Disasters and corruption: public expectations and tolerance— evidence from Mexico

Vincent T. Gawronski Professor of Political Science, Birmingham-Southern College, United States, **Barry S. Levitt** Associate Professor and Department Chair, Department of Politics and International Relations, Florida International University, United States, and **Richard S. Olson** Distinguished University Professor, Department of Politics and International Relations, Florida International University, United States

Disaster corruption is a vexing problem, damaging state legitimacy and exacerbating human suffering. Mexico has a history of both major disasters and persistently high levels of corruption. A magnitude 7.1 earthquake in 2017 provided an opportunity to study change over time in expectations and tolerance of corruption in disaster relief. Twenty years earlier, Mexico City residents expected, on average, essentially three out of 10 hypothetical trucks loaded with humanitarian assistance to be lost to corruption but expressed near zero tolerance of such conduct. By 2018–19, Mexico City residents expected more than one-half of all relief, six out of 10 trucks, to be stolen, and could tolerate three out of 10 trucks being pilfered. Similar results were found at the national level. Hence, Mexicans appear to be giving up on the state. Addressing corruption in disaster risk reduction and humanitarian relief specifically might provide a template for improving public trust across other state institutions.

Introduction

Few problems are as vexing—and as infuriating—for disaster response and risk reduction professionals as corruption, not only in post-impact humanitarian assistance, but also in mitigation policies and practices. This is particularly the case after a major hazard event reveals pre-event standard ('code') avoidance and/or deficiencies in materials, often glaringly. The stunning losses in Türkiye and Syria after the magnitude 7.8 earthquake and magnitude 7.5 aftershock on 6 February 2023 are only the most recent examples.

Corruption, however, is a difficult analytical and policy reform challenge for disaster science scholars: it is shadowy (almost by definition), problematic to measure, exists and adapts on multiple levels, manifests differently country by country, and defies broad and immediate solutions. Corruption can also be personally dangerous to research, as Sanderson et al. (2022, p. 939) noted in their critical literature review.

In this paper, we first discuss the concept of corruption generally—'normal time corruption'—and how it differs from 'special time corruption' in the context of disasters

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specifically (Gawronski and Olson, 2000). We then look at the case of Mexico (a multi-hazard high-risk country) and its development and corruption contexts, especially its experiences of earthquakes and corruption. After explaining the origin of the '10 trucks' survey question about corruption in humanitarian relief and establishing a baseline from two 1997 and 1998 national surveys, we explore more recent public opinion data from Mexico. These latter surveys were conducted in the country in 2018–19 (in Greater Mexico City; now officially Ciudad de México, or 'CDMX') and in 2020 and 2022 (nationally). The goal was to probe Mexican public expectations and tolerance of disaster-related corruption and to determine if those attitudes were stable or, instead, had changed over time.

Research, however, no matter how modestly framed at the outset, can lead to the unexpected, and our findings posed more profound (and cross-nationally-relevant) questions about the public experiencing endemic system-wide corruption over many years and its effects on both public tolerance and expectation of it—even in the relatively specialised areas of disaster response and disaster risk reduction. We will return to these issues in the conclusion.

Understanding corruption

On its web page titled 'What is Corruption?', the widely respected organisation Transparency International (TI) defines corruption as 'the abuse of entrusted power for private gain' and outlines its corrosive effects:

Corruption erodes trust, weakens democracy, hampers economic development and further exacerbates inequality, poverty, social division and the environmental crisis.[1]

For many scholars, however, Nye's (1967, p. 419) early definition still resonates:

Corruption is behavior which deviates from the formal duties of a public role because of private-regarding (personal, close family, private clique) pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence. This includes such behavior as bribery (use of a reward to pervert the judgment of a person in a position of trust); nepotism (bestowal of patronage by reason of ascriptive relationship rather than merit); and misappropriation (illegal appropriation of public resources for private-regarding uses).

Reform rhetoric and symbolic or single-case actions aside, lasting solutions to corruption are frustratingly elusive, as Diamond (2007, p. 119) has pointed out:

Endemic corruption is not some flaw that can be corrected with a technical fix or a political push. It is the way that the system works, and it is deeply embedded in the norms and expectations of political and social life. Reducing it to less destructive levels – and keeping it there – requires revolutionary change in institutions.

The problem with 'revolutionary change', of course, is that it is rare and often brings with it highly negative unintended consequences. Although not a principal focus of their literature review on the intersections of disasters, vulnerability, corruption, and the built environment, Sanderson et al. (2022) suggest a more moderate set of 'countering strategies and safeguards' against corruption that include independent judiciaries, investigative journalism, and community-based monitoring. We will return to both Diamond's (2007) and Sanderson et al.'s (2022) arguments in the conclusion of this paper.

What makes corruption such a deeply rooted problem is that, when it becomes the modus operandi of the larger political and economic system, the costs of not participating in it become so high that non-participation is problematic, even for those individuals and organisations that would prefer probity. Morris (2022) argues that one of the fundamental dilemmas of corruption is that those in power frame how publics understand corruption and any so-called solutions, but those individuals have little incentive to change substantively the very systems that benefit them so greatly.

'Special time' disaster corruption

In disaster contexts specifically, corruption disrupts, distorts, and degrades two essential functions of the modern state: pre-event hazard mitigation/disaster risk reduction; and post-event disaster relief. While state capacities vary considerably, disaster corruption (both pre and post event) impedes good governance, erodes public trust and state legitimacy, and results in unnecessary human suffering.

Corruption before, during, and after hazard events that have become disasters has been well-documented, with the academic literature growing with each significant hazard event because disasters provide such rich and varied opportunities for such conduct (Fenner and Mahlstein, 2009). As Maxwell et al. (2012, p. 158) explained:

> *Corruption threatens the humanitarian endeavor by preventing lifesaving assistance from getting to those who are most in need, by potentially undermining the support of the public in countries who finance it, and by weakening the belief of those receiving it that assistance is being offered impartially and independently.*

Voigt and Thornton (2015, p. 1293) examined the specific case of post-Hurricane Katrina corruption in New Orleans, Louisiana, and asserted that it constituted a human rights violation 'stemming from lack of preparedness and inadequate response due to administrative malfeasance, negligence, misconduct, and corruption'.

Addressing the problem more broadly, Tierney (2014, p. 233) stated:

> *Contributing further to risks in nations outside the core of the world system are deficiencies in governance that include outright state failure, lack of state capacity to manage risks, and pervasive corruption [. . .] Research indicates that independent of other factors, such as levels of poverty, societal corruption is a predictor of disaster death tolls.*

The enormous influx of financial and material resources coupled with the need to distribute them quickly provide ample opportunities for disaster corruption, particularly in the public sector (Yamamura, 2014). In their research on corruption in the United States, Leeson and Sobel (2008) found a positive association between incidences of disasters/ disaster relief and corruption. Similarly, Escaleras and Register (2016) identified a significant positive relationship between certain natural hazards and public sector corruption. Nguyen (2017, p. 156) provided several explanations for the connection:

> *A natural [sic] disaster arguably influences corruption via three channels. First, in disaster time, consumption is low, the marginal utility of consumption is high, and thus the value of siphoning off public money is high. . . . Second, government transparency may be worsened in the affected communes due to the collapse of infrastructure and the disorder. . . . Officials may find it easier to engage in corrupt behaviour under such circumstances. Finally, the occurrence . . . is usually accompanied with relief aid from the central government and/or other donating organisations.*

Nikolova and Marinov (2017) demonstrated how financial flows in the wake of a disaster increase corruption in local government. Aguirre and Lane (2019) reassessed disaster–crime linkages, finding that disaster-related petty fraud, crime, and corruption can morph into costlier white-collar crimes as affected areas move into reconstruction (see also Sandu and Nitu (2013) on organised crime more generally, and Green (2005), Transparency International (2005), and Savona (2010) on organised crime in the building and construction sector).

Although corruption exists in disaster risk reduction (such as code enforcement) and other pre-event phases, 'special time' disaster corruption in the post-event phases is held to be particularly heinous because it exacerbates human suffering. Academic research into corruption during the response and recovery phases has revealed some of the conditions that make corruption more versus less likely. For example, Schultz and Søreide (2008) analysed the factors affecting how and where corruption occurs in the procurement of relief supplies, identifying size and location of contract, complexity, discretion, reduced financial controls, increased demand for emergency supplies, pressure to spend, country of emergency, agency experience in the country/sector, and the firm's country of origin.

Tracking humanitarian relief and financial assistance is a significant challenge in any large-scale endeavour but is a primary focus in the disaster corruption literature. Much of this accountability research centres on how aid goes missing and the short- and long-term impacts on people and governments. A glaring case in point: the USD 13.5 billion in donations and pledges for Haiti after the 2010 earthquake and what happened to this money (Ramachandran and Walz, 2012). More generally, Kreidler (2006) examined how certain types of corruption—nepotism, bribery, kickbacks, and theft and diversion— become severe problems for emergency operations.

A corrupt, poorly managed post-event disaster response can also affect corruption the *next* time, a type of vicious cycle. Escaleras and Register (2016, p. 765) contend that 'the

way prior disasters are often corruptly managed, can and often . . . [is] a significant determinant of subsequent corruption'. In other words, as Diamond (2007) warned (and as noted above), corruption becomes an endemic part of the larger system.

Turning to pre-event disaster corruption, Alexander (2017, p. 16) identified four specific types of corruption associated with the governance of disaster risk: (i) failure to observe rules, laws, regulations, and standards that relate to the safety and protection of the public; (ii) exploitation and lack of protection of vulnerable members of the public; (iii) propagation of vulnerability to hazards through failure to take appropriate risk reduction measures, or weakening of existing measures; and (iv) undermining representation of the people, human rights, and community cohesion.

'Earthquakes do not kill people, buildings kill people' is part of the cautionary lore of every seismic engineering course. Corruption in the construction industry is often the most notorious, which can result in mass casualty building collapses ('pancaking', so vividly exemplified in Türkiye following the earthquake and aftershock in 2023).[2] Chan and Owusu (2017) pinpointed the many forms and practices of corruption in the construction industry, while Montiero, Masiero, and de Souza (2022, p. 2,747), in their review of the academic literature, determined 'who is involved, causes and consequences, forms of corruption, solutions, and barriers to dealing with corruption'. According to Kenny (2007, p. 2):

> *Because the industry involves complex, non-standard production processes that foster asymmetric information stocks between clients and providers, and because of its many close ties to government, it is perhaps unsurprising that construction is frequently held up as one of the most corrupt industries worldwide.*

A good portion of the literature on pre-event disaster corruption focuses specifically on building codes where weak construction standards and lack of code and zoning enforcement—classic policy and implementation issues—have deadly consequences. Countries with relatively more corrupt public sectors tend to suffer more when disasters strike (Anbarci, Escaleras, and Register, 2005; Escaleras, Anbarci, and Register, 2007). Widely cited, Ambraseys and Bilham (2011) estimated that 83 per cent of all deaths in earthquake-collapsed buildings globally over 30 years occurred in countries that were 'anomalously corrupt' given their level of socioeconomic development. More recently, Fakunle et al. (2020, p. 17) reviewed the literature to understand the major barriers to code enforcement globally: 'corruption in the enforcement of building codes is linked with widespread building failure and loss of life in disasters and interestingly, the majority of the deaths related to earthquakes have occurred in countries considered to be the most corrupt'.

The case of Mexico, to which we will devote the remainder of this paper, illustrates very clearly this deadly combination: it is a relatively well-developed country both socially and economically but is 'anomalously corrupt' given that it also faces a high risk of disaster owing to multiple hazards, including major earthquakes.

Mexico's 2017 earthquake: impacts in a national risk, development, and corruption context

The event and its effects

On 19 September 2017, central Mexico (especially the State of Puebla and the CDMX area) was struck by a magnitude 7.1 earthquake—on a date that coincided with the catastrophic and vividly remembered 1985 earthquake that had particularly devastating impacts on central zones of Mexico City.[3] According to the Centre for Research on the Epidemiology of Disaster's EM-DAT database, the 2017 event killed 369 people, injured 6,000, affected another 250,000, and caused more than USD 6 billion in estimated damage.

Similar to the 1985 earthquake, the 2017 event also had political consequences: the aftermath—revelations about deep corruption in building code enforcement, as well as the government's poor disaster response—hurt incumbent politicians and parties in the lead-up to the national elections on 1 July 2018 (Robles and Benton, 2018). Indeed, Martinez-Alvarez and Rodriguez-Valadez (2023, p. 321) found the 2017 earthquake to be 'one of the most politically salient topics in the consequential 2018 election that happened a few months afterward'. Victories for Andrés Manuel López Obrador as President of the Republic and Claudia Sheinbaum Pardo as Head of Government of Mexico City marked a significant leftward ideological shift in Mexican politics.

Mexico's multi-hazard risk profile

In 2017, Mexico ranked 94th on the WorldRiskIndex.[4] Notwithstanding, between 2000 and 2020, Mexico experienced 139 disaster events, resulting in 2,083 deaths, more than 14 million people affected, and in excess of USD 50 billion in total estimated damage.[5] The World Bank (2020) made the point:

> *Mexico is highly exposed to many natural hazards. Over 40 percent of the country's territory and nearly a third of the population is exposed to hurricanes, storms, floods, earthquakes, and volcanic eruptions. In economic terms, this translates to 30 percent of the country's GDP [gross domestic product] considered to be at-risk from three or more hazards and more than 70 percent at-risk from two or more hazards.*

Mexico's development context

As noted above, Mexico is no longer a poor country, at least statistically at the national level. The World Bank classifies Mexico as an upper-middle-income economy. In 2017, Mexico's gross domestic product (GDP) in current dollars was USD 1.16 trillion, second in Latin America only to Brazil's USD 2.06 trillion—the two countries together accounting for nearly one-half of the entire region's GDP.[6]

Mexico's corruption context

From 1995, Transparency International has scored and ranked countries on perceptions by 'international businessmen and financial journalists' of public sector corruption. TI

Table 1. TI's Corruption Perceptions Index for Mexico: 2012, 2018, 2019, 2020, 2021, 2022

Year	Score	Rank	Countries Tied with Mexico in the Rankings
2012	34/100	105th	Algeria, Armenia, Bolivia, Gambia, Kosovo, Mali, Philippines
2018	28/100	138th	Russia, Papua New Guinea, Lebanon, Iran
2019	29/100	130th	Maldives, Togo, Mali, Myanmar, Laos, Guinea
2020	31/100	124th	Pakistan, Bolivia, Kyrgyzstan, Kenya
2021	31/100	124th	Gabon, Niger, Papua New Guinea
2022	31/100	126th	Bolivia, Laos, Uzbekistan

Sources:
https://www.transparency.org/en/cpi/2012; https://www.transparency.org/en/cpi/2018;
https://www.transparency.org/en/cpi/2019; https://www.transparency.org/en/cpi/2020;
https://www.transparency.org/en/cpi/2021; https://www.transparency.org/en/cpi/2022
(last accessed on 7 June 2023).

gives each country an annual public sector score ranging from zero (highly corrupt) to 100 (very clean).[7] As Table 1 indicates, since at least 2012, Mexico has consistently scored poorly and, in its global rankings, never scored higher than 34/100 (and twice only in the high twenties), consistently finding itself in distinctly unsavoury company.

Nearly every comprehensive textbook or chapter on politics, political economy, and history in Mexico addresses the issue of corruption (Morton, 2013; Deeds, Meyer, and Sherman, 2017; Camp and Mattiace, 2019; Edmonds-Poli and Shirk, 2020). Political scientists in particular have paid a great deal of attention to the prevalence, perceptions, and political culture of corruption in Mexico (Morris, 1991, 2008, 2009, 2021; Bailey and Paras, 2006; Blake and Morris, 2009; Morris and Klesner, 2010).

In 2016, on behalf of TI, Latinobarómetro and Market Research Services conducted public opinion surveys focusing on corruption in 20 countries across Latin America and the Caribbean. The results were tellingly negative (Pring, 2017, p. 6). For Mexico specifically, 61 per cent of respondents thought corruption had increased a lot ('mucho') or somewhat ('algo') over the previous 12 months, and the same percentage of respondents thought that the Mexican government was doing a poor job of tackling it. Across the 20 countries surveyed, Mexican respondents were also the most likely to have paid a bribe to access a public service; more than half (51 per cent) reported having done so. When surveyed again in 2019, 44 per cent of respondents thought that corruption had increased over the previous 12 months, and 34 per cent reported paying a bribe to a public official to obtain public services (Pring and Vrushi, 2019, p. 46).

A 2018 Latinobarómetro survey confirmed that most Mexican respondents believed that their country had become even more corrupt over the previous year, with 47 per cent indicating that corruption had increased a lot and 27.4 per cent stating that it had increased somewhat. Data from the 2018–19 *AmericasBarometer* of Vanderbilt University's Latin American Public Opinion Project (LAPOP) further confirmed the prevalence of low-level corruption in Mexico: 32 per cent of Mexicans were able to recall at least one

specific incident in which they had been asked for a bribe during the previous 12 months.[8] In CDMX, the total was more than 38 per cent. The most prevalent perpetrators were police officers and municipal and court clerks.

Regarding building codes, Levitt et al. (2019) found, in their analysis of 2014 *Americas-Barometer* survey data from 12 Latin American and Caribbean countries, that expectations of building code enforcement were fairly high in Mexico (greater than in Trinidad and Tobago, Belize, Uruguay, Chile, Suriname, and Nicaragua, but less than in the Dominican Republic, Honduras, the Bahamas, Barbados, and Ecuador). More notably, however, Mexicans' expectations of corruption in building code enforcement were almost the highest in the region (second only to the Bahamas).

Corruption associated with disasters, in both the pre- and post-event periods, may be even more consequential than other, everyday forms of corruption. The 1985 Mexico City earthquake disaster revealed corruption in urban planning and building construction (Davis, 2005), and the government's response demonstrated the authoritarianism, ineptitude, and corruption of the long-dominant one-party regime created by the Partido Revolucionario Institucional (PRI) (Smith, 1990), which attempted to maintain its grip on public life even in the aftermath of the earthquake.[9] Davis (2005, p. 273) noted:

> Yet it was not just the resilience of corruption that was so troubling in the aftermath of the earthquake. The ruling party also seemed intent on showing that it was business as usual, not just with respect to macroeconomic policy, but in its efforts to wield power and authority over citizens. The PRI's resolve in this regard seemed to strengthen as citizens themselves began organizing in reaction to the failures and corruption in the clean-up.

Within just a few years—and partly as a result of its poor response to the deadly 1985 earthquake—the PRI confronted the beginning of the end of its seven-decade-long hold on power in Mexico.

And again, corruption kills: 2017

Returning to the 2017 earthquake, a journalistic investigation by the civil society organisation Mexicanos Contra la Corrupción y la Impunidad (Mexicans Against Corruption and Impunity)[10] revealed that corruption and negligence contributed directly to most of the building collapses in Mexico City. This is consistent with the general argument of Ambraseys and Bilham (2011, p. 153), who noted:

> Corruption takes the form of bribes to subvert inspection and licensing processes, and of covert activities that reduce costs and thereby compromise the quality of structures. The assembly of a building, from the pouring of foundations to the final coat of paint, is a process of concealment, a circumstance ideally suited to the omission or dilution of expensive but essential structural components.

Poole and Renique (2017, p. 389) identified corruption connections between the 1985 and 2017 earthquake disasters in Mexico:

In those areas of the city that experienced a post-1985 real estate boom, the close ties between local government and private construction interests resulted in weak enforcement of the city's new, much stricter building codes. The extensive damages caused by the 2017 quakes can thus be traced not just to the Cocos tectonic plate or the fact that this city of over 21 million was built on the loose soils of a former lake, but also what Proceso *[a popular news magazine] has aptly described as the 'rotten foundations of the real estate boom'.*

A journalistic investigation by *The Guardian* (Pskowski and Adler, 2017) uncovered more than 6,000 complaints about construction violations before the 2017 earthquake:

Since 2012, the residents of Mexico City have lodged nearly 6,000 complaints about construction project violations, with no public record of how many were followed up. Many of the buildings in question subsequently collapsed in the 19 September [2017] earthquake, which was notable for the high number of new or recently remodelled buildings that suffered surprising damage.

