1]Note that in the Personal beliefs variable $j = 1, \cdots, 5$. Also note that in the case of the Petition signature variable, j is a binary taking the value of 1 if the individual signed the petition, 0 otherwise. Thus, a binary logistic model is used.

To provide a full account of this, Table A10 replicates the results showed in the main manuscript on the *Petition signature* variable. Two additional variables are analyzed: *Responded Yes* that takes a value of 1 if the respondent positive reply to the question –regardless of whether he or she signed or not– and 0 otherwise. And *Ordinal Measure*, which takes a value of 1 if the responded positively replied, but did not signed the petition, a value of 2 if he or she actually signed the petition, and 0 otherwise. The former is analyzed via OLS while the latter is analyzed with an ordinal logit.

The results show that the social treatment (in particular the Group treatment) did not substantially affect the stated willingness to sign the petition, but the actual behavior of it.

A7 World Value Survey Wave 6: List of Countries

Algeria 2014, Argentina 2013, Armenia 2011, Australia 2012, Azerbaijan 2011-2012, Bahrein 2014, Belarus 2011, Brasil 2014, Colombia 2012, Cyprus 2011, Chile 2011, China 2012, Ecuador 2013, Egypt 2012, Estonia 2011, Georgia 2014, Germany 2013, Ghana 2011, Hong Kong 2013, India 2014, Iraq 2013, Japan 2010, Jordan 2014, Kazakhstan 2011, Kuwait 2013, Kyrgyzstan 2011, Lebanon 2013, Libya 2013, Malaysia 2011, Mexico 2012, Morocco 2011, Netherlands 2012, New Zealand 2011, Nigeria 2011, Pakistan 2012, Palestine 2013, Peru 2012, Philippines 2012, Poland 2012, Qatar 2010, Romania 2012, Russia 2011, Rwanda 2012, Singapore 2012, Slovenia 2011, South-Africa 2013, South Korea 2010, Spain 2011, Sweden 2011, Taiwan 2012, Thailand 2013, Trinidad and Tobago 2010, Tunisia 2013, Turkey 2011, Ukraine 2011, United States 2011, Uruguay 2011, Uzbekistan 2011, Yemen 2013, Zimbabwe 2011.

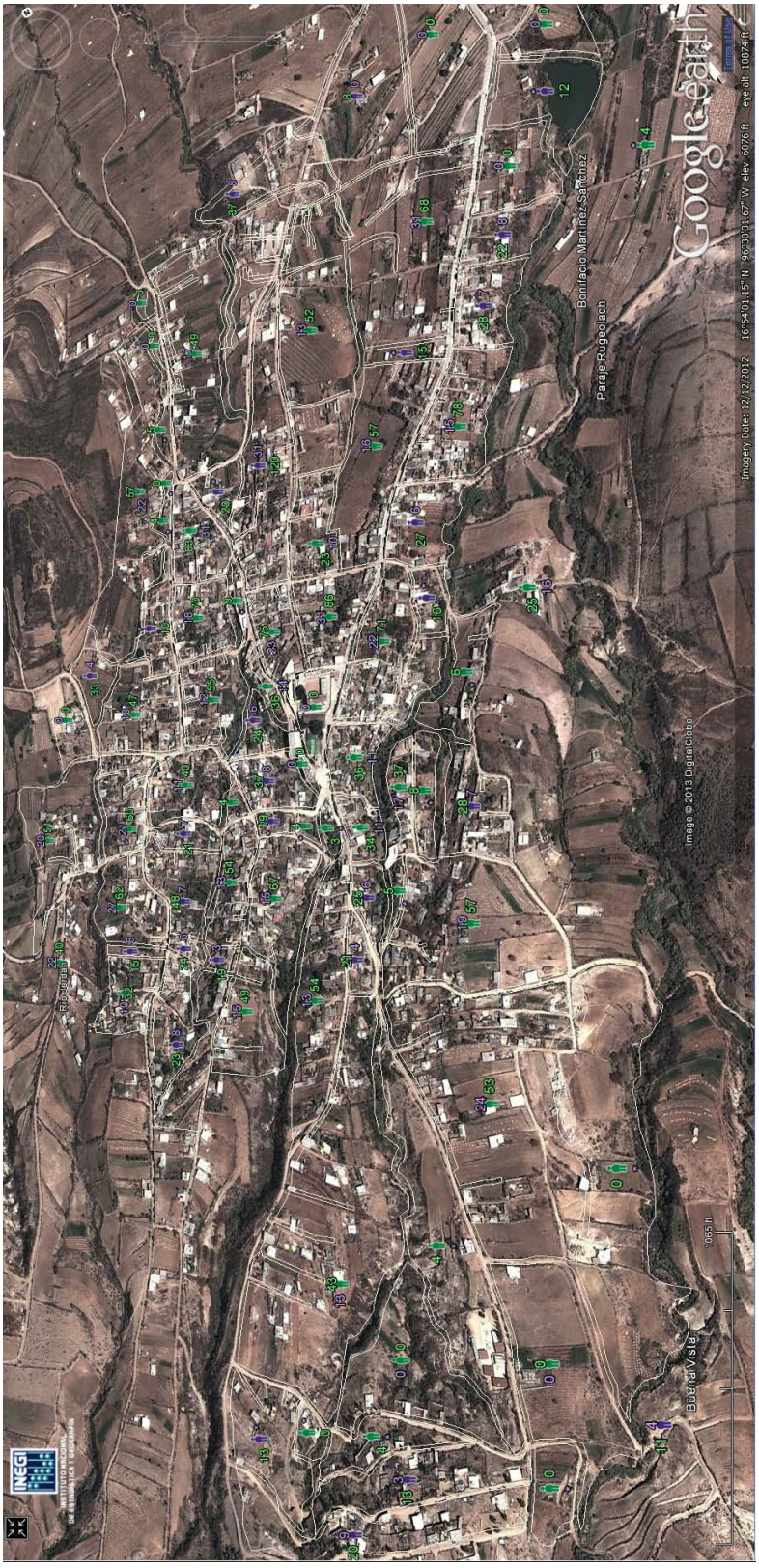


Figure A1: Total population (green). Age group from 0 to 14 years (purple). Source: INEGI.

Table A1: **Population Distribution by Age Group and Gender, 2010.**

Age group	**Total**	**Male**	**Female**
0 to 4 years	203	115	88
5 to 9 years	257	127	130
10 to 14 years	294	153	141
15 to 19 years	239	74	165
20 to 24 years	161	45	116
25 to 29 years	171	58	113
30 to 34 years	137	35	102
35 to 39 years	155	48	107
40 to 44 years	121	40	81
45 to 49 years	126	51	75
50 to 54 years	129	59	70
55 to 59 years	117	46	71
60 to 64 years	63	28	35
65 to 69 years	82	43	39
70 to 74 years	94	48	46
75 to 79 years	64	25	39
80 to 84 years	24	15	9
85 to 89 years	16	7	9
90 to 94 years	10	5	5
95 to 99 years	0	0	0
100 and over	1	1	0
Unspecified	6	3	3
Total	**2,470**	**1,026**	**1,444**

Source: INEGI. Censo de Población y Vivienda 2010

Table A2: **Testing Random Assignment**

	Public Broadcast	Individual Broadcast	Group Broadcast
Age	-0.03*	-0.03*	-0.01
	(0.01)	(0.02)	(0.01)
Some primary school	-0.16	-0.33	-0.65
	(0.63)	(0.76)	(0.55)
Finished primary school	-0.27	-0.46	-0.79
	(0.68)	(0.81)	(0.65)
Female	0.05	0.15	0.40
	(0.24)	(0.27)	(0.25)
Constant	1.15	1.06	0.98
	(0.97)	(1.10)	(1.00)
N	334		
Households	199		
Log-Likelihood	-449.54		
Wald Test	0.45		

Robust standard errors clustered at the household level in parentheses.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A3: **Testing Random Assignment: excluding age outliers**

	Public Broadcast	Individual Broadcast	Group Broadcast
Age	-0.02	-0.02	-0.01
	(0.01)	(0.02)	(0.01)
Some primary school	-0.11	-0.27	-0.46
	(0.64)	(0.77)	(0.56)
Finished primary school	-0.19	-0.38	-0.62
	(0.68)	(0.80)	(0.66)
Female	0.06	0.16	0.40
	(0.25)	(0.27)	(0.25)
Constant	0.84	0.75	0.65
	(0.96)	(1.09)	(1.03)
N	327		
Households	198		
Log-Likelihood	-443.67		
Wald Test	0.77		

Robust standard errors clustered at the household level in parentheses.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A4: **Testing Random Assignment: including age squared**

	Public Broadcast	Individual Broadcast	Group Broadcast
Age	0.02	-0.03	0.01
	(0.06)	(0.06)	(0.05)
Age^2	-0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)
Some primary school	-0.20	-0.33	-0.67
	(0.63)	(0.77)	(0.55)
Finished primary school	-0.28	-0.46	-0.80
	(0.68)	(0.82)	(0.66)
Female	0.04	0.15	0.39
	(0.25)	(0.28)	(0.25)
Constant	0.26	1.10	0.50
	(1.47)	(1.43)	(1.50)
N	334		
Households	199		
Log-Likelihood	-448.99		
Wald Test	0.64		

Robust standard errors clustered at the household level in parentheses.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A5: **Testing Random Assignment: with cubic splines of age**

	Public Broadcast	Individual Broadcast	Group Broadcast
Age spline 1	-0.09	-0.12	0.01
	(0.09)	(0.10)	(0.09)
Age spline 2	0.71	0.79	-0.39
	(0.65)	(0.73)	(0.66)
Age spline 3	-2.71	-2.79	1.79
	(2.25)	(2.55)	(2.34)
Age spline 4	3.06	2.98	-2.50
	(2.45)	(2.81)	(2.64)
Some primary school	-0.21	-0.33	-0.65
	(0.63)	(0.78)	(0.57)
Finished primary school	-0.26	-0.44	-0.80
	(0.69)	(0.82)	(0.67)
Female	-0.00	0.12	0.43^{+}
	(0.26)	(0.28)	(0.24)
Constant	2.54	3.18	0.37
	(2.35)	(2.52)	(2.31)
N	334		
Households	199		
Log-Likelihood	-444.89		
Wald Test	0.47		

Robust standard errors clustered at the household level in parentheses.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A6: **Sample representativeness**

	Sample data			2010 Census data		
Age	Male	Female	Total	Male	Female	Total
Under 45	56	142	198	300	684	984
	(16.62)	(42.14)	(58.75)	(17.54)	(40)	(57.54)
45 or older	66	73	139	328	398	726
	(19.58)	(21.66)	(41.25)	(19.18)	(23.27)	(42.46)
Total	122	215	337	628	1,082	1,710
	(36.2)	(63.8)	(100)	(36.73)	(63.27)	(100)

Percentages in parentheses

Table A7: **Descriptive statistics**

Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**	**N**
Personal beliefs	4.296	0.909	1	5	335
Perceived social rejection	2.952	0.914	1	4	335
Expectations about the future	3.042	0.392	1	4	335
Value Transmission	0.863	0.344	0	1	329
Reaction to violence	0.872	0.335	0	1	336
Petition signature	0.619	0.486	0	1	315
Index	0.141	0.885	-3.418	2.362	304
Female	0.637	0.482	0	1	339
Age	42.917	15.451	15	86	338
Education	2.368	0.656	1	3	337
Distance (Ln)	5.033	0.654	3.121	6.536	337

Table A8: **Group versus Individual Broadcasts**

	Personal beliefs		Perceived rejection		Expectation on future		Value Transmission		Reaction to Violence		Petition signature	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Group	1.89^{+}	2.14^{+}	3.49^{**}	3.55^{**}	0.17^{**}	0.22^{*}	3.17^{*}	4.53^{**}	4.54^{*}	8.40^{**}	2.02^{+}	2.91^{*}
Broadcast (α)	(0.73)	(0.86)	(1.22)	(1.41)	(0.11)	(0.14)	(1.70)	(2.39)	(3.05)	(5.96)	(0.77)	(1.33)
Observations	154	150	154	150	154	150	150	146	153	149	141	137
Households	94.00	91.00	94.00	91.00	94.00	91.00	94.00	90.00	94.00	91.00	92.00	88.00
Log-Likelihood	-160.47	-152.97	-183.58	-179.34	-66.63	-64.26	-54.33	-47.75	-49.33	-43.25	-87.87	-75.88
Covariates		✓		✓		✓		✓		✓		✓

Exponentiated coefficients. Robust standard errors clustered at the household level in parentheses.

Covariates: Age, Female, Education, Distance.

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A9: **All treatment conditions**

	Personal beliefs		Perceived rejection		Expectation on future		Value Transmission		Reaction to Violence		Petition signature	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Group	1.75^{+}	1.80^{+}	3.12^{**}	3.12^{**}	0.38^{+}	0.39^{+}	2.52^{+}	2.77^{+}	4.34^{*}	4.33^{*}	2.19^{*}	2.16^{*}
Broadcast (α)	(0.53)	(0.55)	(0.92)	(1.04)	(0.19)	(0.21)	(1.22)	(1.49)	(2.63)	(2.52)	(0.72)	(0.76)
Public	2.83^{**}	2.69^{**}	1.92^{*}	2.07^{*}	0.37^{*}	0.37^{*}	1.64	1.31	3.05^{+}	2.51	1.30	1.04
Broadcast (γ)	(1.07)	(1.01)	(0.62)	(0.71)	(0.18)	(0.17)	(0.85)	(0.72)	(1.88)	(1.60)	(0.39)	(0.34)
Individual	0.91	0.89	0.81	0.80	1.76	1.56	0.79	0.63	0.96	0.69	1.08	0.87
Broadcast (β)	(0.34)	(0.33)	(0.28)	(0.29)	(0.92)	(0.83)	(0.38)	(0.30)	(0.47)	(0.35)	(0.36)	(0.31)
Observations	335	327	335	327	335	327	329	320	336	327	315	307
Households	200.00	197.00	200.00	197.00	200.00	197.00	200.00	196.00	200.00	197.00	198.00	194.00
Log-Likelihood	-351.15	-342.64	-402.42	-393.26	-154.94	-152.76	-127.87	-113.43	-121.20	-109.36	-205.86	-188.48
Covariates		✓		✓		✓		✓		✓		✓

Exponentiated coefficients. Robust standard errors clustered at the household level in parentheses.

Covariates: Age, Female, Education, Distance.

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A10: **Signature Analysis**

	Group vs. Individual						Full Sample					
	Petition Signature		Responded Yes		Ordinal measure		Petition Signature		Responded Yes		Ordinal Measure	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Group	0.16^{+}	0.20*	0.05	0.07	0.59	0.91*	0.18*	0.16*	0.10	0.10	0.73*	0.75*
Broadcast (α)	(0.09)	(0.08)	(0.07)	(0.08)	(0.38)	(0.45)	(0.07)	(0.07)	(0.07)	(0.07)	(0.33)	(0.36)
Public							0.06	0.01	0.03	-0.00	0.18	-0.07
Broadcast (γ)							(0.07)	(0.07)	(0.07)	(0.07)	(0.30)	(0.34)
Individual							0.02	-0.03	0.05	0.02	0.14	-0.07
Broadcast (β)							(0.08)	(0.08)	(0.08)	(0.08)	(0.31)	(0.33)
N	141	137	141	137	141	137	315	307	315	307	315	307
Households	92	88	92	88	92	88	198	194	198	194	198	194
R-squared	0.03	0.16	0.00	0.07			0.02	0.10	0.01	0.06		
Log-Likelihood					-120.39	-108.32					-286.19	-265.70
Covariates		✓		✓		✓		✓		✓		✓
F-test $\alpha = \beta$							0.07	0.02	0.50	0.31	0.11	0.04
F-test $\gamma = \beta$							0.61	0.65	0.80	0.76	0.90	0.98
F-test $\alpha = \gamma$							0.14	0.05	0.31	0.13	0.13	0.03

Robust standard errors clustered at the household level in parentheses. Covariates: Age, Female, Education, Distance.

$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$