# Corruption, Norms, and Legal Enforcement: Evidence from Diplomatic Parking Tickets

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We study cultural norms and legal enforcement in controlling corruption by analyzing the parking behavior of United Nations officials in Manhattan. Until 2002, diplomatic immunity protected UN diplomats from parking enforcement actions, so diplomats' actions were constrained by cultural norms alone. We find a strong effect of corruption norms: diplomats from high-corruption countries (on the basis of existing survey-based indices) accumulated significantly more unpaid parking violations. In 2002, enforcement authorities acquired the right to confiscate diplomatic license plates of violators. Unpaid violations dropped sharply in response. Cultural norms and (particularly in this context) legal enforcement are both important determinants of corruption.

We thank Stefano Dellvigna, Seema Jayachandran, Dean Yang, Luigi Zingales, and seminar participants at the Harvard Development Economics Lunch, Harvard Behavioral Economics Seminar, Harvard Kennedy School of Government, Harvard Political Economy discussion group, University of Michigan, London School of Economics, University of Southern California, Stockholm University, University of California, Berkeley, Northwestern University, University of Hawaii, Syracuse University, Harvard Business School, World Bank, University of Toronto, two anonymous referees, and Steve Levitt for helpful suggestions. Daniel Hartley, Adam Sacarny, and Sarath Sanga provided superb research assistance. We thank Gillian Sorensen for helpful discussions. We are especially grateful to the New York City Department of Finance for providing us with data on parking violations and National Public Radio for alerting us to the existence of these data. All errors are our own.

[*Journal of Political Economy*, 2007, vol. 115, no. 6]
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## I. Introduction

The underlying causes of corruption remain poorly understood and widely debated. Yet the study of corruption beyond the realm of opinion surveys is still in its infancy, and there is little firm evidence relating corruption to real-world causal factors. Notably, both social norms and legal enforcement are often mentioned as primary contributors to corruption in both the academic literature and the popular press, yet there is no evidence beyond the most casual of cross-country empirics.[1]

Distinguishing between the effects of social norms and legal enforcement is confounded by problems of identification: societies that collectively place less importance on rooting out corruption, and thus have weak anticorruption social norms, may simultaneously have less legal enforcement. Understanding the relative importance of these potential causes of corruption is of central importance in reforming public institutions to improve governance and in the current debate in foreign aid policy. The World Bank emphasizes effectiveness of legal enforcement, but social reformers have highlighted the importance of changing civic norms in anticorruption efforts.[2]

We develop an empirical approach for evaluating the role of both social norms and legal enforcement in corruption by studying parking violations among United Nations diplomats living in New York City. Mission personnel and their families benefit from diplomatic immunity, a privilege that allowed them to avoid paying parking fines prior to November 2002. The act of parking illegally fits well with a standard definition of corruption, that is, "the abuse of entrusted power for private gain,"[3] suggesting that the comparison of parking violations by diplomats from different societies serves as a plausible measure of the extent of corruption social norms or a corruption "culture."

This setting has a number of advantages for studying corruption norms. Most important, our approach avoids the problem of differential legal enforcement levels across countries and more generally strips out enforcement effects prior to the New York City government's enforce-

[1] See Lambsdorff (2006) for an overview of findings on the determinants of corruption based on cross-country comparisons. Witzel (2005) provides one of many discussions on the topic in the popular press. The effects of legal enforcement on crime in general have been much examined theoretically, beginning with Becker (1968). Theories of norms and corruption are presented in Mauro (2004), which discusses models of multiple equilibria in corruption levels that could be interpreted as capturing corruption culture, and in Tirole (1996), which develops a model of bureaucratic collective reputation that also implies persistent corruption.

[2] One successful anticorruption reformer who focused on changing norms as an element of reform, and who is well cited in the international media, is Antanas Mockus, the former mayor of Bogotá, Colombia (Rockwell 2004).

[3] This is the definition used by the leading anticorruption organization Transparency International (see http://ww1.transparency.org/about_ti/mission.html).

ment actions of November 2002, since there was essentially no enforcement of diplomats' parking violations before this time. We thus interpret diplomats' behavior as reflecting their underlying propensity to break rules for private gain when enforcement is not a consideration. Diplomats to UN missions are also a relatively homogeneous group, selected for similar official duties in New York. Additionally, because UN missions are overwhelmingly colocated in Midtown Manhattan—87 percent of missions are located within 1 mile of the UN complex—we avoid many concerns of unobserved differences in parking availability across geographic settings.

This approach allows us to construct a "revealed preference" measure of corruption among government officials across 149 countries, based on real rule breaking in parking.[4] Corruption levels, particularly across countries, have proved challenging to measure objectively because of the illicit nature of corrupt activities. In our main empirical results, we find that this parking violation corruption measure is strongly positively correlated with other (survey-based) country corruption measures and that this relationship is robust to conditioning on region fixed effects, country income, and a wide range of other controls, including government employee salary measures. This suggests that home country corruption norms are an important predictor of propensity to behave corruptly among diplomats: those from low-corruption countries (e.g., Norway) behave remarkably well even in situations in which there are no legal consequences, whereas those from high-corruption countries (e.g., Nigeria) commit many violations. It also goes somewhat against the predictions of standard economic models of crime in situations of zero legal enforcement (e.g., Becker 1968), which would predict high rates of parking violations among all diplomats in the absence of enforcement.

The natural experiment of New York City diplomatic parking privileges also allows for a direct comparison of the effects of norms versus enforcement by exploiting a sharp increase in the legal punishment for parking violations. Starting in November 2002, New York City began stripping the official diplomatic license plates from vehicles that accumulated more than three unpaid parking violations. This credible increase in enforcement—the city government made examples of 30 countries by having their vehicles' plates stripped in October 2002[5]—led to immediate and massive declines of approximately 98 percent in parking violations (see fig. 1 below). Thus, cultural norms matter for crime, but so does enforcement, a finding that resonates with the work of Becker

[4] In this sense, our corruption measure is conceptually similar to the *Economist* magazine's "Big Mac Index" as a measure of country purchasing power parity.

[5] Refer to Fries (2002) for an example of media coverage.

(1968), Levitt (1997, 2004), Di Tella and Schargrodsky (2003), and others on the responsiveness of crime to punishment. In our setting, the impact of legal enforcement appears larger than the effects of variation in cultural norms across countries.

The main theoretical implication of these empirical patterns, taken together, is that both cultural norms and legal enforcement play key roles in government officials' corruption decisions. They suggest that both factors should be taken seriously in debates about the causes of corruption and the policy measures to combat it.

Since the parking violations data exist at the individual level for all UN mission diplomats present in New York City (numbering roughly 1,700 at the start of our study period), we can examine how individual behavior evolves over time. For diplomats from high-corruption countries of origin, a model of convergence to U.S. corruption norms would (presumably) predict a decline in the rate of parking violations over time, as tenure in the United States increases. By contrast, a model of convergence to the "zero-enforcement" norm discussed above would imply an increase in violations over time, particularly for officials from low-corruption countries. We find evidence that the frequency of violations increases with tenure in New York City and that these increases are particularly large for diplomats from low-corruption countries, suggesting that there is partial convergence to the zero-enforcement norm over time.

Beyond contributing to the large literature in economics on the determinants of legal compliance, our work is part of a growing body of research on the importance of cultural background in explaining individual behavior. Much of this work compares the outcomes and actions of immigrant groups from different countries. For example, Borjas (2000) finds that home country attributes are predictive of immigrants' economic achievement. In the social domain, Fernandez and Fogli (2006) show that fertility rates among Americans are correlated with fertility in their countries of ancestry. In work also related to ours, Ichino and Maggi (2000) study absenteeism and misconduct of employees at an Italian bank and find that region of origin within Italy predicts shirking.

We also seek to contribute to the growing empirical literature on corruption specifically. Other recent empirical research emphasizes the importance of developing corruption measures based on real-world decisions rather than survey responses; see Reinikka and Svensson (2004) and Olken (2006) for discussions. This article is the first to our knowledge to develop a revealed preference measure of corruption that is comparable across countries. Finally, the importance of norm compliance and nonselfish behavior has been documented in the laboratory

(see, e.g., Ledyard 1995), and more recently Levitt (2006) provides evidence on norms of nonselfish behavior in the field.

The rest of the article proceeds as follows: Section II describes the diplomatic parking situation in New York City and the violations data, Section III discusses the rest of the data set, Section IV contains the empirical results, and Section V presents conclusions.

## II. Diplomatic Parking Violations in New York City

Diplomatic representatives to the United Nations and their families are given immunity from prosecution or lawsuits in the United States. The original intent of these laws was to protect diplomats from mistreatment abroad, especially in countries not on friendly terms with the home country.[6] However, these days diplomatic immunity is more commonly viewed as the "best free parking pass in town" (BBC News 1998). Diplomatic vehicles in New York possess license plates tagged with the letter *D*, which signals diplomatic status.[7] While these vehicles may be ticketed, the car's registrant is shielded from any punishment for nonpayment of the ticket. Thus one immediate implication of diplomatic immunity—not just in New York, but also in most other capitals (e.g., London [BBC News 1998], Paris [Agence Presse–France 2005], and Seoul [*Korea Times* 1999])—has been that it allows diplomats to park illegally but never suffer the threat of legal punishment, leaving a "paper trail" of the illegal acts (see http://www.state.gov/m/ds/immunities/c9127.htm). To illustrate the magnitude of the problem, between November 1997 and the end of 2002 in New York City, diplomats accumulated over 150,000 unpaid parking tickets, resulting in outstanding fines of more than $18 million.

The New York City parking violations data are at the level of the individual unpaid violation.[8] Drivers have 30 days to pay a ticket before it goes into default, at which point an additional penalty is levied (generally 110 percent of the initial fine). Diplomats then receive an additional 70 days to pay the ticket plus this penalty before it is recorded in our data set as an unpaid violation in default. The information on each violation includes the license plate number; the name and country of origin of the car's registrant; the date, time, and location of the

[6] While the origins of diplomatic protection date back many centuries, the current incarnation is found in the 1961 Vienna Convention on Diplomatic Relations. See http://www.un.int/usa/host_dip.htm for the full text.

[7] Note that while the vehicle's diplomatic status is revealed by the license plate, the country codes denoting particular countries are unrelated to country names; e.g., the code (at the start of the plate number) for Mozambique is QS and the code for Nigeria is JF.

[8] We gratefully acknowledge the New York City Department of Finance, in particular Sam Miller and Gerald Koszner, for compiling these data.

violation; the fine and penalty levied; and the amount paid (if any). The most common violation in our data was parking in a No Standing—Loading Zone (43 percent of violations), which is typically parking in someone else's driveway or business entrance. The remainder were spread across a range of violation types that imply varying degrees of social harm:[9] fines for expired meters accounted for 6 percent of the total, double-parking 5 percent, and parking in front of a fire hydrant 7 percent, for instance. Also note that in 20 percent of violations the registrant is the mission itself, signifying an official rather than personal vehicle. While the majority of violations are located within a mile of either the country's UN mission or the UN complex, many are committed in other parts of the city. We return to the issue of violation location below. The total period of coverage in our data set is November 24, 1997, to November 21, 2005. (Refer to the Data Appendix for more on the data set.)

A crucial change in legal enforcement took place in October 2002, when the State Department gave New York City permission to revoke the official diplomatic plates of vehicles with three or more outstanding unpaid violations (Steinhauer 2002). In addition, the Clinton-Schumer Amendment (named after the two New York senators), put in place at the same time, allowed the city to petition the State Department to have 110 percent of the total amount due deducted from U.S. foreign aid to the offending diplomats' country, although this latter punishment was never invoked in practice (Singleton 2004).

In constructing our data set, we generate separate measures of the extent of unpaid violations for the pre-enforcement (November 1997–October 2002) and postenforcement (November 2002–November 2005) periods. In each case, we employ the total number of unpaid diplomatic parking violations for a particular country. In order to control for baseline mission size, we calculate the total number of UN permanent mission staff with diplomatic privileges using the UN Blue Book for May 1998. Published twice annually, the Blue Book lists all UN mission staff, as well as their official titles. We additionally use UN Blue Books for 1997–2005 to track the UN tenure of individual diplomats. Fortunately, the Blue Books generally use consistent spellings across editions, facilitating automated matching across time. In most cases, the spelling and format were also consistent with the names in the parking violations data; the algorithm automatically matched 61 percent of diplomats in the violations database. The first Blue Book we use is from January 1997,

[9] Almost all parking violations in the data set resulted in fines of US$55, making it impossible to assess the extent of social damage by violations' relative prices.

and we use this as our start date for calculating tenure at the United Nations.[10]

We obtained data on the number of diplomatic license plates registered to each mission from the U.S. State Department's Office of Foreign Missions, and we use these data as a control variable in some specifications. Unfortunately, these data are available only for 2006, though we were assured that the numbers are largely stable over time.[11]

Table 1 presents the annual number of violations per diplomat by country during the pre-enforcement period (November 1997–October 2002) and the postenforcement period (November 2002–November 2005), along with the total number of diplomats in May 1998. Overall, the basic pattern accords reasonably well with common perceptions of corruption across countries. The worst parking violators—the 10 worst (in order) are Kuwait, Egypt, Chad, Sudan, Bulgaria, Mozambique, Albania, Angola, Senegal, and Pakistan—all rank poorly in cross-country corruption rankings (described below), with the exception of Kuwait. The raw correlation between the country corruption rankings and pre-enforcement parking violations per diplomat is +0.18, and that between the corruption ranking and postenforcement violations per capita is +0.24. While many of the countries with zero violations accord well with intuition (e.g., the Scandinavian countries, Canada, and Japan), there are a number of surprises. Some of these are countries with very small missions (e.g., Burkina Faso and the Central African Republic), and a few others have high rates of parking violations but do pay off the fines (these are Bahrain, Malaysia, Oman, and Turkey; we return to this issue below). The smallest missions may plausibly have fewer violations since each mission is given two legal parking spaces at the United Nations, and this may suffice if the country has very few diplomats.

Figure 1 plots the total violations per month during November 1997–November 2005. There are two clear declines in the number of violations. The first comes in September 2001, corresponding to the period following the World Trade Center attack. The second and extremely pronounced decline coincides with increased legal enforcement of diplomatic parking violators.

[10] That is, we cannot distinguish among arrival times pre-1997, and all individuals included in the January 1997 Blue Book are coded as arriving in that month. As a robustness check, we also limit the sample only to diplomats who were not yet present in New York in the 1997 Blue Book (reducing the sample slightly), which allows us to more accurately capture arrival date.

[11] We thank Murray Smith of the U.S. Office of Foreign Services for these data and for many useful conversations.

TABLE 1
AVERAGE UNPAID ANNUAL NEW YORK CITY PARKING VIOLATIONS PER DIPLOMAT, NOVEMBER 1997 TO NOVEMBER 2005

| Parking Violations Rank | Country Name | Violations per Diplomat, Pre-enforcement (11/1997–11/2002) | Violations per Diplomat, Postenforcement (11/2002–11/2005) | UN Mission Diplomats in 1998 | Corruption Index, 1998 | Country Code |
|---|---|---|---|---|---|---|
| 1 | Kuwait | 249.4 | .15 | 9 | −1.07 | KWT |
| 2 | Egypt | 141.4 | .33 | 24 | .25 | EGY |
| 3 | Chad | 125.9 | .00 | 2 | .84 | TCD |
| 4 | Sudan | 120.6 | .37 | 7 | .75 | SDN |
| 5 | Bulgaria | 119.0 | 1.64 | 6 | .50 | BGR |
| 6 | Mozambique | 112.1 | .07 | 5 | .77 | MOZ |
| 7 | Albania | 85.5 | 1.85 | 3 | .92 | ALB |
| 8 | Angola | 82.7 | 1.71 | 9 | 1.05 | AGO |
| 9 | Senegal | 80.2 | .21 | 11 | .45 | SEN |
| 10 | Pakistan | 70.3 | 1.21 | 13 | .76 | PAK |
| 11 | Ivory Coast | 68.0 | .46 | 10 | .35 | CIV |
| 12 | Zambia | 61.2 | .15 | 9 | .56 | ZMB |
| 13 | Morocco | 60.8 | .40 | 17 | .10 | MAR |
| 14 | Ethiopia | 60.4 | .62 | 10 | .25 | ETH |
| 15 | Nigeria | 59.4 | .44 | 25 | 1.01 | NGA |
| 16 | Syria | 53.3 | 1.36 | 12 | .58 | SYR |
| 17 | Benin | 50.4 | 6.50 | 8 | .76 | BEN |
| 18 | Zimbabwe | 46.2 | .86 | 14 | .13 | ZWE |
| 19 | Cameroon | 44.1 | 2.86 | 8 | 1.11 | CMR |
| 20 | Montenegro and Serbia | 38.5 | .05 | 6 | .97 | YUG |
| 21 | Bahrain | 38.2 | .65 | 7 | −.41 | BHR |
| 22 | Burundi | 38.2 | .11 | 3 | .80 | BDI |

TABLE 1
(*Continued*)

| Parking Violations Rank | Country Name | Violations per Diplomat, Pre-enforcement (11/1997–11/2002) | Violations per Diplomat, Postenforcement (11/2002–11/2005) | UN Mission Diplomats in 1998 | Corruption Index, 1998 | Country Code |
|---|---|---|---|---|---|---|
| 23 | Mali | 37.9 | .52 | 5 | .58 | MLI |
| 24 | Indonesia | 36.5 | .73 | 25 | .95 | IDN |
| 25 | Guinea | 35.2 | .59 | 5 | .57 | GNB |
| 26 | Bosnia-Herzegovina | 34.9 | .11 | 6 | .35 | BIH |
| 27 | South Africa | 34.5 | .50 | 19 | −.42 | ZAF |
| 28 | Saudi Arabia | 34.2 | .52 | 12 | −.35 | SAU |
| 29 | Bangladesh | 33.4 | .29 | 8 | .40 | BGD |
| 30 | Brazil | 30.3 | .23 | 33 | −.10 | BRA |
| 31 | Sierra Leone | 25.9 | 1.14 | 4 | .72 | SLE |
| 32 | Algeria | 25.6 | 1.36 | 13 | .70 | DZA |
| 33 | Thailand | 24.8 | .98 | 13 | .26 | THA |
| 34 | Kazakhstan | 21.4 | .25 | 9 | .86 | KAZ |
| 35 | Mauritius | 20.7 | .08 | 4 | −.20 | MUS |
| 36 | Niger | 20.2 | 2.51 | 3 | .88 | NER |
| 37 | Czech Republic | 19.1 | .00 | 7 | −.35 | CZE |
| 38 | Lesotho | 19.1 | .22 | 6 | −.03 | LSO |
| 39 | Botswana | 18.7 | .25 | 8 | −.53 | BWA |
| 40 | Bhutan | 18.6 | .26 | 5 | −.46 | BTN |
| 41 | Sri Lanka | 17.4 | .00 | 5 | .24 | LKA |
| 42 | Chile | 16.7 | .21 | 14 | −1.20 | CHL |
| 43 | Tunisia | 16.7 | .62 | 11 | −.11 | TUN |
| 44 | Nepal | 16.7 | .05 | 6 | .59 | NPL |
| 45 | Iran | 15.9 | .02 | 20 | .63 | IRN |
| 46 | Fiji | 15.7 | .33 | 3 | −.20 | FJI |
| 47 | Italy | 14.8 | .80 | 16 | −1.00 | ITA |
| 48 | Liberia | 13.7 | .87 | 6 | 1.44 | LBR |

| | | | | | | |
|---|---|---|---|---|---|---|
| 49 | Malawi | 13.2 | .05 | 6 | .50 | MWI |
| 50 | Paraguay | 13.2 | .55 | 6 | .97 | PRY |
| 51 | Rwanda | 13.1 | 1.20 | 3 | .55 | RWA |
| 52 | Ukraine | 13.1 | .70 | 14 | .89 | UKR |
| 53 | Spain | 12.9 | .52 | 15 | −1.59 | ESP |
| 54 | Philippines | 11.7 | .08 | 20 | .26 | PHL |
| 55 | Ghana | 11.4 | .16 | 10 | .44 | GHA |
| 56 | Mauritania | 11.3 | .26 | 5 | .29 | MRT |
| 57 | Guinea-Bissau | 10.9 | 1.34 | 10 | .82 | GIN |
| 58 | Estonia | 10.7 | .44 | 3 | −.49 | EST |
| 59 | Mongolia | 10.3 | .07 | 5 | .28 | MNG |
| 60 | Armenia | 10.2 | .16 | 4 | .71 | ARM |
| 61 | Costa Rica | 10.2 | .07 | 19 | −.71 | CRI |
| 62 | Comoros | 10.1 | 5.23 | 3 | .80 | COM |
| 63 | Kampuchea (Cambodia) | 10.0 | .07 | 5 | 1.27 | KHM |
| 64 | Togo | 10.0 | .98 | 5 | .45 | TGO |
| 65 | Vietnam | 10.0 | .04 | 15 | .60 | VNM |
| 66 | Georgia | 9.8 | .37 | 8 | .64 | GEO |
| 67 | China (People's Republic) | 9.6 | .07 | 69 | .14 | CHN |
| 68 | Yemen | 9.2 | .08 | 8 | .57 | YEM |
| 69 | Venezuela | 9.2 | .10 | 16 | .77 | VEN |
| 70 | Portugal | 8.9 | .78 | 16 | −1.56 | PRT |
| 71 | Uzbekistan | 8.9 | .13 | 5 | .98 | UZB |
| 72 | Madagascar | 8.8 | .57 | 8 | .80 | MDG |
| 73 | Tanzania | 8.4 | .74 | 8 | .95 | TZA |
| 74 | Libya | 8.3 | .33 | 9 | .91 | LBY |
| 75 | Kenya | 7.8 | .04 | 17 | .92 | KEN |
| 76 | Congo (Brazzaville) | 7.8 | .05 | 6 | .99 | COG |
| 77 | Croatia | 6.6 | .18 | 9 | .33 | HRV |
| 78 | Djibouti | 6.5 | .00 | 3 | .80 | DJI |
| 79 | Slovak Republic | 6.5 | .16 | 12 | .08 | SVK |
| 80 | Zaire | 6.4 | .22 | 6 | 1.58 | ZAR |
| 81 | France | 6.2 | .14 | 29 | −1.75 | FRA |
| 82 | India | 6.2 | .55 | 18 | .17 | IND |

TABLE 1
(*Continued*)

| Parking Violations Rank | Country Name | Violations per Diplomat, Pre-enforcement (11/1997–11/2002) | Violations per Diplomat, Postenforcement (11/2002–11/2005) | UN Mission Diplomats in 1998 | Corruption Index, 1998 | Country Code |
|---|---|---|---|---|---|---|
| 83 | Laos | 6.2 | .00 | 9 | .70 | LAO |
| 84 | Turkmenistan | 5.9 | .00 | 4 | 1.13 | TKM |
| 85 | Papua New Guinea | 5.6 | 1.74 | 3 | .70 | PNG |
| 86 | Honduras | 5.5 | .00 | 6 | .75 | HND |
| 87 | Slovenia | 5.3 | .45 | 8 | −.83 | SVN |
| 88 | Kyrgyzstan | 5.2 | 1.05 | 5 | .69 | KGZ |
| 89 | Nicaragua | 4.9 | .44 | 9 | .75 | NIC |
| 90 | Uruguay | 4.5 | .09 | 11 | −.42 | URY |
| 91 | Swaziland | 4.4 | .47 | 7 | .19 | SWZ |
| 92 | Tajikistan | 4.4 | .16 | 4 | 1.12 | TJK |
| 93 | Namibia | 4.3 | .09 | 11 | −.24 | NAM |
| 94 | Mexico | 4.0 | .02 | 19 | .39 | MEX |
| 95 | Argentina | 4.0 | .36 | 19 | .22 | ARG |
| 96 | Singapore | 3.6 | .16 | 6 | −2.50 | SGP |
| 97 | Romania | 3.6 | .33 | 10 | .38 | ROM |
| 98 | Uganda | 3.5 | .23 | 7 | .62 | UGA |
| 99 | Hungary | 3.3 | .08 | 8 | −.69 | HUN |
| 100 | Macedonia | 3.3 | .16 | 4 | .30 | MKD |
| 101 | Bolivia | 3.1 | .00 | 9 | .41 | BOL |
| 102 | Peru | 3.1 | .36 | 9 | .17 | PER |
| 103 | Haiti | 3.0 | .04 | 9 | .85 | HTI |
| 104 | Jordan | 3.0 | .00 | 9 | −.21 | JOR |
| 105 | Belarus | 2.7 | .00 | 8 | .60 | BLR |
| 106 | Belgium | 2.7 | .14 | 14 | −1.23 | BEL |
| 107 | Cyprus | 2.5 | .06 | 11 | −1.38 | CYP |
| 108 | Guyana | 2.3 | .13 | 5 | .26 | GUY |

| | | | | | | |
|---|---|---|---|---|---|---|
| 109 | Austria | 2.2 | .51 | 21 | −2.02 | AUT |
| 110 | Gabon | 2.2 | .29 | 8 | .90 | GAB |
| 111 | Russia | 2.1 | .03 | 86 | .69 | RUS |
| 112 | Lithuania | 2.1 | .05 | 7 | −.07 | LTU |
| 113 | El Salvador | 1.7 | .26 | 10 | .27 | SLV |
| 114 | Poland | 1.7 | .04 | 17 | −.49 | POL |
| 115 | Gambia | 1.5 | .29 | 8 | .49 | GMB |
| 116 | Malaysia | 1.4 | .20 | 13 | −.73 | MYS |
| 117 | Trinidad and Tobago | 1.4 | .16 | 6 | −.13 | TTO |
| 118 | Lebanon | 1.4 | .00 | 3 | .32 | LBN |
| 119 | Germany | 1.0 | .10 | 52 | −2.21 | DEU |
| 120 | Eritrea | .8 | .00 | 3 | −.46 | ERI |
| 121 | Moldova | .7 | .00 | 4 | .51 | MDA |
| 122 | Korea (South) | .4 | .19 | 33 | −.11 | KOR |
| 123 | Dominican Republic | .1 | .00 | 22 | .53 | DOM |
| 124 | Finland | .1 | .00 | 18 | −2.55 | FIN |
| 125 | Guatemala | .1 | .07 | 9 | .63 | GTM |
| 126 | Switzerland | .1 | .00 | 10 | −2.58 | CHE |
| 127 | New Zealand | .1 | .00 | 8 | −2.55 | NZL |
| 128 | United Kingdom | .0 | .01 | 31 | −2.33 | GBR |
| 129 | Netherlands | .0 | .10 | 17 | −2.48 | NLD |
| 130 | United Arab Emirates | .0 | .00 | 3 | −.78 | ARE |
| 131 | Australia | .0 | .03 | 12 | −2.21 | AUS |
| 132 | Azerbaijan | .0 | .98 | 5 | 1.01 | AZE |
| 133 | Burkina-Faso | .0 | .20 | 5 | .51 | BFA |
| 134 | Central African Republic | .0 | .00 | 3 | .55 | CAF |
| 135 | Canada | .0 | .00 | 24 | −2.51 | CAN |
| 136 | Colombia | .0 | .00 | 16 | .61 | COL |
| 137 | Denmark | .0 | .02 | 17 | −2.57 | DNK |
| 138 | Ecuador | .0 | .00 | 9 | .74 | ECU |
| 139 | