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# Demand and Supply of Criminal Governance: Experimental Evidence from Mexico, Honduras, Guatemala, and El Salvador

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*What explains the demand and supply of criminal governance? Contrary to traditional explanations of criminal governance as top-down control, this study integrates bottom-up demands for assistance and top-down supply of aid and coercion. We argue that the demand for criminal governance stems from civilians' drive to satisfy their primary necessities, while security concerns motivate criminals to supply governance to prevent civilian resistance. The theory focuses on three main factors: economic difficulties, articulation/resistance capacity, and government response. The empirical strategy uses multiple list experiments conducted in Mexico, Honduras, Guatemala, and El Salvador. On the demand side, results indicate that economic difficulties and civilian articulation capacity shape the demand for criminal aid. On the supply side, criminals largely neglect people's economic needs. When criminals help, they do it for cheap and to neutralize potential civilian resistance or to compete against the state. However, when economic conditions worsen, criminals revert to imposing lockdowns.*

## INTRODUCTION

In the midst of the COVID-19 pandemic, the United Nations Office on Drugs and Crime (2020) warned that criminal organizations and non-state armed actors were increasingly supplying aid and imposing lockdowns or curfews on the population. As the pandemic caused global disarray and governments struggled to cope with public health and economic crises, a plethora of reports depicted criminal groups around the world delivering food, medicines, and money to the population, and issuing threats to impose lockdowns (Aziani et al. 2023; Barnes and Albarracín 2020; Cruz and Fonseca 2021; Davis and Hilgers 2022; Kotzé, Lloyd, and Antonopoulos 2023; Moncada and Franco 2021). Stories of Mexican cartels delivering groceries, Italian *mafiosi* offering welfare, South African gangs providing food, Salvadorian *mareros* enforcing social distancing measures, and Brazilian *traficantes* imposing curfews suggest that criminal groups capitalized on the pandemic to expand their authority.

These incidents manifest a broader phenomenon known as criminal governance, which refers to the set of informal or formal rules, restrictions, and actions that criminal groups use to regulate the social, political, and economic life of the civilian population, other criminal groups, and the state.[1] Before the pandemic created unprecedented opportunities for organized crime, scholars had been studying criminal governance for several years (Arias 2017; Arjona 2016; Barnes 2017; Blattman et al. 2019; Lessing and Willis 2019; Lessing 2021; Magaloni, Franco-Vivanco, and Melo 2020; Olson 2000). However, research on criminal and rebel governance generally considers armed actors as imposing top-down control over the population (Arias 2017; Asal, Flanigan, and Szekely 2022; Cunningham and Loyle 2021; Lessing and Willis 2019; Lessing 2021; Mampilly and Stewart 2021). This top-down approach extended to research analyzing the impact of COVID-19 on organized crime (Davis and Hilgers 2022; Kotzé, Lloyd, and Antonopoulos 2023) and rebel groups (Bloem and Salemi 2021; Ide 2021). However, top-down analyses problematically neglect civilian agency. Some researchers acknowledge the civilian's capacity to regulate interactions with armed actors but tend to narrowly focus on civil resistance by peaceful (Arjona 2016; 2017; Kaplan 2017; Moncada 2022) or violent means (Bateson 2021; 2017; Moncada 2022; Osorio, Schubiger, and Weintraub 2020; Wolff 2020). Indeed, these studies often neglect populations proactively demanding armed governance from the bottom-up, thus overlooking governance co-development by civilians asking for services, material aid, dispute resolution, or protection from armed actors.

To address these limitations, this study advances a theoretical framework and empirical strategy to examine the civilian demand for criminal governance and its supply by criminal groups. The central research

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[1] This definition integrates elements from criminal and rebel governance (Arjona, Kasfir, and Mampilly 2015; Lessing 2021).

question is: what explains the demand and supply of criminal governance? Demand for criminal governance is defined as the bottom-up request from civilians for goods and services from criminal groups, while the supply of criminal governance is defined as the top-down imposition of governance by criminal groups. Although criminal governance has various manifestations (Lessing 2021), this study focuses on the civilian demand for economic aid and the supply of economic aid and lockdowns from criminals. The central argument claims that the demand for criminal governance arises from the population's drive to satisfy their basic needs, while the supply of criminal governance derives from criminals trying to prevent disruptions to their illicit activities. The theory emphasizes the interplay between economic difficulties, civilian articulation/resistance capacity, and government responses. On the demand side, individuals experiencing severe economic difficulties and possessing high articulation capacity, but not receiving government support, are likely to demand criminal aid. On the supply side, criminals typically neglect the population's economic needs unless resistance capacity threatens their illicit operations. When they do provide aid, it is primarily when it is cost-effective and helps neutralize potential resistance or compete with the state. However, as economic difficulties increase the cost of providing assistance, criminals revert to coercive tactics such as lockdowns.

The empirical strategy employs multiple list experiments in nationally representative surveys conducted in Mexico, Guatemala, Honduras, and El Salvador. The COVID-19 pandemic provides a unique opportunity to examine criminal governance from a comparative perspective as an exogenous shock disrupting economic conditions, criminal behavior, and government responses. These list experiments help mitigate systematic response bias to sensitive questions, yielding more valid estimates. This approach moves beyond anecdotal accounts, offering systematic evidence of the demand and supply of criminal governance across countries and identifying their key correlates.

This study provides several contributions. First, it recognizes civilian agency in demanding criminal support from the bottom-up. Second, it proposes a theory integrating the demand and supply of criminal governance in the context of established theories of human needs and behaviors. Third, rather than studying the supply of criminal aid and lockdowns separately, the model analyzes them as a mixed portfolio. Fourth, the list experiments provide valid cross-country estimates of the magnitude of the demand and supply of criminal governance, and their key correlates. The article proceeds as follows: it begins by outlining the theoretical model and its structural components, followed by a description of the list experiments and survey data. The subsequent sections report general estimates of the demand and supply of criminal governance and analyze their correlates. The final section presents the conclusions.

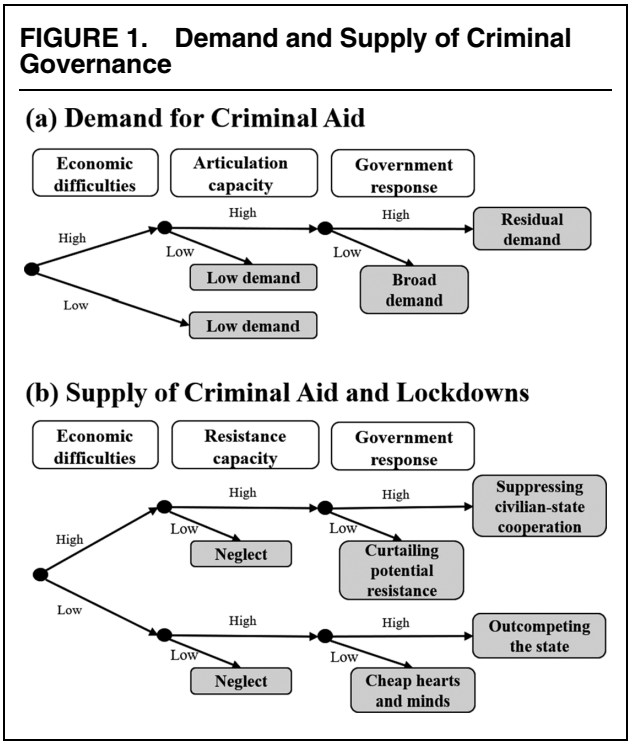
## THEORY

To explain the demand and supply of criminal governance, the theory centers on the needs and incentives of the population and criminal groups. The main argument claims that civilian demand for criminal governance arises from the population's need to meet basic necessities, while security needs motivate criminals to supply governance to reduce disruptions from potential civilian resistance. The theory focuses on three main factors as depicted in Figure 1: economic difficulties, articulation/resistance capacity, and government response. For clarity, the diagram presents each factor as "low" or "high," though they should be understood as a continuum of varying intensity. While the factors are presented sequentially, we assume no specific order in which civilians or criminals consider them. We first outline these factors, their assumptions, and scope conditions before illustrating how they shape the demand and supply of criminal governance.

First, the theory focuses on individuals experiencing economic difficulties.[2] Severe economic crises have several implications: they motivate individuals to seek help; represent the extent of government assistance required; and indicate the investments required from criminals if they provide aid.

The second factor is the civilian capacity to articulate demands and resist organized crime. The articulation/resistance capacity depends on both collective action

**FIGURE 1. Demand and Supply of Criminal Governance**




[2] In this study, the economic crisis comes from the COVID-19 pandemic, though the theory could apply to other types of shocks.

and mobilization resources. High collective action enables individuals to articulate their demands to the state and, if necessary, to criminal groups. Collective action also facilitates peaceful or violent resistance against criminal groups (Arjona 2016; 2017; Kaplan 2017; Moncada 2022; Osorio, Schubiger, and Weintraub 2020). In addition, as McCarthy and Zald (1977) indicate, sustaining collective resistance requires considerable mobilization resources.[3] Individuals with collective action skills with sufficient resources are more likely to sustain their demands. Civilian articulation/resistance capacity is also relevant to criminal groups as they are concerned about civilians resisting their illicit activities.

Finally, the model considers government responses to the economic shock. If the government addresses the population's needs, individuals are less likely to seek help from criminals. Conversely, if authorities neglect the population, people may turn to criminals for help. Additionally, government responses influence criminal behavior in terms of governance supply, as outlined in the theory.

Following the Empirical Implications of Theoretical Models (EITM) approach (de Marchi et al. 2017; Granato, Lo, and Wong 2021), the theoretical development explicitly outlines the scope conditions and assumptions, and derives multiple observable implications in terms of hypotheses and scenarios. The following scope conditions circumscribe the explanatory limits of the theory. First, this criminal governance model focuses on economic aid, thus leaving out a broader range of governance activities, such as dispute resolution, public goods, or taxation (Arjona 2016; Blattman et al. 2019; Lessing 2021). Second, the theory primarily applies to economic crises as criminal governance may be more salient during severe economic difficulties than under economic growth or stability (Dix-Carneiro, Soares, and Ulyssea 2018; Dube and Vargas 2013). Third, the theory requires pre-existing criminal groups with violence specialization (Bates, Greif, and Singh 2002; Skaperdas 2002). Fourth, the theory explains better nonlethal forms of coercion (threats, lockdowns, or curfews) than intense violence (torture or mass killings) or performative violence (Lantz 2016; Fujii 2021). Fifth, departing from the Weberian ideal state, the theory operates in contexts of partial state presence due to uneven subnational state capacity, political interest, corruption, or institutional development (Arias 2017; Astorga 2005; Bull and Hoelscher 2023; Lessing 2021; O'Donnell 1993; Olson 2000; Tilly 1985). Finally, although some criminals engage in transnational activities or have international connections (Brown et al. 2025; Cruz 2010; Paarlberg 2022; Varese 2013), the theory focuses exclusively on the domestic governance activities they deploy in their home communities.

[3] Although the resource mobilization theory considers a broad range of financial, material, human, organizational, and cultural resources (McCarthy and Zald 1977), we focus on financial resources as income.

The theory rests on the following assumptions. *A1*: Civilians and criminals are rational actors maximizing their economic well-being. Most civilians primarily rely on licit income sources, while criminals thrive in illicit markets.[4] To maximize their income, criminals prefer to operate in territories with cooperative populations and try to prevent civilian resistance.[5] *A2*: Civilians prefer asking the government for help before asking criminals for support. This assumes higher government legitimacy among the population than criminals. However, this assumption may not hold under high state repression and predation where criminals serve as protectors (Magaloni, Franco-Vivanco, and Melo 2020; Wolff 2015) or for rebel governance where people may have an affinity (ideological, ethnic, and religious) toward rebels and animosity toward the government. *A3:* Criminal groups exercise governance with mixed portfolios comprising a combination of material aid and violent coercion. Although some criminals may procure a variety of goods and services to the population (Bull and Hoelscher 2023; Lessing and Willis 2019; Magaloni et al. 2020; Olson 2000), they are primarily violence specialists (Bates, Greif, and Singh 2002; Volkov 2002) and may find it cheaper to use coercion than to provide aid.

## Demand for Criminal Governance

Rooted in Maslow's (1943) hierarchy of human needs, the theory relies on Kenrick's et al. (2010) revised pyramid of needs and Sharkey's et al. (2011) application to criminology to understand why people may seek help from criminals. According to this approach, individuals have basic hierarchical needs and are motivated to satisfy lower-level necessities before pursuing higher-order needs.[6] We claim that the demand for criminal governance stems from individuals' drive to satisfy their primary needs, particularly in contexts of severe economic hardship and when they enjoy no state protection. In particular, criminal demand primarily stems from the need to satisfy physiological needs (food and shelter), at the bottom of the hierarchy.[7] Figure 1a presents the demand model of criminal governance from the civilian point of view and shows how economic difficulties, articulation capacity, and the government's response shape bottom-up demand for criminal aid.

[4] We recognize that the lack of economic opportunities may give no alternative to some individuals but to engage in illicit activities (Sviatschi 2022).

[5] Territorially embedded criminals (e.g., *clicas* at the street level) may not "choose" rationally the territories they occupy. However, they can choose the kind of relationship they have with their communities.

[6] Maslow's (1943) pyramid includes physiological needs (food and shelter) at the bottom, followed by security (safety and protection), love (affection, belonging, and family), esteem (self-esteem and status), and self-actualization (self-fulfillment) at the top.

[7] There could be other higher-order needs motivating requests for criminal help, such as safety, belonging, or status (Sharkey et al. 2011), but we focus on physiological needs as they take priority in being procured.

The model starts by considering the severity of economic difficulties. In contexts of low economic difficulties, there may be a *low demand* for aid since most people likely have enough income to cover their primary needs, and may not need to ask for assistance (Agnew 2001). In contrast, high economic difficulties may cause imperative physiological needs and force individuals to ask for help from the government or criminals. The theory does not have a strict threshold of physiological needs being compromised; instead, it recognizes that the urge to satisfy individual needs could emerge both from objective or relative deprivation (Gurr 1970).

Civilian articulation capacity helps individuals coordinate their demands with others and increases their chances of satisfying their needs. If people fail to overcome their collective action challenge, they may not be able to articulate their demands effectively and will likely struggle without support. In contrast, individuals with high collective action capacity are more likely to articulate their demands for help. In addition, individuals with low material endowments are less capable of sustaining their demands. Even if they initially overcome collective action problems, their calls for help may be ephemeral without resources to sustain them. Moreover, under high economic difficulties, several population sectors may simultaneously ask for help, thus triggering claim competition in which some demands die out while more resourceful groups sustain their claims. Therefore, people with high collective action capacity and high material resources are more likely to sustain their demands.

Finally, based on assumption *A2*, individuals trying to appease their bare necessities will likely first ask the government for help before turning to criminals. If governments effectively address their needs, then people may not ask criminals for help. Since states are unlikely to effectively cover the needs of the entire population, there may be some *residual demand* from small sectors that may still request support from criminals. However, if the government is largely unwilling or incapable of attending to the population's needs, such neglect could generate a *broad demand* for criminal help.

Based on the theoretical framework, we derive the following empirical implications for the demand for aid. Hypotheses $HDA_1$–$HDA_3$ refer to the direct effect of each structural factor, while Hypothesis $HDA_4$ presents their joint effect on the demand for criminal aid:

- $HDA_1$: Severe economic difficulties increase demand for criminal aid.
- $HDA_2$: High articulation capacity increases demand for criminal aid, conditional on government neglect.
- $HDA_3$: Effective government support reduces demand for criminal aid.
- $HDA_4$: Individuals suffering from high economic difficulties, endowed with high articulation capacity, and receiving low government support likely present high demand for criminal aid.

## Supply of Criminal Governance

Based on assumption *A3*, criminals engage in governance activities with a mixed portfolio of aid and lockdowns. Criminals are known to use a variety of governance activities, such as tax collection, dispute resolution, welfare, protection, loans, etc. (Arias 2017; Bull and Hoelscher 2023; Lessing 2021). However, these activities are often studied in isolation or listed as potential outcomes with limited theoretical integration about their inter-relationships or trade-offs. In contrast, this theory of supply of criminal governance interlocks the relationship between criminal aid and lockdowns based on the assumption that criminals have a comparative advantage in the use of violence, and find it cheaper to impose lockdowns than to provide aid.

Following Maslow's (1943) hierarchy of needs, we argue that security, a second-order necessity, primarily drives the supply of criminal governance. Rather than directly responding to the population's demands, the supply of governance stems from criminals trying to prevent disruptions caused by civil resistance. According to the argument, criminals may supply aid to appease the population's economic needs if they perceive the threat of civilian resistance against their illicit activities and as long as it is economically feasible. However, if the economic pressure of providing aid becomes too onerous and affects the criminals' bare necessities, they will revert to coercion. Figure 1b illustrates from the point of view of criminal groups how economic difficulties, civilian resistance capacity, and the government's response shape the supply of criminal governance into five scenarios of aid-lockdown portfolios.

First, regardless of the economic difficulties, criminals will *neglect* the needs of the population if civilians have a low resistance capacity. Criminals facing individuals with low collective action and low mobilization resources may not be concerned about potential resistance to their illicit activities. In this case, criminals may not have sufficient incentive to incur the costs of assisting them despite the severity of their economic needs. This reveals a failure in the criminal governance market as the supply of aid does not respond directly to the demand for aid.

The second scenario portrays a situation of low economic difficulties in which civilians have a high resistance capacity and the government provides low assistance. Here, criminals will try to *buy hearts and minds cheaply* with a mixed portfolio combining low levels of aid and even lower levels of lockdowns. Given the government neglect and the minimal needs associated with low economic difficulties, criminals may find it relatively cheap to supply aid to neutralize potential pockets of civilian resistance. In the lack of government support, criminals will invest as little as possible to buy out communities that may threaten their operations. As Varese (2020) indicates, criminals strategically provide help in a self-interested manner rather than by altruism. Criminals may take advantage of people's economic

needs by making relatively low aid investments in the population and expecting to get paid back in favors, money, recruiting new members, or the population's loyalty.

The third scenario considers low economic difficulties affecting individuals endowed with high resistance capacity and receiving high government support. In this case, criminals may try to *outcompete the state* by providing aid as long as it is cheap to do so. In this scenario, the mixed portfolio includes a higher supply of aid and a lower provision of lockdowns. Criminals regularly coexist with the state in overlapping territories and often compete with the government (Arias 2017; Blattman et al. 2019; Lessing and Willis 2019; Magaloni, Franco-Vivanco, and Melo 2020). If low economic difficulties affect individuals with high resistance capacity, criminals may increase the supply of aid to undermine state authority and neutralize potential civilian resistance as long as it is economically feasible (Asal, Flanigan, and Szekely 2022).[8] The model considers that the supply of aid operates between two parameters. On the one hand, civilian resistance capacity may trigger security needs, thus motivating the provision of criminal aid. On the other hand, the *relative cost* of satisfying the population's needs is the main factor curving down the supply of aid.[9] Overall, this scenario suggests that criminals try to compete against the state in supplying aid as long as it is cheap, but likely back out if economic difficulties make civilian demands excessively high.

The fourth scenario reflects a situation of high economic difficulties affecting individuals with high resistance capacity who receive low government assistance. In this scenario, criminals *curtail potential civilian resistance* with mixed portfolios supplying a higher proportion of lockdowns than aid. Here, criminals are concerned about civilian resistance but may find it too expensive to cover their high needs amid a severe economic crisis. Since buying their hearts and minds is too expensive, criminals may prefer to rely on their comparative advantage in the use of violence and impose lockdowns rather than to provide aid. Following Reuter (1983), there may be an upper limit to the use of lockdowns as criminals may refrain from using excessive force to avoid government crackdowns.[10]

Finally, the fifth scenario indicates a case of high economic difficulties impacting individuals endowed with high resistance capacity and receiving high government assistance. In this case, criminals may try to *suppress civilian–state cooperation* by allocating substantially higher levels of lockdowns than aid. The high economic needs imposed by a crushing economic crisis and the effective government assistance may make it too expensive for criminal groups to supply aid. For this reason, they may find it more affordable to use lockdowns. Imposing lockdowns against potentially resisting individuals may be more appealing to criminals when civilians have a good collaboration with the state as criminals could use coercion to prevent, slow down, or boycott government assistance.

This theory provides more nuance to the unidirectional argument that high collective action increases civilian resistance and reduces aid from armed groups (Arjona 2016). Our supply-side theory agrees with this statement in conditions where the cost of assisting the population is too high, thus reducing the provision of aid and increasing coercion. In contrast, our theory of criminal governance indicates that security needs may trigger criminals to *strategically prevent* civilian resistance and increase aid provision when it is economically feasible to do so. Based on the theoretical framework, we derive the following set of hypotheses for the supply of aid ($HSA$) and lockdowns ($HSL$):

- $HSA_1$: High economic difficulties reduce the supply of aid.
- $HSA_2$: High resistance capacity increases the supply of aid, conditional on low economic difficulties.
- $HSA_3$: High government support increases the supply of aid, conditional on low economic difficulties.
- $HSL_1$: High economic difficulties increase the supply of lockdowns.
- $HSL_2$: High resistance capacity increases the supply of lockdowns, conditional on high economic difficulties.
- $HSL_3$: High government support increases the supply of lockdowns, conditional on high economic difficulties.

Overall, the theory suggests that criminal governance is not simply governed by straight demand and supply interactions. Rooted in well-established theories of human needs and behaviors, our demand and supply theory of criminal governance argues that civilians' drive to satisfy their bare necessities motivates the demand for criminal governance, while security needs motivate the supply of governance as criminals try to prevent disruptions from potential civilian resistance. On the one hand, the demand model indicates how the severity of economic conditions, paired with high articulation capacity and low government aid, shape bottom-up demands for criminal assistance. On the other hand, the supply model of criminal governance reveals the indifference of criminal groups toward the population. Criminal groups are largely negligent about civilian demands unless their resistance capacity threatens the criminal group's activities. Yet, criminals will assist the population when they find it strategically advantageous and if it is relatively cheap to do so. However, criminals will likely use their coercive

[8] The concurrence of criminals providing aid in locations where the state also assists the population is observationally equivalent to hybrid governance (Arias 2017) or cooperation (Barnes 2017) situations, but the theory emphasizes the competitive motivation of criminal groups to do so.

[9] The relative cost of aid depends on the severity of the economic crisis and the different economic capacities of criminal groups.

[10] Criminals need to balance the coercion they impose on the population. Criminals may try to undermine civilian resistance capacity using mild coercion (threats or lockdowns) while refraining from large-scale violence against civilians that could trigger broad community resistance or law enforcement.

capacity and impose lockdowns if the costs of assisting the population are too high, particularly against communities that receive assistance from the government. While resting on Maslow's (1943) theory of needs, this theory advances two key innovations. First, by analyzing the demand for criminal aid, it advances our understanding of civilian agency in the co-development of armed governance. Second, the theory focuses on a set of common economic conditions, organizational capacity, and government response to explain both the demand and supply of criminal governance.

### Alternative Explanations

Territorial control is central to dominant theories of rebel and criminal violence and governance (Kalyvas 2006; Olson 2000). The degree of territorial control helps to explain a broad range of behaviors, including the provision of public goods (Asal, Flanigan, and Szekely 2022; Blattman et al. 2019; Furlan 2020; Lessing and Willis 2019; Lessing 2022; Mampilly and Stewart 2021; Olson 2000), the use of selective or indiscriminate violence (Acemoglu, Robinson, and Santos 2013; Bates, Greif, and Singh 2002; Duran-Martinez 2018; Gutiérrez-Sanín and Wood 2017; Kalyvas 2006; Magaloni, Franco-Vivanco, and Melo 2020; Steele 2017), civilian cooperation or resistance (Arjona 2017; Kasfir 2015; Loyle et al. 2022; Rubin 2020), and the degree of conflict and cooperation with the state (Arias 2017; Barnes 2017; Staniland 2021; 2012), among others.

The territorial control paradigm provides two main implications for criminal governance: one refers to monopolistic control and the other to territorial competition. First, regarding the monopoly of violence, the population will likely ask criminals for help in territories where they hold monopolistic control and exercise *de facto* governance (Tilly 1985). Based on Olson's (2000) stationary bandit, the supply of aid is likely in territories where criminals have the monopoly. In addition, following Kalyvas (2006), criminals will likely refrain from indiscriminate coercion such as lockdowns in areas where they hold monopolistic control. Based on these accounts, monopolistic control is associated with high demand for aid, high supply of aid, and low lockdowns. The second approach refers to criminal competition. Criminal violence research largely agrees that competition between rival groups triggers violence surges (Duran-Martinez 2018; Osorio 2015). However, some scholars argue that competition motivates criminal assistance to increase their legitimacy in the population (Arias 2017; Aziani et al. 2023; Davis and Hilgers 2022).

The dynamics of demand and supply of criminal governance could also be associated with individual characteristics, such as gender and age. Criminology research consistently finds that gender and age are key criminogenic factors (Baron 2004). Based on these insights, it is plausible to expect young males to be more inclined to demand aid from criminal groups. Also, young males are more likely to receive criminal aid or suffer more coercion from criminal organizations.

## EXPERIMENTAL DESIGN

This study uses a set of list experiments conducted in Mexico, Honduras, Guatemala, and El Salvador to estimate the bottom-up demand for criminal governance and the top-down supply of aid and lockdowns during the pandemic. List experiments are often used to unobtrusively ask about sensitive topics when people are expected to systematically misrepresent their responses (Blair and Imai 2012; Blair, Coppock, and Moor 2020; Imai 2011; Lyall, Blair, and Imai 2013; Magaloni et al. 2020). In this case, misrepresentation could stem from fear in areas controlled by criminal groups or social desirability related to illegality or poverty.

Table 1 presents the three list experiments. Experiment 1 estimates the civilian demand for aid (DA), while Experiments 2 and 3 estimate the supply of aid (SA) and supply of criminal lockdowns (SL), respectively. All three experiments use a 1×2 design, a list of $J = 4$ placebo items, and one sensitive item. We use the same list experiments in the four countries but vary the terms used to refer to "organized criminal groups" (*grupos del crimen organizado*) in Mexico, and "street gangs" (*maras*) in Honduras, Guatemala, and El Salvador, to reflect colloquial language.

The statistical assessment uses two strategies. First, the univariate difference-in-means estimator stated in Equation 1 calculates the average treatment effect of the sensitive item:

$$y_{cei} = \alpha_{ce} + \beta T_{cei} + \epsilon_{cei}, \tag{1}$$

where $y_{cei}$ is the item count by individual $i$ in experiment $e$ conducted in country $c$, where $e = \{DA, SA, SL\}$ represents the experiments on the demand for aid, supply of aid, and supply of lockdowns, and $c = \{M, H, G, S\}$ for Mexico (M), Honduras (H), Guatemala (G), and El Salvador (S). Variable $T_{cei}$ indicates the random treatment assignment for individuals in each experiment-country; $\alpha_{ce}$ is the intercept; and $\epsilon_{cei}$ are the disturbances. We analyze each list experiment and country separately.

Following Imai (2011), Equation 2 uses a multivariate regression including respondent characteristics:

$$y_{cei} = \alpha_{ce} + \beta_{cek} T_{cei} X_{ceik} + \gamma X_{ceik} + \epsilon_{cei}, \tag{2}$$

where $y_{cei}$ is the number of items reported by individual ($i$) in each experiment ($e$) in any given country ($c$); $X_{ceik}$ is a matrix of individual characteristics ($k$); the coefficients $\beta_{cek}$ represent the interaction between the treatment and individual-level characteristics; $\gamma$ is the individual-level effects; and $\epsilon_{cei}$ are the error terms. The multivariate regression analyzes each experiment-country separately rather than pooling the data.[11]

Note that the individual-level correlates are not causally identified. Section A2 of the Supplementary

[11] This research design was preregistered in the Open Science Framework (https://osf.io/krzte/) and received IRB approval.

**TABLE 1. List Experiments Design**

| Experiment 1 Demand for aid | Experiment 2 Supply of criminal aid | Experiment 3 Supply of criminal lockdowns |
|---|---|---|
| During the pandemic, many people had problems and difficulties for which they needed help with. I'm going to read you a list of actors that people usually asked for help. Please count silently and at the end tell me HOW MANY, not WHICH, of the following actors you asked for help to solve a problem during the pandemic. | During the pandemic, different organizations assisted the community by providing help in the form of money, medicine, or food. Please count silently and at the end tell me HOW MANY, not WHICH, of the following actors you saw handing out money, medicine, or food in your neighborhood during the pandemic. | At the peak of the pandemic, several communities were forced to stay at home without going outside. However, whether out of necessity or carelessness, some people took to the streets anyway. Please count silently and at the end tell me HOW MANY, not WHICH, of the following situations convinced you to stay home for a few days. |
| • Relatives or friends.<br>• The Catholic Church.<br>• *Street gangs/organized criminal groups.*<br>• A church other than the Catholic Church.<br>• Representatives of the United Nations. | • The government.<br>• Religious or civil society organizations.<br>• *Street gangs/organized criminal groups.*<br>• Soldiers from the U.S. Army.<br>• Groups of neighbors. | • Recommendations from public health authorities.<br>• Suggestions from close friends and family.<br>• *Threats from street gangs/ organized criminal groups.*<br>• Recommendations from my private doctor.<br>• News of the pandemic in China. |

*Note*: Text in italics represents the sensitive item in the treatment group.

Material presents the methodological details of the list experiments and Section A3 of the Supplementary Material presents the power analysis. Following Blair and Imai (2012), we evaluate the list experiment assumptions and identify the presence of floor effects (see Section A7 of the Supplementary Material), which consist of respondents reporting a low number of items in both treatment and control groups. To address this issue, we implement Blair, Chou, and Imai's (2019) recommendation and control for floor effects in all the models. In line with Blair and Imai (2012), we use maximum likelihood rather than the standard linear model estimator in both Equation 1 and Equation 2 to generate more efficient estimates, which is a preferred strategy for modeling floor effects. Note that while experiments 1 and 3 ask about respondents' personal engagement with criminal governance, experiment 2 inquires about respondents' witnessing governance behaviors in their neighborhoods. This issue is discussed in the "Limitations" section and in Section A2 of the Supplementary Material.

## SURVEY DATA

The study analyzes the demand and supply of criminal governance using nationally representative surveys conducted face-to-face in Mexico, Honduras, Guatemala, and El Salvador using the same structured closed-ended questionnaire across countries. The samples comprise 1,387 interviews in Mexico, 1,234 in Honduras, 1,212 in Guatemala, and 1,200 in El Salvador (Section A4 of the Supplementary Material). The case selection used two criteria. First, we selected countries affected by endemic high levels but distinct types of organized criminal activity with the expectation that the survey instrument be able to detect the demand and supply of criminal governance. Second, we considered theoretically relevant characteristics, such as the COVID pandemic, economic conditions, social resilience, and state capacity (see Section A1 of the Supplementary Material for details).

The list experiments in Table 1 are the study's three dependent variables. First, the *Demand for Aid* represents the proportion of the population asking criminal groups for help to solve a problem during the pandemic. Second, the *Supply of Aid* indicates the proportion of the population who saw criminal groups delivering money, medicine, or food during the pandemic. Finally, the *Supply of Lockdowns* indicates the share of the population who decided to stay at home in lockdown due to criminal threats.

The key independent variable of each experiment is the treatment manipulation $T_{cei}$ indicated in Equations 1 and 2, taking the values of $T_i = (0, 1)$ for individuals in the control and treatment groups, respectively. For the multivariate model in Equation 2, the regression includes the respondent's economic characteristics, social capital, perception of government authorities, degree of criminal control, and other individual characteristics.

To assess the economic effects of the pandemic, the *Economic Difficulties* index captures the sum of dichotomous responses to the following questions: "During the pandemic, has anyone in your family lost their job or experienced significant financial hardship?"; "Could you tell me if during the pandemic you had to cover hospital or funeral expenses for a family member or

acquaintance?"; and "During the pandemic, due to lack of money or other resources, did your household ever run out of food?"

Civilian articulation/resistance capacity comprises the degree of collective action and the availability of mobilization resources. To measure collective action, variable *Social Organization* takes the value of 1 when respondents answer affirmatively to the question "Are you an active member of any type of social, religious, political, sports, business, or labor organization?" and 0 otherwise. In addition, *Trust* is a Likert indicator of social capital based on the question "Speaking of people in your community, would you say that the people in your community are very trustworthy, somewhat trustworthy, not very trustworthy, or not trustworthy at all?" To measure the availability of mobilization resources, we use a specific measure of income. Given the prevailing commensurability challenges of measuring income in cross-national surveys and missing data problems (Donnelly and Pop-Eleches 2018; Korinek, Mistiaen, and Ravallion 2006), we use the number of *light bulbs* as a proxy for income as recommended by the Mexican Statistics Bureau (INEGI 2020). Under the intuition that wealthy households have more light bulbs than poor ones, this measure reduces systematic nonresponses and facilitates cross-country comparisons.[12]

The study includes three measures of government performance. First, *Government Performance* is a pandemic-specific Likert measure responding to the question "Thinking about the beginning of the pandemic, how would you rate the services that the government offered to you or your family to face the pandemic?" and ranges from "not effective at all" to "very effective." Second, the *Government Effectiveness* index captures the respondents' perception that the government can help them solve a problem. To measure this, the survey asked "If you had a problem or necessity, how effective do you think (insert institution) would be in helping you resolve your situation?" and inquired about the Army, the Police, the Judicial System, and the Municipal government. Each institution is evaluated with a Likert scale ranging from "not effective at all" to "very effective." The Government Effectiveness Index calculates the average responses for these institutions. Third, the *Welfare Index* reflects the extent to which individuals benefit from welfare programs. This index is the sum of the dichotomous responses to the question "Could you tell me if you or any member of your family is a beneficiary of any of the following types of welfare programs?" which include four different programs: food stamps, housing, education, and medicine and health services.

The survey also measures respondent's perceptions about the level of *Territorial Control* by criminal groups through the question "Thinking about the degree of territorial control that criminal groups could have, which of the following scenarios best describes the situation in your community?"; responses range from "absent," "emerging," "competitive," and "dominant." By measuring perceptions of criminal territorial control directly in the survey, the study avoids imputing municipal-level measures of criminal violence as proxies of territorial control (Magaloni et al. 2020), which could lead to ecological fallacies. Finally, the analysis includes individual characteristics, such as *Age*, measured as an ordinal variable, and *Female*, taking the value of 1 when respondents self-identify as female, and 0 as male. Section A5 of the Supplementary Material presents the descriptive statistics and Section A6 of the Supplementary Material presents the balance test.

The researchers gave paramount consideration to a variety of ethical issues and followed the guidelines of the University of Arizona Institutional Review Board (Section A12 of the Supplementary Material). Regarding public health, the researchers deployed the surveys only after government authorities had lifted most COVID-related restrictions, and enumerators in the field maintained strict health and security protocols. Since the research involved some high crime areas, enumerators requested permission from the government and local stakeholders with *de facto* authority to enter their communities. To minimize discomfort or risks to respondents, the survey used list experiments to inquire about sensitive topics. Due to ethical considerations, the survey did not inquire about the names of specific criminal groups or their activities.

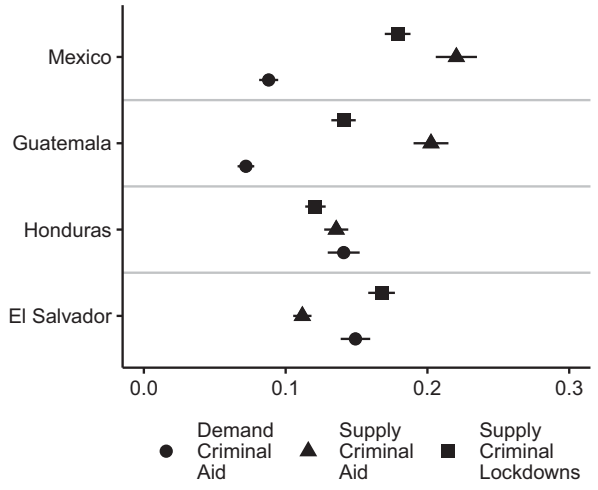
## EXTENT OF THE DEMAND AND SUPPLY OF CRIMINAL GOVERNANCE

To evaluate the overall levels of demand and supply of criminal governance, the empirical strategy relies on the difference-in-means estimator indicated in Equation 1. Figure 2 presents the coefficient plots derived from the list experiments. Section A8.1 of the Supplementary Material reports the detailed results. According to the estimates, Guatemala and Mexico show lower demand for criminal assistance than Honduras and El Salvador during the pandemic. In particular, the percentage of the population asking for support from criminal groups in Guatemala is 7.2% and 8.8% in Mexico. In contrast, the bottom-up demand for criminal aid in Honduras and El Salvador is substantially larger, with 14.1% and 14.9%, respectively. Section A11 of the Supplementary Material presents additional descriptive patterns.

The pandemic-induced economic crisis hit hardest the most vulnerable sectors, primarily those living on day-to-day income. In Guadalajara, Mexico, a man left out from government support said that "he has no other option than asking the cartels for groceries" (Mesas 2020). However, not all aid demands came from individuals, sometimes groups advanced articulated demands. San Salvador's downtown concentrates about 40,000

[12] In this operationalization, income captures different respondent characteristics than the economic difficulties index. Here, income is considered an overall measure of relatively stable asset wealth, while the economic difficulties index captures short-term disruptions caused by the pandemic.

**FIGURE 2. Extent of Demand and Supply of Criminal Governance**




*Note:* Predicted average treatment effects from Table 13 in the Supplementary Material.

street vendors and their leaders have developed close connections with the gangs (Papadovassilakis and Dudley 2020), which allowed them to request a reduction or a pause in the extortion charges, known as *la renta* ("the rent"), due to the pandemic. As a Salvadorian journalist puts it, "the gang dies without the community. But in times like this, the community needs the gang" (Avelar 2020).

Regarding the supply of aid, Mexico and Guatemala experience the highest levels of aid supply, while Honduras and El Salvador report a lower supply of aid. The share of the population observing criminal groups deliver money, medicines, or food in Mexico is 22% and 20.3% in Guatemala; in contrast, only 13.6% of respondents in Honduras and 11.2% in El Salvador report witnessing aid from criminals.

There are innumerable reports of criminal groups delivering aid during the pandemic. Alejandra Guzmán, daughter of Joaquín "El Chapo" Guzmán, leader of the Sinaloa Cartel in Mexico, delivered *despensas* (grocery bags) to nursing homes and impoverished communities in Guadalajara (Reza 2020). Several other groups, such as the Jalisco Cartel New Generation (CJNG), the Gulf Cartel, Los Zetas, and Los Viagras, publicized videos and pictures of fully armed *sicarios* (hitmen) delivering food, medicines, and money (Dittmar 2020). In Guatemala, *mareros* (gang members) of the Barrio 18 delivered face masks to hospitals (Gutiérrez 2020). *Mareros* of the Mara Salvatrucha 13 (MS13) delivered grocery bags in a churchyard North of San Salvador in El Salvador (Avelar 2020), and food and medicine in *bordos* (slums) in San Pedro Sula, Honduras.

The analysis of coercive governance indicates that criminal groups imposed relatively similar levels of lockdowns during the pandemic. In particular, criminals forced about 17.9% of the population in Mexico to stay in lockdown, while 16.8% of the population in El Salvador, 14.1% in Guatemala, and 12.1% in Honduras experienced similar situations.

News articles report criminal groups imposing lockdowns in their communities. In Mexico, criminal organizations, such as the Sinaloa Cartel, the Gulf Cartel, Grupo Sombra, and CJNG, imposed curfews throughout the country (Lara 2020). In Ciliacán, Sinaloa, *Los Chapitos*, sons of El Chapo made a recording telling the population "*no estamos jugando*" ("we are not playing"), threatening to punish those who defied the curfew (Redacción 2020). An MS13 *ranflero* (gang leader) in El Salvador made the lesson clear by posting a video that went viral beating a man in the back of the legs with a baseball bat for violating the lockdown (Martinez, Martinez, and Lemus 2020).

These list experiments provide three valuable contributions. First, results reveal a considerable bottom-up demand for criminal aid in Mexico, Honduras, Guatemala, and El Salvador. This finding helps to advance research on civilian-agency in armed governance beyond community resistance, while recognizing civilian agency to participate in the development of local governance. Second, results also present systematic evidence about the magnitude of criminal aid and lockdowns beyond anecdotal reports. Instead of being isolated incidents, the estimates show that criminal aid and lockdowns are prevalent dimensions of criminal governance in these countries. Finally, criminal groups use both carrots and sticks in mixed portfolios of aid and lockdowns that cannot be easily classified as purely benevolent or entirely coercive, a topic discussed in further detail below. The following section uses multivariate analysis to identify the conditions associated with the demand and supply of criminal governance.

## DETERMINANTS OF THE DEMAND AND SUPPLY OF CRIMINAL GOVERNANCE

To assess the individual-level correlates influencing the demand and supply of criminal governance, the study uses the multivariate maximum likelihood estimator from Equation 2. Since the list experiment coefficients are not intuitively interpretable (see full results in Section A8.2 of the Supplementary Material), Table 2 presents the predicted marginal effects as the difference between the percentages predicted using each variable's maximum and minimum values, with the *p*-value of their respective difference.

### Demand for Aid

Panel a in Table 2 presents the characteristics shaping the demand for criminal aid. Based on the human needs hierarchy, results suggest that the demand for aid stems from an individual's urge to appease their primary necessities. In line with hypothesis $HDA_1$, results present robust evidence that high economic difficulties increase bottom-up demands for criminal assistance from the population (Figure 3a). As the economic crisis

**TABLE 2. Multivariate Predicted Marginal Effects**

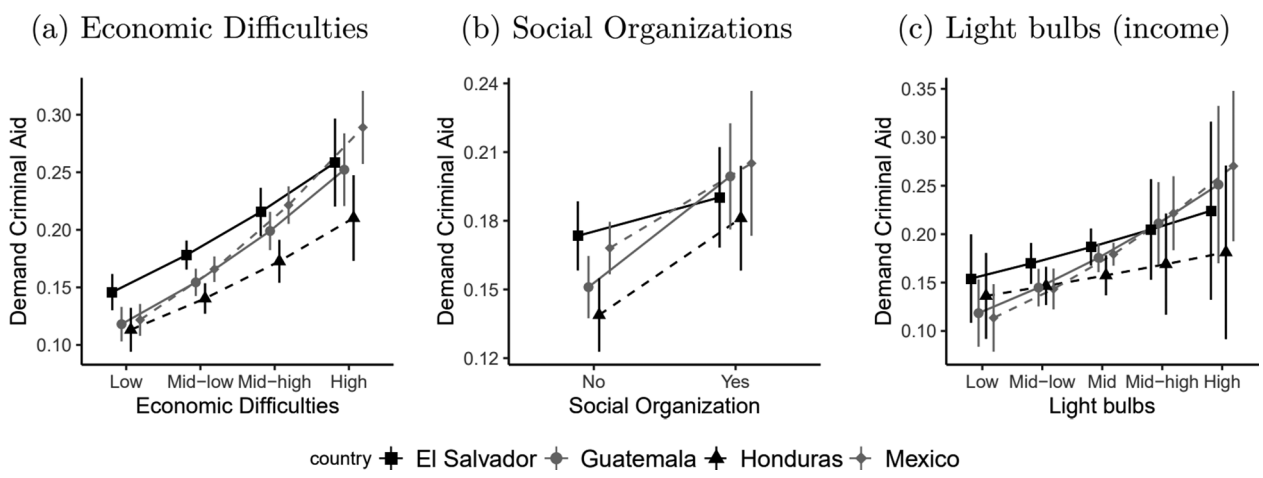
| | Mexico | Guatemala | Honduras | El Salvador |
|---|---|---|---|---|
| **(a) Dependent variable: Demand for criminal aid** | | | | |
| Economic difficulties | 0.167*** | 0.134*** | 0.097*** | 0.113*** |
| Social organization | 0.037* | 0.048*** | 0.042** | 0.017 |
| Trust | −0.002 | 0.014 | 0.030+ | −0.016 |
| Light bulbs (income) | 0.157*** | 0.133** | 0.045 | 0.070 |
| Gov. performance | 0.026+ | 0.016 | 0.022 | −0.009 |
| Gov. effectiveness | 0.032+ | 0.050* | 0.030 | −0.041 |
| Welfare index | −0.031 | −0.016 | 0.000 | 0.041+ |
| Territorial control | 0.020 | 0.015 | 0.101*** | 0.001 |
| Age | −0.145*** | −0.183*** | −0.152*** | −0.116*** |
| Female | −0.006 | 0.005 | −0.002 | −0.024 |
| Observations | 1,169 | 987 | 903 | 1,005 |
| **(b) Dependent variable: Supply of criminal aid** | | | | |
| Economic difficulties | −0.011 | 0.029 | 0.005 | −0.011 |
| Social organization | 0.067*** | 0.039** | 0.054*** | 0.030+ |
| Trust | 0.002 | 0.057** | 0.038* | 0.032 |
| Light bulbs (income) | 0.130** | 0.254*** | 0.213*** | 0.075 |
| Gov. performance | 0.074*** | 0.101*** | 0.110*** | 0.000 |
| Gov. effectiveness | 0.009 | −0.048 | −0.035 | −0.009 |
| Welfare index | 0.046 | 0.041 | 0.009 | 0.064* |
| Territorial control | 0.062*** | 0.021 | 0.059** | −0.008 |
| Age | −0.095*** | −0.154*** | −0.104*** | −0.088*** |
| Female | 0.006 | −0.040 | 0.036* | −0.007 |
| Observations | 1,167 | 972 | 894 | 997 |
| **(c) Dependent variable: Supply of criminal lockdowns** | | | | |
| Economic difficulties | 0.102*** | 0.067** | 0.040+ | 0.108*** |
| Social organization | 0.055** | 0.030 | 0.040* | 0.008 |
| Trust | 0.021 | −0.006 | 0.036+ | 0.005 |
| Light bulbs (income) | 0.154** | 0.274*** | 0.409*** | 0.290*** |
| Gov. performance | 0.058** | 0.083*** | 0.004 | 0.040+ |
| Gov. effectiveness | 0.090*** | −0.003 | 0.030 | 0.026 |
| Welfare index | −0.002 | 0.001 | 0.040 | −0.022 |
| Territorial control | 0.033+ | 0.037+ | −0.002 | 0.029 |
| Age | −0.105*** | −0.137*** | −0.055* | −0.131*** |
| Female | 0.031* | 0.019 | 0.041* | 0.002 |
| Observations | 1,163 | 984 | 906 | 1,010 |

*Note*: Coefficients indicate predicted marginal effects as the difference of percentages derived from the maximum and minimum values of each variable. Full estimates in Section A8.2 of the Supplementary Material. $p$-values: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

ravages the most vulnerable, those facing acute economic needs are likely to ask criminals for help, which is consistent with the hierarchy of primary needs. In addition, results show that civilian articulation capacity shapes demands for aid. According to this finding, individuals active in social organizations are more likely to demand criminal aid in most countries, as expected from hypothesis $HDA_2$ (Figure 3b). However, interpersonal trust is not a strong predictor of aid demands. Mobilization resources also seem to drive demand for criminal governance as indicated in hypothesis $HDA_2$, but only in Mexico and Guatemala (Figure 3c). In contrast to hypothesis $HDA_3$, the government's response is not a key determinant of aid demands. According to the model, regardless of the government's performance during the pandemic, perceptions of government effectiveness, or welfare provision, the bottom-up demands for criminal aid are primarily driven by economic difficulties and civilian articulation capacity. Section A9.1 of the Supplementary Material evaluates the conditional expectations of hypotheses $HDA_2$ and $HDA_4$.

Contrary to the territorial control paradigm, results show that the degree of gang territorial control only explains the demand for criminal aid in Honduras, but not in other countries (Section A10.1 of the Supplementary Material). Additional analysis also shows that criminal competition does not drive demand either (Section A10.2 of the Supplementary Material). Finally, results show that age is an important predictor of aid demand with younger people being more inclined to ask criminals for help. This relationship

**FIGURE 3. Demand for Criminal Aid**




*Note:* Predicted marginal effects of selected variables from panel a in Table 2.

could be explained by young people's economic vulnerability and recruitment risks (Baron 2004; Densley 2012), which is consistent with hypothesis $HDA_1$ (see Section A10.3 of the Supplementary Material for further examination on age).

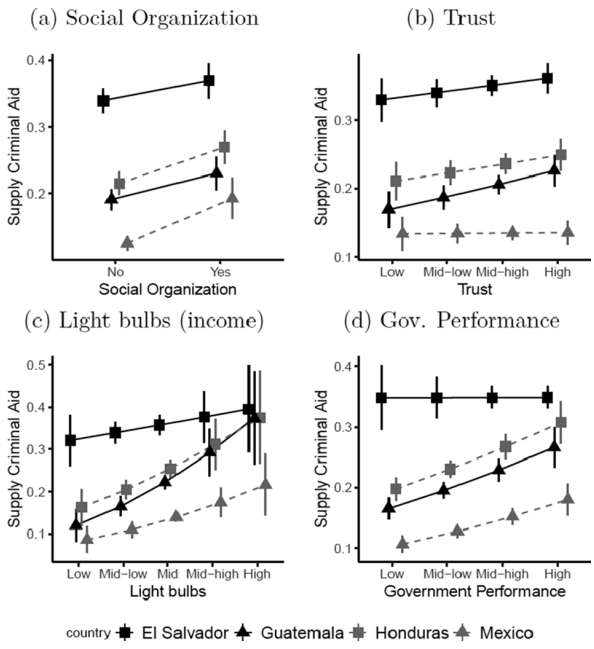
## Supply of Aid

Panel b in Table 2 presents the results of the supply of aid. Results indicate that high economic difficulties do not drive the provision of criminal aid. Although hypothesis $HSA_1$ expects a negative relationship between economic difficulties and criminal aid supply, the null result indicates that criminals primarily neglect people's economic needs, thus challenging claims portraying criminals as benefactors or loyalty seekers.

In line with the argument that security needs prompt criminal governance, results show that civilian resistance capacity shapes the supply of aid. Related to collective action, social organization increases the provision of criminal aid in three out of the four countries as stated in hypothesis $HSA_2$ (Figure 4a), and high levels of interpersonal trust increase the supply of aid in Guatemala and Honduras (see Figure 4b). The availability of resources from hypothesis $HSA_2$ also increases criminal aid supply in three countries (Figure 4c). These results suggest that organized criminals tend to strategically supply aid to communities that have the potential to resist their illicit activities regardless of the population's economic needs. This suggests evidence of criminals buying the hearts and minds of the population cheaply.

Results also provide evidence of criminal groups competing with the state in providing aid to the population. Based on hypothesis $HSA_2$, high government pandemic performance is associated with a high supply of aid in three countries (Figure 4c). This evidence suggests criminal groups are trying to compete against

**FIGURE 4. Supply of Criminal Aid**




*Note:* Predicted marginal effects of selected variables from panel b in Table 2.

the state in providing aid when it is cheap to do so. Section A9.2 of the Supplementary Material evaluates the conditional expectations of hypotheses $HSA_2$ and $HSA_3$.

The theoretical expectation of criminals benefiting the population in areas where they have tight control over territory only finds support in Mexico and Honduras. However, societal and governmental explanations have more leverage than territorial control to

account for the supply of aid. Section A10.1 of the Supplementary Material further explores territorial dynamics and Section A10.2 of the Supplementary Material analyzes criminal competition. Finally, results also indicate that age is a relevant factor in explaining the supply of aid. This is not surprising as young people are common targets of criminal and rebel recruitment (Beber and Blattman 2013; Densley 2012). See Section A10.3 of the Supplementary Material for more details about age. Overall, the analysis shows that criminals largely neglect the economic needs of the population and they primarily supply aid in a strategic effort to neutralize potential pockets of resistance or to compete against the state in the provision of aid.

## Supply of Lockdowns

Finally, panel c in Table 2 reports the results of coercive criminal governance. As stated in hypothesis $HSL_1$, individuals facing economic difficulties are more likely to experience criminal lockdowns (see Figure 5a). This harsh criminal coercion in the context of high economic difficulties sharply contrasts with the null relationship between economic difficulties and criminal aid, thus suggesting that criminals revert to coercion when it becomes too expensive to assist the population. This also reveals the indifference of criminal groups coercing the population when they are going through economic crisis.

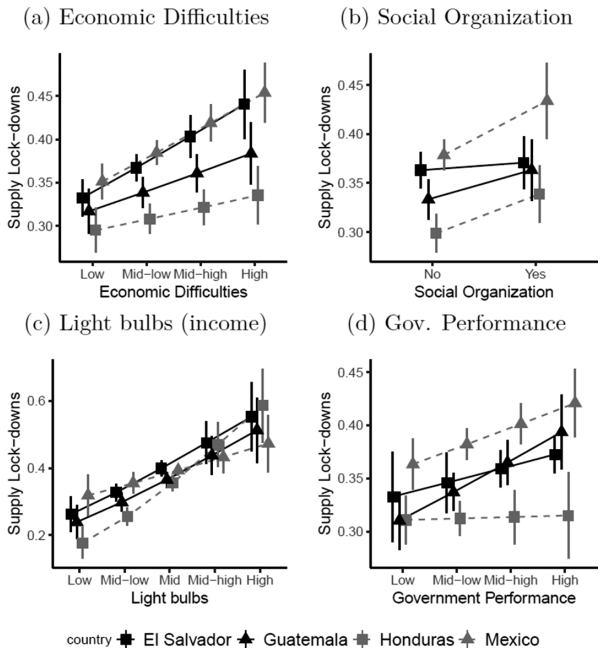
Civilian resistance capacity also helps to explain criminal lockdowns. However, the availability of mobilization resources seems more relevant to account for this dimension of criminal governance than the respondent's collective action capacity. The analysis only finds support in Mexico and Guatemala for hypothesis $HSL_2$ related to social organizations increasing criminal lockdowns (see Figure 5b). In contrast, the availability of resources stated in hypothesis $HSL_2$ is a robust predictor of criminal lockdowns across cases (see Figure 5c). These results seem to support the argument that criminals use lockdowns to curtail the resistance capacity of the population.

According to the results, there is moderate support for the role of the government in shaping the supply of lockdowns. As expected in hypothesis $HSL_3$, positive perceptions of government pandemic performance are associated with high levels of criminal coercion in Mexico and Guatemala, and the association is barely statistically significant in El Salvador (see Figure 5d). In addition, the overall perception of government effectiveness is only relevant in the Mexican case. Section A9.3 of the Supplementary Material evaluates the conditional expectations of hypotheses $HSL_2$ and $HSL_3$.

Contrary to the expectation of criminals exercising their comparative advantage in the use of violence in territories where they hold monopolistic control, results find weak support for this relationship and only in two cases (Section A10.1 of the Supplementary Material). In addition, criminal competition does not seem to explain lockdowns (Section A10.2 of the Supplementary Material). Finally, the model indicates that young people are consistently more likely to suffer criminal coercion than older respondents (Section A10.3 of the Supplementary Material).

In general, results suggest that criminal organizations are more likely to impose lockdowns on individuals experiencing economic difficulties and those who have a high capacity to resist their illicit activities. In contrast, the role of the government in explaining criminal coercion is only relevant in half of the cases. These results indicate that criminals primarily use coercion to suppress potential pockets of resistance, while there is only partial evidence of criminals suppressing state-civilian collaborations.

**FIGURE 5. Supply of Criminal Lockdowns**




*Note:* Predicted marginal effects of selected variables from panel c in Table 2.

## MIXED PORTFOLIOS OF CRIMINAL GOVERNANCE

Other areas of research have shown that political actors not only provide benefits or coercion as mutually exclusive strategies, but sometimes mix them. For example, research on electoral mobilization shows that political parties sometimes use vote buying (González-Ocantos et al. 2012) or engage in electoral violence (Birch, Daxecker, and Höglund 2020), but they also combine both strategies (González-Ocantos et al. 2020). Similar mixed strategies of assistance and predation have also been observed in criminal groups (Magaloni, Franco-Vivanco, and Melo 2020). This section explores a set of mixed portfolio scenarios (MPSs) of criminal governance integrating the supply of aid and lockdowns. Based on the key factors outlined in the theoretical section (see Figure 1b), the following MPS explores the joint supply of aid and lockdowns

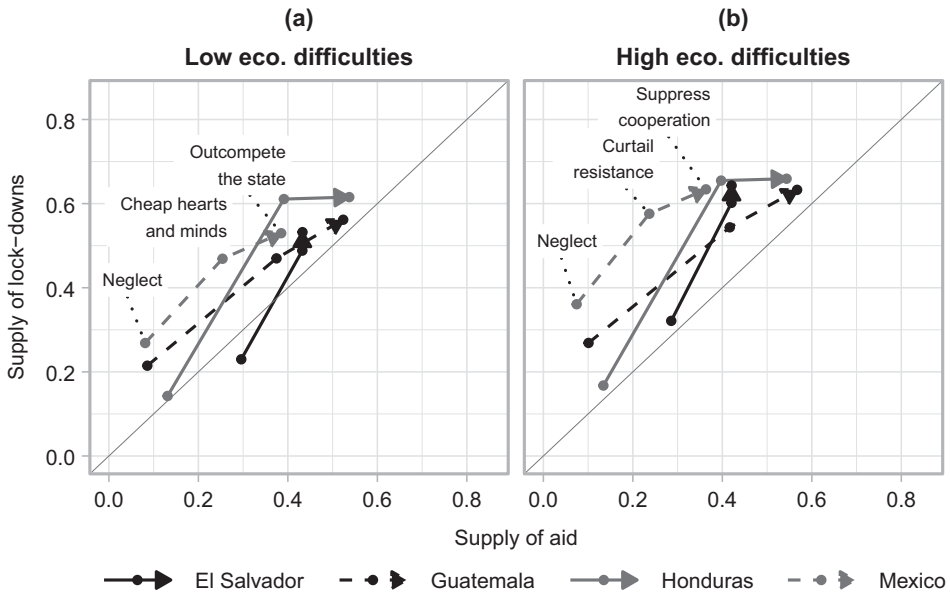
under different combinations of economic conditions, resistance capacity, and government support:

- $MPS_1$ *Neglect*: Regardless of the economic crisis severity and the effectiveness of government support, individuals with low resistance capacity are likely to receive low levels of criminal aid and lockdowns.
- $MPS_2$ *Cheap hearts and minds*: Individuals going through low economic difficulties, embedded with high resistance capacity, and receiving low government assistance likely receive a high supply of aid and low lockdown levels.
- $MPS_3$ *Outcompeting the state*: Individuals experiencing low economic difficulties with a high resistance capacity and receiving high government support are likely to receive high levels of criminal aid and low lockdown levels.
- $MPS_4$ *Curtailing potential resistance*: Individuals suffering from high economic difficulties with a high resistance capacity and receiving low government assistance, likely receive high criminal lockdowns and low aid.
- $MPS_5$ *Suppressing civilian–state cooperation*: Individuals suffering high economic difficulties with a high resistance capacity and receiving high government support are likely to receive higher levels of lockdowns and low criminal aid.

To analyze the combination of criminal aid and lockdowns, Figure 6 illustrates these MPS by presenting the supply of lockdowns on the vertical axis and the supply of aid on the horizontal axis. The dotted diagonal indicates an equal lockdown-aid allocation at different supply levels. The upper left triangular area above the diagonal represents more coercive portfolios, including a higher proportion of lockdowns relative to aid, while the lower right triangular area shows supportive portfolios containing more aid than lockdowns. Figure 6a presents the supply of governance during low economic difficulties and Figure 6b under high economic difficulties. Using results from panels b and c of Table 2, the point estimates along the arrow segments in Figure 6 represent the predicted combinations of lockdowns and criminal for each MPS derived from setting the variables of economic difficulties, articulation/resistance capacity, and government response according to the characteristics of each scenario outlined above.

Based on these MPS, the statistical analysis shows that criminals deploy different lockdown-aid allocations depending on the conditions where they operate. By focusing first on Figure 6a where respondents undergo low economic difficulties, the first node in each country-segment in Figure 6a represents an MPS of neglect where individuals undergo low economic difficulties and have low resistance capacity. As expected from $MPS_1$, this scenario reports the lowest lockdown-aid levels, with a slightly more coercive portfolio in Mexico, Honduras, and Guatemala, and a slightly more supportive portfolio in El Salvador. The second node in Figure 6a shows evidence of criminals buying the hearts and minds of the population cheaply. Here, civilians have a high resistance capacity and low government support which, according to the theoretical expectations, triggers security concerns for criminals. As a reaction, criminals substantially increase the governance supply as shown by the large diagonal of the first arrow segments. However, the steep inclination of these segments indicates more coercive portfolios than

**FIGURE 6. Mixed Portfolio of Aid and Lockdowns**




*Note:* Predicted effects from panels b and c in Table 2.

the ones predicted in $MPS_2$. This suggests that security concerns may motivate criminals to substantially increase the use of sticks to send a clear deterrence signal while increasing the use of carrots at slightly lower rate to co-opt potential pockets of resistance. Finally, the last node in Figure 6a shows the scenario where criminals try to outcompete the state. Here, civilians have high resistance capacity and receive high government support. The low inclination of the second arrow segment indicates that criminals further increase the aid supply in a larger ratio than lockdowns, which is consistent with criminals outcompeting the state in $MPS_3$. Results indicate that criminals in Mexico, Honduras, and Guatemala act according to this expectation, but that is not the case in El Salvador, where criminals become more coercive without increasing the levels of aid.

Figure 6b analyzes different lockdown-aid allocations under high economic difficulties. In general, results indicate that economic distress increases the supply of criminal coercion against the population. Evidence of this comes from the general upward displacement of all arrows in panel b as compared to panel a, which indicates a higher lockdown allocation relative to aid. This is consistent with the theoretical expectation that severe economic difficulties increase the population's needs, making it too expensive for criminals to provide assistance and forcing them to rely on their coercive advantage as violent specialists by imposing lockdowns.

The first nodes in Figure 6b indicate a context of high economic difficulties and low resistance capacity. In this scenario, criminals largely neglect the population, as expected from $MPS_1$, but with a more coercive tone. The second set of nodes reflects the reaction of criminals to communities endowed with high resistance capacity but neglected by the government. As expected from $MPS_4$, security concerns motivate criminals to increase the lockdown-aid supply with a higher proportion of coercive lockdowns to curtail potential civilian resistance. This is indicated by the pronounced inclination of the first arrow segments in Figure 6b. Finally, the last nodes in this panel portray the mixed portfolio under high economic difficulties affecting individuals endowed with high resistance capacity that receive high government support. Results support the expectation of $MPS_5$ predicting the suppression of state-civilian cooperation with a high allocation of lockdowns and a lower proportion of aid. Results indicate that suppression of state-civilian cooperation is particularly harsh in Mexico and El Salvador, while communities in Honduras and Guatemala receive slightly more aid. In particular, the almost-flat inclination of the second segment in Honduras reveals some efforts of criminal groups to outcompete the state in this country as in $MPS_3$.

Overall, the mixed portfolio analysis of lockdowns and aid shows the complex decision-making behind the supply of criminal governance. In line with the theoretical framework, results suggest that criminals tend to strategically provide aid in order to neutralize potential resistance when it is cheap to do so. In a similar way, criminals tend to compete against the state in the provision of aid when it is relatively cheap to do it. However, as the severity of the economic crisis increases, the cost of assisting the population, criminals use their comparative advantage in the use of violence to increase the imposition of lockdowns.

## LIMITATIONS

Despite its contributions, this research has important shortcomings. The relevance of civilian articulation/resistance capacity focuses at the individual level. However, the study does not explain the aggregation of behaviors from individual to collective action. Future research should study these aggregation mechanisms by shifting from individual level responses to network analysis or qualitative analysis at the community level. Such approach would help to understand how individual characteristics shape community behavior and how criminals respond to it.

The study recognizes that not all criminal groups are created equal. Important variations in leadership styles, organizational structures, income sources, and illicit market characteristics likely shape the supply of governance by different criminal groups. Unfortunately, the empirical strategy does not permit a disaggregated analysis of specific criminal groups operating within each country. Additionally, the empirical strategy does not disaggregate other types of armed actors that may coexist with criminals in the territory, such as self-defense forces or rebel organizations. Unfortunately, investigating the behavior of specific armed groups by identifying their names and activities poses considerable ethical challenges. Future work should analyze governance behaviors across different organizations in an empirically rigorous and ethically sound way.

The narrow focus on criminal or government assistance downplays other potential providers of community support. Although the list experiments consider support from religious groups, civil society organizations, or international actors in the placebo items, these providers are not theorized or empirically analyzed. Future works should go beyond the civilians–criminals–state triad and take into account additional actors.

Despite the list experiments eliciting more truthful responses related to criminal governance, the factors associated with these behaviors are based on statistical correlation rather than causal identification. Future research should rigorously explore the causal determinants of criminal governance using rigorous causal inference research designs.

While the questions about the demand for aid and supply of lockdowns provide direct measures of behaviors conducted by the respondents, the question measuring the supply of aid reports behaviors that respondents observed in their neighborhoods, but not direct actions conducted by them. This opens the potential for ecological fallacy in the interpretation of results for the supply of aid. This implies that respondents with certain characteristics (individual-level features) could be more likely to observe criminal

handouts in their neighborhood (group-level features), but such characteristics may not necessarily make them individual targets of criminal aid. This challenge could be addressed by directly asking respondents about their personal benefit from criminal aid. However, the authors considered such approach too obtrusive and potentially dangerous. Directly asking individuals about personally receiving gifts or favors from criminals is likely to indicate some sort of association with criminal groups. Given that beneficiaries of criminal gifts are expected to pay back in kind or in loyalty (Varese 2020), providing evidence of this type of linkage with a direct question may put respondents and interviewers at risk from law enforcement or rival criminal groups.[13] Based on these ethical concerns, the experimental design focuses on measuring the supply of aid at the neighborhood level.

Finally, future works should go beyond the scope conditions of this study and analyze other governance behaviors, such as dispute resolution or public goods provision. Natural disasters and climate change could also help to analyze criminal governance beyond the pandemic or economic shocks.

## CONCLUSIONS

This study contributes to the literature on armed governance by advancing a theoretical model and an empirical strategy to analyze the demand and supply of criminal governance in Mexico, Honduras, Guatemala, and El Salvador. Theoretically, it addresses limitations in the rebel and criminal governance literatures, which typically view governance as a top-down imposition from armed groups and often neglect civilian agency beyond their capacity for resistance. In contrast, this study acknowledges the proactive role of civilians in demanding assistance from criminal groups from the bottom-up while considering the top-down supply of aid and coercion. Conceptualizing the co-development of armed governance by integrating bottom-up and top-down dynamics opens rich research opportunities requiring the integration of civilian demands, criminal supply of governance, and state responses into a coherent analytical framework.

To explain the demand and supply of criminal governance, the central argument claims that the demand for criminal governance emerges from the population's drive to satisfy their basic needs, while the supply of criminal governance stems from criminals trying to neutralize potential civilian resistance that may disrupt their illicit operations. To explain these dynamics, the theoretical model focuses on the interaction between three key structural factors: the severity of economic difficulties, the civilian articulation/resistance capacity, and the government's response. The social and political character of these elements go beyond traditional market-oriented explanations. On the demand side, individuals experiencing severe economic difficulties and endowed with a high articulation capacity, but not receiving government support are likely to demand criminal assistance. On the supply side, criminals generally neglect the economic needs of the population unless civilian resistance capacity threatens their illicit operations. When criminals provide aid, they do it as long as it is cheap and if it helps them to strategically neutralize potential pockets of resistance or compete against the state. However, under severe economic difficulties, the cost of assisting the population may be too high for criminals, thus forcing them to rely on their coercive capacity to impose lockdowns.

The empirical strategy uses several list experiments embedded in nationally representative face-to-face surveys conducted in Mexico, Guatemala, Honduras, and El Salvador that generate nonintrusive, systematic, and comparative evidence. The results provide three valuable contributions. First, the study goes beyond anecdotal evidence and unveils systematic estimates of the magnitude of the demand and supply of criminal governance in different countries. Regarding the demand for aid, results show that broad population sectors proactively ask criminals for help. Estimates of the demand for aid range from 7.2% in Guatemala, 8.8% in Mexico, 14.1% in Honduras, and 14.9% in El Salvador. These findings advance research on civilian agency beyond community resistance and recognize civilians as co-developers of governance. Regarding the supply of aid, the list experiments estimate that 11.2% of the population in El Salvador received help from criminals, while 13.6% in Honduras, 20.3% in Guatemala, and 22% in Mexico received criminal assistance. Results also reveal the extent to which criminal lockdowns affected the population. In Honduras, criminals forced 12.1% of the people to stay in lockdown, while 14.% in Guatemala, 16.8% in El Salvador, and 17.9% in Mexico stayed at home due to criminal lockdowns.

Second, the study identifies key determinants of the demand and supply of criminal governance. In line with the theory, results show that the demand for criminal governance is primarily related to the severity of the economic crisis and the levels of civilian articulation capacity. Regarding the supply of aid, results show that criminal organizations are largely negligent of the population's economic needs. If criminals provide aid, they do it as long as it is cheap and if it derives strategic benefits of neutralizing potential civilian resistance or competing against the state. Finally, results on coercive governance show that criminal groups tend to impose lockdowns on people experiencing economic difficulties and on those who have the capacity to resist organized criminals. In some cases, criminals also rely on lockdowns to sanction communities that closely collaborate with the government.

The third contribution is the theoretical and empirical analysis of criminal aid and lockdowns as a mixed portfolio of criminal governance. Our theoretical framework elucidates specific conditions under which

[13] Contrary to the intrinsic risks of being perceived as a potential collaborator of a criminal group, asking individuals about their demand for criminal aid or being targets of criminal lockdowns may be primarily associated with the stigmas of poverty or victimization (Moon and Treviño-Rangel 2020), respectively.

criminals may use different allocations of aid and lockdowns as complementary or supplementary strategies. Moreover, we move beyond the abstract conceptualization of distinct criminal governance strategies and advance their systematic empirical measurement. The statistical analysis finds strong support for the mixed portfolio of criminal governance in line with the theoretically-informed MPSs. Disentangling how different structural conditions shape aid and lockdown allocations helps to understand the complexities of criminal governance.

Overall, this study contributes to understanding the interconnections between the civilian population, organized criminal groups, and the state that shape the co-development of governance. These symbiotic arrangements in the demand and supply of governance represent a fundamental challenge for governments fighting insecurity in the developing world. Mexico, Honduras, Guatemala, and El Salvador, like many other countries ravaged by organized crime, have consistently implemented punitive law enforcement strategies to combat organized crime with limited success while devoting scant efforts to social policies and economic development.

## SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit https://doi.org/10.1017/S0003055425101251.

## DATA AVAILABILITY STATEMENT

Research documentation and data that support the findings of this study are openly available at the American Political Science Review Dataverse https://doi.org/10.7910/DVN/DVFXRB.

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## CONFLICT OF INTEREST

The authors declare no ethical issues or conflicts of interest in this research.

## ETHICAL STANDARDS

The authors declare that the human subjects research in this article was reviewed and approved by the University of Arizona and certificate numbers are provided in the Supplementary Material. The authors affirm that this article adheres to the principles concerning research with human participants laid out in APSA's Principles and Guidance on Human Subject Research (2020).

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