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Abstract

"Norms-nudging" consists of publicizing how others in society behave on average, hoping to encourage further adoption of a desired behavior. While numerous studies show that norms nudges can work in small groups and one-shot interventions, increasing attention is being devoted to the challenges of scaling up to ongoing, population-level norms nudging policies. Regularly nudging entire populations, we argue, can unleash social adjustment dynamics that move the societal rate of the desired behavior in unexpected directions. We provide practical guidance on the kind of information needed to estimate the likely effectiveness of an ongoing, population-level norm nudging policy. We illustrate our approach through a survey-in-the-field experiment about face mask-wearing during the COVID-19 pandemic. In the context we study, our results suggest that publicizing initially high rates of mask-wearing would likely backfire by leading to lower equilibrium rates of mask-wearing. Our approach can be adapted and enriched to estimate the likely effects of nudging with norms at scale in other substantive realms and heterogeneous populations.

Keywords: Norms nudging, Social norms, Behavioral economics, Health.

JEL codes: D03, D91, I12, I18

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1 Introduction

The question of how to encourage individual behaviors that yield social benefits is of long-standing interest across the social sciences (Smith, 2010; Axelrod, 1981; Ennett et al., 1994; Latané, 1996; Paluck et al., 2016). Behavioral interventions, commonly known as "nudges," have recently received substantial attention. While many studies find nudges to be effective tools for eliciting beneficial behaviors, concerns are mounting about their effectiveness at scale (Soman and Mazar, 2022; Linos, 2022). Can their benefits be preserved when scaled up to the societal level? Can entire populations be nudged towards greater adoption of beneficial behaviors?

We focus on nudges that utilize descriptive social norms in order to encourage desirable behaviors, subsequently denoted as "norms nudges."[1] For present purposes, a norms nudge consists of publicizing how others in society behave on average. The hope is that, for an individual who has not yet adopted the desired behavior, learning that many others have done so will increase the chances that she will also adopt it (Morgan and Laland, 2012; Bursztyn et al., 2020). Such nudges are increasingly commonplace (Bicchieri and Dimant, 2022) and have recently garnered attention in the context of the COVID-19 pandemic (Van Bavel et al., 2020).

A large body of evidence shows that norms nudges indeed positively influence individual behavior in realms of policy interest, including tax compliance (Coleman, 2007; Luttmer and Singhal, 2014; Mascagni, 2017), energy use (Schultz et al., 2007; Allcott, 2011; Alcott and Rogers, 2014; Bergquist and Nilsson, 2018), charity donations (Alpizar et al., 2008; Smith et al., 2015; van Teunenbroek et al., 2020), female labor force participation (Bursztyn et al., 2020), voter turnout (Gerber and Rogers, 2009), recycling (Cialdini et al., 1990), and others. At the same time, norms nudges do not always work as intended. Some studies find that the effects are short-lived (Fielding et al., 2013) or counterproductive (Schultz et al., 2007; Castro and Scartascini, 2015; Bicchieri and Dimant, 2022; Kuang et al., 2020). Various explanations have been suggested for the failure or backfiring of norms nudges. Among others, providing information on rates of undesirable behavior can create a "boomerang

[1] In common usage, a descriptive social norm refers to the average behavior of a population, i.e., "what most people do" (Cialdini et al., 1990). We use the term to denote *an individual's perception of the average behavior of a population*, which is close to what Bicchieri has termed "empirical expectations" (Bicchieri, 2006). A more sophisticated approach regards a descriptive social norm as a map from an individual's expectations about how society will behave onto her own behavior. Bicchieri (2006) defines a descriptive norm as: "a pattern of behavior such that individuals prefer to conform to it on condition that they believe that most people in their reference network conform to it."

effect" by normalizing such behavior (Schultz et al., 2007); people can make erroneous or unintended inferences from the nudges(Bicchieri and Dimant, 2022); and choice architecture sometimes presents numerous bottlenecks that prevent an effect (Soman and Mazar, 2022).

We focus on the dynamic effects that scaling up norms nudges can unleash. The key insight is that, even when a norms nudge is effective in a small or one-off intervention, one cannot simply assume that it would work similarly when scaled up to the population level. In addition to sounding this cautionary note and elaborating on its conceptual foundations, we provide practical guidance on what kind of information might be needed to estimate the likely effectiveness of implementing norms nudging at the population level. Our analysis is thus complementary to recent work that studies challenges to scaling up norms nudges effectively but has not focused on dynamic processes (Bicchieri and Dimant, 2022; Mazar and Soman, 2022).

The core idea advanced here is that population-level policies often unleash feedback mechanisms that can steer population-level behaviors in unexpected directions. While the simple concepts underlying this claim have been known at least since the 1960s (Schelling, 1960), they are frequently overlooked when recommending and designing large-scale policies consisting of publicizing descriptive norms (Prentice and Paluck, 2020). We diagnose this problem as arising from an issue of scale and nudging frequency. Some studies of norms nudges are run on relatively small groups of individuals and therefore have negligible impact on the aggregate behavior of the society where they are conducted. Even larger interventions where the nudging occurs just once (instead of periodically or continuously) fail to spark dynamic effects. But when norms nudges are applied to a full population and aggregate levels of compliance are rendered regularly visible, feedback effects kick in, moving the desired behavior in potentially unexpected directions. The key point is that *applying norms nudges on a large scale changes the descriptive norms themselves.* The effect of the nudge in period t changes the content of the nudge (i.e., the descriptive norm) in period $t+1$, which in turn will influence nudge contents at $t+2$, and so on. Such feedback processes can have a powerful impact on societal behavior.

Unfortunately, the likely effects of population-level nudging cannot be gleaned from the modal experimental study, where a nudge is randomized once within a small sample of individuals. We shall denote research studies that involve a small sample of people (i.e., a group much smaller than the full population), apply a norms nudge to a random subset one time, and measure their average effect on a given outcome variable as *marginal-effect designs.* Most existing studies of norms nudges are marginal-effect designs. Even when the

treatment is randomized, the isolated point estimates of the causal effects of norms nudges yielded by marginal-effect designs generally contain insufficient information for predicting how feedback processes might unfold at the population level—and therefore for designing effective policy.[2]

Instead, what is needed is information about a sufficiently ample range of the response curve that relates perceived aggregate behavior with actual individual behavior—not just a pair of points in a small segment of that curve.[3] To fix ideas, suppose that, in the context of the COVID-19 pandemic, a researcher informs 500 subjects, whose initial average rate of mask-wearing is 59%, that "80% of people wear a face mask in public spaces," and finds that providing this information increases the average rate of mask-wearing by 11 pp (compared to a randomized control group where no such information is provided). Should a policymaker seeking to increase rates of mask-wearing conclude, on the basis of this finding, that a policy that informs everyone about prevailing rates of mask-wearing will have the desired effect of substantially increasing mask-wearing?

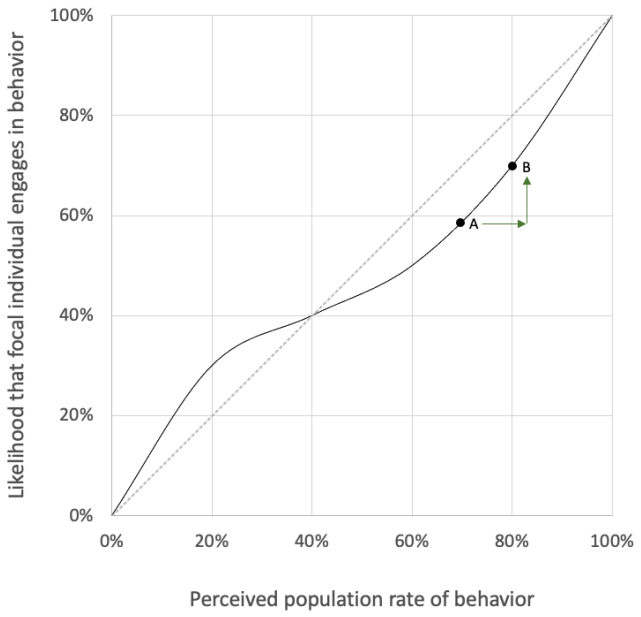
Generally speaking, the answer is "not necessarily." Figure 1 illustrates why. Panel A is a model of individual behavior as a function of the individual's beliefs. The vertical axis depicts the probability that a focal individual will engage in the desired behavior (e.g., mask-wearing in public). The horizontal axis represents the perceived fraction of society engaging in the behavior. The fact that the slope of the s-shaped curved is positive means that, for the individual, learning that more people wear masks than she initially believed will render her more likely to wear one herself. For example, if her belief about how many others wear masks in public shifts from 70% to 80%, the likelihood that she herself wears one rises by about 11 pp—from approximately 59% (point A) to 70% (point B). This is the type of information that a marginal-effect design is able to yield.

[2]An additional important reason why small studies can fail to scale up is ex ante heterogeneity in beliefs or compliance. In particular, individuals who learn that average societal levels of compliance are lower than their own might cease to engage in the desired behavior. While small studies of norms nudging are often conducted on samples of individuals who ex ante under-perform on the desired behavior, in whole populations there will also exist individuals whose ex ante performance exceeds the societal average. Figure A7 illustrates heterogeneity in beliefs about tax compliance in the city of Junin in Argentina. While information about average tax compliance has been found to have a positive effect when provided to a sample of UK citizens known not to have paid their taxes (Hallsworth et al., 2017), the same nudge had no effect on average when provided to the universe of taxpayers in Junin (Castro and Scartascini, 2015).

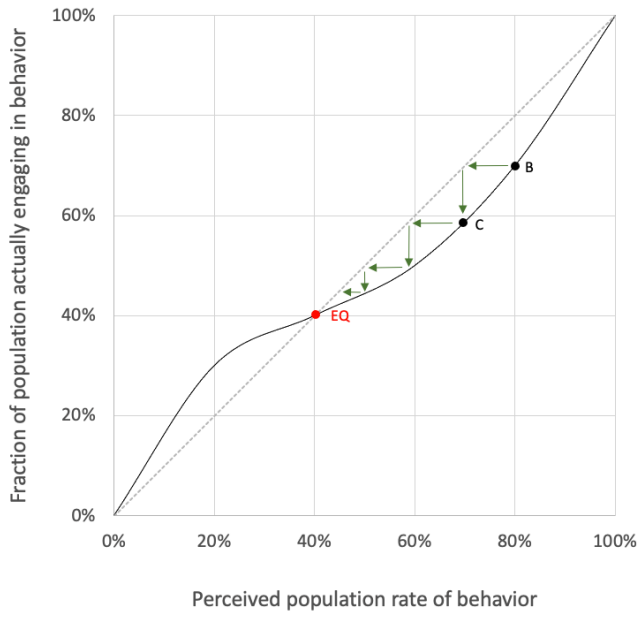
[3]In Bicchieri's (2006) definition of a descriptive norm, such a response curve constitutes the descriptive norm itself, because it describes individual behavior conditional on aggregate behavior. In common usage, a descriptive norm simply refers to the average rate of a behavior in society.

Figure 1: Marginal Effects vs. Dynamic Adjustment: Conceptual Illustration

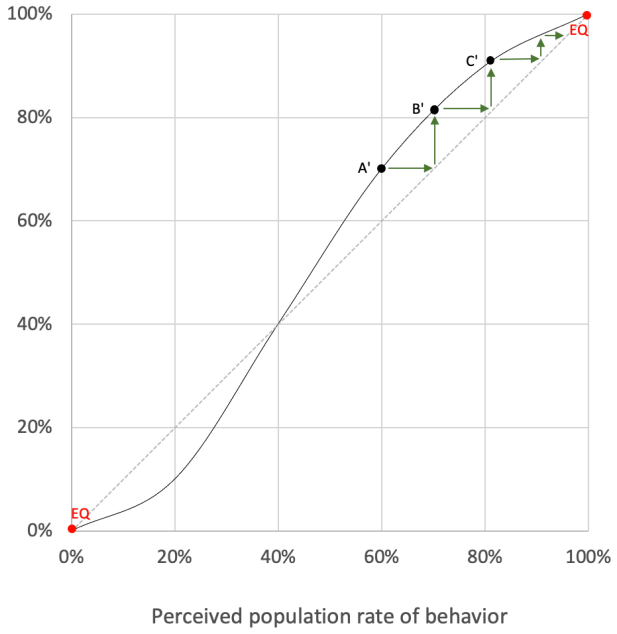
(A) Individual model



(B) Population model



(C) Indiv. / pop. model



Panel B, in contrast, depicts the *population*-level relationship between the rate of mask-wearing (vertical axis) and the perceived rate of mask-wearing (horizontal axis). In contrast with Panel A, in Panel B it is not only one individual, but the whole population, that is nudged by being informed about the share of the population who wear masks in public. Moreover, the nudge renders societal rates of mask-wearing publicly observable from that point on (e.g., every week).[4] Under such circumstances, the curve in Panel B makes it possible to estimate the over-time path of mask-wearing rates likely to result from such nudging. Suppose that the population begins from a state of pluralistic ignorance—that is, people have beliefs about how many others wear masks in public but such beliefs are not correct—and a policymaker informs the public that 70% of people wear a face mask in public (point B).[5] Upon learning this information, only 59% are subsequently willing to wear a mask (point C). In turn, learning that 59% are wearing masks, only about 50% subsequently decide to use face cover, and so forth. This iterative process continues, eventually settling on a 40% rate of mask-wearing—the only stable equilibrium point in the figure (point EQ). We refer to the population-level, iterative adjustment process that unfolds over time as "dynamic adjustment" or "social dynamics."

The direction and eventual equilibrium point of a dynamic adjustment process may, but need not, be equal in magnitude or direction to effect estimates from a marginal-effect design. Whether a dynamic adjustment process will help or hinder the spread of the desired behavior under a population-level norms nudge depends on the form of *frequency dependence*—understood as the relationship between perceived and actual aggregate behavior, and exemplified by the s-shaped curve in Panel B. The basic insight, due to Boyd and Richerson (1982, 1985), is that in order for societal rates of behavior to increase, it is necessary for the behavior to respond *more than proportionally* (to *over-respond*) to the behavior's perceived societal prevalence. In Panel B of Figure 1, for example, average aggregate behavior over-responds (i.e., it lies above the 45-degree line) to perceived aggregate behavior everywhere left of the 40% mark on the horizontal axis. This form of frequency dependence is labeled "conformity." To the right of the 40% mark, the figure depicts "weak nonconformity," a state

[4]If such information had been publicly known and broadly disseminated prior to the norms nudge, the nudge itself would provide no new information and, therefore, would likely have no effect on behavior. Moreover, society would potentially already have converged at a stable behavior equilibrium point. The fact that norms nudges are increasingly recommended as policy tools implies that populations often lack such information initially or that the information, even if publicly available, is not widely disseminated.

[5]Note that pluralistic ignorance can sustain off-equilibrium social rates of behavior (such as 80% of people wearing masks) over time. Once beliefs about how many others do so are synchronized across society on an ongoing basis (e.g., by the new policy), off-equilibrium levels of mask-wearing cease to be stable outcomes.

of affairs where behavior responds positively (i.e., the curve is upward sloping), but less than proportionately (i.e., the curve lies below the 45-degree line), to perceived behavior. Panel C shows the pattern to the right of the 40% crossing point is one of conformity, while below 40% it is one of weak nonconformity. In Boyd and Richerson's approach, conformity implies that social dynamics increase the prevalence of a behavior, while nonconformity means that social dynamics decrease its prevalence.

Consequently, even when a marginal-effect design shows that informing the public about the population rate of a desired behavior increases the share of study participants engaging in the behavior upon first being nudged, the subsequent dynamic adjustment could either boost or undo such an effect. Moreover, whether boosting or undoing will ensue cannot be determined from a marginal-effect design alone. To drive this point home, contrast Panels A and B in Figure 1 with Panel C in the same figure. In both Panels A and C, a marginal-effect design would identify the causal effect of the norms nudge to be an 11 pp increase in mask-wearing.[6] While dynamic adjustment would subsequently boost the rate of the behavior in Panel C—where frequency dependence exhibits a pattern of conformism to the right of the crossing at 40%—in Panel B, as discussed previously, the pattern of weak nonconformity to the right of the crossing would lead to lower mask-wearing rates.

For a policymaker seeking to encourage the adoption of a specific behavior, the problem is that dynamic adjustment can prevent widespread adoption even if, for each individual in society, the relationship between the social prevalence of the behavior and their own willingness to engage in the behavior is everywhere positive. It is also possible, of course, for dynamic adjustment to abet adoption, rendering the norms nudge more effective than in the absence of feedback processes. Therefore, an appropriate policy must be based on information about whether beliefs and behavior are related in a pattern of conformity or nonconformity in the situation of interest. In what follows, we exemplify the elicitation of such information through a survey experiment fielded in Colombia in 2021 during the COVID-19 pandemic. We then demonstrate how one might use such information to estimate the likely effectiveness of a norms nudge on aggregate behavior in a manner that considers adjustment dynamics.

[6] Aggregate mask-wearing would move from point A to point B in Panel A, and from from point A' to point B' in Panel C. The vertical axis in Panel C is intentionally unlabelled so that that panel can be interpreted as either an individual-level model (like Panel A) or a population-level model (like Panel C).

2 Research Design

We fielded a survey vignette depicting a woman named "Ana" who arrives, without wearing a face mask, at a social gathering with friends—a birthday party. The main treatment consists of randomly varying, across study participants, the share of people at the gathering wearing a face mask when Ana arrives (0%, 20%, 40%, 60%, 80%, or 100%), as follows:

> *Ana lives in Barranquilla. Her friend's birthday is coming up, and she invited Ana, along with 10 close friends, to attend a get-together at her home.*
>
> *Ana arrives at her friend's birthday party not wearing a face mask, and [none/2/4/6/8/10] of her friends are wearing one.*

Every survey respondent was exposed to one version of the vignette and subsequently asked to predict whether Ana would or would not subsequently put on her mask during the gathering. Answers to this question constitute our main outcome variable.

Our approach has several important advantages in comparison with alternatives. First, the vignette experiment makes it possible to elicit a "dose-response" curve describing the relationship between a range of values of the descriptive norm, on the one hand, and Ana's average predicted behavior, on the other. Second, because participants are asked to predict the behavior of someone else, their responses are less prone to social desirability bias in comparison to asking directly about their (the participants') own behavior (Fisher, 1993; Bicchieri et al., 2014).[7] Third, vignette experiments have been successfully validated with behavioral benchmarks (Peabody et al., 2004; Hainmueller et al., 2015). Fourth, our approach made it possible to conduct the experiment during the pandemic without actually exposing anyone to contagion. During that time, the sort of situation described in the vignette closely reflected the participants' real-world experiences, lending the exercise an added measure of realism.

2.1 Context and Sample

Barranquilla, with a population of 1.2 million, is Colombia's fourth largest city. The experiment studied here was embedded within a larger online survey of COVID-19 experiences

[7] Vignettes are widely used in experimental survey research (Alexander and Becker, 1978; Finch, 1987; Krumhuber et al., 2018). The idea is that "when respondents think about what the protagonist [described in the vignette] would do, they imagine what they would do if they were in their position" (Bicchieri et al., 2014, p.11).

and attitudes. The survey was fielded in October of 2020, in the wake of the first COVID-19 wave in Barranquilla (May 12 to August 31 2022), which had resulted in 1,606 deaths. By May 2021, Barranquilla's COVID mortality had reached 384.9 per 100,000 population, which is high in a comparative perspective. (Viana-Cárdenas et al., 2022)

Respondents were recruited by the City of Barranquilla's local government, which sent out email invitations to participate in the survey of adults on its mailing list. Our main sample consists of 2,679 individuals. Over 88% of respondents reported being 54 years of age or younger, 72% being female, 45% completing secondary education, and 66% knowing someone who died of COVID-19. Two in three considered it highly risky to eat at a restaurant indoors. About 25% reported having visited friends or family at home, and about 7% having attended a party with 10 or more people, during the week before being surveyed.

Treatment arms are well balanced on variables measured prior to treatment assignment, including age, gender, education, socioeconomic status, prior exposure to others who contracted COVID-19, and knowing someone who died of COVID-19 (Table A1). Nevertheless, we verify the robustness of the findings by interacting all treatment indicators with a large set of predetermined covariates.

2.2 Estimation

We estimate the following causal model using OLS regression with robust standard errors:

$$y_i = \alpha + \beta_{20} * T_{20,i} + \beta_{40} * T_{40,i} + \beta_{60} * T_{60,i} + \beta_{80} * T_{80,i} + \beta_{100} * T_{100,i} + \epsilon_i,$$

where i indexes study participants; $T_{k,i}$ are treatment assignment indicators, with $k \in \{0, 20, 40, 60, 80, 100\}$ denoting the percentage of people at the party wearing a mask when Ana arrives ($T_{0,i}$ is the omitted category); and ϵ_i are disturbances. Because the outcome variable y_i is dichotomous, the estimation equation constitutes a linear probability model. Standard errors are robust. Coefficients β_k estimate the average causal effects of assignment to the corresponding treatment branches.

2.3 Results

Table 1 contains the results for the main outcome variable. Coefficients in column 1 estimate the probability that Ana, who arrives without face cover, will put on a mask during the gathering upon encountering k% of attendees wearing one (for $k = 20, 40, 60, 80,$ or 100) in comparison with the scenario where no attendee is wearing one—the omitted category.

When no attendee is wearing a mask, the probability that Ana will put her mask on is 21.5%, increasing to 63.6% when all attendees are wearing one. Column 2 adds individual-level control variables including sets of indicators for age categories, education categories, and socioeconomic status categories, as well as information on prior exposure to people who contracted or died of COVID-19, expected likelihood of contracting the virus in the following six months, and the expected likelihood of being hospitalized if sick from COVID-19 for someone of the respondent's age. Results are virtually identical, as expected in light of the balance analysis.[8]

Figure 2 conveys the regression results graphically, displaying the probability that Ana will put on a mask at the gathering by treatment branch (cross-hairs). The smooth black line interpolates the point estimates, while the smooth gray lines interpolate 95% confidence intervals on the estimates. The dashed straight line is the 45-degree line. The likelihood that Ana will put on a mask increases monotonically with the fraction of attendees wearing one. In other words, the greater the aggregate behavior, the greater the probability that Ana will adopt the behavior.

[8]Results are unchanged in a specification that interacts control variables with treatment indicators (Appendix).

Table 1: Barranquilla Treatment Effects: Main Analysis

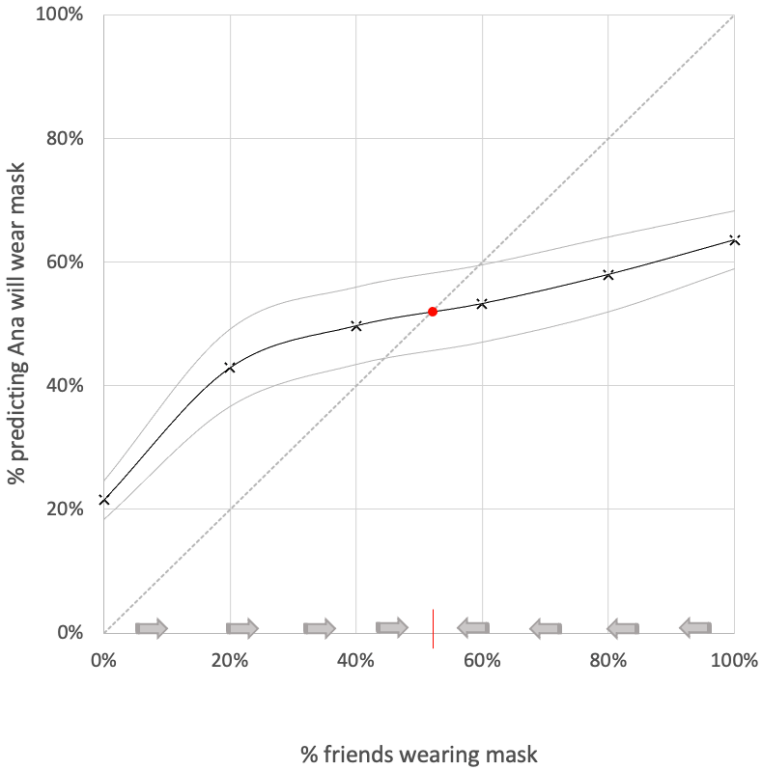
Treatment branch	Main results: At party			Placebo results: Following day		Following week	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ana no / 2 friends yes	0.214**	0.218**	0.216**	0.090**	0.091**	0.473*	0.416
	(0.032)	(0.033)	(0.033)	(0.034)	(0.035)	(0.212)	(0.219)
Ana no / 4 friends yes	0.282**	0.288**	0.282**	0.040	0.036	0.062	0.034
	(0.032)	(0.033)	(0.033)	(0.034)	(0.035)	(0.209)	(0.219)
Ana no / 6 friends yes	0.318**	0.312**	0.310**	0.098**	0.095**	0.420*	0.453*
	(0.032)	(0.033)	(0.033)	(0.033)	(0.035)	(0.205)	(0.214)
Ana no / 8 friends yes	0.365**	0.376**	0.374**	0.066*	0.073*	0.360	0.362
	(0.031)	(0.032)	(0.032)	(0.033)	(0.034)	(0.205)	(0.211)
Ana no / 10 friends yes	0.421**	0.422**	0.424**	0.068*	0.072*	0.275	0.261
	(0.025)	(0.026)	(0.026)	(0.028)	(0.029)	(0.173)	(0.180)
Constant	0.215**	-0.144	0.197*	0.538**	0.265	3.204**	0.212
	(0.016)	(0.164)	(0.091)	(0.020)	(0.190)	(0.120)	(0.525)
Controls	N	Y	Y	N	Y	N	Y
Control * Treat. Interactions	N	N	Y	N	N	N	N
Observations	2,620	2,422	2,422	2,572	2,378	2,353	2,182
R-squared	0.102	0.117	0.132	0.005	0.014	0.004	0.020
t-tests for equality of coefficients:							
4 yes = 2 yes	0.082	0.089		0.199	0.172	0.0915	0.133
6 yes = 2 yes	0.007	0.021		0.837	0.915	0.824	0.880
8 yes = 2 yes	0.000	0.000		0.532	0.655	0.639	0.830
10 yes = 2 yes	0.000	0.000		0.510	0.597	0.354	0.485
6 yes = 4 yes	0.350	0.540		0.132	0.137	0.133	0.0937
8 yes = 4 yes	0.031	0.026		0.502	0.346	0.210	0.183
10 yes = 4 yes	0.000	0.000		0.412	0.299	0.312	0.307
8 yes = 6 yes	0.226	0.112		0.400	0.574	0.801	0.709
10 yes = 6 yes	0.002	0.001		0.363	0.509	0.486	0.376
10 yes = 8 yes	0.087	0.175		0.956	0.981	0.681	0.635

Robust standard errors in parentheses. Omitted category is: 'Ana no / 0 friends yes.'
** p<0.01, * p<0.05

A typical marginal-effects design would compare two points on the curve. For example, if Ana initially believes that 60% of her friends wear masks, but learns that 80% do, the probability that she will wear one increases by approximately 5 pp. Comparisons of this kind estimate the causal effect of a descriptive-norms nudge without ongoing feedback about population-average behavior or over-time adjustment of behavior by individuals.

Nevertheless, because Figure 2 depicts the full dose-response curve, it can be used to estimate population dynamics. We make the simplifying assumption that the curve represents the population response function (as in Panel B of Figure 1), where the vertical axis depicts the share of the population who choose to wear a mask as a function of the perceived share

Figure 2: Main Results
Effect of Share Wearing Mask on Predicted Likelihood That Ana Would Wear One



Notes: Crosshairs denote intent-to-treat point estimates of predicted likelihood that Ana would put on a mask at the gathering, as a function of the randomly-assigned proportion of attendees wearing one. Estimates correspond to column 1 in Table 1. Curved lines interpolate point estimates (black) and 95% confidence intervals (light gray). Red dot denotes the only stable equilibrium point under dynamic adjustment. The dashed line is the 45-degree line. Based on sample of adults in Barranquilla, Colombia.

who are already wearing one (horizontal axis).[9] Under this assumption, the curve shows that the share of people who choose to wear a mask is greater than the perceived share wearing one when the latter is 0%, 20% and 40%, and smaller when it is 60%, 80%, and 100%. The red dot denotes the crossing with the 45-degree line, which occurs at the 52% mark. To the right of the crossing point, the pattern is one of weak nonconformity: the curve

[9]Because the curve summarizes the responses of thousands of Colombians, it is natural to understand it as embodying the average behavior of people like Ana. For illustrative purposes, we consider Ana to be an average Colombian. In follow-up research, one might additionally elicit predictions about average Colombians with different sociodemographic characteristics to investigate possible heterogeneity in response curves and population dynamics.

is everywhere increasing, but it lies below the 45-degree line. This implies that, whenever the actual share of people wearing a mask is greater than 52%, a policy that renders such information public will cause a *decrease* in the prevalence of mask-wearing. Thus, as in the example of Figure 1, we find a divergence between one-shot marginal effects—which are everywhere *positive*—and society-level adjustment dynamics—which push mask-wearing in the *negative* direction whenever the prevalence of mask-wearing exceeds 52%. Publicizing the fact that a majority of people wear masks would, thus, fail to further increase adoption of mask-wearing. It would likely have the opposite effect.

It bears emphasizing that when the rate of mask-wearing is below 52%, mask-wearing would *increase* if the descriptive norm were publicized. Contrary to the intuition that nudging with descriptive norms is effective only when a majority of the population initially espouses the desired behavior, this application suggests that, in the context under study, such nudges would be effective only if a minority of the population (more precisely, less than 52%) initially wore masks, but not if a majority did.

2.4 Robustness

As a placebo test for experimenter demand bias, we asked participants whether Ana would wear a mask the day after the gathering and again whether she would do so a week after.[10] Were responses to be driven by experimenter demand, we would expect the bias to be operative whether one asked about mask-wearing at the party, the following day, or the week after. Nevertheless, we observe no difference across treatment arms when the question concerns the day or the week after the gathering (Figure A2 and Figure A3.)

We further validate our estimates of the relationship between perceived and actual mask-wearing by fielding the survey experiment on a separate auxiliary sample of 1,400 college students at Universidad del Norte (UniNorte), a university in the city of Barranquilla. Results from the UniNorte sample are consistent with those from our main sample. The predicted probability that Ana will put on a mask at the gathering ranges between 6% (when no attendees are wearing one) to 53% (when all attendees are wearing one), and the increase is again monotonic.[11] Overall, predicted levels of mask-wearing are considerably lower in the student sample in comparison with the main sample. This is what one would expect in a sample of younger students who have lower risks of complications from COVID-19.

[10] For recent evidence on the importance of experimenter demand bias, see (Mummolo and Peterson, 2019; de Quidt et al., 2018).

[11] Although the point estimate dips once, the null hypothesis of monotonicity (i.e., that every subsequent coefficient is equal to or greater than the preceding one) cannot be rejected.

3 Discussion

Our study's main contribution is to highlight the importance of social adjustment dynamics when considering the potential effects of publicizing information on social rates of behavior, either for scholarly or policy purposes. In so doing, our approach complements existing work on the challenges of scaling up norms nudges. Where such work has emphasized contextual and social heterogeneity and the mode of delivery (Bicchieri and Dimant, 2022; Soman and Mazar, 2022; Linos, 2022), we instead emphasize the central role of social adjustment dynamics. On a more abstract level, we hope to contribute to the project of bridging insights from theoretical evolution with a large literature on conformism from other fields, in the spirit of Efferson et al. (2008), Morgan and Laland (2012), and Kendal et al. (2018).

Public policy based on nudging ought to place social dynamics front and center, as these can could undo or reverse intended effects. Indeed, our empirical findings about mask-wearing call into question the idea that majority behavior must breed conformity: the opposite is true for a wide range of initial rates of mask-wearing in the context we study, and the strongest effect of norms nudging arises when the descriptive norm (i.e., the content of the nudge) is low (0% to 20%).

Given the fundamental influence of empirical evidence on policymaking in normal times and during crises, we encourage scholarship and policy work on norms nudges to complement marginal-effect designs with evidence capable of shedding light on social adjustment dynamics. Our empirical analysis can be regarded as illustrating a simple approach to studying adjustment dynamics. In general terms, our approach consists of: (a) eliciting the response curve linking the societal prevalence of a behavior with the individual likelihood of adopting it, and (b) applying a basic coordination model to the data.[12] This procedure could be rendered more sophisticated and realistic, for instance, by eliciting response curves from a richer set of subsets of the population. Future research might also investigate the implications for nudging dynamics of cultural traits, such as how individualism vs. collectivism influences nudge dynamics, and of the substantive realm (e.g., health vs. tax compliance vs. energy use).

[12] A handful of studies have elicited similar mappings with varying levels of granularity—albeit not with the purpose of studying social adjustment dynamics (Coultas, 2004; Efferson et al., 2008).

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Appendix

Table A1: Barranquilla: Balance on Predetermined Covariates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treatment branch	Age group	Female	Educ.	Exposed	Know death	Adult$\geq$ 65 in hh	Preex. in hh	SES	Pr. infected	Pr. hospital
Ana no / 2 friends yes	-0.102	-0.003	-0.010	-0.007	0.017	0.014	0.010	-0.107	-0.365	-0.261
	(0.060)	(0.030)	(0.043)	(0.033)	(0.032)	(0.033)	(0.033)	(0.077)	(1.934)	(1.775)
Ana no / 4 friends yes	-0.014	-0.004	-0.019	-0.015	0.014	0.058	0.065*	-0.054	0.807	-0.922
	(0.059)	(0.030)	(0.045)	(0.033)	(0.031)	(0.033)	(0.033)	(0.079)	(2.037)	(1.845)
Ana no / 6 friends yes	-0.063	0.007	-0.090*	-0.054	-0.025	0.051	-0.003	-0.204**	-0.829	1.912
	(0.060)	(0.030)	(0.045)	(0.033)	(0.032)	(0.033)	(0.033)	(0.077)	(2.047)	(1.829)
Ana no / 8 friends yes	-0.003	-0.002	-0.035	0.003	0.025	0.039	0.022	-0.169*	-0.356	-0.923
	(0.061)	(0.030)	(0.044)	(0.033)	(0.031)	(0.033)	(0.033)	(0.074)	(2.022)	(1.816)
Ana no / 10 friends yes	-0.021	0.017	-0.023	-0.014	0.009	0.040	0.069*	-0.061	-0.558	0.917
	(0.048)	(0.024)	(0.037)	(0.027)	(0.026)	(0.027)	(0.027)	(0.066)	(1.599)	(1.493)
Constant	2.540**	0.719**	2.575**	0.594**	0.663**	0.403**	0.566**	2.183**	37.436**	41.012**
	(0.035)	(0.017)	(0.026)	(0.019)	(0.018)	(0.019)	(0.019)	(0.047)	(1.147)	(1.057)
Observations	2,669	2,678	2,656	2,623	2,679	2,667	2,662	2,668	2,605	2,587
R-squared	0.001	0.000	0.002	0.001	0.001	0.002	0.004	0.004	0.000	0.001

Robust standard errors in parentheses. Omitted category is Ana no / 0 friends yes. The constant represents the mean value for the omitted category.
** p<0.01, * p<0.05

Table A2: Uninorte: Balance on Predetermined Covariates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treatment branch	Age group	Female	Educ.	Exposed	Know death	Adult≥ 65 in hh	Preex. in hh	Estrato	Prob. infected	Prob. hospital
Ana no / 2 friends yes	0.230	-0.073	0.058	-0.025	0.087	-0.007	-0.028	-0.200	-2.487	0.553
	(0.131)	(0.062)	(0.098)	(0.059)	(0.061)	(0.061)	(0.063)	(0.189)	(3.553)	(3.172)
Ana no / 4 friends yes	0.083	-0.001	0.046	0.029	0.007	-0.093	-0.032	-0.175	1.338	1.296
	(0.114)	(0.058)	(0.094)	(0.054)	(0.059)	(0.056)	(0.059)	(0.171)	(3.352)	(2.807)
Ana no / 6 friends yes	0.147	-0.039	0.064	-0.046	0.013	-0.089	-0.066	-0.122	-1.269	-1.043
	(0.119)	(0.058)	(0.094)	(0.055)	(0.058)	(0.055)	(0.059)	(0.161)	(3.250)	(2.884)
Ana no / 8 friends yes	0.194	0.064	0.099	-0.000	0.059	0.029	0.023	-0.105	-3.011	1.537
	(0.123)	(0.058)	(0.098)	(0.055)	(0.060)	(0.060)	(0.060)	(0.168)	(3.212)	(3.051)
Ana no / 10 friends yes	0.082	0.023	0.069	-0.019	0.037	-0.044	0.004	-0.050	0.567	-3.320
	(0.120)	(0.059)	(0.098)	(0.057)	(0.061)	(0.059)	(0.061)	(0.173)	(3.347)	(2.806)
Constant	1.577**	0.620**	2.620**	0.720**	0.585**	0.372**	0.607**	3.602**	38.139**	36.847**
	(0.083)	(0.042)	(0.066)	(0.039)	(0.043)	(0.041)	(0.042)	(0.117)	(2.417)	(2.069)
Observations	804	814	812	789	806	811	797	792	814	814
R-squared	0.006	0.007	0.001	0.003	0.004	0.010	0.004	0.002	0.003	0.005

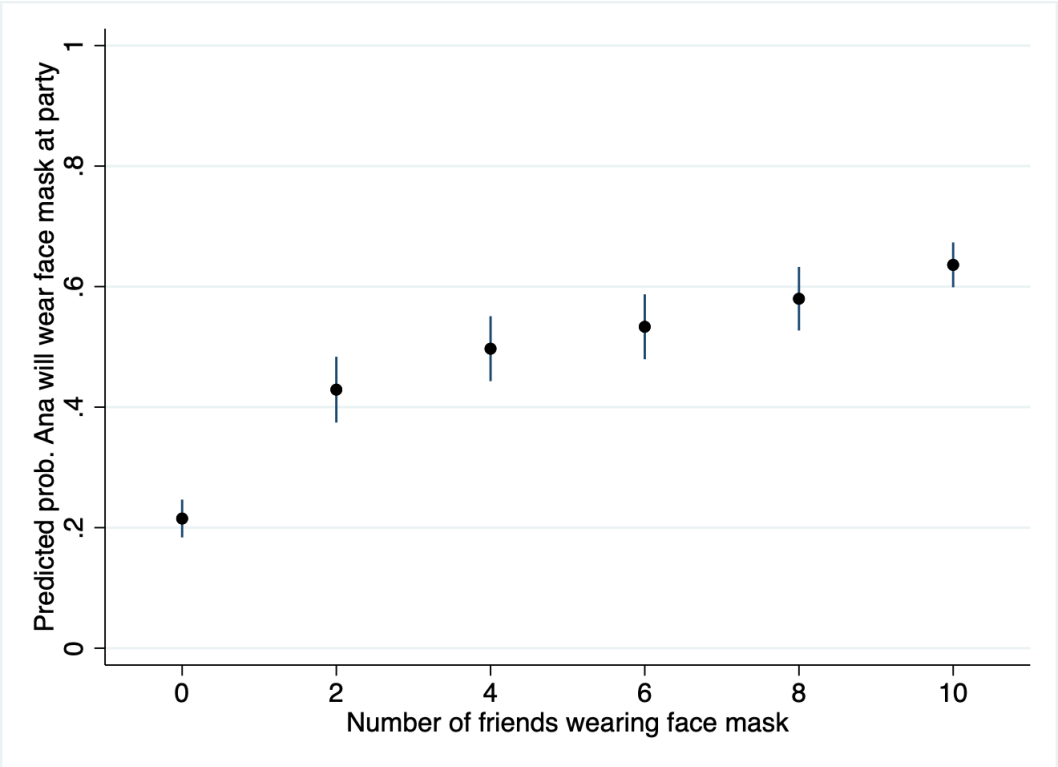
Robust standard errors in parentheses. Omitted category is Ana no / 0 friends yes. The constant represents the mean value for the omitted category.
** p<0.01, * p<0.05

Table A3: Uninorte Treatment Effects: Main Analysis

	Main results: At party			Placebo results: Following day		Following week	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ana no / 2 friends yes	0.307**	0.312**	0.334**	0.085	0.092	0.184	-0.029
	(0.051)	(0.055)	(0.059)	(0.065)	(0.070)	(0.259)	(0.277)
Ana no / 4 friends yes	0.250**	0.262**	0.275**	0.076	0.112	0.344	0.313
	(0.046)	(0.048)	(0.050)	(0.061)	(0.064)	(0.261)	(0.277)
Ana no / 6 friends yes	0.396**	0.377**	0.381**	0.101	0.110	0.584*	0.569*
	(0.047)	(0.048)	(0.049)	(0.060)	(0.063)	(0.262)	(0.275)
Ana no / 8 friends yes	0.407**	0.394**	0.422**	0.132*	0.163*	0.398	0.408
	(0.049)	(0.052)	(0.053)	(0.062)	(0.065)	(0.270)	(0.288)
Ana no / 10 friends yes	0.458**	0.449**	0.437**	0.009	0.015	0.392	0.228
	(0.050)	(0.053)	(0.053)	(0.063)	(0.066)	(0.259)	(0.273)
Constant	0.074**	0.121	0.197*	0.424**	-0.052	2.406**	0.977
	(0.022)	(0.132)	(0.091)	(0.043)	(0.142)	(0.172)	(0.629)
Controls	N	Y	Y	N	Y	N	Y
Control * Treat. Interactions	N	N	Y	N	N	N	N
Observations	796	732	732	759	701	550	514
R-squared	0.100	0.143	0.172	0.009	0.039	0.010	0.041
t-tests for equality of coefficients:							
4 yes = 2 yes	0.350	0.439		0.885	0.780	0.563	0.231
6 yes = 2 yes	0.147	0.315		0.811	0.794	0.148	0.043
8 yes = 2 yes	0.114	0.225		0.478	0.320	0.451	0.153
10 yes = 2 yes	0.018	0.044		0.254	0.278	0.448	0.361
6 yes = 4 yes	0.010	0.051		0.681	0.983	0.389	0.378
8 yes = 4 yes	0.008	0.032		0.364	0.428	0.849	0.752
10 yes = 4 yes	0.000	0.002		0.287	0.139	0.862	0.767
8 yes = 6 yes	0.853	0.782		0.608	0.411	0.518	0.594
10 yes = 6 yes	0.309	0.249		0.141	0.140	0.487	0.238
10 yes = 8 yes	0.419	0.400		0.054	0.027	0.981	0.548

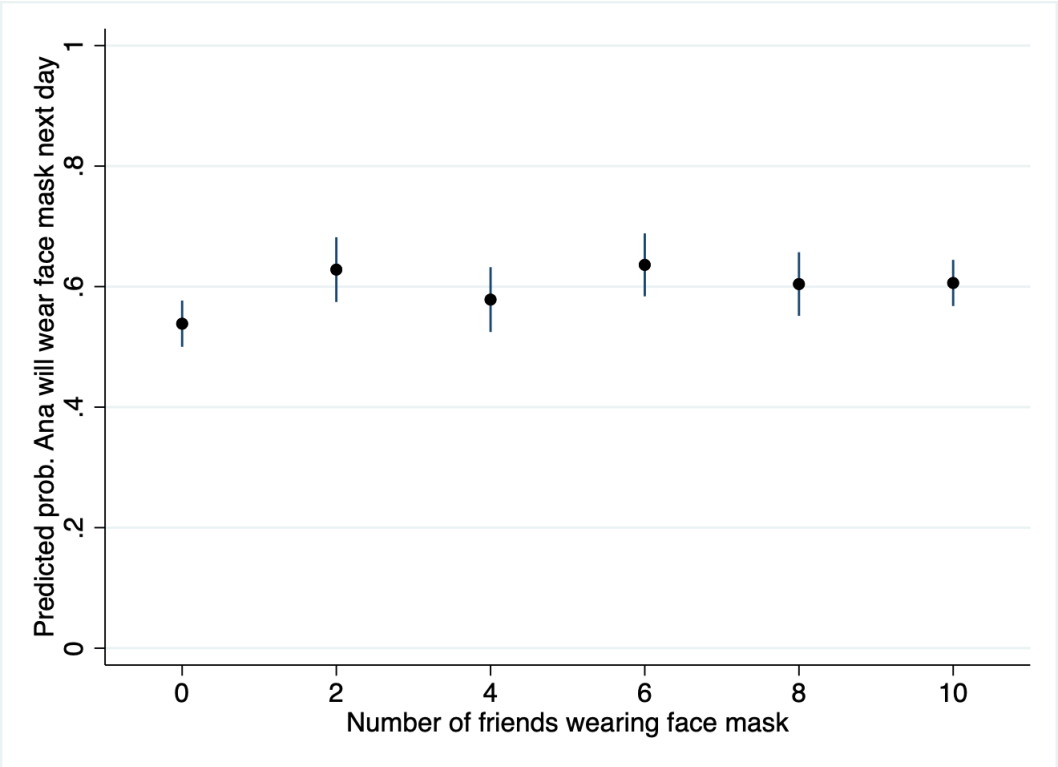
Robust standard errors in parentheses. Omitted category is: 'Ana no / 0 friends yes.'
** p<0.01, * p<0.05

Figure A1:
Barranquilla Treatment Effects: At Party



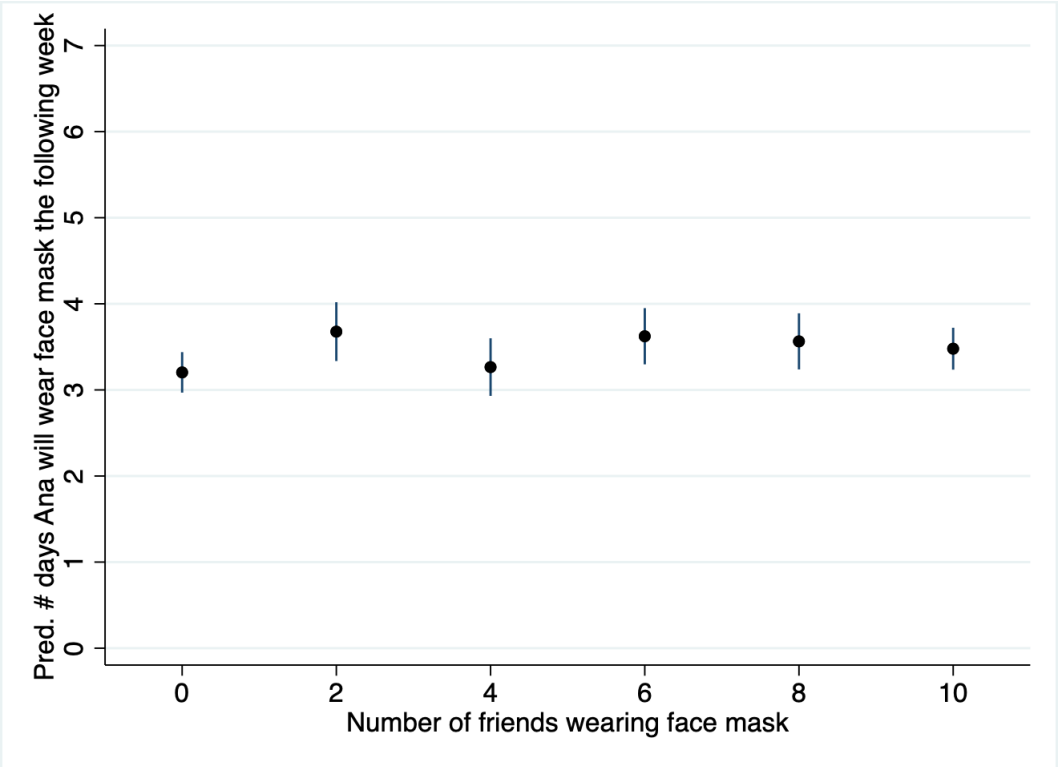
Notes: Treatment effect point estimates shown with 95% confidence bars, corresponding to column 1 in Table 1. Data from Barranquilla survey.

Figure A2:
Barranquilla Treatment Effects: Following Day



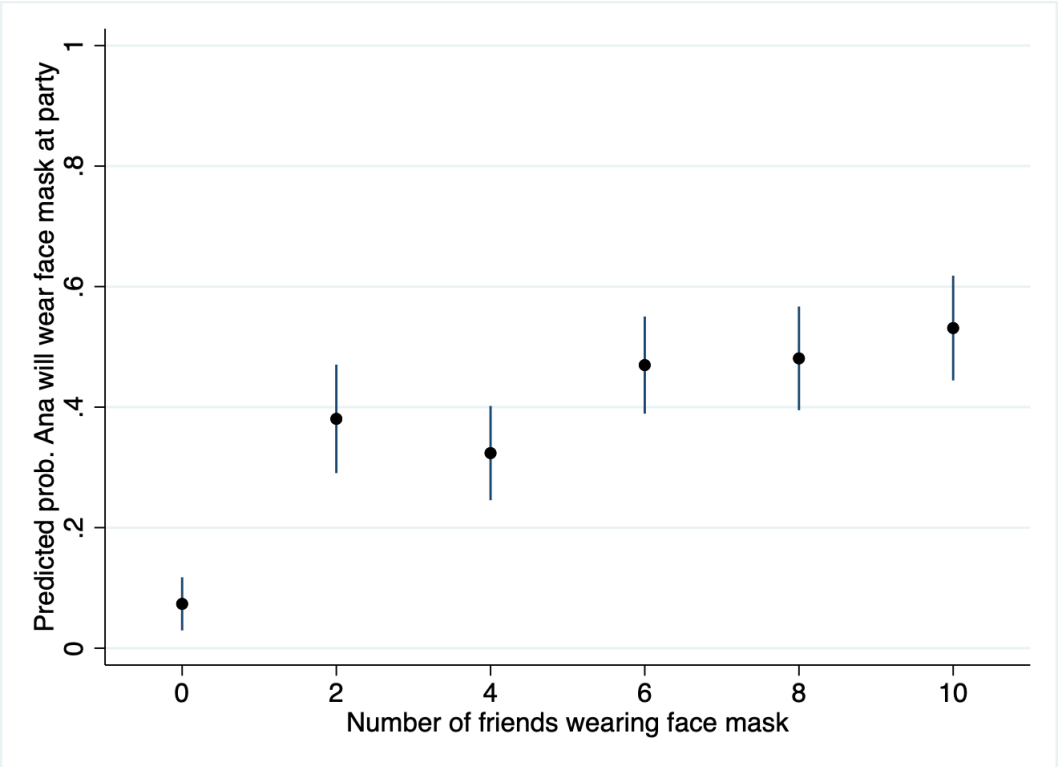
Notes: Treatment effect point estimates shown with 95% confidence bars, corresponding to column 4 in Table 1. Data from Barranquilla survey.

Figure A3:
Barranquilla Treatment Effects: Following Week



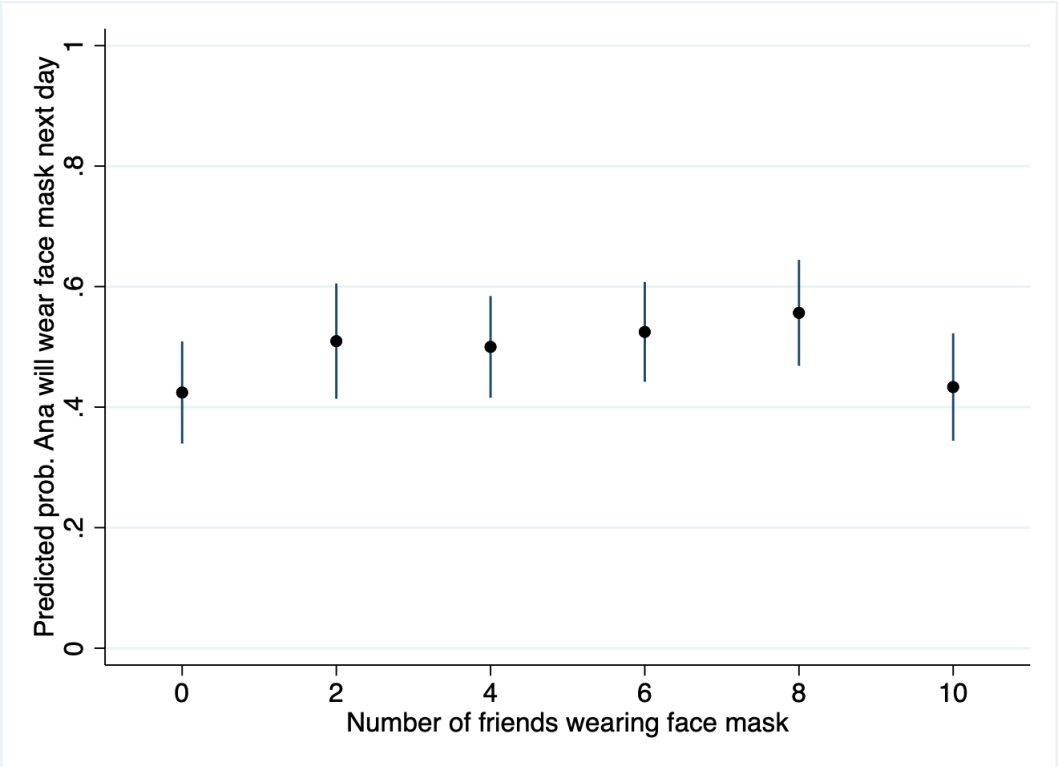
Notes: Treatment effect point estimates shown with 95% confidence bars, corresponding to column 6 in Table 1. Data from Barranquilla survey.

Figure A4:
Uninorte Treatment Effects: At Party



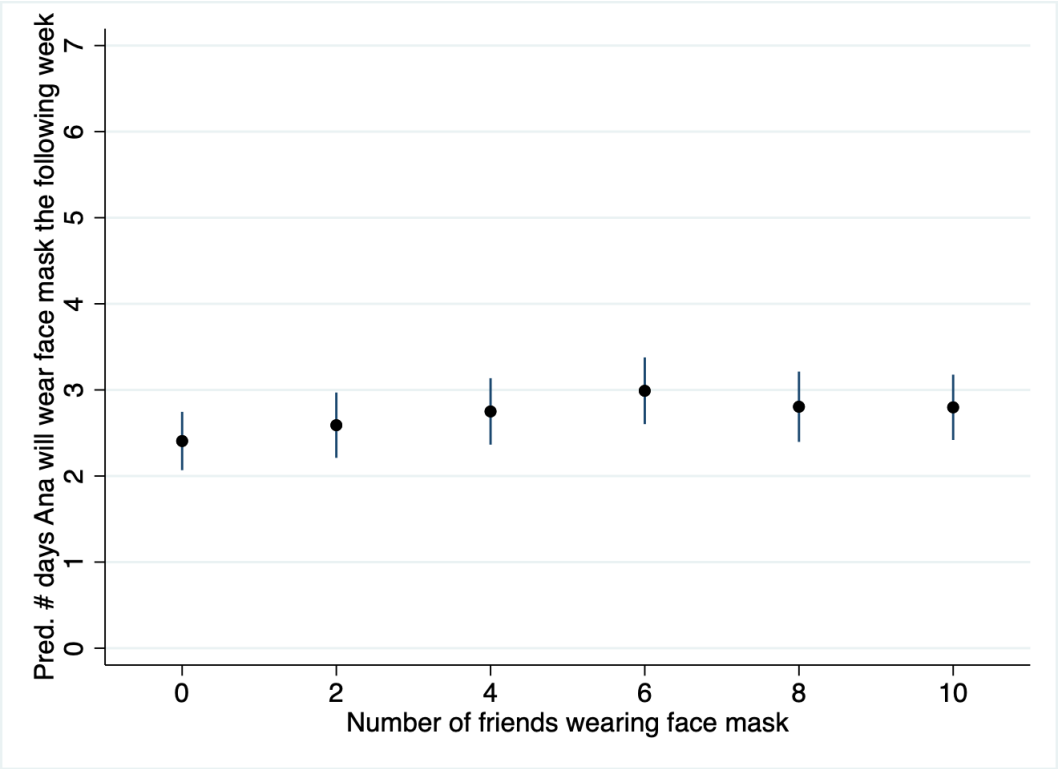
Notes: Treatment effect point estimates shown with 95% confidence bars, corresponding to column 1 in Table A3. Data from Uninorte survey.

Figure A5:
Uninorte Treatment Effects: Following Day



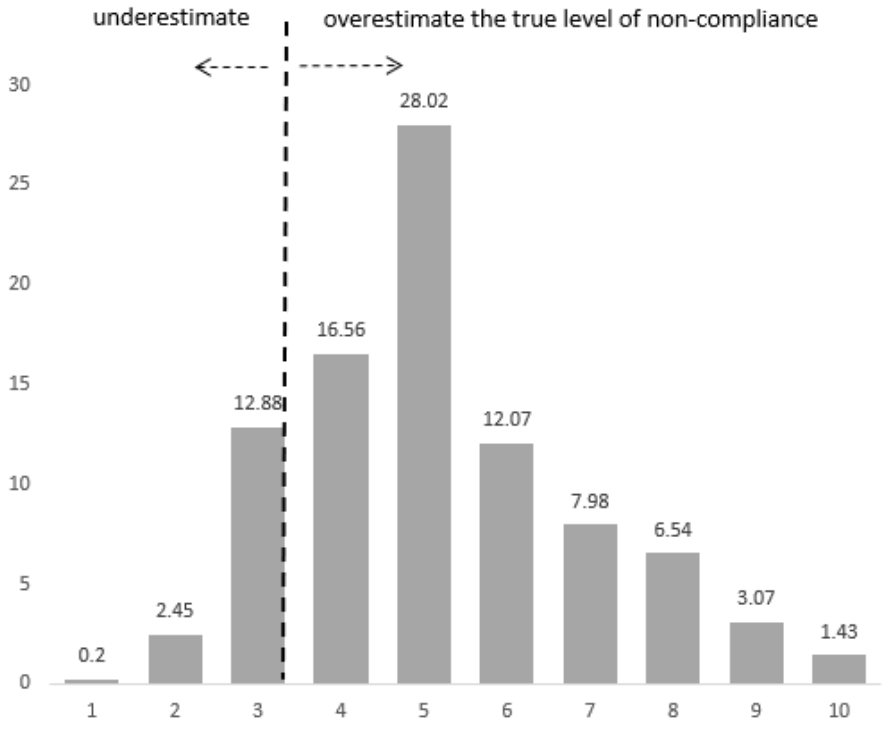
Notes: Treatment effect point estimates shown with 95% confidence bars, corresponding to column 4 in Table A3. Data from Uninorte survey.

Figure A6:
Uninorte Treatment Effects: Following Week



Notes: Treatment effect point estimates shown with 95% confidence bars, corresponding to column 6 in Table A3. Data from Uninorte survey.

Figure A7: Beliefs about tax compliance in the City of Junin, Argentina.
Percentage of people answering that the share of taxpayers not paying their tax is (out of 10 people)...



Notes: This figure shows the histogram of answers to the question: "Out of 10 people in the City of Junin, how many do you think do not pay the tax?" Each bar shows the share of people answering that the share of not paying is x. For example, 28% of respondents answer that 5 out of 10 people do not pay their tax. Lopez-Luzuriaga and Scartascini (2022) report the results of the survey, which was carried out after the intervention described in (Castro and Scartascini, 2015).

Questionnaire

Variable	Value in Qualtrics	Preguntas y Respuestas	Questions and Answers
Welcome		¡Bienvenido/a y gracias por participar!	Welcome and thank you for participating!
Intro		"Este es un estudio llevado a cabo por la Alcaldía de Barranquilla y la Universidad del Norte que nos ayudará a comprender mejor la epidemia del Coronavirus. Tus respuestas serán un insumo importante para formular soluciones a los retos de la pandemia. El cuestionario toma 10 minutos. Todas tus respuestas son confidenciales y se utilizarán exclusivamente para propósitos de investigación científica. Tu información de contacto solamente se usará para fines del estudio, se guardará de manera encriptada y segura, y se borrará cuando termine el estudio. Tu participación es voluntaria y la puedes terminar en cualquier momento y por cualquier razón. Al final de esta breve encuesta tendrás oportunidad de elegir si deseas participar en la siguiente fase del estudio. Si tienes alguna duda puedes comunicarte con Alexander Villarraga, coordinador del estudio, al correo electrónico covid19baq@uninorte.edu.co Al hacer click sobre la flecha que aparece abajo, confirmas tener 18 o más años de edad. ¡Muchas gracias por participar!"	This is a study carried out by the Mayor's Office of Barranquilla and the Universidad del Norte that will help us better understand the Coronavirus epidemic. Your responses will be an important input in formulating solutions to the challenges of the pandemic. The questionnaire takes 10 minutes. All your answers are confidential and will be used exclusively for scientific research purposes. Your contact information will only be used for study purposes, will be kept encrypted and secure, and will be erased when the study is over. Your participation is voluntary and can be terminated at any time and for any reason. At the end of this short survey, you will have the opportunity to choose if you want to participate in the next phase of the study If you have any questions, you can contact Alexander Villarraga, study coordinator, at the email covid19baq@uninorte.edu.co By clicking on the arrow below, you confirm that you are 18 years of age or older. Thank you very much for participating!
Female		¿Cuál es tu género?	What is your gender?
	1	Femenino	Female
	2	Masculino	Male
	5	Otro	Other
	6	No sé / prefiero no responder	I don't know / I prefer not to answer
Age (group)		¿Cuál es tu edad?	How old are you?
	1	18-24	18-25
	2	25-39	25-40
	3	40-55	40-56
	4	55-64	55-65
	6	65+	+65
	7	No sé / prefiero no responder	I don't know / I prefer not to answer
Depto/ Municipality		¿En qué departamento y municipio vives?	In which department and municipality do you live?
	1	Departamento	Department
	2	Municipio (conditional on department)	Municipality
Barrio		¿En qué barrio vives?	What neighborhood do you live in?
	1	Barrio	Neighborhood
Estrato		¿Cuál es el estrato del lugar en que reside?	What is the stratum of the place where you reside?
	1	Estrato 1	Stratum 1
	2	Estrato 2	Stratum 2
	3	Estrato 3	Stratum 3
	4	Estrato 4	Stratum 4
	5	Estrato 5	Stratum 5
	6	Estrato 6	Stratum 6
	7	No sé / prefiero no responder	I don't know / I prefer not to answer

Education		¿Cuál fue el último nivel educativo que completaste?	What was the highest level of education you completed?
	1	No fui a la escuela	I did not go to school
	2	Primaria	Primary
	3	Secundaria	Secondary
	4	Bachillerato	High School
	5	Superior o universitaria	Higher or university
	6	Maestría u otro nivel más avanzado	Master's degreer another more advanced level
	7	No sé / prefiero no responder	I don't know / I prefer not to answer
Older 65		Incluyéndote a ti, ¿en este momento vive en tu hogar algún adulto mayor de 65 años?	Including you, is there an adult over 65 living in your household at this time?
	1	Sí	Yes
	2	No	No
	3	No sé / prefiero no responder	I don't know / I prefer not to answer
Pre-existing condition		¿Tú o alguien que vive en tu hogar tiene alguna enfermedad preexistente que los ponga en alto riesgo si se contagian de Coronavirus?	Do you or someone who lives in your home have a pre-existing illness that puts you at high risk if they catch Coronavirus?
	1	Sí	Yes
	4	No	No
	6	No sé / prefiero no responder	I don't know / I prefer not to answer
Diarrea		En los últimos 15 días, ¿tú o alguien en tu hogar sufrió de diarrea o intoxicación del estómago?	In the past 15 days, did you or anyone in your household suffer from diarrhea or stomach poisoning?
	1	Sí	Yes
	2	No	No
	3	No sé / prefiero no responder	I don't know / I prefer not to answer
Prob. Infection		En tu opinión, ¿qué tan probable es que tú te contagies de Coronavirus en los siguientes 6 meses?	In your opinion, how likely is it that you will get Coronavirus in the next 6 months?
	0-100	Barra deslizante (qualtrics) : variable continua Pregunta abierta (Uninorte): variable continua 0 = nada probable 100 = Sumamente probable Barra deslizante: 0-100	Sliding bar (qualtrics): continuous variable Open question (Uninorte): continuos variable 0 = Not likely 100 = Highly probable Sliding bar: 0-100
Prob. Hospital		En tu opinión, si una persona de tu edad se contagia de Coronavirus, ¿qué tan probable es que termine hospitalizado/a?	In your opinion, if a person your age is infected with Coronavirus, how likely is it that they will end up hospitalized?
	0-100	Barra deslizante (qualtrics) : variable continua Pregunta abierta (Uninorte): variable continua 0 = nada probable 100 = Sumamente probable Barra deslizante: 0-100	Sliding bar (qualtrics): continuous variable Open question (Uninorte): continuos variable 0 = Not likely 100 = Highly probable Sliding bar: 0-100
Time to Keep Health Measures		¿Por cuánto tiempo más crees que deberás seguir las medidas de salud para evitar el contagio del coronavirus? Por medidas de salud, nos referimos al constante lavado de manos, sana distancia y uso de tapabocas. Elige la respuesta que mas se acerque a lo que piensas	For how long do you think you should follow health measures to avoid the spread of the Coronavirus? By health measures we mean constant hand washing, healthy distance and use of face masks. Choose the answer that is closes to to what you think
	1	1 mes	1 month
	2	2 meses	2 months
	3	3 meses	3 months
	5	4 meses	4 months
	6	5 meses	5 months
	10	6 meses	6 months
	11	7 meses	7 months
	12	8 meses	8 months
	13	9 meses	9 months
	14	10 meses	10 months
	15	11 meses	11 months
	16	1 año	1 year
	17	2 años	2 years
	20	3 años	3 years
	21	4 años	4 years
	22	5 años	5 years
	24	No sé / prefiero no responder	I don't know / I prefer not to answer

Exposed COVID-19		¿Tú o algún amigo, familiar o compañero de trabajo tuyo han tenido Coronavirus?	Have you or a friend, relative or colleague of yours had Coronavirus?
	1	Sí	Yes
	2	No	No
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Dead COVID-19		¿Conoces a alguien que haya muerto por Coronavirus	Do you know someone who has died from Coronavirus
	1	Sí	Yes
	2	No	No
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Symptoms Know		Selecciona dos síntomas comunes del Coronavirus (COVID-19)	Select two common symptoms of Coronavirus (COVID-19)
		Tos seca	Dry cough
		Dificultad para respirar	Difficulty breathing
		Fiebre (38 grados centígrados o más)	Fever (38 degrees Celsius or higher)
		Dolor estomacal	Stomachache
		Dificultad para ver bien	Difficulty seeing well
		No sé / prefiero no responder	I don't know / I prefer not to answer
Asymptomatic Contagion		En tu opinión, ¿una persona que no presenta síntomas puede contagiar a otros de Coronavirus?	In your opinion, can a person who does not have symptoms spread Coronavirus to others?
	1	Sí	Yes
	2	No	No
	3	No sé / prefiero no responder	I don't know / I prefer not to answer
Young Risk		En tu opinión, ¿la gente menor a 40 años puede enfermarse de Coronavirus?	In your opinion, can people under 40 years of age get sick from Coronavirus?
	1	Sí	Yes
	2	No	No
	3	No sé / prefiero no responder	I don't know / I prefer not to answer
Minimum Distance		¿Cuál es la distancia mínima que se recomienda mantener de otras personas cuando uno está fuera de casa?	What is the recommended minimum distance from other people when you are away from home?
		0.5 metros	0.5 meters
		1 metro	1 meter
		1.5 metros	1.5 meters
		2 metros	2 meters
		2.5 metros	2.5 meters
		3 meters	3.5 meters
		4 metros	4 meters
		No sé / prefiero no responder	I don't know / I prefer not to answer
Facemask Know		Cuando usas máscara o tapabocas, ¿es necesario	When you wear a mask or mask, is it necessary
		mantener distancia física de otras personas para evitar el contagio?	to maintain physical distance from other people to avoid contagion?
	1	Sí	Yes
	2	No	No
	3	No sé / prefiero no responder	I don't know / I prefer not to answer
Prevent Know		En tu opinión, ¿cuáles de las siguientes acciones ayudan a prevenir el contagio del Coronavirus? Selecciona todas las opciones de respuesta que apliquen.	In your opinion, which of the following actions help prevent the spread of Coronavirus? Select all the answer options that apply.
	1	Lavarse las manos con jabón por 20 segundos	Wash your hands with soap for 20 seconds
	3	Usar tapabocas o máscara fuera de la casa	Wear a mask or mask outside the house
	4	Tomar antibióticos	Take antibiotics
	6	Tomar mucha vitamina C	Take lots of vitamin C
	7	Comer ajo	Eat garlic
	8	No sé / prefiero no responder	I don't know / I prefer not to answer
Risky Inside Restaurant		Ahora piensa en el riesgo de contagio. ¿Qué tan riesgoso crees que es ir a comer a un restaurante cerrado?	Now think about the risk of contagion. How risky do you think it is to eat at an indoor restaurant?
	1	Riesgo alto	High risk
	2	Riesgo medio	Medium risk
	3	Riesgo bajo	Low risk
	4	No sé / prefiero no responder	I don't know / I prefer not to answer

Risky Inside Office		Ahora piensa en el riesgo de contagio. ¿Qué tan riesgoso crees que es ir a trabajar a la oficina con todos compañeros de trabajo?	Now think about the risk of contagion. How risky do you think it is to go to work at the office with all your colleagues?
	1	Riesgo alto	High risk
	2	Riesgo medio	Medium risk
	3	Riesgo bajo	Low risk
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Risky Inside Gym_Barranquilla		Ahora piensa en el riesgo de contagio. ¿Qué tan riesgoso crees que es ir a un banco o tienda concurrida?	Now think about the risk of contagion. How risky do you think it is to go to a busy bank or store?
	1	Riesgo alto	High risk
	2	Riesgo medio	Medium risk
	3	Riesgo bajo	Low risk
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Visit others		En los últimos 7 días, ¿tú o alguien en tu hogar realizaron alguna de las siguientes actividades? Asistir a una reunión o fiesta con más de 10 personas	In the last 7 days, did you or someone in your household perform any of the following activities? Attend a meeting or party with more than 10 people
	1	Si	Yes
	2	No	No
Attend Party		En los últimos 7 días, ¿tú o alguien en tu hogar realizaron alguna de las siguientes actividades?	In the last 7 days, did you or someone in your household perform any of the following activities?
		Visitar a parientes o amigos en su casa.	Visit relatives or friends at home
	1	Sí	Yes
	2	No	No
Hand Wash		En promedio, ¿cuántas veces al día te lavas las manos?	On average, how many times a day do you wash your hands?
	1	0-2	0-3
	2	3-4	3-5
	3	5-6	5-6
	4	7-9	7-9
	5	10 o más	10 o más
	6	No sé / prefiero no responder	I don't know / I prefer not to answer
Social Distance		Cuando estás fuera de tu casa, ¿qué tan frecuentemente mantienes la distancia física adecuada de otras personas?	When you are away from home, how often do you keep the proper physical distance from other people?
	1	Siempre	Always
	2	Casi siempre	Almost always
	3	A veces si y a veces no	Sometimes yes and sometimes no
	4	Casi nunca	Almost never
	5	Nunca	Never
	6	No sé / prefiero no responder	I don't know / I prefer not to answer
Facemask Use		¿Qué tan frecuentemente usas tapabocas cuando sales de tu casa?	How often do you wear a face mask when you leave your house?
	1	Siempre	Always
	2	Casi siempre	Almost always
	3	A veces si y a veces no	Sometimes yes and sometimes no
	4	Casi nunca	Almost never
	5	Nunca	Never
	7	No sé / prefiero no responder	I don't know / I prefer not to answer
Facemask Peers		Pensando en tus vecinos y conocidos, ¿dirías que en general toman o no toman las siguientes medidas? Usar máscara o tapabocas	Thinking of your neighbors and acquaintances, would you say that in general they do or do not take the following measures?: Use facemasks
	5	Sí	Yes
	6	No	No
Distance Peers		Pensando en tus vecinos y conocidos, ¿dirías que en general toman o no toman las siguientes medidas? Mantener sana distancia de otras personas	Thinking of your neighbors and acquaintances, would you say that in general they do or do not take the following measures? Keep distance with others
	5	Sí	Yes
	6	No	No

Intro to VignetteA_ friends		Piensa con cuidado en la siguiente situacion hipotética:	Think carefully about the following hypothetical situation:
		Ana vive en Barranquilla. Una amiga cumple años e invitó a Ana, junto con otros 10 **amigos cercanos**, a asistir a una reunión dentro de su casa.	Ana lives in Barranquilla. A friend has a birthday and invited Ana, along along with 10 other **close friends**, to attend a get together inside her home.
VignetteA_yn		Ana llega al cumpleaños de su amiga **usando tapabocas**, **pero ninguno** de sus amigos está usando tapabocas.	Ana comes to her friend's birthday **wearing a mask, but none of** her friends are wearing masks.
VignetteA_ny		Ana llega al cumpleaños de su amiga **sin tapabocas**, **pero todos sus** amigos están usando tapabocas.	Ana comes to her friend's birthday **without mask, but all** of her friends are wearing masks.
VignetteA_nn		Ana llega al cumpleaños de su amiga **sin tapabocas, pero ninguno de** sus amigos están usando tapabocas.	Ana comes to her friend's birthday **without mask, but none** of her friends are wearing masks.
VignetteA_yy		Ana llega al cumpleaños de su amiga usando tapabocas, y todos de sus amigos está usando tapabocas.	Ana comes to her friend's birthday **wearing a mask, and all** of her friends are wearing masks.
VignetteA_n2y		Ana llega al cumpleaños de su amiga, **sin tapabocas** pero **2 de sus amigos sí están usando tapabocas.**	Ana comes to her friend's birthday **without mask,** but **2 of her friends are wearing masks.**
VignetteA_n4y		Ana llega al cumpleaños de su amiga, **sin tapabocas** pero **4 de sus amigos sí están usando tapabocas.**	Ana comes to her friend's birthday **without mask,** but **4 of her friends are wearing masks.**
VignetteA_n6y		Ana llega al cumpleaños de su amiga, **sin tapabocas** pero **6 de sus amigos sí están usando tapabocas.**	Ana comes to her friend's birthday **without mask,** but **6 of her friends are wearing masks.**
VignetteA_n8y		Ana llega al cumpleaños de su amiga, **sin tapabocas** pero **8 de sus amigos sí están usando tapabocas.**	Ana comes to her friend's birthday **without mask,** but **8 of her friends are wearing masks.**
VignetteB_ acquaintances		Piensa con cuidado en la siguiente situación hipotética:	Think carefully about the following hypothetical situation:
		Ana vive en Barranquilla. Una amiga cumple años e invitó a Ana a asistir a una reunión dentro de su casa. La amiga le dice a Ana quién estará en la fiesta: asistirán **10 invitados ademas de Ana, de los cuales Ana conoce a 6.** Ana llega al cumpleaños de su amiga **sin tapabocas usando tapabocas** y los 4 que no conoce están sin tapabocas.	Ana lives in Barranquilla. A friend has a birthday and invited Ana to attend a get together inside her house. The friend tells Ana who will be at the party: **10 guests will attend in addition to Ana, of which Ana knows 6.** Ana comes to her friend's birthday **without a mask. The 6 guests that Ana knows are wearing masks** and the 4 she does not know are without masks.
VignetteC_ strangers		Piensa con cuidado en la siguiente situación hipotética:	Think carefully about the following hypothetical situation:
		Ana vive en Barranquilla. Una amiga cumple años e invitó a Ana a asistir a una reunión dentro de su casa. La amiga le dice a Ana quién estará en la fiesta: asistirán 10 invitados ademas de Ana, **de los cuales Ana conoce a 4.** Ana llega al cumpleaños de su amiga **sin tapabocas** Los 6 invitados que Ana no conoce están. usando tapabocas y los **4 que si conoce están sin tapabocas**.	Ana lives in Barranquilla. A friend has a birthday and invited Ana to attend a get together inside her house. The friend tells Ana who will be at the party: 10 guests will attend in addition to Ana, **of which Ana knows 4.** Ana comes to her friend's birthday **without a mask.** The 6 guests that Ana does not know are wearing masks and the **4 she does know are without masks**.
Facemask_wear_1		Si tuvieras que adivinar, ¿qué crees que hará Ana durante el resto de la fiesta?	If you had to guess, what do you think Ana will do for the rest of the party?
	1 2 3	Usará tapabocas No usará tapabocas No sé/ prefiero no responder	Will wear a mask Will not wear a mask I don't know / I prefer not to answer
Facemask_wear_2		¿Crees que Ana usará tapabocas al día siguiente al salir de su casa?	Do you think Ana will wear a mask the next day when she leaves her house?
	1 5 4	Usará tapabocas No usará tapabocas No sé/ prefiero no responder	Will wear a mask Will not wear a mask I don't know / I prefer not to answer

Facemask_wear _week		Pensando en la semana después de la fiesta, ¿cuántos días crees que Ana usará tapabocas?	Thinking back to the week after the party, how many days do you think Ana will wear a mask?
	1	0	0
	2	1	1
	3	2	2
	4	3	3
	5	4	4
	6	5	5
	7	6	6
	8	7	7
	11	No sé / prefiero no responder	I don't know / I prefer not to answer
Vignette_App _Facebook		Facebook es la plataforma social más usada en Colombia y el mundo. A través de su aplicación móvil, los usuarios pueden mantenerse en contacto con amigos y familia desde cualquier lugar y en cualquier momento. ¿Estás de acuerdo que la versión móvil de Facebook facilita el contacto con tus seres queridos?	Facebook is the most used social platform in Colombia and the world. Through its mobile application, users can keep in touch with friends and family from anywhere and at any time. Do you agree that the mobile version of Facebook makes contact with your loved ones easier?
	1	Sí	Yes
	2	No	No
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Vignette_Online _Paperwork		El gobierno de Colombia ha ido pasando muchos El gobierno de Colombia ha ido pasando muchos trámites que antes eran presenciales a plataformas en en línea. Además, gracias a las aplicaciones móviles muchos trámites se pueden realizar desde cualquier lugar. Por ejemplo, ahora los colombianos podemos afiliarnos a la seguridad social en línea. ¿Estás de acuerdo que poder hacer trámites en línea mejora la vida de los colombianos?	The Colombian government has switched many The Colombian government has switched many procedures that were previously face-to-face to online platforms. In addition, thanks to the mobile applications, many procedures can be carried out from anywhere. For example, now Colombians can join social security online. Do you agree that being able to do paperwork online improves the life of Colombians?
	1	Sí	Yes
	2	No	No
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Vignette_Data_ Privacy		Asegurar la privacidad de los ciudadanos es lo más importante para los gobiernos y Colombia no se ha quedado atrás. La privacidad de datos de los colombianos es una prioridad para nuestro gobierno. ¿Estás de acuerdo que el gobierno tiene como prioridad proteger tu privacidad?	Ensuring the privacy of citizens is the most important thing for governments and Colombia has not been left behind. Colombian data privacy is a priority for our government. Do you agree that the government has a priority to protect your privacy?
	1	Sí	Yes
	2	No	No
	4	No recuerdo / No sé	I don't remember / I don't know
Vignette_Trust		El Gobierno Colombiano se comprometió a llevar conectividad a todos los rincones del país y cumplió. A la fecha, se instalaron más de 1000 Zonas Digitales con internet gratuito y se conectaron cerca de 100 mil hogares de estratos 1 y 2 a internet. ¿Confías que el Gobierno Nacional cumple con lo que promete?	The Colombian Government promised to bring connectivity to all corners of the country and it complied. To date, more than 1,000 Digital Zones 100,000 households in strata 1 and 2 have been connected to the internet. Do you trust that the National Government complies with what it promises?
	7	Sí	Yes
	8	No	No
	9	No recuerdo / No sé	I don't remember / I don't know
App_knows		El gobierno nacional creó una aplicación móvil para tu teléfono, llamada CoronApp, que te permite saber si tienes algún síntoma de coronavirus y te dice qué hacer, sin costo y sin consumir datos. ¿Conoces el CoronApp?	The national government created a mobile application for your phone, called CoronApp, that lets you know if you have any symptoms of coronavirus and tells you what to do, free of charge and without consuming data. Do you know the CoronApp?
	1	Sí	Yes
	2	No	No
	4	No recuerdo / No sé	I don't remember / I don't know

App_symptoms_ install		¿La instalarías en tu teléfono?	Would you install it on your phone?
	1	Seguro sí	Definitely yes
	2	Creo que sí	I think so
	3	Creo que no	I don't think so
	4	Seguro no	Definitely not
	5	No sé / prefiero no responder	I don't know / I prefer not to answer
App_notifications		Si además de lo anterior, esa aplicación móvil también te alerta si estás en contacto con una persona infectada de coronavirus, y les notifica a las personasque estuvieron en contacto cercano contigo (sin compartir nombres de nadie), ¿La instalarías en tu teléfono?	If in addition to the above, that mobile application also alerts you if you are in contact with a person infected with coronavirus, and notifies the people who were in close contact with you (without sharing anyone's names), Would you install it on your phone?
	1	Seguro sí	Definitely yes
	2	Creo que sí	I think so
	5	Creo que no	I don't think so
	3	Seguro no	Definitely not
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Diagnostic application		Si hubiera una aplicación móvil del gobierno federal para tu teléfono que te permitiera saber si tienes algún síntoma de coronavirus y te dijera qué hacer, sin costo y sin consumir datos, ¿la instalarías en tu teléfono?	If a federal government app were available for your smartphone that could help you to identify coronavirus symptoms, and inform you what to do at no cost, and with no data usage, would you download it to your phone?
	1	Seguro sí	Definitely yes
	2	Creo que sí	I think so
	5	Creo que no	I don't think so
	3	Seguro no	Definitely not
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Contact Tracing application		Si además de lo anterior, esa aplicación también te alertara si estuviste en contacto por más de 15 minutos con una persona infectada de coronavirus, y les notificara a las personas que estuvieron en contacto cercano contigo, sin identificar ningún nombre, ni el tuyo ni el de las otras personas, ¿la instalarías en tu teléfono?	If, in addition to the previously-described features, the app could also alert you if you had been in contact for more than 15 minutes with an infected person, and it notified the people who were near you if you became infected, without identifying personal information (yours or others'), would you download the app?
	1	Seguro sí	Definitely yes
	2	Creo que sí	I think so
	5	Creo que no	I don't think so
	3	Seguro no	Definitely not
	4	No sé / prefiero no responder	I don't know / I prefer not to answer
Follow Up		Muchas gracias por haber completado esta encuesta. Para contribuir a entender la epidemia y reducir el contagio, ¿desearías participar en una breve encuesta de seguimiento en algunas semanas?	Thank you very much for completing this survey. To help understand the epidemic and reduce contagion, Would you like to participate in a short follow-up survey in a few weeks?
	4	Si	Yes
	5	No	No
Email		Correo electrónico:	Email:
Whatsapp_not_mob		Escribe tu número de WhatsApp de 10 dígitos (opcional):	Write your 10-digit WhatsApp number (optional):

Notas		Si compartiste tu número de WhatsApp, en los próximos días recibirás un mensaje de confirmación del número dedicado a este estudio: 304 6189073. ¡Toma nota por favor! Te recordamos que tu información de contacto solamente se usará para fines del estudio, se guardará de manera encriptada y segura, y se borrará cuando termine el estudio.	If you shared your WhatsApp number, in the next few days you will receive a confirmation message of the number dedicated to this study: 304 6189073. Please take note! We remind you that your contact information will only be used for study purposes, it will be stored in an encrypted and secure manner, and will be deleted when the study ends.
Recommend		¿Te gustaría ofrecerle la oportunidad de participar en el estudio a amigos o conocidos? Si sí, por favor ingresa una o más direcciones de correo electrónico (opcional)	Would you like to offer friends or acquaintances the opportunity to participate in the study? If yes, please enter one or more email addresses (optional)
Satisfaction		Por último, quisiéramos saber cómo fue tu experiencia con esta encuesta. ¿Qué tan amena te pareció la encuesta?	Finally, we would like to know how was your experience with this survey. How enjoyable did you find the survey?
	1	Muy amena	Very enjoyable
	2	Algo amena	Somewhat pleasant
	5	Ni amena ni aburrida	Neither enjoyable not boring
	3	Poco amena	Little pleasant
	4	Aburrida	Boring
	6	No sé / prefiero no responder	I don't know / I prefer not to answer
Calidad		Por último, te pedimos tu sincera opinión. ¿Nos recomendaría utilizar sus respuestas como parte del cuidado o no leiste las preguntas al responder, por favor selecciona "No utilizar" para evitar afectar la calidad del estudio. No habrá ninguna consecuencia de ningún tipo para ti.	Finally, we ask for your honest opinion. Would you recommend using your answers as part of the study? not read the questions when answering, please select "Do not use" to avoid affecting the quality of the study. There will be no consequence of any kind for you.?
	1	Si utilizar	Yes use
	6	No utilizar	Do not use
Good_quality		Por último, te pedimos tu sincera opinión. ¿Nos recomendaría utilizar sus respuestas como parte del estudio? Si por alguna razón no respondiste con cuidado o no leiste las preguntas al responder, por favor selecciona "No utilizar" para evitar afectar la calidad del estudio. No habrá ninguna consecuencia de ningún tipo para ti.	Finally, we ask for your honest opinion. Would you recommend us to use your answers as part of the study? If for any reason you did not answer carefully or did not read the questions when answering, please select "Do not use" to avoid affecting the quality of the study. There will be no consequence of any kind for you.
	1	Sí	Yes
	2	No	No
End_Uninorte Only		Gracias por dedicarle tiempo a esta encuesta.Tu respuesta se ha registrado.Si tienes alguna consulta sobre el estudio, puedes contactar a Alexander Villarraga quien lidera el estudio desde Uninorte.covid19baq@uninorte.edu.co Estudio Coronavirus - Alcaldía de Barranquilla y Universidad del Norte - 2020	Thank you for spending time on this survey. Your response has been recorded. If you have any questions about the study, you can contact Alexander Villarraga who leads the study from Uninorte.covid19baq@uninorte.edu.co Coronavirus Study - Barranquilla Mayor's Office and Universidad del Norte - 2020