ORIGINAL ARTICLE

Disputes between neighbors in Mexican cities during the COVID-19 pandemic

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Abstract

We estimate the effect of the COVID-19 pandemic lockdown on disputes between neighbors using a panel of 70 cities from across Mexico and a difference-in-difference strategy. Our results show that the lockdown exacerbated disputes related to pets as nuisances by 45%, noise by 31%, unruly children by 23%, and garbage by 22%. We do not find any effect of the COVID-19 lockdown on disputes related to gossip. We also estimate heterogeneous effects of the alcohol sales ban across Mexican municipalities. Our findings suggest that this public policy helped to reduce the likelihood of disputes related to noise and garbage.

KEYWORDS
COVID-19, disputes, externalities, lockdown, neighbors

JEL CLASSIFICATION
D62, P25, R23, Z18

1 | INTRODUCTION

Has the COVID-19 pandemic lockdown led to higher or lower conflict between neighbors? Previous work has shown that exposure to shocks, such as natural disasters, increases cooperation and social trust (Toya & Skidmore, 2013). In such scenarios, neighbors have provided emotional support and assistance to each other during emergencies, including the COVID-19 pandemic. In contrast, the pandemic lockdown has also increased the amount of time individuals

spend at home. More time spent at home has the potential to exacerbate conflicts between neighbors. Perceptions of pets as nuisances, excessive noise, unruly children, and other forms of antisocial behavior have increased the likelihood of disputes (Cheshire & Fitzgerald, 2014). These disputes have created stress, and in extreme cases, have ended in injuries and deaths (Cheshire & Fitzgerald, 2014). On the basis of these factors, it is plausible that the lockdown impacted neighbor-to-neighbor interactions, although the net effect on neighbors' disputes is unknown.

In this paper, we study the effects of the COVID-19 stay-at-home order on disputes between neighbors in urban Mexico. In particular, we use a representative sample of 70 cities in Mexico to analyze disputes related to pets as nuisances, noise, unruly children, garbage, and gossip. We use a difference-in-differences specification to estimate a plausibly causal effect of the lockdown on disputes between neighbors. Our results show an increase in disputes for pets as nuisances by 45%, for noise by 31%, for unruly children by 23%, and for garbage by 22%. We do not find any effect of the COVID-19 lockdown on disputes between neighbors related to gossip. These findings are robust to alternative specifications, including a placebo test, a bounding methodology (Oster, 2017), the exclusion of control variables, sampling weights, and Mexico City, the inclusion of dummy variables for the 70 cities, as well as multiple hypothesis testing. The only exception is unruly children, which fails to pass two of the six robustness tests; thus, findings for this outcome must be taken carefully.

We also estimate heterogeneous effects of the ban on alcohol sales, a public policy implemented during the lockdown in several Mexican municipalities, and a few entire states. Alcohol consumption has been shown to be related to aggression (Gmel & Rehm, 2003). Hence, a reduction in alcohol consumption may partially mitigate disputes between neighbors. When we consider the interaction of the alcohol sales ban with disputes, we find that this public policy helped to reduce the likelihood of disputes related to noise and garbage.

Our findings add to the literature by demonstrating that the COVID-19 pandemic may have caused more disputes between neighbors (Ramphal et al., 2022; Tong et al., 2021; Yildirim & Arefi, 2021). Previous work shows that disputes with neighbors are associated with high levels of diversity of ethnicities and religions (Nieuwenhuis et al., 2013; Tong & Kang, 2021), population density (Cheshire & Fitzgerald, 2014; Liu et al., 2019; Merry, 1987), inequality (Cheshire et al., 2018; Méndez & Otero, 2017), aesthetics (Austin & Sanders, 2007; Bloch, 2020; Kramer, 2010), presence of crime (Mellgren et al., 2010; Skogan, 1986; Zahnow & Tsai, 2021), and quality of institutions (Terrill & Reisig, 2003; Tyler & Jackson, 2014; Zizumbo-Colunga, 2019). This paper is among the first to document the impact of the COVID-19 lockdown on disputes between neighbors using a sample of several cities within a developing country.

The remainder of this paper is organized as follows. Section 2 discusses the existing regional science literature on conflicts between neighbors. Section 3 describes the data used and the difference-in-differences strategy. Section 4 shows the results, the heterogeneous effects, and robustness checks. Section 5 presents the discussion. Section 6 concludes.

2 | REGIONAL SCIENCE LITERATURE ON CONFLICTS BETWEEN NEIGHBORS

The existing literature within the regional science and criminology disciplines defines the notion of 'conflictuality' in the neighborhood as *unwanted behavior* and *nuisance problems* that provoke disputes between the members of any given community (Merry, 1987; Michaux et al., 2015). This extensive topic contains quantitative and qualitative studies. The former set of papers measures dispute outcomes through surveys and databases, whereas the latter set of studies reviews displacements and injustices, bringing the analysis beyond humans and toward subjective matters (Hubbard & Brooks, 2021). Much of the literature uses variables concerning nuisances from animals (Liu et al., 2019), noise complaints (Tong et al., 2021; Tong & Kang, 2021), antisocial behavior by children or youth (Cheshire & Fitzgerald, 2014), smells (Kurosawa et al., 2003), and intrusions (Merry, 1987). Other factors also analyzed by the

literature, but not included in this paper, are complaints related to building construction, property management problems, and amenity issues within a neighborhood (Liu et al., 2019).

Regional science literature examining this topic also proposes a variety of variables that partially explain the arousal of conflict within neighborhoods. These include diversity of ethnicities and religions (Nieuwenhuis et al., 2013; Tong & Kang, 2021), population density (Cheshire & Fitzgerald, 2014; Liu et al., 2019; Merry, 1987), inequality (Cheshire et al., 2018; Méndez & Otero, 2017), aesthetics (Austin & Sanders, 2007; Bloch, 2020; Kramer, 2010), presence of crime (Mellgren et al., 2010; Skogan, 1986; Zahnow & Tsai, 2021), and quality of institutions (Terrill & Reisig, 2003; Tyler & Jackson, 2014; Zizumbo-Colunga, 2019), among others. This paper contributes to exploring another variable that might explain disputes between neighbors during emergencies, such as a natural disaster or a human-made event (e.g., war, pollution). In particular, we document the impact of the COVID-19 lockdown on disputes between neighbors in Mexico.

First, among the non-COVID-19 variables explaining conflictuality are the presence of diverse ethnicities and religions. In the Dutch context, religious diversity explains negative relationships at the individual level for residents of the same neighborhood (Nieuwenhuis et al., 2013). By the same token, noise complaints by residents in England are higher in cities with heterogeneous ethnicities and religions (Tong & Kang, 2021). A similar phenomenon occurs in cities with a higher proportion of young and single residents (Tong & Kang, 2021).

Second, another variable explaining disputes between neighbors is population density. Using the case of Brisbane, Australia, Cheshire and Fitzgerald (2014) find that population density increases the probability of a resident encountering nuisance and antisocial behavior from neighbors. Much of this is explained by spatial proximity, which produces more types of intrusion and annoyances (Merry, 1987). These results are confirmed by large-scale administrative data examining the proximity of complaints about this specific city in Australia (Liu et al., 2019).

Third, inequality in the forms of economic status and gentrification helps explain disputes among neighbors with diverse backgrounds. This is particularly true for cities in emerging economies such as Santiago, Chile, where socioeconomic circumstances increase the chances of nuisance incidences (Méndez & Otero, 2017). Similarly, gentrification contributes to neighbor tensions by densifying areas and displacing the original inhabitants of neighborhoods (Cheshire et al., 2018).

Fourth, aesthetics play an important role in neighborhoods. Among the features of aesthetics, graffiti is one of the phenomena that attracts the most attention among regional scientists. In particular, graffiti correlates with moral panic and the broken window thesis (e.g., indicator of gang activity), even though there might be certain misreading or misidentification of this particular geographical phenomenon, at least in the cases of New York City (Kramer, 2010) and Los Angeles (Bloch, 2020). Given the complexity of graffiti, it is hard to draw a single conclusion; however, most papers acknowledge a rise in confrontation and neighborhood physical disorder, especially after victimization experiences (Austin & Sanders, 2007).

Fifth, fear of crime —along with the presence of crime—contributes to neighborhood decline and deterioration of social order (Skogan, 1986). Empirical evidence from Swedish urban areas suggests that prior victimization feeds back into neighborhood social disorder, creating a vicious cycle (Mellgren et al., 2010). Greater social disorder damages attachment to the neighborhood, exacerbating conflict (Zahnow & Tsai, 2021).

Finally, the quality of institutions that mediate interpersonal problems matter at the level of conflictuality within a neighborhood. Legal authorities play an important role in producing cooperation and social order; even more so those institutions that have the closest proximity to communities, such as is the case of the police (Tyler & Jackson, 2014). A study using victimization data for Mexico points to attempts of using neighbors to resolve antisocial behavior whenever trust in the authorities is low (Zizumbo-Colunga, 2019). Neighborhood trust in the authorities tends to be particularly low for those communities that have been victimized by these institutions (Terrill & Reisig, 2003).

The set of variables explaining conflict is being further expanded by recent research examining the effect of the COVID-19 pandemic on conflicts between neighbors. For instance, Ramphal et al. (2022), using four million noise complaints from the New York City 311 database, finds that disputes caused by noise were exacerbated during the

COVID-19 pandemic, particularly in communities with high socioeconomic disparities. This is also true for the case of London, UK, where noise complaints by neighbors increased by half during the lockdown period of the COVID-19 pandemic (Tong et al., 2021). Conversely, Yildirim and Arefi (2021) suggest that noise complaints in and around the city center of Dallas, USA, decreased by 14%, as there were fewer people in neighborhoods around the city center. Our findings add to a growing literature examining the impact of the COVID-19 pandemic on conflict within an urban setting, exploiting the inter-temporal variation between periods and onsets of the pandemic for several cities in Mexico.

3 | DATA AND EMPIRICAL STRATEGY

3.1 | Data

To estimate the effects of the COVID-19 lockdown on disputes occurring between neighbors, we use the National Survey of Urban Public Safety (ENSU). The survey covers a target population of individuals 18 or older. The ENSU survey is a representative sample of 70 cities throughout Mexico, and includes individual and geographical characteristics of those who got into disputes.

The questions of interest in ENSU explicitly ask whether the person has had conflicts or confrontations with neighbors during the last 3 months related to the following problems: pets as nuisances (1, yes; 0, no), noise (1, yes; 0, no), unruly children (1, yes; 0, no), garbage (1, yes; 0, no), and gossip (1, yes; 0, no). In the case of pets as nuisances, ENSU inquires about "barking, attacks, or pet waste." Noises specifically refer to "noise from hammer blows, use of the drill, loud music, or parties." For disputes about unruly children, ENSU asks about "lack of control of the children of the neighbors (teasing, annoyance, damage to the home from playing with balls, etc.)." Further, garbage complaints include "garbage thrown or burned by neighbors in your garden, garage, or common areas." Finally, gossip refers to "gossip or misunderstandings."

We use data for the ENSU survey for four periods: March 2020, September 2020, March 2019, and September 2019. The ENSU survey is conducted in the first 15 days of the indicated month. ENSU asks individuals to recollect disturbances for the previous 3 months. Since Mexico's government officially declared the stay-at-home order to start on March 23, 2020, which would be after the first 15 days of March, the March survey is clearly within the pre-pandemic period. The September 2020 survey captures the post-period during the summer of the COVID-19 pandemic.[1]

Table 1 provides descriptive statistics regarding neighbor-to-neighbor disputes. Table 1 shows disputes over the four rounds of ENSU (March 2020/2019 and September 2019/2020). The most commonly reported problems are noise (13%) and garbage (11%). The next most common disputes are related to pets (8%), then gossip (7%), and finally, children (6%). Further, Figure A1 in the appendix depicts the geographical variation of conflicts between neighbors across 70 cities in Mexico for the whole period of analysis. *Prima facie*, cities reporting high rates of any given conflict tend to also have high rates of other types of conflicts between neighbors. This geographical distribution of conflictuality suggests a necessity to control for differences in contextual characteristics as described by the literature.

Fortunately, ENSU contains individuals' demographic and geographical characteristics, which allows us to control for observables of the reporting individual as well as the city. These characteristics include sex (male, 1), age (less than 30 years old, 1), education (high school or more, 1), housing type (apartment, 1), population density (per square km), city's graffiti presence, city's crime perception, and city's distrust of the police. For the latter three variables, we calculate city averages by sex and age. Further, we include victimization for these three latter variables (e.g., graffiti

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[1]For additional robustness checks, we also add data for December 2018 and December 2019. This information will be used to check for the parallel trends assumption when using a difference-in-differences strategy.

TABLE 1 Descriptive statistics

	Mean	SD	Min	Max
Pets	0.08	0.27	0	1
Noise	0.13	0.33	0	1
Children	0.06	0.23	0	1
Garbage	0.11	0.31	0	1
Gossip	0.07	0.25	0	1
Sex (male, 1)	0.46	0.50	0	1
Age (less 35 years old, 1)	0.36	0.48	0	1
Education (high school or more, 1)	0.53	0.50	0	1
Housing type (apartment, 1)	0.09	0.28	0	1
Population density (per square kilometer)	4,395.39	5,155.77	14	16,898
City's graffiti presence	0.47	0.41	0	1
Graffiti victimization	0.03	0.17	0	1
City's crime perception	0.60	0.41	0	1
Crime victimization	0.06	0.24	0	1
City's distrust in the police	0.52	0.41	0	1
Police abuse victimization	0.05	0.22	0	1
Observations	84,185			

Note: Statistics are factored by survey sampling weights.
Source: National Survey of Urban Public Safety (ENSU).

victimization, crime victimization, and police abuse victimization), as the existing literature suggests that these variables are magnified when the person becomes a victim.

Finally, as a contribution to possible public policy, we also present information about which municipalities passed the alcohol sales ban in Table A7. As presented in Table A7, there are a few states banning alcohol sales for all municipalities within the state. We use this information to test whether this policy helped to mitigate disputes between neighbors.

3.2 | Empirical strategy

We consider the impact of the COVID-19 pandemic on disputes between neighbors using a difference-in-differences specification. As all of Mexico experienced the onset of the pandemic simultaneously, we lack a formal never-treated 'control group.' Thus, for our main specification, we compare the impact of the 2020 COVID-19 pandemic over the pandemic year (March 2020 and September 2020) with the control year, or survey periods March 2019 and September 2019. This comparison provides two levels of variation, forming the difference-in-differences estimator. The first level of variation compares the pre- with the post-period in the pandemic year, March versus September of 2020. Second, we compare the pandemic year with the control year (2020 versus 2019). This adjusted difference-in-differences estimator relies on a similar strategy to related published work, including Bullinger et al. (2021), Leslie and Wilson (2020), Hoehn-Velasco et al. (2021), and De La Miyar et al. (2021).Formally, the difference-in-differences strategy appears as:

$$Y_{icy} = \alpha + \gamma \text{Treatment}_{cy} + \delta \text{Post}_{cy} + \beta (\text{Post} \times \text{Treatment})_{cy} + \theta X_{icy} + e_{icy}, \tag{1}$$

where Y_{icy} is the outcome of interest for individual i in city c and year y. Treatment$_{cy}$ is a dummy variable that takes the value of 1 for the "treated" individuals (March 2020 and September 2020), and 0 for the "control" individuals (March 2019 and September 2019). Post$_{cy}$ is a dummy variable that takes the value of 1 for the period "post" lockdown (September 2020 and September 2019), and 0 for the period "before" the lockdown (March 2020 and March 2019). β, the coefficient associated to Post $\times$ Treatment$_{cy}$, is the difference-in-differences estimator. X_{icy} represents control variables such as sex, age, education, housing type, population density, city's graffiti presence, graffiti victimization, city's crime perception, crime victimization, city's distrust of the police, and police abuse victimization. We cluster standard errors at the city level. Further, we factor estimations using survey sampling weights.

We are also interested in considering potential heterogeneity in the main effect for public policy purposes. Namely, we examine the impact of the lockdown on individuals living in a city that passed the ban on alcohol sales versus those that did not. For the alcohol sales ban, our estimated equation appears as:

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\begin{aligned}
Y_{icy} = \alpha + &\beta_1\,\mathrm{Treatment}_{cy} + \beta_2 \mathrm{Ban}_{cy} + \beta_3 \mathrm{Post}_{cy} + \beta_4 (\mathrm{Post} \times \mathrm{Treatment})_{cy} \\
&+ \beta_5 (\mathrm{Treatment} \times \mathrm{Ban})_{cy} + \beta_6 (\mathrm{Ban} \times \mathrm{Post})_{cy} \\
&+ \beta_7 (\mathrm{Post} \times \mathrm{Treatment} \times \mathrm{Ban})_{cy} + \theta X_{icy} + e_{icy}
\end{aligned}
\tag{2}
$$

where Ban$_{cy}$ is the alcohol sales ban in city c and year y. Thus, if β_7 is statistically significant, then the alcohol sales ban has an effect of magnitude β_7.

4 | RESULTS

4.1 | Difference-in-differences results

Table 2 presents the results for the difference-in-differences specification across the five outcomes of interest. All columns include coefficients for control variables as proposed by the existing literature. The first column shows the impact of the COVID-19 lockdown on disputes related to pets as nuisances. The lockdown increases conflicts with neighbors related to pets as nuisances by 0.032. This coefficient is statistically significant at the 95% confidence level. As presented in the last row of Table 2, this implies a total impact of 45%, when compared with the pre-COVID mean (0.070).

The second column presents the effect of the COVID-19 lockdown on disputes related to noise. For the neighbor-to-neighbor conflicts over noise, the lockdown has a positive impact on conflicts by 0.035. Further, this coefficient is statistically significant at the 99% confidence level. To better understand the size of the effect, we compare this increase with the mean of disputes related to noise before the lockdown (0.114). This result points to an increase of 31% in noise disputes. Noise is a significant local externality issue that increases as more individuals stay home during the COVID-19 lockdown.

Next, the third column presents the results for disputes related to unruly children. Conflicts related to children also increase by 0.011. This represents an increase of 23% as compared with the pre-pandemic mean of 0.050. By the same token, the fourth column suggests that garbage problems increased during the COVID-19 lockdown by a magnitude of 0.022. This coefficient reflects a 22% increase over the mean garbage-related dispute before the lockdown (0.102). Both coefficients for unruly children and garbage disputes are statistically significant at the 95% significance level.

The last column presents the results for conflicts regarding neighbor-to-neighbor gossip. Gossip conflicts do not increase as a result of the COVID-19 lockdown. This finding reflects lower social interaction even among members of the same community as a consequence of the stay-at-home orders.

TABLE 2 Difference-in-differences specification

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
Post x treated	0.032** (0.015)	0.035*** (0.011)	0.011** (0.006)	0.022** (0.010)	0.003 (0.005)
Post	−0.006 (0.007)	−0.001 (0.005)	0.001 (0.003)	−0.005 (0.005)	0.003 (0.003)
Treated	−0.012 (0.016)	−0.005 (0.011)	−0.001 (0.005)	−0.007 (0.008)	0.003 (0.005)
Sex (male, 1)	−0.008*** (0.003)	−0.008*** (0.003)	−0.010*** (0.003)	−0.013*** (0.004)	−0.002 (0.003)
Age (less 35 years old, 1)	−0.005 (0.005)	0.004 (0.004)	0.013*** (0.002)	0.019*** (0.004)	0.033*** (0.004)
Education (high school or more, 1)	0.028*** (0.003)	0.034*** (0.003)	0.002 (0.003)	0.017*** (0.003)	−0.011*** (0.003)
Housing type (apartment, 1)	0.024*** (0.004)	0.051*** (0.006)	0.011*** (0.004)	0.014 (0.011)	0.025*** (0.004)
Logarithm population density	0.008** (0.003)	0.006* (0.003)	0.002 (0.001)	0.003 (0.003)	0.001 (0.002)
City's graffiti presence	0.007* (0.004)	0.029*** (0.005)	0.018*** (0.003)	0.024*** (0.004)	0.017*** (0.004)
Graffiti victimization	0.200*** (0.023)	0.214*** (0.012)	0.158*** (0.015)	0.282*** (0.022)	0.144*** (0.014)
City's crime perception	0.013*** (0.004)	0.019*** (0.004)	0.005* (0.003)	0.017*** (0.005)	0.008** (0.004)
Crime victimization	0.204*** (0.020)	0.260*** (0.020)	0.156*** (0.013)	0.217*** (0.011)	0.181*** (0.011)
City's distrust in the police	0.005 (0.004)	0.010** (0.005)	0.009*** (0.002)	0.011*** (0.004)	0.002 (0.003)
Police abuse victimization	0.114*** (0.011)	0.102*** (0.012)	0.068*** (0.010)	0.129*** (0.014)	0.140*** (0.011)
Observations	84,185	84,185	84,185	84,185	84,185
R^2	0.09	0.09	0.07	0.10	0.09
Pre-COVID mean dependent variable	0.070	0.114	0.050	0.102	0.066
COVID-19 percentage change	45.1%	30.9%	22.9%	21.7%	4.2%

Note: Results factored by survey sampling weights. Robust standard errors are clustered at the city level. Significance levels:

$*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

Source: National Survey of Urban Public Safety (ENSU).

Finally, regarding individual characteristics, all columns in Table 2 suggest that male respondents report fewer incidents of disputes between neighbors. Conversely, younger inhabitants report more incidents of disputes between neighbors related to unruly children, garbage, and gossip, as shown by the coefficient capturing age. Similarly, residents with more schooling (high school or more) encounter a higher likelihood of pets as nuisances, noise, and garbage, but fewer gossip disputes with their neighbors. Further, those residents living in an apartment also report more disputes of every kind except for garbage.

In terms of city characteristics, inhabitants in cities with higher population density also have higher chances of pets as nuisances and noise incidences. More importantly, cities with a lot of graffiti and fear of crime show a higher propensity toward conflict across all outcomes. Further, distrust of the police affects disputes between neighbors related to noise, unruly children, and garbage. All three control variables are further exacerbated for all outcomes whenever the respondent becomes a victim of graffiti, crime, or police abuse. Overall, the direction and magnitude of the coefficients for all of these sociodemographic and geographical characteristics are in accordance with the results established by the existing literature.

4.2 | Alcohol sales ban during the COVID-19 pandemic

The Mexican government did not introduce new economic policies during the COVID-19 phase, leaving much of the economic costs to its own citizens. México Evalúa (2020) estimated that economic policies during the COVID-19 pandemic accounted for less than 0.5% of Mexican GDP. However, one important policy implemented at the local level was the alcohol sales ban.

The lockdown has the potential to contribute to isolation and anxiety, which can increase the likelihood of alcohol consumption (Zipursky et al., 2021). In fact, evidence from the United States finds an increase of 14% in alcohol consumption during the lockdown among adults (Pollard et al., 2020). Furthermore, there is suggestive evidence that alcohol consumption is related to aggressive behavior and conflicts within and outside the household (Gmel & Rehm, 2003). Research from the United States indicates that one of the mechanisms behind the increase in domestic violence during the lockdown is related to alcohol consumption (Chalfin et al., 2021).

Given the concerns regarding domestic violence and the high rate of homicides in Mexico, some states and municipalities decided to implement an alcohol sales ban during the lockdown. In particular, out of 32 Mexican states, 7 states prohibited alcohol sales. In addition, 18 states had at least one municipality that passed an alcohol sales ban during the lockdown (see Table A7). A study from Mexico concluded that the implementation of the alcohol sales ban contributed to a reduction in domestic violence and sexual crimes (Hoehn-Velasco et al., 2021).

Yet, there is little evidence regarding other types of aggression, such as conflicts between neighbors. One concern regarding the alcohol ban policy is that it can have the unintended consequence of encouraging individuals to buy more alcohol given the expectation of scarcity and, as a consequence, increasing the consumption of alcohol. Thus, in evaluating this policy, it is important to document potential unintended consequences in a regional science context.

Table 3 presents the effects of the alcohol sales ban policy on the five types of disputes analyzed in this paper. As expected, we observe that this policy decreases the likelihood of conflict for the five outcomes of interest, even though the effects are only statistically significant at the 90% level of confidence for conflicts related to noise and garbage. The size of the coefficients implies that the alcohol sales ban fully reduces conflicts between neighbors related to noise and garbage.

Overall, these findings indicate that the alcohol sales ban affected only those cases where alcohol exacerbates externalities such as noise (e.g., house parties) or garbage (e.g., alcohol packaging). Nevertheless, policymakers must continue analyzing the potential unintended consequences of this policy. There is some evidence suggesting that the alcohol sales ban increased the consumption of adulterated alcohol, and at least 193 individuals died as a consequence of this situation (Chávez, 2020).

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
Post = 1 × treated = 1 × ban alcohol = 1	−0.022 (0.017)	−0.036* (0.022)	−0.016 (0.010)	−0.043* (0.022)	−0.019 (0.012)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	84,185	84,185	84,185	84,185	84,185
$_R2$	0.09	0.09	0.07	0.10	0.09

Note: Controls include sex, age, education, living in an apartment, the logarithm of population density, city's graffiti presence, graffiti victimization, city's crime perception, crime victimization, city's distrust of the police, and police abuse victimization. It also includes interactions by pairs between the variables after, treated, and the variable of interest regarding the heterogeneous effect. Results factored by survey sampling weights. Robust standard errors are clustered at the city level. Significance levels:
*p < 0.1, **p < 0.05, ***p < 0.01.
Source: National Survey of Urban Public Safety (ENSU).

4.3 | Robustness checks

To verify the robustness of our findings, we test several alternative specifications. First, we check the assumption of parallel trends using a placebo test. Second, we show the sensibility of our results using a bounding methodology (Altonji et al., 2005; Oster, 2017). Third, we exclude all sociodemographic and geographical variables to account for the possibility of bad controls. Fourth, we exclude Mexico City and sampling weights from the analysis. Fifth, we include dummy variables for the 70 cities in the sample and weight the regression by density. Finally, we apply a correction for multiple hypothesis testing.

First, we use a placebo test to ensure the results are truly due to the pandemic and not a feature of the data construction. The results are presented in Table A1. Specifically, the placebo test re-estimates Table 2 using data for March 2020, March 2019, December 2019, and December 2018. Recall from the data section that the survey is conducted during the first 15 days of the indicated month, and the questions related to disputes with neighbors correspond to the 3 months before the indicated month.

For example, the survey conducted in March 2020 refers to the disputes between December 2019 and February 2020. The placebo test considers the same difference-in-differences specification with the treatment replaced with March 2020 and December 2019. The "control" individuals correspond to the data from March 2019 and December 2018. In addition, the "before" period corresponds to December 2019 and 2018, and the "post" period corresponds to March 2020 and 2019. Thus, this specification assumes that the lockdown was introduced between the survey conducted in December 2019 and March 2020, which was not the case. We expect the difference-in-differences to be close to zero and insignificant.

Table A1 reveals that all of the conflict variables are statistically insignificant in the placebo test. The placebo test confirms the main results and suggests that the identification strategy satisfies the parallel trend assumption. In other words, there are no unobservable factors changing over time that also affect the COVID-19 lockdown on disputes between neighbors.

Second, we conduct a bounding approach, proposed by Altonji et al. (2005) and refined by Oster (2017).[2] While the Oster (2017) methodology does not establish causality, under some assumptions it can provide information on the robustness of our results against omitted variable bias. This robustness strategy implicitly assumes that selection of observables is informative regarding selection of unobservables. By providing conditions for bounds and

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[2]Several recent empirical studies use Oster's bounding methodology; see, for example, Nghiem et al. (2015), and Walther (2018).

identification, Oster (2017) formalizes the bounding approach proposed by Altonji et al. (2005). The model assumes expected values of the R-squared for simulated regressions with unobservables. If the bounds exclude zero, then the results from the regression are robust to omitted variable biases.[3] Table A2 contains the results of the bounding approach exercise. The first panel assumes an expected R-squared equal to $1.3R^2$, which is the value suggested by Oster (2017) where R^2 refers to the R-squared obtained in Table 2, whereas the second panel assumes an extreme expected R-squared equal to 1. The bounds confirm our results, as gossip is the only outcome that does not pass both analyses. One caveat from this robustness check comes from the outcome for unruly children, which does not pass the extreme R-squared = 1 analysis, meaning that the results for this particular outcome should be taken carefully.

Our third robustness check excludes all sociodemographic and geographical variables from the regression models. Calculations are presented in Table A3. The coefficients maintain a similar magnitude and level of statistical significance to the original specification. This robustness test accounts for possible bad controls that may bias our estimation.

Our fourth robustness check drops Mexico City and sampling weights (given that we do not use the full sample) from the analysis. Mexico City can be an outlier in many characteristics and public policies. Excluding Mexico City helps ensure that the results are not caused by differential effects in Mexico City. We reproduce the difference-in-differences strategy, excluding Mexico City, in Table A4. We observe results excluding Mexico City are consistent with the main results. Hence, our main finding is not a consequence of Mexico City.[4]

Fifth, we add dummy variables for the 70 cities in the sample. These city fixed effects account for time-invariant city characteristics. In addition, we weight the regression by density. Table A5 presents that with the added city fixed effects, almost all of the coefficients remain statistically significant, maintaining or even increasing in magnitude. The only exception is the coefficient measuring disputes associated with unruly children, which is no longer statistically significant (for the case of gossip, the original results also point to a null effect).

Finally, in order to reduce the likelihood of false rejections, we conduct a correction for multiple testing using sharpened False Discovery Rate (FDR) *q*-values (Anderson, 2008). The results appear in Table A6 where the *p*-values are presented in parenthesis and the sharpened *q*-values in brackets. We find that the coefficients that were statistically significant using *p*-values remain statistically significant when using *q*-values.

5 | DISCUSSION

The COVID-19 pandemic exacerbated a set of externalities in many neighborhoods in different Mexican cities, as suggested by our results. By spending more time at home because of the lockdown, neighborhoods in Mexico saw an increase in disruptions to normal coexistence, ranging from a far greater presence of pets as nuisances to more noise. Whether policymakers should follow a Coasian approach with well-defined property rights or full-fledged government intervention to mitigate these externalities depends on the stage of development of each neighborhood and city. The Coasian solution would lead to private arbitration and proper compensation (Coase, 1960). Conversely, full-fledged government intervention would require top-down restrictions and penalties, such as a ban on the sale of alcohol, which seems to have an effect on certain types of disputes, as shown above. The existence of transaction costs during catastrophic times, which make private arbitration between neighbors relatively hard, suggests that top-down policies to regulate externalities in neighborhoods might be the most optimal solution.

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[3]Oster applies this methodology to a sample of papers published in the *American Economic Review*, *Quarterly Journal of Economics*, *The Journal of Political Economy*, and *Econometrica* from 2008 to 2010. She found that using this bounding methodology allowed 90% of the randomized and 50% of the nonrandomized results to continue being statistically significant.

[4]We also exclude one state at a time from the analysis, and we do not observe that the main results change. These results are available upon request.

The quality of neighborhood life carries a set of consequences for the members of each community. Existing literature points to the importance of neighborhoods on human capital (Bügelmayer & Schnitzlein, 2018; Chetty et al., 2016), labor market outcomes (Jahn & Neugart, 2020), crime (Sampson, 2002), violence (Jennings et al., 2011), and happiness (Brodeur & Flèche, 2019). If the impact of COVID-19 is not distributed equally across neighborhoods in Mexico, this could lead to long-term erosion of social capital for communities particularly affected by the pandemic. Lessons from previous crises (e.g., the Great Recession) point to how external factors can reshape communities negatively, fostering neighborhood disorganization (Teasdale et al., 2012).

Consequently, policymakers need to mitigate all social risks rapidly to promote the better development of all neighborhoods across urban Mexico. Government interventions that promote local cooperation to solve specific problems in Mexican neighborhoods, such as public goods (e.g., street lighting and painting), are likely to help resolve externalities. Other regional policies aiming at ameliorating the quality of institutions can also contribute to facilitate cooperation between community members and to resolve disputes in a civil manner. Previous pandemics have shaped many cities across the world, from the "walled" city of Dubrovnik, which was hit hard by the bubonic plague (Blažina-Tomić & Blažina, 2015), to the "unwalled" cities across Europe, which suffered heavily from the Spanish flu (Blažina-Tomić & Blažina, 2015). Likewise, COVID-19 has begun shaping the cities and neighborhoods of the future. Post-pandemic neighborhoods will likely live with a different set of arrangements regarding urban routines, like the splitting of working hours between home and the office, the ubiquity of technology, and more open spaces. These new social arrangements will fundamentally change the way members of neighborhoods behave and interact with each other and will ultimately exponentiate the virtues and vices of our communities. Hence, policymakers across the world must be prepared to undertake these rising externality challenges.

6 | CONCLUSION

This paper analyzes the effects of the COVID-19 lockdown on disputes between neighbors in Mexico. To explore this question, we use data from a representative sample of 70 cities in Mexico that contain information regarding conflicts between neighbors. These recorded disputes include conflicts due to pets as nuisances, noise, unruly children, garbage, and gossip. We use a difference-in-differences strategy to compare the effects of the pandemic with the year before the pandemic occurred. The results show that the lockdown increased disputes between neighbors, including pets as nuisances (45%), noise (31%), unruly children (23%), and garbage (22%). We do not find any effect of the COVID-19 lockdown on disputes between neighbors related to gossip. For the case of unruly children, the impact of the COVID-19 pandemic is statistically significant in our main regression, but fails to pass some robustness checks. Hence, policymakers must be cautious when interpreting findings for this particular type of conflict between neighbors.

We then turn to heterogeneous effects within the sample for the case of the alcohol sales ban. Our findings suggest that areas that implemented this policy experienced a full reduction in the likelihood of disputes related to noise and garbage. We interpret these effects to show that the alcohol sales ban may have prevented house parties and garbage generated by alcohol packaging. However, we are not able to provide a strong conclusion about this heterogeneous effect, as the coefficients are only statistically significant at the 90% level of confidence.

Still, we can conclude that restrictions on mobility from attempted containment of COVID-19 affected social interactions both within and between households. An increase in the amount of time spent at home raises the number of opportunities for both negative and positive interactions between neighbors. While neighbors may provide emotional support during the pandemic, neighbors may also be a source of conflict. Such between-neighbor disputes can cause additional stress during an already stressful period. Local governments should pay attention to the increase in conflicts between neighbors as these may affect social capital within the community.

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APPENDIX
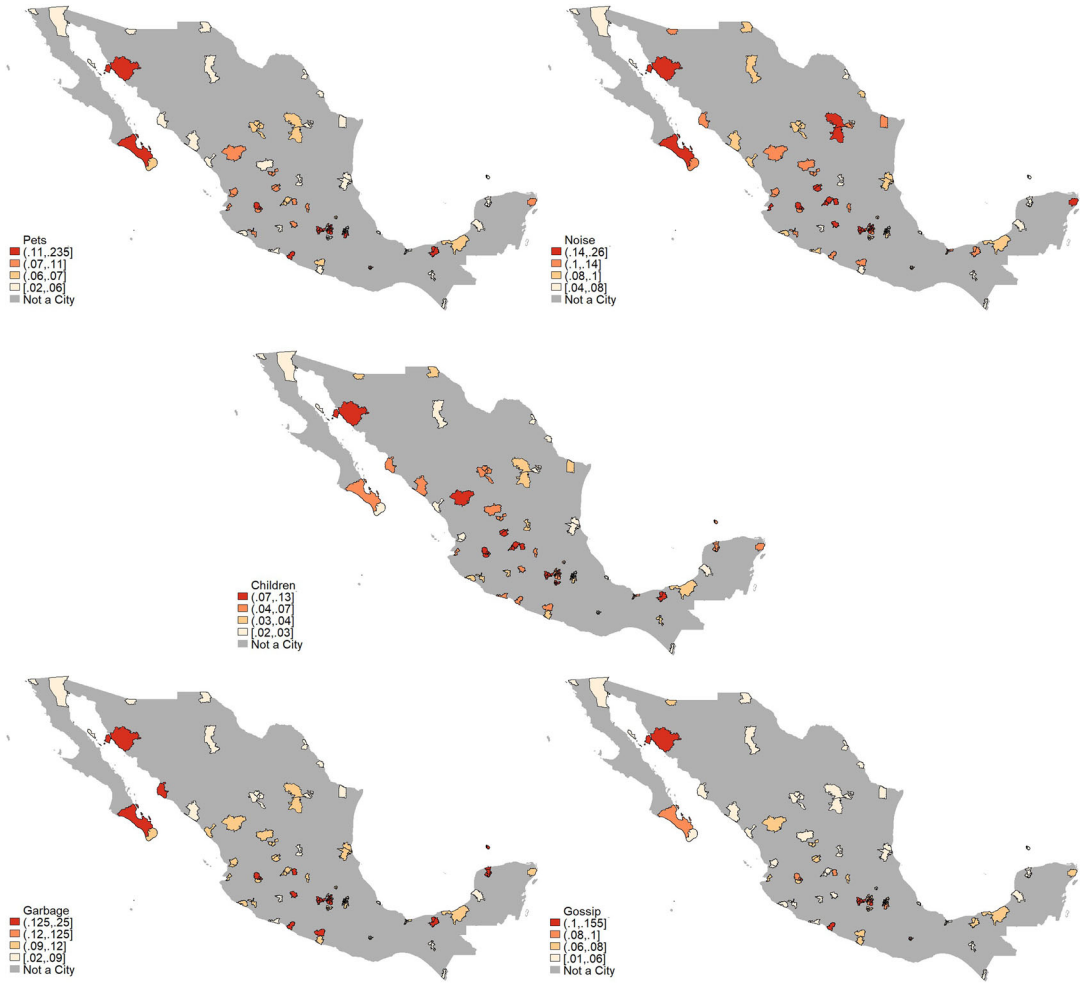
FIGURE A1   Regional distribution of disputes between neighbors by Cities' municipalities

Source: National Survey of Urban Public Safety (ENSU).

Note: Maps correspond to municipalities (districts) for each of the 70 cities in our sample. Outcomes are divided in quartiles.

TABLE A1 Robustness (1): Difference-in-differences (placebo test)

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
Post x treated	−0.006 (0.013)	0.002 (0.010)	−0.004 (0.005)	0.009 (0.008)	−0.000 (0.005)
Post	−0.020** (0.008)	−0.014** (0.007)	−0.006* (0.003)	−0.023*** (0.006)	−0.011*** (0.003)
Treated	−0.006 (0.006)	−0.007 (0.009)	0.003 (0.003)	−0.015* (0.009)	0.004 (0.003)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	79,937	79,937	79,937	79,937	79,937
R^2	0.12	0.11	0.10	0.13	0.11

Note: Controls include sex, age, education, living in an apartment, the logarithm of population density, city's graffiti presence, graffiti victimization, city's crime perception, crime victimization, city's distrust of the police, and police abuse victimization. Results factored by survey sampling weights. Robust standard errors are clustered at the city level. Significance levels:
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.
Source: National Survey of Urban Public Safety (ENSU).

TABLE A2 Robustness (2): Sensitivity analysis using Oster s bounding methodology

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
			$R_{max} = 1.3R^2$		
Post x treated	[0.027, 0.049]	[0.035, 0.044]	[0.007, 0.012]	[0.020, 0.027]	[−0.025, 0.006]
			$R_{max} = 1$		
Post x treated	[0.019, 75.298]	[0.034, 949.752]	[−282.853, 0.014]	[0.015, 173.656]	[−101.931, 0.011]
Controls	Yes	Yes	Yes	Yes	Yes
Observations	84,185	84,185	84,185	84,185	84,185
R^2	0.09	0.09	0.07	0.10	0.09

Note: Controls include sex, age, education, living in an apartment, the logarithm of population density, city's graffiti presence, graffiti victimization, city's crime perception, crime victimization, city's distrust of the police, and police abuse victimization. Results factored by survey sampling weights. The bounds using Oster (2017) methodology are presented in brackets when assuming Rmax = 1.3R2 and Rmax = 1.
Source: National Survey of Urban Public Safety (ENSU).

TABLE A3 Robustness (3): Difference-in-differences (excluding all controls)

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
Post x treated	0.037** (0.018)	0.042*** (0.015)	0.016** (0.006)	0.029** (0.013)	0.007 (0.006)
Post	−0.008 (0.007)	−0.004 (0.005)	−0.001 (0.003)	−0.009 (0.006)	0.001 (0.004)
Treated	−0.013 (0.019)	−0.008 (0.014)	−0.003 (0.005)	−0.010 (0.011)	0.001 (0.007)
Controls	No	No	No	No	No
Observations	84,185	84,185	84,185	84,185	84,185
R^2	0.00	0.00	0.00	0.00	0.00

Note: Results factored by survey sampling weights. Robust standard errors are clustered at the city level. Significance levels:
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.
Source: National Survey of Urban Public Safety (ENSU).

TABLE A4 Robustness (4): Difference-in-differences (excluding Mexico City and sampling weights)

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
Post x treated	0.016*** (0.005)	0.030*** (0.008)	0.012*** (0.004)	0.021*** (0.007)	0.004 (0.004)
Post	0.002 (0.003)	−0.004 (0.005)	−0.000 (0.002)	−0.004 (0.005)	−0.003 (0.003)
Treated	0.004 (0.004)	−0.002 (0.005)	−0.003 (0.003)	−0.009* (0.005)	0.003 (0.003)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	70,699	70,699	70,699	70,699	70,699
R^2	0.07	0.07	0.07	0.08	0.09

Note: Controls include sex, age, education, living in an apartment, the logarithm of population density, city's graffiti presence, graffiti victimization, city's crime perception, crime victimization, city's distrust of the police, and police abuse victimization. Robust standard errors are clustered at the city level. Significance levels:
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.
Source: National Survey of Urban Public Safety (ENSU).

TABLE A5 Robustness (5): Difference-in-differences (including city fixed effects and weighted by density)

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
Post x treated	0.047** (0.019)	0.058*** (0.020)	0.007 (0.004)	0.033** (0.013)	0.008 (0.009)
Post	−0.003 (0.009)	0.002 (0.007)	0.005 (0.003)	−0.002 (0.007)	0.003 (0.003)
Treated	−0.031 (0.021)	−0.028 (0.018)	0.004 (0.005)	−0.016* (0.009)	−0.001 (0.006)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	84,185	84,185	84,185	84,185	84,185
R^2	0.12	0.12	0.09	0.12	0.11

Note: Controls include sex, age, education, living in an apartment, the logarithm of population density, city's graffiti presence, graffiti victimization, city's crime perception, crime victimization, city's distrust of the police, police abuse victimization and city fixed effects. Results factored by density weights. Robust standard errors are clustered at the city level. Significance levels:
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.
Source: National Survey of Urban Public Safety (ENSU).

TABLE A6 Robustness (6): Multiple hypothesis testing

	Pets (1)	Noise (2)	Children (3)	Garbage (4)	Gossip (5)
Post x treated	0.032** (0.037) [0.030]	0.035*** (0.002) [0.004]	0.011** (0.049) [0.038]	0.022** (0.024) [0.021]	0.003 (0.543) [0.263]
Controls	Yes	Yes	Yes	Yes	Yes
Observations	84,185	84,185	84,185	84,185	84,185
R^2	0.09	0.09	0.07	0.10	0.09

*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. *P*-values are in parenthesis and sharpened *q*-values are in brackets.

TABLE A7 Implementation of alcohol sales prohibition

State	Municipality	Ban starts	State	Municipality starts	Ban
Campeche	All	April 5	Guerrero	San Marcos	April 3
Puebla	All	April 17		Iguala	April 17
Quintana Roo	All	April 1		Taxco	May 17
Sinaloa	All	April 13	Jalisco	Mazamitla	March 30
Sonora	All	April 2		Tamazula de Gordiano	March 30
Tabasco	All	April 1	Michoacán	Lázaro Cárdenas	April 18
Yucatán	All	April 10		Zacapú	March 27
Aguascalientes	El Llano	April 2	Morelos	Xochitepec	April 15
	Cosío	March 30		Emiliano Zapata	April 15
	Rincón de los Romos	March 30		Cuautla	April 13
	Asientos	March 30		Temixco	April 7
	Pabellón de Arteaga	March 30		Ayala	April 16
Baja California Sur	Mulegé	April 29		Totolapan	April 6
	Loreto	April 8		Cuernavaca	April 3
	Los Cabos	April 6		Zacatepec	April 12
	Comndú	April 3	Nayarit	Tepic	April 14
Chiapas	San Cristóbal de las Casas	April 13		Bahía de Banderas	April 6
	Comalapa	April 13		Rosamorada	April 2
	Tapachula	April 13		Compostela	April 2
	Tuxtla Gutierrez	April 13		Amatlán de Canas	April 4
	Palenque	April 2		Xalisco	April 4
	Yajalón	April 13		Ixtlán del Río	April 4
Mexico City	Milpa Alta	April 7		Santa María del Oro	April 2
	Magdalena Contreras	April 28	Nuevo León	Cadereyta de Jiménez	April 15
	Miguel Hidalgo	May 1	Oaxaca	Oaxaca	March 26
	Xochimilco	April 24		Salina Cruz	April 1
	Coyoacán	April 23		Santiago Jamiltepec	April 1
	Alvaro Obregón	April 17		Juchitán	April 24
	Gustavo Madero	April 23	Querétaro	Pinal de Amolles	April 5
	Cuajimalpa	April 13	San Luis Potosí	Zaragoza	April 7
	Tlalpan	April 29		Río Verde	April 23
Durango	Gómez Palacio	March 20		Ciudad Fernández	April 23
	Guadalupe Victoria	April 23		Tamazunchale	April 6
	Pánuco de Coronado	April 23		Xilitla	April 23
Eatado de México	Ecatepec	April 22		Axtla de Terrazas	April 24
	Atizapan de Zaragoza	April 20		Matlapa	April 23
	Nezahualcóyotl	April 11	Veracruz	Minatitlán	April 24
	Valle de Chalco	April 29		Agua Dulce	April 16

<div align="right">(Continues)</div>

TABLE A7 (Continued)

State	Municipality	Ban starts	State	Municipality starts	Ban
	Tenancingo	April 27		Las Choapas	May 6
	San Mateo Atenco	April 14		Ixhuatlán de Sureste	May 6
	Almoloya de Juárez	April 22		Oteapan	May 6
	Chalco	May 1		Pajapan	May 6
	Amecameca	May 1		Nanchital	May6
	Atlautla	May 1		Tatahuicapan	May 6
	Chimalhuacán	May 1		Misantla	April 17
Guanajuato	San Luis de la Paz	April 25		Xalapa	May 10
			Zacatecas	Jerez	March 31
				Tlatenango	April 7
				Rlío Grande	April 6

Source: Author elaboration using the Official Gazette and Google searches.