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## Working Paper

# A heavy hand or a helping hand? Information provision and citizen preferences for anti-crime policies

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Information Provision and Citizen Preferences for Anti-Crime Policies

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## Abstract\*

Welfarist justifications of democracy presume that citizens have policy preferences that are responsive to pertinent information. Is this accurate? This paper addresses that question by providing a model and empirical test of how citizens' policy preferences respond to information in the arena of anti-crime policy. The paper's model shows that preferences for anti-crime policy hinge on expectations about the crime rate: in high crime regimes punitive policies are preferred, whereas in low crime regimes social policies are. To evaluate the model, the authors employ an information experiment embedded in the 2017 LAPOP survey conducted in Panama. The evidence is partially consistent with the paper's theory. As expected, a high crime message induced stronger preferences in favor of punitive policies. Unanticipated by the paper's theory, though, is the finding that a low crime message did not induce stronger preferences in favor of social policies. These findings raise the possibility that political communication about crime may have an inherent punitive policy bias.

**JEL classifications:** D72, D80, H80

**Keywords:** Information, Endogenous preferences, Anti-crime policy, Survey experiment

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## 1. Introduction

Recent political campaigns around the world appear to have been heavily influenced by the use of “fake news” and other forms of deception. Exaggeration, strategic framing, and misleading use of information have become widespread during policy debates. At the same time, many voters are believed to be tribal in their partisan and policy orientations. This raises an important question: Are citizens’ preferences for public policy amenable to change in light of new factual information, or do they reflect ingrained cultural biases that are impervious to facts? A great deal rests on the answer to this question. If the average citizen has no factual basis for the policies that she demands and those demands do not evolve in reasonable ways with exposure to relevant information, then democracy is a bad way to make policy. Incorporating citizens into policymaking directly through greater decentralization and popular participation programs may not improve and in some cases may even worsen public policies.

The current paper addresses the issue of how information shapes the policies citizens demand from their governments. It does so by providing an examination of how different types of information shocks shape citizen preferences on anti-crime policy. Public demands on anti-crime policy are particularly pertinent for analysis because crime has a large welfare cost on victims, and some anti-crime policies, such as those that lead to mass incarceration, have tremendous welfare costs as well. In Latin America, our focus area here, the pecuniary cost of crime alone is equal to 4 percent of GDP (Jaitman, 2017). Non-pecuniary costs are substantial as well. For example, exposure to violence impairs the educational performance of schoolchildren (Koppensteiner and Menezes, 2018; Monteiro and Rocha, 2017), reduces childbearing (Gerardino and Camacho, 2018), and worsens birth outcomes (Koppensteiner and Manacorda, 2013).

The paper proceeds in two steps. We begin by developing a formal model of optimal anti-crime policy preferences with rational voters. The model, which extends the Becker-Stigler framework to multiple policy instruments (penalties, detection, social policy), provides a theoretical benchmark that describes the types of anti-crime policies that rational citizens should demand depending upon their beliefs about crime. Basically, in a high (low) crime state of the world voters should prefer higher (lower) punishment and lower (higher) social policy and detection efforts. The model captures the different policy vectors that countries tend to gravitate towards (a high carceral, low safety net situation in the United States versus a low carceral, high safety net situation in Northern Europe).

Next, we utilize an information experiment that we designed and embedded in the 2016/2017 round of the Americas Barometer Survey conducted by the Latin American Public Opinion Project (LAPOP) in Panama. The unique recent history of Panama makes it possible for us to manipulate beliefs about crime by randomly exposing respondents to different messages about crime: some individuals were presented with statistics and images showing a high crime scenario and others were presented with statistics and images consistent with a low crime scenario. Both messages are factually true and based on crime statistics for the country. The abrupt changes in crime trends that took place in Panama permit us to send qualitatively distinct messages simply by changing the starting year we use to present the information to individuals. In particular, homicides show a stark inverse U-shape, with crime going from about 10 homicides per 100,000 population in 2000 to about 23 in 2009, and back down again to around 10 by 2017. By presenting the first part of this trend (and framing the message accordingly), we are able to send a strong message about rising homicides. Similarly, by presenting the second part of the trend, we are able to send a strong message about decreasing homicides. Since both messages are based on the relatively recent lived experiences of Panamanians, they are likely to have a degree of credibility that would not be encountered in polities where recent homicide trends are unidirectional.

By comparing the policy allocation decisions in the survey experiment to the expectations of the model we are able to ascertain if policy demands change in expected directions as a consequence of the introduction of pertinent information. Our conclusion is partly affirmative on this point: citizens' policy demands skew towards punitive policies following the introduction of information indicating an increase in crime. Yet, the converse is not true: citizens' policy demands do not skew towards social policies or monitoring following the introduction of information indicating a decrease in crime. If anything, relative to the no information scenario (control group) they also skew towards punishment (although the effect here is not statistically significant). In this sense, our findings lend themselves to the conclusion that all news about crime—regardless of the direction—tends to elicit punishment-oriented responses by the electorate.

Our findings imply that crime policy is an area where the potential scope for voter manipulation is high. This may help explain why anti-crime efforts around the world tend to be of poor quality. Since voters do not carefully parse out the information content of messages about crime, attempts to frame elections around the crime issue may be effective in generating preferences for punitive policies even in contexts in which the facts on the ground do not justify

this approach. We argue that the growth of mass incarceration in the United States and *Mano Dura* (“heavy hand”) policing in Central America can be interpreted as consequences of this underlying dynamic.<sup>1</sup> Indeed, persistent support for harsh law-and-order policies often seems to have an intimate relationship with the public’s failure to internalize positive information about crime trends. In the United States, where crime has been roughly halved in the last 20 years, Gallup polls consistently reveal that a majority of respondents (since the early 1990s) believe that there was more crime in the country during the survey year than the year before. This disconnect between public beliefs and facts on the ground presents an obvious challenge to policymaking, particularly when the evidence seems to indicate that punitive policies do not work. Punitive crime policy in the United States appears to have had at best a modestly reductive impact on crime rates, but it has had significant impact on distorting labor markets, reducing childhood wellbeing, and undermining civic and political participation (Redburn et al., 2014).<sup>2</sup> Given this record, revealing the manner in which information shapes citizens’ policy preferences about crime is especially important, as it can provide insights into why large numbers of voters in democracies around the world favor counterproductive policies on crime.

## **2. Information and Citizen Policy Preferences**

There has been ample discussion in the literature about the relationship between information and citizen policy preferences. A first generation of scholarship on this topic assessed the impact of information by using observational data from surveys in conjunction with various forms of regression adjustment (Bartels, 1996; Carpini and Keeter, 1997; Althaus, 1998; Caplan, 2007). This work uses the conditional association between measures of political sophistication and policy preferences to impute the preferences that the electorate would have had if everyone was informed. The challenge for this approach is that political sophistication reflects, at best, a choice made by voters, and, at worst, indelible attributes of the same. In either scenario, it is difficult to conceptualize the intervention that this empirical thought exercise corresponds to.

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<sup>1</sup> Holland (2013) shows how crime and *Mano Dura* policies were used in El Salvador by the right wing party to help sway the electorate in the context of unpopular economic policies. Similarly, the use of the military in Brazil to combat crime seems to be driven by political considerations and not by its effectiveness in reducing crime (Bullock, 2018).

<sup>2</sup> According to interviews conducted with crime experts, increasing penalties and incarcerating more criminals were not policies of choice among their top 20 preferred ways to reduce crime in the world’s most violent cities. See *The Guardian*, “24 ways to reduce crime in the world's most violent cities”. Available at: <https://www.theguardian.com/global-development-professionals-network/2015/jun/30/24-ways-to-reduce-in-the-worlds-most-violent-cities>.



Recognizing this shortcoming, a more recent body of scholarship assesses the impact of information on policy preferences through the use of randomized experiments embedded in surveys. The findings of this scholarship are mixed. Most report significant information effects. In the closest parallel to the present paper, Gilens (2001) randomizes information about the crime rate in the United States, finding that those informed that the crime rate had decreased were significantly less likely to support increased spending on prison construction than those not provided with specific information about the crime rate. Similarly, recent work has utilized information experiments to study the impact of factual information on preferences on budgetary procedures and support for the estate tax (also in the United States), finding that preferences in each of these policy areas are shaped by policy-relevant information (Boudreau and Mackenzie, 2014; Sides, 2016). Yet other studies find little or no impact of information. Kuklinski et al. (2000), for instance, randomized information about the U.S. welfare system, finding that respondents provided with information on this subject did not have significantly different policy preferences than respondents not provided with information.

Our work builds upon a recent experimental literature on how information shapes policy relevant beliefs. We specifically build upon and extend the work of Ardanaz et al. (2014), who employ an information experiment on crime in Bogota, Colombia. These authors find that information about decreasing crime rates leads citizens to feel more secure and exhibit greater confidence in the police. However, the policy consequences of information about crime are not explored in that paper. Similar results are found by Mastroiocco et al. (2016) for Italy, where lower exposure to crime-related news reduced concerns about crime. Other recent papers in this field explore the impact of government propaganda on beliefs about water privatization (Di Tella et al., 2012), the impact of information about one's place in the income distribution on tastes for redistribution (Cruces et al., 2013), the impact of corrective information on the rejection of false rumors about health care (Berinsky, 2017), information about unemployment forecasts on economic expectations (Alt et al, 2016), information about government provision of public goods on tax compliance (Castro and Scartascini, 2015a), and information about government promises and performance on trust (Alessandro et al., 2018).

There are several important contributions of the current study vis-à-vis the extant work on the formation of policy preferences. First, we explicitly study the impact of information that conveys either a positive or negative message. This permits us to assess not only if information

about crime drives policy preferences, but it also allows us to ascertain if voters respond differently to information based on its content.

Second, we measure policy preferences (not sentiments) by presenting subjects with a fixed budget that they can allocate across a set of specific activities designed to reduce crime. Consequently, our results illuminate how information shapes the relative attractiveness of different policy options in voters' minds. We believe this is an important step forward in analyses of policy preferences, as it provides a framework for understanding the tradeoffs voters are willing to make as a function of the information available to them.

Third, to the best of our knowledge, our paper provides the first experimental evaluation of the impact of information on anti-crime policy preferences outside of the United States. Evaluating the responsiveness of policy preferences to information in such settings is important, as the U.S. experience exhibits peculiarities without obvious parallels in other contexts. For example, the perceived racial identity of perpetrators of crime plays a powerful role in shaping Americans' preferences for crime policy. This strong racial attribution dynamic is likely to be less relevant in societies, like those of Latin America, where racial boundaries are more fluid and subtle.

Fourth, our article contributes to a newly emerging literature on the political origins of punitive criminal justice and policing policies in Latin America. To date, the research on this topic consists of case studies that concentrate on the political decisions that produce such policies, focusing on their consequences for party branding efforts and attempts at blame avoidance (Holland, 2013; Flom and Post, 2016).<sup>3</sup> Thus, the existing knowledge on this topic is oriented towards the supply side of anti-crime policy. By providing a clearer picture of how different types of information shape voters' tastes for punitive policies, the current paper takes a step towards fleshing out the demand side, an important component of any broad understanding of how punitive policy emerges and is maintained over time.

Finally, the simple theoretical model, which extends the traditional Becker-Stigler model to a context of multiple policies, helps make sense of cross-country evidence showing roughly two patterns of countries: one with high punishment and small safety nets (the U.S. model) and another featuring lower punishment and larger safety nets (the Northern European model).

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<sup>3</sup> Research on the effects of punitive and aggressive policing in Latin America indicates that it is ineffective in reducing crime (Gingerich and Oliveros, 2018; Bullock, 2018).

### 3. Optimal Crime Policy with Rational Citizens

We begin by characterizing the induced preference of a rational citizen over different forms of anti-crime policy based on her beliefs about the state of the world. For our purposes, the only relevant information about the state of the world is the level of crime. Depending on the level of crime, some forms of anti-crime policy will be more effective than others, leading the citizen to select different bundles of policies based on her beliefs. Holding the accuracy of these beliefs constant, we describe how an instrumentally rational citizen's preferences on crime policies change as her beliefs about crime change. This provides the basis for the theoretical expectations that we evaluate in our empirical analysis.

#### 3.1 Preliminaries

Consider a setting in which a citizen is tasked with setting policy to reduce crime. Three instruments are available to achieve this objective: public investment in activities that augment the punishment for those caught engaging in criminal behavior, such as the building of additional prisons (making possible longer prison sentences), investment in activities that make crime more likely to be detected, such as subsidies for private alarm systems or the installation of public camera systems, and investment in activities that target the social conditions that breed crime, such as vocational training and anti-poverty programs. Denote the amount of funds directed to the three instruments as  $c$ ,  $s$ , and  $t$ , respectively, where investment in each instrument is non-negative and must obey the budget constraint,  $c + s + t = 1$ .

The relevance of the instruments rests with the manner in which they shape incentives to engage in crime. The polity contains a set of potential criminals, with a representative member of this set indexed by  $i$ . For each individual in this set, the instrument  $c$  increases the costs of criminal behavior if detected,  $s$  increases the likelihood of detection, and  $t$  serves as an income subsidy that increases the potential returns to non-criminal behavior. In particular,  $t$  is added to the income of any potential criminal who is not caught engaging in criminal behavior. (For simplicity, legal labor market income is normalized to zero).

We assume potential criminals experience linear utility in punishment but diminishing marginal returns to income. This can be justified by the fact that the experience of punishment is not constrained to lie on a pecuniary scale: the (dis)utility of an additional period of time in prison is unlikely to dissipate as quickly as an additional disbursement of income. Thus, a

potential criminal  $i$  who engages in crime and gets caught receives utility  $U_i(c) = -ac$ . By contrast, any monetary disbursement in the amount  $x$  is valued according to the function  $U_i(x) = u(x)$  where  $u' > 0, u'' < 0, u(0) = 0$  and  $u'(0) = +\infty$ .

Each potential criminal employs a Becker-Stigler style choice model in contemplating the decision of whether or not to dedicate themselves to a life of crime. In calculating expected utility from either option,  $i$  must incorporate expectations about the overall crime rate. This is because a high rate of criminality places  $i$ 's income at risk: the more extensive is crime, the more likely it is that an individual will be victimized and lose her income. We formalize this intuition through the use of the function  $v(q^e) \in [0, 1]$ , which represents the probability of crime victimization. It is a sigmoid function of  $q^e \in [0, 1]$ , which in turn represents the expected proportion of potential criminals who dedicate themselves to a life of crime. The greater this proportion, the more likely it is that a potential criminal will be robbed of her legitimate and/or ill-gotten income, depending on the career path he pursues.

If  $i$  chooses a life of crime, his expected utility is equal to:

$$\begin{aligned} EU_i(\text{crime}) &= p(s)(-ac) + (1 - p(s))\{v(q^e)u(0) + [1 - v(q^e)]u(\pi + t)\} - \epsilon_i \quad (1) \\ &= p(s)(-ac) + (1 - p(s))[1 - v(q^e)]u(\pi + t) - \epsilon_i, \end{aligned}$$

where  $p(s) \in [0, 1]$  is a function representing the probability that criminal behavior is detected by authorities,  $\pi \in \mathfrak{R}^+$  is the monetary return to crime, and  $\epsilon_i$  is  $i$ 's idiosyncratic moral taste for engaging in criminal behavior. The function  $p(s)$  is concave increasing with  $p(0) = 0$  and  $p'(0) = +\infty$ . Moral tastes in the population of potential criminals are distributed uniformly with support  $[-1/2\beta, 1/2\beta]$ . Note that in the best case scenario for a criminal—that in which he evades detection and receives both the return from crime and the income subsidy—there is still a probability  $v(q^e)$  that he will be victimized by another criminal and lose all of his income.

Similarly, if  $i$  chooses to avoid a life a crime, his expected utility can be written:

$$\begin{aligned} EU_i(\neg\text{crime}) &= v(q^e)u(0) + [1 - v(q^e)]u(t) \quad (2) \\ &= [1 - v(q^e)]u(t) \end{aligned}$$

As expressed in the equation above, rampant criminality dampens the value of the income subsidy because it reduces the likelihood that the subsidy is actually enjoyed by the individuals who engage in good behavior.

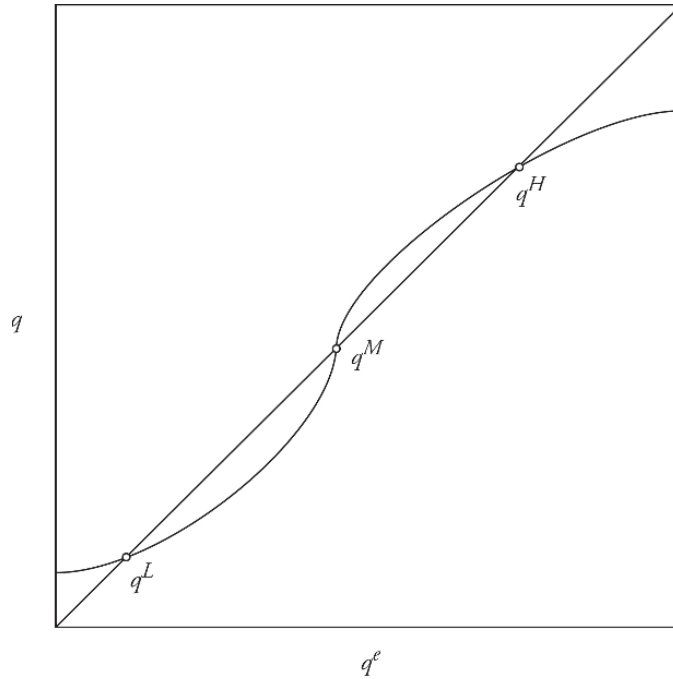
### 3.2 Equilibrium

Holding constant the choice of policy instruments, a potential criminal  $i$  chooses to engage in crime if  $EU_i(\text{crime}) \geq EU_i(\neg\text{crime})$ . Utilizing the distribution of moral tastes for crime, this inequality defines the objective crime participation rate  $q$ . Setting the expected and objective rates equal to one another, an equilibrium crime participation rate  $q^*$  is a solution to the following equation:

$$q^* = \beta\{p(s)(-ac) + [(1 - p(s))u(\pi + t) - u(t)][1 - v(q^*)] + \frac{1}{2}\} \quad (3)$$

As shown in Figure 1, the sigmoidal shape of the victimization function  $v(\cdot)$  results in three equilibrium levels of crime: a high equilibrium ( $q^H$ ), a low equilibrium ( $q^L$ ), and an intermediate equilibrium ( $q^M$ ). The two extreme equilibria are stable, whereas the intermediate equilibrium is not. Thus, the polity can plausibly be under one of two different types of crime regimes: a high crime regime or a low crime regime.

**Figure 1. Crime Equilibria**



Denote the citizen's belief about which of the two regimes is in place as  $\tilde{q} \in \{q^L, q^H\}$ . Given her belief about the extant regime, she chooses crime policy to maximize the proportion of potential criminals who abstain from crime:

$$\begin{aligned} \max_{c,s,t} & 1 - \tilde{q} \\ \text{s. t.} & c + s + t = 1. \end{aligned} \tag{4}$$

In what follows, it will be helpful to introduce the following technical assumption, which places an upper bound on the extent to which  $c$  and  $s$  complement one another:

$$\text{Assumption 1: } \alpha < u'(\pi + 1)(1 - v(1)). \tag{5}$$

The above maximization problem and technical assumption lead directly to the following proposition.

**Proposition 1** A citizen who believes that the polity is in a high (low) crime regime prefers greater (lower) spending on punishment, and less (more) spending on detection and the income subsidy than does a citizen who believes the polity is in a low (high) crime regime.

**Proof.** See Appendix A. ■

The proposition establishes the fundamental regime dependent nature of preferences on crime policy. In a high crime regime, policies that function as income subsidies will be perceived as ineffective because the solidity of the property rights regime is in doubt. Income subsidies and other social policies targeted to vulnerable populations to enhance the returns to legal labor market activity will not be viewed as useful tools in combating crime in such settings because widespread crime is expected to erode the value of such benefits. Consequently, investing in activities that augment the formal punishment for crime will be relatively more attractive. In a low crime regime, preferences on policy will be reversed. In this setting, the elasticity between income subsidies and personal wellbeing for those that eschew a life of crime will be strong, implying that policies that address the underlying roots of crime may be more effective than increasing punishments. These results are in line with the policy differences observed across the developed world, with some countries adopting the high punishment-low safety net combination while others adopt the opposite vector of policies.

More subtly, policies that enhance detection rates for crime will also be less preferred under high crime regimes than low crime regimes. This is because under high crime regimes, criminals expect that if they go undetected there will nevertheless be a high likelihood that they will lose their ill-gotten gains at the hands of other criminals. Consequently, the bite of an increased detection rate is weaker in such settings, since the lack of property rights protection erodes the returns to crime and makes the detection/non-detection utility differential for criminals less stark. Punishment is again favored by citizens in this context because it represents a “sure thing” deterrent, with marginal returns to investment that are not dissipated by high social expectations of crime.

In this simple model, policies are decided contemporaneously. In the real world, however, voters have to decide on the policies that will be implemented in the future. As such, decisions are based heavily on the expectations about the future state of the world (e.g., budget allocations are decided in  $t$  to take effect in  $t_{+1}$ , and they take into account expected growth in  $t_{+1}$ , etc). Consequently, in the context of this paper, citizens should consider both levels and time trends in order to form their beliefs about future crime and make policy decisions.

#### **4. Information Experiment**

We assess the expectations of the model via the use of an information experiment in which subjects are randomly assigned to infographics that provide information consistent with the existence of a high crime or low crime regime, respectively. Our information experiment was embedded in the latest round of the Americas Barometer Survey conducted by the Latin American Public Opinion Project (LAPOP) in the country of Panama in early 2017. The survey provides a nationally representative stratified sample of adult Panamanians, with 1,521 respondents in total. Interviews were conducted in face-to-face format using electronic tablets.<sup>4</sup>

Each respondent in the survey was randomly assigned to one of three different experimental conditions. The first two conditions presented respondents with graphical displays describing the homicide rate in Panama in recent years. The third condition was a control state in which no information was provided. Randomization of individuals across treatments was produced by LAPOP using “Survey to Go” software, based on a preprogrammed script in the interviewers’

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<sup>4</sup> Full details about the survey and sampling procedures can be found in LAPOP’s Panama survey website: <https://www.vanderbilt.edu/lapop/panama>

tablets. The Appendix shows the balance of the treatments across a broad set of covariates that include socio-economic characteristics, victimization and political participation history, and access to information. The treatments are generally well balanced across covariates, with a few imbalances that are compatible with chance.

The infographics used as treatments were developed by the authors in conjunction with a professional graphic designer. They are presented in Figure 2. The first infographic was designed to provide an information shock consistent with beliefs in a high and increasing crime regime. It depicts the precipitous increase in the homicide rate experienced in Panama from 2000 to 2013. The text states: “*Did you know that the homicide rate in Panama has nearly doubled in recent years?*” A bar graph anchors the text, displaying the level of crime (homicide rate) at two different moments in time. An upwards arrow displays the percentage change (an increase of 75%). The background of the information graphic—a crime scene—conforms with the somber content of the information being provided.

The second infographic was designed to provide an information shock consistent with beliefs in a low and decreasing crime regime. Using different dates of measurement than the first, it depicts the decrease in the homicide rate experienced in Panama from 2009 to 2013. The text states: “*Did you know the homicide rate in Panama has decreased in recent years?*” As with the first graphic, a bar graph anchors the image and an arrow illustrates the percentage change (a decrease of 25%). The background image—a mother walking in a park with her children—conforms with the positive message conveyed by the graphic.



## Figure 2. Information Treatments

### Treatment 1: Homicides Increasing



### Treatment 2: Homicides Decreasing



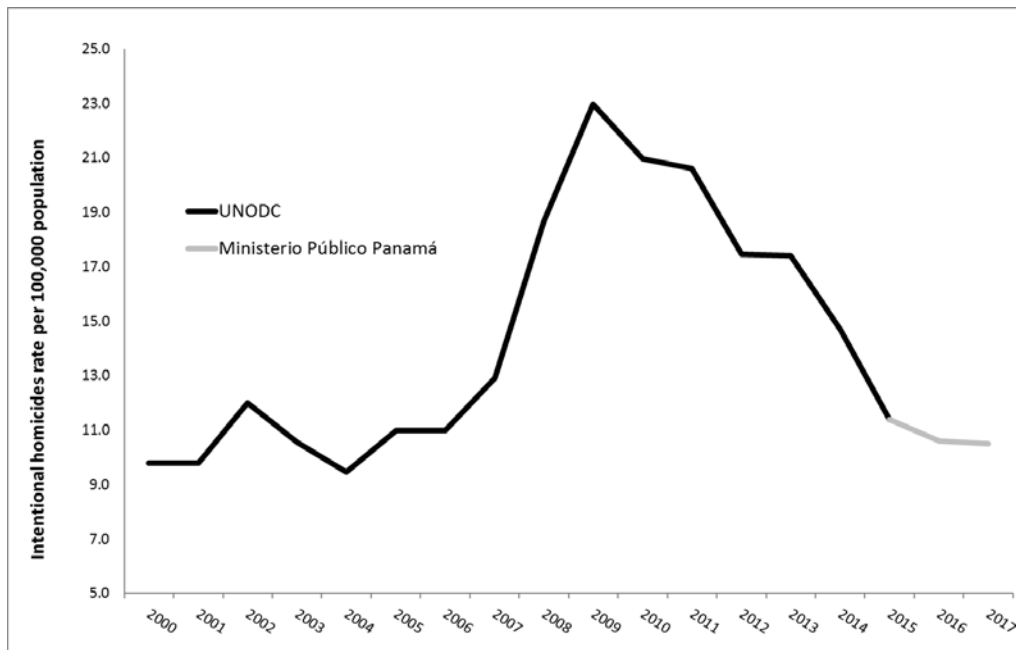
Although the two informational graphics convey very different information about crime trends in Panama, neither is false. That is because both are based on official statistics from the United Nations Office on Drugs and Crime (UNODC). However, they use different starting points to describe the homicide trend. This difference in start dates, taken in conjunction with Panama's stark experience with homicide trends in the last couple of decades, made it possible to send distinct messages about crime using the same data. We used 2013 as the end date because that was the latest data point available using United Nations Office on Drugs and Crime (UNODC) data at the moment we designed the treatments.<sup>5</sup> While the actual level of crime indicated for 2013 is the

<sup>5</sup> We chose to use only information about homicides based on UNODC data in our treatments so as to eliminate any potential biases due to differences in the perceived credibility of the source. See Alt et al. (2016) on the importance of source credibility.

same in both treatments, the evidence shows that individuals tend to evaluate states of the world according to benchmarks, particularly in the context of information that is difficult to process (such as homicide incidence per 100,000 individuals). Moreover, the evaluation of the state of the world is not independent of the framing and images used to send messages (Castro and Scartascini, 2015a, b).

Figure 3 depicts the long-term homicide trend from 2000 to 2017, supplementing the UNODC data with information from police sources (Ministerio Público) for the most recent years. The trend line has an inverted U-shape. After a period of stability, the country experienced a severe uptick in homicides from 2004 to 2009, a 145 percent increase that saw the country reach a homicide rate of 23.0 per 100,000 people in the latter year. From that point on, however, homicide rates declined precipitously, reaching levels equivalent to those at the beginning of the time series. The fact that both sharp increases and decreases in the homicide rate in Panama occurred in relatively recent history makes both messages *a priori* plausible, a necessary condition for the messages to shape citizens' preferences on anti-crime policies.

**Figure 3. The Homicide Rate in Panama, 2000-2017**



*Note:* Data from 2000 to 2015 correspond to UNODC, 2016-2017 provided by Ministerio Público. Survey experiment took place at the beginning of 2017.

Our outcome of interest is a citizen's relative preference for different anti-crime policies. To operationalize this outcome in a manner consistent with our theoretical framework, we incorporated into the survey a question prompting respondents to indicate how they would distribute a fixed amount of resources to four different policies. The respondents were first presented with a card displaying ten coins, which represented the total budget to be expended on all policies. Then they were read the following text:

Governments can adopt many measures to combat crime, but they have limited resources to do so. Suppose that the government has a total budget of ten coins to distribute among four measures to reduce crime. I will describe the measures to you and ask that you distribute the ten coins found on the top of your card among the four possible measures as you see fit. You can assign as many coins as you wish to each of the measures. You must use the ten coins. These are the four possible measures:

1. Increase the punishments given to criminals
2. Offer subsidies/help to people to buy security systems and other forms of self-protection
3. Implement preventive measures, such as vocational training and rehabilitation programs
4. Invest more money in anti-poverty programs

Respondents were asked to physically assign the coins to each answer, as shown in Figure 4 below.

**Figure 4. Physical Coin Assignment**

Tarjeta Y

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

Distribuya las 10 monedas de arriba entre las 4 medidas de combate a la delincuencia, según lo que usted considere mejor.

---

Aumentar los castigos a los delincuentes

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

---

Ofrecer subsidios para autoprotección

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

---

Implementar medidas de prevención

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

---

Invertir más dinero en programas  
contra la pobreza

○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

*Note:* Individuals were asked to physically assign coins to each category in order to avoid computational mistakes.

The purpose of this card was to reduce the possibility of computational mistakes, provide a physical representation of the choices being made across options, and allow individuals the opportunity to decide on the overall allocation before answering. This procedure is far superior for highlighting the tradeoffs between options than the questions usually used in surveys to elicit policy preferences.

In what follows, we examine how assignment to the different experimental conditions affects the relative allocation of coins across the anti-crime policies. Since items 3 and 4 above both represent strategies for preventing crime through social policy, we collapse the two items into a single item of that name.

In addition to examining patterns of average treatment effects across the entire sample, we recognize that there may be distinct treatment effects for particular subgroups. For example, people who have access to and consume more information would be expected to react differently than those who do not frequently consume information. Similarly, as mentioned earlier, responses to an informational shock should differ according to priors.

## 5. Main Results

Formally, we estimate the following simple linear regression model:

$$Y_i^v = \theta + \gamma^1 T_i^1 + \gamma^2 T_i^2 + X_i \Delta + \mu_i \quad (6)$$

where  $X_i$  is a vector of characteristics of individual  $i$ ,  $T_i^1$  is an indicator that takes the value of one for the treated individuals shown the infographic of crime increasing, and  $T_i^2$  for the individuals shown the infographic of crime decreasing.  $\mu$  is an unobserved random term. The coefficients  $\gamma^k$ ,  $k \in \{1,2\}$  measure the causal effect of the intervention, or the “intent-to-treat” (ITT) effect of each one of the infographics.  $Y^v$  represents each of the outcome variables ( $v \in \{a, b, c\}$ ) described in the previous section for survey participants. To be precise, our outcome variables consist of each pairwise difference in coins allocated to the three policy strategies: punishment, social policy, and detection (security systems). Thus, we examine the impact of our treatments on three dependent variables, each of which captures the relative preference of respondents for one policy strategy versus another.<sup>6</sup>

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<sup>6</sup> This is the most natural way of looking at the data given the predictions of the model. Results do not change if we look instead at absolute numbers of coins or shares of coins.

We utilize ordinary least squares to conduct the analysis, running models with the treatment indicators in isolation as well as models that include a small set of covariates that showed imbalance across treatments: the age of the individual, years of education, marriage status, self-identification as mestizo (European-Indigenous mixed-race origin), employment status, retiree status, an indicator for rural location, and an indicator for receiving social assistance from the government. We also run models with the full set of covariates presented in the balance table.

The findings are presented in Table 1. In line with the results coming from the formal model, we find that, relative to the control condition, exposure to information showing an increase in homicide rates led respondents to allocate more coins to punishment and less to social policies addressing poverty or other root causes of crime. This result is statistically significant and holds regardless of whether or not covariates are included in the model.<sup>7</sup> Consequently, the experimental findings jibe with the notion that information shocks indicating that society is in a high crime regime lend themselves to demands for punitive approaches towards crime. Coefficients are statistically different across treatments.

**Table 1. Impact of Crime Information on Policy Preferences (OLS Regressions)**

	Punishment - Social Policy			Punishment - Detection			Detection - Social Policy		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
T1	0.654** (0.318)	0.766** (0.330)	0.769** (0.333)	0.474** (0.210)	0.513** (0.217)	0.474** (0.218)	0.180 (0.212)	0.253 (0.217)	0.294 (0.217)
T2	0.418 (0.324)	0.383 (0.336)	0.385 (0.342)	0.416* (0.214)	0.396* (0.221)	0.355 (0.224)	0.002 (0.216)	-0.013 (0.221)	0.030 (0.223)
Constant	-1.459*** (0.258)	-1.499** (0.682)	-2.313* (1.248)	1.254*** (0.202)	2.136*** (0.540)	1.770** (0.896)	-2.714*** (0.171)	-3.635*** (0.452)	-4.083*** (0.877)
Observations	1,494	1,404	1,358	1,494	1,404	1,358	1,494	1,404	1,358
Controls	No	Narrow	Broad	No	Narrow	Broad	No	Narrow	Broad
p-value T1=T2	0.474	0.261	0.265	0.789	0.603	0.596	0.418	0.234	0.241

*Notes:* Table displays the estimate of OLS regression models when outcome  $Y$  of individual  $i$  is regressed on the treatments and a set of covariates. Each column in the table corresponds to a different specification. First column in each set has no controls. “Narrow” corresponds to a set of controls that showed some imbalance. Broad corresponds to the full set of covariates. Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

A similar finding holds for the tradeoff between punitive policy and detection. As expected, relative to the no information scenario, the increasing homicide treatment induced respondents to allocate more coins to punishment and less to subsidies for security systems.

<sup>7</sup> The change in the allocation is substantial given that while those in the control group assign on average 1.5 more coins to social policy than penalties, the difference falls by more than 30 percent for those in the treatment group.

Although the magnitude of this effect was smaller than in the case of punishment versus social policy, it was statistically significant nonetheless (with or without covariates). For the tradeoff between detection and social policy, for which the model does not offer strong expectations, there was no statistically significant impact of information about homicide rates. This result works well as a robustness check of our estimations.

The impact of the homicides decreasing treatment did not conform with the expectations of the theoretical framework. Policy preferences did not change much as a consequence of the positive news that homicides were decreasing. To the extent they changed at all, it was in a direction that was suboptimal given the content of the information provided. There are several reasons why this might have been the case. First, it may be that given the short time frame captured by the graph (2009-2013), some respondents did not feel it was a realistic representation of the actual homicide trend in Panama. Consequently, some may not have fully internalized the information contained in the graph.

Second, some respondents may have internalized the information about the *level* of the homicide rate instead of focusing on the trend. If the level across the two years was surprisingly high to these respondents, then this fact may have overshadowed the impact of an improving trend. Consequently, it is possible that the ostensibly good news about the homicide rate may not have been interpreted as such by some respondents. This explanation seems unlikely given the regional context in which Panama is embedded. Although by Panamanian standards the homicide spike at the end of the first decade of the new millennium was quite sharp, the overall level of homicides in the country is lower than any other country in Central America save for Costa Rica and Nicaragua. Taking into consideration the endemic levels of violence experienced in neighboring El Salvador, Honduras, and Guatemala, it is hard to escape the conclusion that the absolute level of homicides in Panama, especially given the presentation of a downward trend, should have been positive news. (see Figure 1 in the Appendix for a comparative view of homicide rates in Central America).

It would seem more likely that the mechanism at play is what psychologists call attribute substitution, which refers to a cognitive bias in which a simple (knee-jerk) emotional response to a stimulus substitutes for a more thoughtful consideration of that stimulus (Kahneman and Frederick, 2002). Seen from this perspective, the mere mention of homicides may have triggered in some respondents a perception of threat that led them to favor more punitive policies. This dynamic would be consistent with the experimental research that has shown that threat-inducing stimuli on

topics such as terrorism can generate knee-jerk responses in favor of punitive policies (Merolla and Zechmeister, 2009).

A natural question that arises in interpreting these data is whether or not the reactions of our respondents to the information treatments follow a standard belief updating process. If changes in policy preferences are indeed induced by the updating of prior beliefs, then this has three implications: i) that reactions to the informational treatment should differ according to the level of information of each individual, i.e., those who are more informed should react less to new information; ii) the effect should differ according to priors, i.e., those who thought that crime was lower should react more strongly; and iii) the reaction to information should be greater for those for whom the issue is more salient (e.g., victims), as this increases the possibility of an emotional reaction rather than a more thoughtful evaluation of the information.

## **6. Subgroup Analyses**

### ***6.1 Level of Information***

An examination of the impact of the informational treatments across subgroups of respondents sheds additional light on the mechanisms by which information shapes anti-crime policy preferences. Towards this end, we examine how the impact of information about crime is mediated by three key characteristics of respondents: prior exposure to information in the media, a proxy of their priors, and crime victimization status.

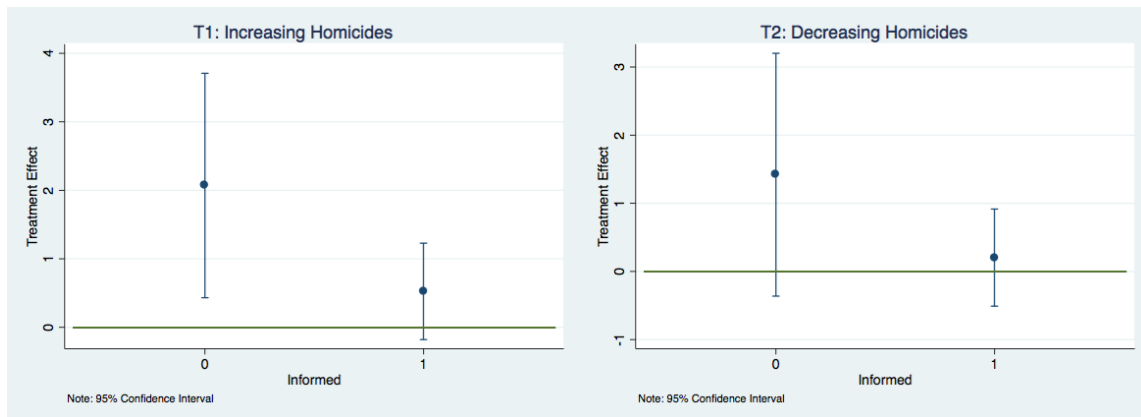
If policy change among our respondents occurs according to a standard belief updating process, then individuals who are highly informed should be least affected by the treatments, especially the factually inaccurate increasing homicides treatment, since they should hold relatively fixed and factually-based prior beliefs about crime trends. Individuals who are poorly informed should be the most affected by the treatments, as they are likely to hold diffuse and easily malleable beliefs about crime trends. We evaluate the degree to which this is the case by estimating regressions that include an interactive term of the treatment and a dummy variable that takes the value one for those respondents exhibiting high levels of news consumption, respectively.<sup>8</sup> Figure 5 presents dotplots depicting the differential impact of the treatments on the relative preference for

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<sup>8</sup> Informed citizens are defined as individuals who denote that they follow the news, be it on television, the radio, newspapers, or the internet, with one of the following frequencies: daily, several times a week, or several times a month. Uninformed citizens are individuals who denote that they “rarely” or “never” follow the news on any of these media.

punishment over social policy. (Full results are presented in Table 2 in the Appendix.) There is a large difference in the impact of the information treatments depending on the level of news consumption. The policy preferences of informed citizens, who consume substantial amounts of news, are relatively unaffected by the introduction of information about homicide rates. By contrast, the impact of the information treatments is substantially larger for uninformed citizens, individuals who rarely or never consume news in the media. To be precise, the impact of the increasing homicides treatment on preferences for punishment over social policy is about 4 times larger for uninformed citizens than for informed citizens. Although degrees of freedom considerations caution against placing too much emphasis on this difference in impact estimates, it is consistent with a standard belief updating process. These results are also relevant because they help to discard the possibility that the findings are the result of priming individuals to think about crime.

**Figure 5. Impact of Information Treatments on Relative Preference for Punishment Versus Social Policy (by Level of News Consumption)**



*Note:* Black circles are the coefficients on the indicated treatment from an OLS regression of the relative preference for punishment over social policy on the treatment indicators and covariates. Regressions were estimated including the interaction between the treatments and the discrete variable indicating high and low news consumption.

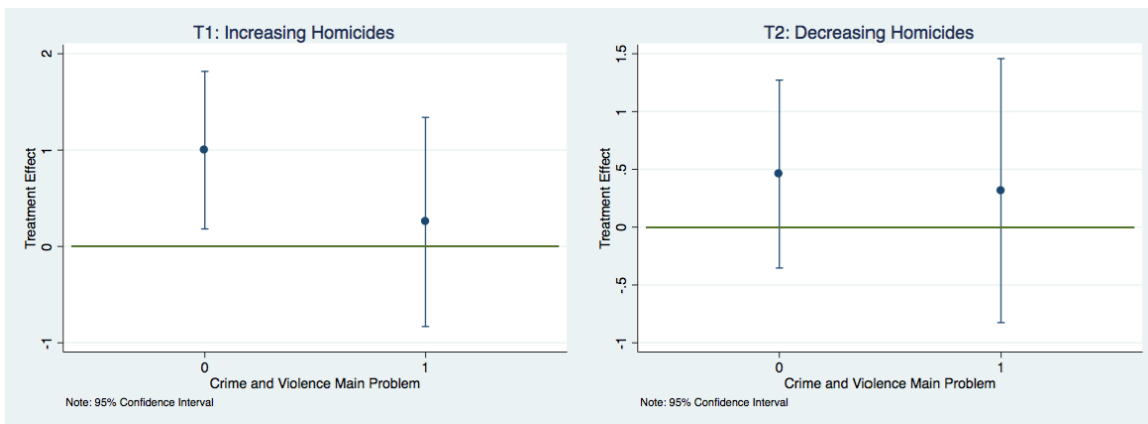
## 6.2 Crime Priors

We utilize two different questions to tap into citizens' priors about crime. First, we employ a question that prompts respondents to indicate the main problem facing the country. In particular, we focus on whether or not respondents indicate crime or violence as being the main problem. As shown in Figure 2 in the Appendix, aggregate responses track well the actual crime levels in the



country. Figure 6 shows that the effect of the high crime treatment is significantly higher for those who did not consider crime or violence to be the main problem facing the country. The difference is also relevant in absolute terms: the increasing homicides treatment effect is greater by about 1 coin for this group than for those who believe crime or violence is the main problem. Regression results are presented in Table 2 in the Appendix.

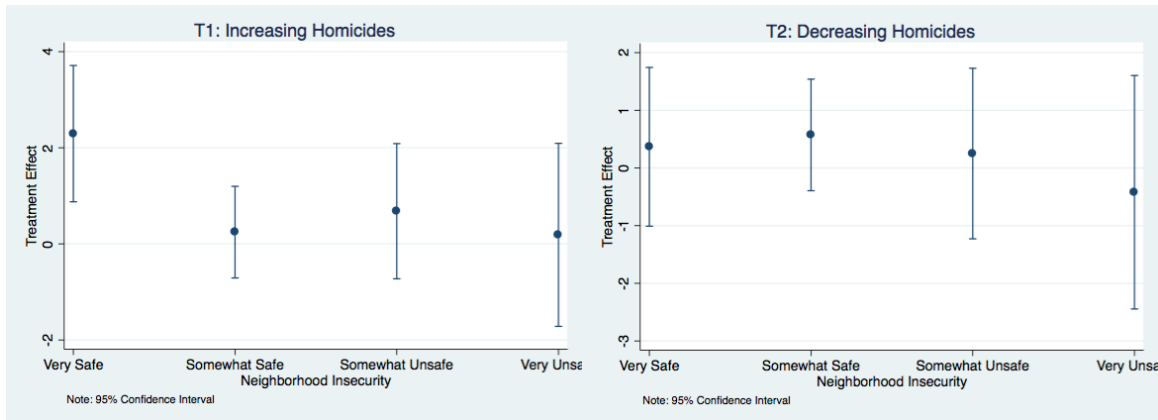
**Figure 6. Impact of Information Treatments on Relative Preference for Punishment Versus Social Policy (by Share of People Considering Crime and Violence as the Main Problem)**



*Note:* Black circles are the coefficients on the indicated treatment from an OLS regression of the relative preference for punishment over social policy on the treatment indicators and covariates. Regressions were estimated including the interaction between the treatments and the discrete variable indicating crime and violence being the main problem facing the country.

The second way we tap into priors is by using a question that asks individuals how they perceive crime in the neighborhood they live. Options are: very safe, safe, somewhat unsafe, and totally unsafe. As shown in Figure 7, the high crime treatment is particularly significant for those who believe that their neighborhood is very safe (i.e., individuals likely to hold priors that crime is low). Regression results are presented in Table 2 in the Appendix. Both exercises tell a similar story. The effect of the information treatment was greater for those who had a prior of low crime, at least as approximated by the questions available in the survey.

**Figure 7. Impact of Information Treatments on Relative Preference for Punishment Versus Social Policy (by People’s Assessment About Their Neighborhood Insecurity)**

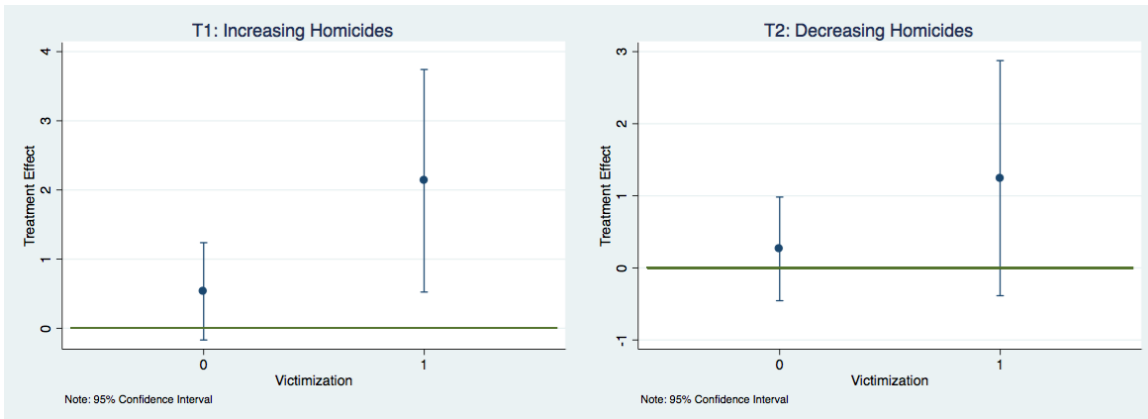


*Note:* Black circles are the coefficients on the indicated treatment from an OLS regression of the relative preference for punishment over social policy on the treatment indicators and covariates. Regressions were estimated including the interaction between the treatments and the discrete variable indicating different levels of neighborhood insecurity.

### 6.3 Crime Victimization

Crime victimization status is another characteristic of citizens likely to moderate the impact of information about crime. For recent crime victims, crime is likely to be an extremely salient policy concern. Consequently, the potential impact of novel information about crime trends is large for this population. Non-crime victims, on the other hand, are less intrinsically motivated to think about crime as a pressing public policy problem. This weaker level of motivation could make them less receptive to novel information about crime trends, thereby muting the effect of the homicide treatments. Moreover, crime victims may react more emotionally to information about crime than non-victims. Figure 8 presents dotplots depicting how victimization status over the previous 12 months mediates the impact of the treatments on the relative preference for punishment over social policy. (Full results are presented in Table 2 in the Appendix.) There is a major difference in impact estimates according to victimization status, with crime victims being much more inclined to shift their preferences in light of information about homicide trends than non-crime victims. For instance, the impact of the increasing homicides treatment on preferences for punishment over social policy is more than 3 times larger for recent victims than for non-victims citizens. This is consistent with the idea that issue salience affects receptivity to new information.

**Figure 8. Impact of Information Treatments on Relative Preference for Punishment versus Social Policy (By Crime Victimization)**



*Note:* Black circles are the coefficients on the indicated treatment from an OLS regression of the relative preference for punishment over social policy on the treatment indicators and covariates. Regressions were estimated including the interaction between the treatments and the discrete variable indicating they had or had not been a victim of crime over the last 12 months.

## 7. Conclusions

The current paper addresses the issue of how information shapes the policies citizens demand from their governments. By exploiting the peculiar evolution of crime in Panama, an inverse U-shape, we are able to provide individuals with two distinct messages about crime. Both of the messages were factually correct for the dates indicated. However, they differed markedly in the message they sent about crime in the country. A third of the sample was shown information that crime was high and increasing, while another third was shown an info-graphic depicting a low and decreasing homicide rate. In both cases, the figures and the framing intensified the information conveyed by the crime statistics. The expectation from our theoretical model (an extension of the Becker-Stigler framework) is that, in a high crime context, citizens will demand higher punitive strategies, while they will favor social and detection policies in a low crime context.

The results show that individuals react as predicted by the model when they receive the information depicting an increase in crime: they demand higher punishment and lower social policy. Yet the converse is not true. When respondents receive the good news that crime is decreasing, they do not shift their policy preferences in favor of social policy over punitive measures. News indicating a reduction in crime had no statistically significant effect on preferences. To the degree it had any discernible impact at all, the crime reduction message

actually increased preferences for punitive policy (relative to the no information scenario). This would suggest that political communication about crime, in and of itself, tends to lead citizens to favor punitive policies.

Separating individuals with low and high access to information provides evidence on the types of individuals most affected by messages about crime. Those with low access to information react much more strongly to the new information than those who are better informed. Individuals with low crime priors react more strongly than those who believed that crime was high. Similarly, those who had been recent victims of a crime reacted more strongly than those who had not.

These empirical results have clear implications. Firstly, they help to explain why carceral state policies tend to be so popular and long-lasting, in spite of their ineffectiveness in the face of changing societal circumstances (Huber and Gordon, 2004). Priming crime as a political issue can have a ratcheting up effect. If voters view crime as constituting a crisis, they will strongly embrace punitive anti-crime strategies. If they eventually abandon this view, they still may favor punitive policies—at least weakly—over the alternatives. So, actually, reversing punitive policies in favor of other (more effective) strategies for combating crime is likely to be quite difficult in a democratic setting. Secondly, the results highlight the relevance that information, particularly one-sided if-it-bleeds-it-leads journalism, has as a driver of policy preferences. In particular, these results highlight the importance of institutions that promote political competition based on facts and reduce the incentives of news organizations and social media to exploit individuals' biases and cognitive limitations. As was true for the introduction of the printing press, it does not appear that higher atomization of news sources has led to more and better information (Ferguson, 2017). If anything, it would seem that citizens' policy decisions are very much subject to the whims of those with the ability to manipulate and distort information.

Finally, we would like to note two areas that we think deserve additional consideration in future work. First, adding policy questions to opinion surveys can provide a better understanding of how policy is formulated. Traditionally, divergences between the policies implemented by countries and those recommended by technocrats have been explained by the incentives of politicians. However, policy choices in competitive political environments also reflect citizens' demands, which may differ greatly from those anticipated by the accountability framework. A better understanding of how citizens acquire, maintain, or shift their preferences in specific areas of public policy is an essential component of any assessment of the performance of a country's

democratic system. Second, adding additional policy instruments to the traditional analytical model of crime allows one to better explain actual anti-crime policy choices across democracies. In the future, researchers may want to further extend these models to capture the greater complexity that policymakers and citizens face when constructing policy on this issue.

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**Appendix for:**

A Heavy Hand or a Helping Hand? Information Provision and  
Citizen Preferences for Anti-Crime Policies

November 13, 2018

## Appendix A Proof of Proposition 1

**Proof of Proposition 1.** Set  $c = 1 - s - t$  and implicitly differentiate  $1 - q^*$  with respect to  $s$  and  $t$  using the expression in (3). The numerator of the resulting expressions are the first order conditions (FOCs) that define the optimally selected  $s^*$  and  $t^*$  in terms of  $\tilde{q}$ . The FOCs are equal to:

$$\begin{aligned} F_1 &\equiv \alpha p(s^*) - p'(s^*) [\alpha(1 - s^* - t^*) + u(\pi + t^*)(1 - v(\tilde{q}))] = 0 \\ F_2 &\equiv \alpha p(s^*) + [(1 - p(s^*))u'(\pi + t^*) - u'(t^*)](1 - v(\tilde{q})) = 0 \end{aligned} \quad (1)$$

A solution to the above system is a maximum if the following second order conditions hold:

$$\begin{aligned} -v'(\tilde{q}) [(1 - p(s^*))u'(\pi + t^*) - u'(t^*)] - 1 &< 0 \\ \frac{\partial F_1}{\partial s} \frac{\partial F_2}{\partial t} - \frac{\partial F_1}{\partial t} \frac{\partial F_2}{\partial s} &> 0 \end{aligned} \quad (2)$$

Now, to gauge how  $s^*$  and  $t^*$  differ by regime, implicitly differentiate the expressions in (5) with respect to  $\tilde{q}$  to obtain:

$$\frac{\partial s^*}{\partial \tilde{q}} = \frac{-\left(\frac{\partial F_1}{\partial \tilde{q}} \frac{\partial F_2}{\partial t} - \frac{\partial F_2}{\partial \tilde{q}} \frac{\partial F_1}{\partial t}\right)}{\frac{\partial F_1}{\partial s} \frac{\partial F_2}{\partial t} - \frac{\partial F_1}{\partial t} \frac{\partial F_2}{\partial s}} \quad (3)$$

$$\frac{\partial t^*}{\partial \tilde{q}} = \frac{-\left(\frac{\partial F_1}{\partial s} \frac{\partial F_2}{\partial \tilde{q}} - \frac{\partial F_2}{\partial s} \frac{\partial F_1}{\partial \tilde{q}}\right)}{\frac{\partial F_1}{\partial s} \frac{\partial F_2}{\partial t} - \frac{\partial F_1}{\partial t} \frac{\partial F_2}{\partial s}} \quad (4)$$

which, in turn, implies that:

$$\frac{\partial c^*}{\partial \tilde{q}} = \frac{\frac{\partial F_1}{\partial \tilde{q}} \frac{\partial F_2}{\partial t} - \frac{\partial F_2}{\partial \tilde{q}} \frac{\partial F_1}{\partial t} + \frac{\partial F_1}{\partial s} \frac{\partial F_2}{\partial \tilde{q}} - \frac{\partial F_2}{\partial s} \frac{\partial F_1}{\partial \tilde{q}}}{\frac{\partial F_1}{\partial s} \frac{\partial F_2}{\partial t} - \frac{\partial F_1}{\partial t} \frac{\partial F_2}{\partial s}} \quad (5)$$

Note that according to (7), at a maximum the denominator of the above expressions must be positive. Thus, the signs of the comparative statics hinge on the numerators of these expressions. It can be shown that  $\partial F_1/\partial s$ ,  $\partial F_2/\partial t$ ,  $\partial F_1/\partial \tilde{q}$ , and  $\partial F_2/\partial \tilde{q}$  are all positive. Consequently, a sufficient condition for  $\partial s^*/\partial \tilde{q} < 0$ ,  $\partial t^*/\partial \tilde{q} < 0$ , and  $\partial c^*/\partial \tilde{q} > 0$  is that the quantities  $\partial F_1/\partial t$  and  $\partial F_2/\partial s$ , which are equal to one another, be negative. A sufficient condition for this latter quantity to be negative is that assumption 1 holds. Ipso facto, the proof is established.

# Appendix B Tables

Table 1: Descriptive Statistics and Balance Table

	Average and Standard Deviation	Difference w.r.t. control		p-value Wald Test	Observations
		T1	T2		
	(1)	(2)	(3)	(4)	(5)
1(Female)	0.510 (0.018)	0.003 (0.034)	-0.017 (0.033)	0.571	1,521
1(Single)	0.341 (0.022)	0.031 (0.033)	0.028 (0.033)	0.922	1,521
1(Married)	0.284 (0.019)	-0.059** (0.028)	-0.065** (0.028)	0.824	1,521
Number Children	2.039 (0.103)	-0.184 (0.125)	0.166 (0.154)	0.0140	1,521
Age	39.652 (0.584)	-0.543 (0.922)	2.043* (1.044)	0.0134	1,521
Education Level	11.153 (0.177)	-0.159 (0.255)	-0.601** (0.263)	0.0935	1,487
1(Rural)	0.291 (0.034)	-0.019 (0.025)	0.035* (0.021)	0.0604	1,521
1(White)	0.195 (0.019)	0.010 (0.023)	-0.016 (0.023)	0.356	1,455
1(Mestizo)	0.395 (0.026)	0.051 (0.036)	0.066** (0.032)	0.637	1,455
1(Indigenous)	0.081 (0.020)	-0.021 (0.018)	-0.026 (0.016)	0.672	1,455
1(Black)	0.197 (0.023)	-0.023 (0.025)	-0.024 (0.023)	0.956	1,455
1(Mulatto)	0.091 (0.014)	-0.002 (0.017)	0.001 (0.018)	0.863	1,455
1(Other Ethnic)	0.041 (0.009)	-0.016 (0.011)	-0.001 (0.012)	0.188	1,455
1(Employed)	0.451 (0.023)	-0.038 (0.028)	-0.066** (0.032)	0.333	1,521
1(Unemployed)	0.120 (0.015)	0.004 (0.023)	0.007 (0.021)	0.879	1,521
1(Household Activ.)	0.197 (0.019)	0.016 (0.025)	0.009 (0.024)	0.804	1,521
1(Retired)	0.088 (0.013)	0.019 (0.019)	0.040* (0.021)	0.298	1,521
Econ Situation	2.441 (-0.039)	-0.090 (0.068)	0.064 (0.060)	0.0219	1,481
1(Gov. Assist.)	0.094 (0.012)	0.039* (0.020)	0.034** (0.017)	0.820	1,521
1(Victim)	0.145 (0.016)	0.020 (0.023)	0.025 (0.024)	0.796	1,520
1(Bribed Police)	0.091 (0.013)	-0.019 (0.020)	-0.021 (0.018)	0.895	1,519
1(Informed)	0.848 (0.016)	-0.011 (0.024)	0.017 (0.020)	0.160	1,521
1(Voted)	1.310 (0.025)	0.008 (0.034)	0.003 (0.033)	0.857	1,518
1(Partic Protest)	0.064 (0.010)	-0.011 (0.015)	-0.001 (0.014)	0.479	1,521

Notes: Each row shows summary statistics for a different variable. Column (1) shows the sample average and standard deviation in parenthesis. Columns (2) and (3) shows regression coefficients and standard errors corresponding to an OLS regression. The p-value in column (4) corresponds to a Wald test of equality of coefficients. Column (5) shows the sample size. The indicator function 1(.) equals to one if the condition inside the parenthesis is true and zero otherwise. \*, \*\*, and \*\*\* denote statistical significance at the 10, 5 and 1 percent level, respectively.

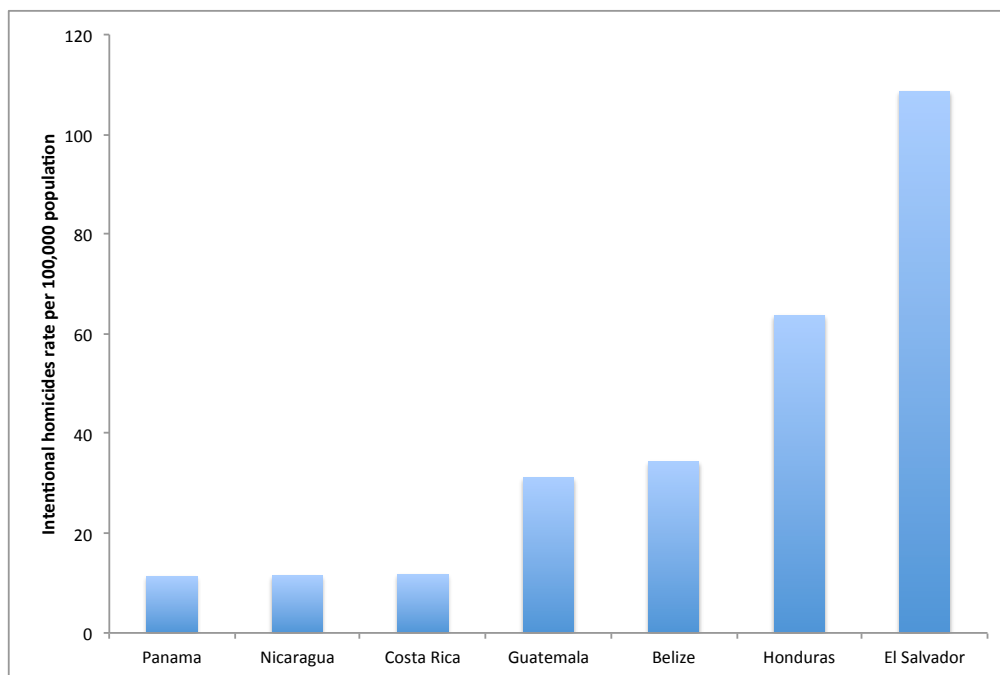
Table 2: Impact of Information Treatments on Relative Preference for Punishment Versus Social Policy - Subgroup Analysis

	News consumption	Crime main problem	Crime victim	Neighborhood
	(1)	(2)	(3)	(4)
T1	1.316** (0.547)	0.623** (0.274)	0.404* (0.237)	1.119** (0.477)
T2	1.670*** (0.595)	0.429 (0.273)	0.371 (0.242)	0.350 (0.463)
T1*H	-0.950 (0.594)	-0.309 (0.455)	0.698 (0.589)	
T2*H	-1.476** (0.641)	-0.035 (0.469)	0.222 (0.599)	
H	1.022** (0.424)	0.401 (0.321)	-0.473 (0.422)	
T1*H(2)				-0.905 (0.576)
T1*H(3)				-0.538 (0.672)
T1*H(4)				-0.552 (0.798)
T2*H(2)				0.141 (0.565)
T2*H(2)				-0.224 (0.679)
T2*H(2)				0.108 (0.823)
H(2)				0.252 (0.383)
H(3)				-0.112 (0.464)
H(4)				0.028 (0.564)
Observations	1,398	1,368	1,404	1,394
H: 1(.)	High news consumption	Crime is main problem	Crime victim	
H(2): 1(.)				Safe
H(3): 1(.)				Somewhat unsafe
H(4): 1(.)				Totally unsafe

Notes: Table displays the estimate of OLS regression models when outcome  $Y$  of individual  $i$  is regressed on treatment arms, the set of "Narrow" covariates, and interactions between treatments and an specific covariate. Each column in the table corresponds to different interactions between treatment arms and covariates. Outcome  $Y$  is the same across columns: the relative preference for punishment versus social policy. Column 1 display treatment effect estimates for different levels of news consumption. Column 2 display treatment effect estimates for different levels of preference for crime policy. Column 3 display treatment effect estimates for different levels of neighborhood security. Column 4 display treatment effect estimates for different status of crime victimization. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

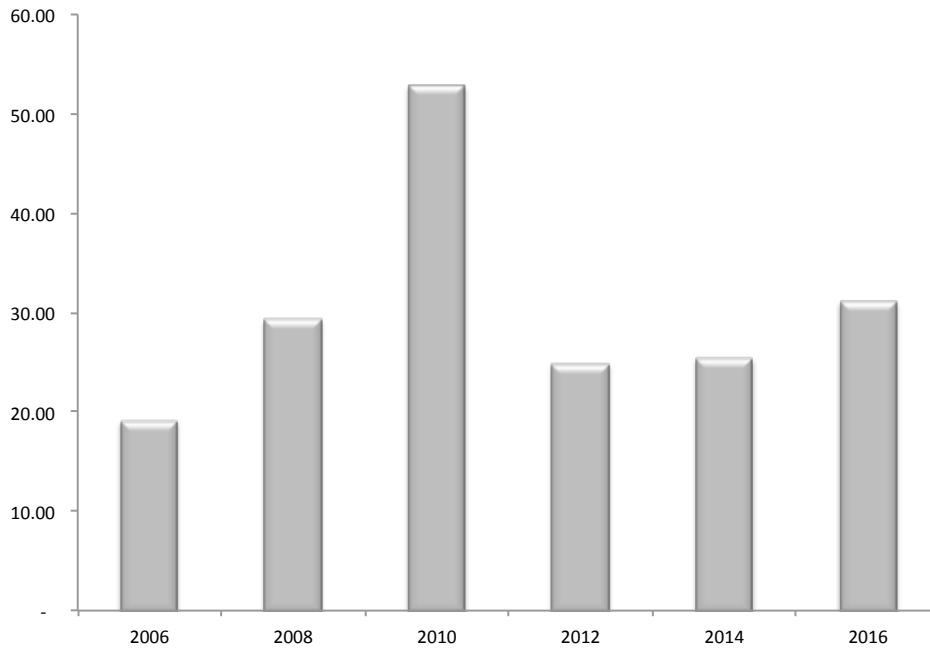
## Appendix C Figures

Figure 1: The Homicide Rate in Central America



Note: Information corresponds to latest available data from UN-ODC. 2015 for Costa Rica, Honduras, El Salvador and Panama; 2014 for Belize and Guatemala; 2012 for Nicaragua.

Figure 2: Share of People Considering Crime and Violence as the Main Problem)



Note: Information corresponds to responses to question A4 in LAPOP surveys for each year. The question is *A4. En su opinion cul es el problema ms grave que est enfrentando el pas?* and individuals can choose from a list of 38 options. Crime, violence, and gangs are three of this 38 different alternatives.