A particularly tragic example of a lack of building code enforcement before the 2017 earthquake was the collapse of the Colegio Enrique Rébsamen, which killed 19 schoolchildren and seven adults. Unapproved and uninspected additions to the school building and missing or falsified documentation established the preconditions for catastrophic structural failure. Experts determined that the fourth-floor addition ordered by the school's owner/director put too much weight on the lower floors (Fuentes, 2017). The owner/director was eventually convicted of manslaughter.

The collapse of so many buildings in the 2017 earthquake, however, should not be a surprise. Just a year previously, Reinoso, Jaimes, and Torres (2016, p. 11) had reported from their sample of 150 mid-rise buildings constructed after 2004 in Mexico City that 'many would have an inadequate performance during an intense earthquake, as they apparently do not meet the minimum requirements established by the MCBC-2004'. It should be noted that the 2004 Mexico City Building Code (MCBC-2004) is the most advanced and strictest in the country and that it serves as a model for municipalities nationwide.

The reality (and not only in Mexico) is that the best building codes and land use regulations on paper are rendered weak or even null in practice if developers, architects, engineers, planners, and inspectors fail to follow them—or are pressured or bribed to 'look the other way' and not enforce them. In effect, building code and land use corruption in pre-event 'normal time' thus creates structural collapse time bombs, which become major casualty sites when a hazard event takes a community into post-impact 'special time'.

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The original '10 trucks' survey research questions

An especially blatant case of real-world 'special time' corruption occurred under Anastasio Somoza, Jr.'s regime in Nicaragua after the 1972 earthquake that devastated Managua, the country's capital. As Henry A. Kissinger's National Bipartisan Commission on Central America report (1984, pp. 21–22) put it:

> [Somoza's] rule was characterized by greed and corruption so far beyond even the levels of the past that it might well be called a kleptocracy; it included a brazen reaping of immense private profits from international relief efforts following the devastating earthquake of 1972.

The observations of one of the present authors in the aftermath of that 1972 event led Gawronski and Olson (2000) to reflect on public reaction to the seizure of humanitarian assistance and to field two public opinion surveys in Mexico in 1997–98. These surveys included a pair of novel questions addressing attitudes towards disaster corruption in Mexico. In a 1997 MORI de México poll, Mexico City residents ('*chilangos*') were asked the following hypothetical question:

> *Después de un desastre natural, si llegan diez camiones con comestibles y medicamentos enviados por organizaciones internacionales, ¿qué tantos camiones soportaría usted que tomaran oficiales corruptos del gobierno? [0–10].*
>
> *(After a natural disaster [sic], if 10 trucks arrive with food and medicine sent by international organisations, how many trucks would you tolerate (or put up with) being taken by corrupt government officials? [0–10].)*

Two of the authors of this paper reported being more than surprised by the results (Gawronski and Olson, 2000, p. 349). Omitting the 38 'don't know/no response' values from the total number of Mexico City respondents (n=1,225), nearly 85 per cent indicated that they would not tolerate *any* trucks being lost to corruption, and the average of the deemed tolerable number of trucks stolen was only one-third of the contents of one truck: 0.3. Then, a broader (national) 1997–98 MORI survey modified the hypothetical '10 trucks' question to determine the number of trucks expected to be lost to corruption:

> *Después de un desastre natural, si llegan diez camiones con comestibles y medicamentos enviados por organizaciones internacionales, ¿cuántos de los diez serán perdidos por la corrupción? [0–10].*
>
> *(After a natural disaster [sic], if 10 trucks arrive with food and medicine sent by international organisations, how many trucks will be lost to corruption? [0–10].)*

At the national level (n=1,642), an average of 2.9 trucks with disaster relief supplies were *expected* to be lost to corruption. Among CDMX residents, the average was nearly the same: 3.0 trucks. Still, at that time, nearly 37 per cent of Mexicans (and 34 per cent of CDMX residents) reported believing that *no* trucks carrying humanitarian assistance would be stolen.[11]

An opportunity to replicate the '10 trucks' questions

The 19 September 2017 Puebla–Mexico City earthquake allowed the authors to replicate the original 1997–98 '10 trucks' questions, including them in a survey fielded in the CDMX area in late 2018/early 2019 by Vanderbilt University's LAPOP Lab. The results sharply contrasted with those from two decades earlier (see Table 2).

To recall, in 1997, CDMX residents indicated that they would tolerate very little humanitarian aid being lost to corruption. By 2018–19, however, the average Mexico City respondent found it tolerable for more than three (3.4) out of 10 trucks of relief aid to be stolen by corrupt officials—10 times greater than the 1997 average.

More troubling, in 2018–19, fully 10 per cent of CDMX residents told pollsters that they would tolerate *all* the hypothetical humanitarian aid going missing, and more than 38 per cent said that they would tolerate *five or more* trucks being lost to corruption (up from just 1.5 per cent of 1997 respondents). Another point of contrast: in 2018–19, only 35 per cent of CDMX residents said they would not put up with *any* disaster relief being stolen, down from 84 per cent in 1997.

Expectations of corruption also increased, if less dramatically. In MORI's 1997–98 national-level survey, the mean number of trucks that Mexico City residents expected to be stolen was 3.0. However, in the LAPOP Lab's 2018–19 CDMX survey, an average of

Table 2. Number of trucks that CDMX residents would tolerate being lost to corruption, 1997 versus 2018–19

Number of trucks	1997 Greater CDMX Survey		2018–19 Greater CDMX Survey	
	Frequency	Valid percentage	Frequency	Valid percentage
Zero	1,003	84.5	643	35.3
One	88	7.4	117	6.4
Two	49	4.1	103	5.7
Three	25	2.1	140	7.7
Four	4	0.3	121	6.6
Five	8	0.7	288	15.8
Six	3	0.3	61	3.4
Seven	2	0.2	67	3.7
Eight	0	0.0	73	4.0
Nine	0	0.0	25	1.4
Ten	5	0.4	185	10.2
'Don't know/no response' or missing values	38	–	69	–
Total	**1,225**	**100.0**	**1,892**	**100.0**

Note: percentage columns may not add up exactly to 100 owing to rounding.
Source: authors.

Figure 1. Tolerance and expectations of corruption in disaster relief efforts (CDMX)

Source: authors.

6.1 trucks were expected to be lost to corruption, double the average from two decades earlier (see Figure 1).

The 2018–19 CDMX survey data allowed for further analysis. The results show a weak but statistically significant positive correlation between age and the number of trucks expected to go missing and between age and the number of stolen trucks tolerated.[12] Older respondents appeared both to tolerate and expect more disaster relief aid to go missing than did younger respondents. A weak negative correlation exists between education and the number of stolen trucks that respondents would tolerate going missing.[13] The data also show respondents with more years of formal education are somewhat less tolerant of disaster relief being lost to corruption. The same association holds for respondents from higher-income households, who are likewise less tolerant of this form of corruption.[14]

Concerned by the relatively large numbers of extreme responses ('none' or 'all') to these disaster corruption questions, the lead author of this paper visited the Mexico City-based firm that conducted the survey, Data Opinión Pública y Mercados (Data OPM),[15] meeting with two separate groups of five Data OPM interviewers on 30 July and 1 August 2019. This was an opportunity for the interviewers to share field experiences directly and offer their impressions of how respondents received, understood, and reacted to the earthquake-related questions.

Three significant takeaways emerged from these sessions: (i) the earthquake questions re-energised both the interviewers and the respondents in what often became atypically long face-to-face survey interviews (45+ minutes); (ii) if the respondent had been affected by either the 1985 or the 2017 event, the person would often share vivid recollections; and (iii) respondents often spontaneously elaborated on their answers to the more political questions with expressions of disgust, sometimes accompanied by highly colourful Mexican expressions and equally vivid physical gestures about the government, particularly its leadership.[16]

The Data OPM interviewers reported being confident that the most cynical people—those who expected rampant corruption—would simply tolerate corrupt officials stealing most or all of the trucks, adding phrases such as '*Así es como es*' ('That's just how it is').

The Data OPM team members also confirmed that most respondents appeared to understand the '10 trucks' questions. However, they added that a few could have been confused by the Spanish verb '*soportar*' ('put up with') in the question wording and suggested that using the more straightforward '*tolerar*' ('tolerate') instead might have improved people's immediate grasp of the question and should be considered in the future.[17]

An opportunity to refine the '10 trucks' tolerance question

In 2020 we had an opportunity to follow the Data OPM team's advice and reword the corruption tolerance question for a national-level survey in Mexico (n=1,024):

> *Después de un desastre natural [sic], si llegan diez camiones con comestibles y medicamentos enviados por organizaciones internacionales, ¿qué tantos de estos camiones soportaría usted – es decir, toleraría – que fueran tomados por funcionarios del gobierno? [0–10].*
>
> (After a natural disaster [sic], if 10 trucks arrive with food and medicine sent by international organisations, how many of these trucks would you put up with – that is, you would tolerate – being taken by government officials? [0–10].)

This revised version of the tolerance question produced results similar to those from the 2018–19 Mexico City survey. Not including the 'don't know/no response', respondents indicated they would *tolerate* an average of two trucks being taken by corrupt government officials, slightly fewer than in the 2018–19 survey results. Still, they *expected* an average of slightly more than six trucks to go missing. However, almost 24 per cent of the respondents reported being able to tolerate five or more missing trucks, and nearly six per cent said that they would tolerate all of them going missing.

We repeated this version of the question in another national survey (n=1,000) fielded in Mexico in late September/early October 2022. Consistent with previous results, the average for all respondents was being able to *tolerate* two trucks being lost to corruption but *expecting* six to go missing. Again troubling, nearly 26 per cent of respondents in the 2022 survey expected *all* trucks to go missing, and nearly eight per cent reported being able to tolerate what is essentially total corruption. This suggests, unfortunately, that the highly cynical attitudes recorded in 2018–19 cannot be dismissed as being merely due to measurement issues.

Conclusion

The stated goal at the beginning of this paper was to analyse public opinion data collected periodically over more than 20 years to probe Mexicans' tolerance and expectations of disaster-related corruption and to determine if those attitudes were stable or if they changed over time. We found that both expectations and, especially, tolerance of corruption in post-disaster humanitarian relief increased vertiginously.

In the 1997 version of the '10 trucks' questionnaire, the average number of trucks that Mexico City survey respondents reported being able to tolerate as lost to corruption in a disaster was less than one, and a remarkable 85 per cent said that they would not tolerate *any* trucks being lost that way. Phrased to explore corruption expectations in a comprehensive national 1997–98 survey, the average number of trucks that Mexicans in the sample expected to be lost to corruption was slightly less than three, with 37 per cent still expecting that no trucks with humanitarian assistance would be lost.

By 2018–19, the picture had changed dramatically, with Mexico City respondents reporting being able to tolerate three out of 10 trucks with humanitarian assistance being lost to corruption. Even more disturbing, the average number of trucks that Mexico City respondents expected to be lost to corruption had surged to six out of 10, and 38 per cent reported even being able to *tolerate* five (half of the trucks) or more being lost. In addition, compared to the 84 per cent in the 1997 Mexico City sample who reported being unwilling to see any relief trucks lost to corruption, only 35 per cent offered that opinion in 2018–19.

These dim views of disaster relief efforts did not improve in 2020 or 2022. In both survey waves, the average *tolerated* number of trucks carrying humanitarian assistance lost to corruption was two, and the *expected* number was, on average, six.

We find that there has been an extraordinary shift over 20+ years in Mexicans' expectations and tolerance of corruption, even in the 'special time' associated with disasters. This finding raised an obvious next set of questions: What could explain this change over time? What might have turned Mexicans so negative, so cynical over those 20+ years? Although answering these questions will require further analysis, we propose two possible, interconnected explanations: (i) the post-2000 transition in Mexico from an authoritarian regime to a more open, competitive, and democratic one; and yet, (ii) despite the change of system, little or no reduction in corruption.

In the 1990s, in the culmination of a decades-long process, opposition electoral victories at the local and state level in Mexico gathered momentum, particularly as the 2000 presidential poll approached. That election saw the victory of Vicente Fox, the presidential candidate of the Partido Acción Nacional. His win ended the PRI's 71-year authoritarian hold on Mexico's most powerful political office. While most observers at the time heralded the democratic transition and hoped for a 'new day' in Mexico's politics, deeply rooted systems of corruption remained. Those systems adapted to a different regime and to a multiparty system with a more diverse array of leaders. That is, the 'revolutionary change in institutions' that Diamond (2007) thought necessary for true reform did not occur in Mexico. As a result, by the time of the 2018–19, 2020, and 2022 surveys, perhaps Mexicans had become jaded about the improvements that democratisation was supposed to bring, instead accepting the adage that 'the more things change, the more they remain the same'.

We conclude that the public in Mexico now appears dispirited and pessimistic about the abilities of any person, political party, or institution to combat systemic corruption. We are particularly troubled by the more than one-quarter (26 per cent) of Mexican respondents, in 2022, who expected that all 10 of our hypothetical humanitarian assistance trucks would be lost to corruption.

If Mexico has not undergone the radical institutional changes that Diamond (2007) argued were required to combat corruption effectively, then perhaps the Sanderson et al. (2022) argument that 'countering and safeguarding strategies' against corruption might work. However, corruption in Mexico is so well-rooted and reaches from the street level up to the highest echelons of government that it is highly resistant to reform. What is more, investigative journalism focused on corrupt government officials—vital for holding powerful people accountable—is very dangerous work in Mexico. According to the Committee to Protect Journalists, since 2000, more than 140 journalists and media workers have been killed in the country (with 13 murdered in 2022 alone).[18]

So, dealing with 'normal time' public corruption with head-on tactics may be impossible, leaving us to consider strategies specifically to reduce disaster-related corruption. That more focused approach then may generate a demonstration or spill-over effect across other institutions in Mexico.

To explain: given the critical roles of the state in disaster risk reduction and humanitarian response and disaster recovery, rebuilding trust in those specific types of governmental institutions might help to create virtuous cycles, rather than the vicious cycles of low trust and poor performance that only feed further corruption. Following Sanderson et al.'s (2022) perspective, we suggest, therefore, a set of policies to strengthen functionally connected, mission-oriented government institutions that prioritise pre-event disaster risk reduction (particularly those dealing with building code and land use decisions and implementation) and post-impact event response and humanitarian assistance (especially those that could work cooperatively with civil society organisations). Bolstering such institutions to reduce corruption and increase public trust in government could then serve as a template or exemplar to address systemic corruption more broadly across institutions. Further research on the social, economic, administrative, and political complexities undergirding corruption in Mexico is, no doubt, required.

Finally, and as noted at the outset of this paper, no matter a project's original questions, the very process of research and the findings it yields can (and perhaps should) push researchers to pose new and better questions. That was our experience here. Uncovering, in Mexico, the marked shift over 20+ years in public expectations and tolerance of corruption (even disaster-related corruption) led to the emergence of a more profound and globally relevant question: in countries plagued by endemic system-wide corruption, does the public become so inured to it that people not only expect corruption but also come to tolerate it—even when that means tolerating the theft or misappropriation of something as vital as humanitarian relief supplies? This question merits extensive cross-national research because the stakes are so high, not only for the victims of future disasters, but also for the prospects of policy and implementation reforms and anti-corruption strategies more broadly.

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Vincent T. Gawronski, Barry S. Levitt, and Richard S. Olson

Data availability statement

Data sets used in this study are available from the corresponding author upon reasonable request.

Correspondence

Vincent T. Gawronski, Professor of Political Science, Birmingham-Southern College, Box 549007, 900 Arkadelphia Road, Birmingham, AL 35254, United States.
E-mail: vgawrons@bsc.edu

Endnotes

1 See https://www.transparency.org/en/what-is-corruption (last accessed on 7 June 2023).

2 While revising this manuscript for resubmission, a magnitude 7.8 earthquake followed by a magnitude 7.5 aftershock event hours later struck along the Türkiye–Syria border on 6 February 2023. More than 45,000 people were killed in Türkiye, while the death toll in Syria is estimated at more than 6,000. Once again, corruption in the building and construction sector and in inspection regimes have been identified. In Türkiye, however, it was not just corruption. Building codes had evolved in the country, especially after the magnitude 7.6 Izmit earthquake in 1999, but to stimulate the construction sector, a fee-based system of amnesty allowed for structures, including multistorey apartment blocks, to be built—legally— that were not up to Türkiye's official seismic standards. The result has been literally hundreds of mass casualty 'pancake' collapses across the affected region.

3 On 19 September 2017, Mexico held its annual earthquake drill—the *mega simulacro*—to commemorate the devastating 1985 Mexico City earthquake and to prepare residents for future seismic events. Two hours later the sirens sounded again, but this time it was not a drill. A magnitude 7.1 earthquake originating 55 kilometres south of the city of Puebla struck the states of Puebla, Morelos, Guerrero, Oaxaca, Mexico, and Mexico City. The early warning system gave Mexico City residents only a few seconds to respond because the epicentre was so close.

4 The WorldRiskIndex is a risk calculation for 171 countries worldwide, utilising the following four components (Kirch et al., 2017, p. 8): exposure to natural hazards such as earthquakes, hurricanes, flooding, drought, and sea-level rise; vulnerability as dependent on infrastructure, nutrition, living conditions, and economic circumstances; coping capacities as dependent on governance, preparedness and early warning measures, access to healthcare, and social and material security; and adapting capacities with respect to impending natural events, climate change, and other challenges.

5 EM-DAT includes all disasters from 1900 to the present that meet at least one of the following criteria: 10 or more fatalities; 100 or more people affected/injured/homeless; and the declaration of a state of emergency and/or a call for international assistance. For more information, see https://www.emdat.be/guidelines (last accessed on 7 June 2023).

6 The World Bank classifies countries as low-income, lower-middle-income, upper-middle-income, and high-income economies. Current and historical classifications can be found at https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups (last accessed on 7 June 2023) or via the World Bank Open Data web page at https://data.worldbank.org/ (last accessed on 7 June 2023).

7 TI recalibrated its scoring in 2012 to increase the validity of comparing country scores and rankings over time.

[8] For more information, see https://www.vanderbilt.edu/lapop/ab2018.php (last accessed on 7 June 2023).

[9] Social mobilisation and popular organising after the 1985 earthquake helped to trigger a 'critical juncture' in Mexico City governance (Olson and Gawronski, 2003), with the event also becoming another in a series of legitimacy crises that undermined Mexico's authoritarian PRI, which had ruled the country since 1929.

[10] For more information, see https://miedificio.contralacorrupcion.mx/ (last accessed on 7 June 2023).

[11] Percentages are survey-weighted. Gawronski and Olson's (2000) results have been recalculated here. They used the unweighted mean for the '10 trucks' questions in their earlier article.

[12] Pearson correlation coefficients: 0.082** significant at the 0.01 level (two-tailed) and 0.050* significant at the 0.05 level (two-tailed), respectively.

[13] Pearson correlation coefficient: -0.139** at the 0.01 level (two-tailed).

[14] Pearson correlation coefficient: -0.137** at the 0.01 level (two-tailed).

[15] For more information, see http://www.dataopm.net/web/ (last accessed on 7 June 2023).

[16] According to Consulta Mitofsky (2020), President Enrique Peña Nieto's approval ratings had fallen to just 17 per cent in February 2017. This was likely due to his administration's failure to address violent crime, particularly kidnapping and murder—more than 29,000 people were killed in 2017 alone. Peña Nieto was also unable to tackle rampant corruption and impunity or to solve the disappearance of 43 university students in Ayotzinapa in 2014. The escape from prison of the notorious drug cartel leader 'El Chapo', Joaquín Guzmán Loera, in 2015 and Peña Nieto's meeting with US President Donald Trump were considered to be national embarrassments, which of course negatively affected his approval ratings. By November 2017, however, Peña Nieto's approval ratings had recovered somewhat, but only to 22 per cent. Moreover, during his term, Peña Nieto was embroiled in several corruption scandals. The most prominent case involved his celebrity wife Angélica Rivera and Finance Minister Luis Videgaray, both of whom were involved in the purchase of several multi-million-dollar houses from government contractors. A personal friend of Peña Nieto took charge of the investigation, which resulted in Peña Nieto and his wife being cleared of all charges. As Edmonds-Poli and Shirk (2020, p. 99) explained: Peña Nieto's term did little to change Mexico's 'reputation for drug trafficking and violent crime, corruption and mismanagement, and inability to reach its full economic potential'.

[17] Gawronski and Olson (2000) reported wrestling with the subtle linguistic differences back in 1997, with MORI de México advising them to go with '*soportar*', which is closer to 'to put up with' in English.

[18] For more information, see https://cpj.org/ (last accessed on 7 June 2023).

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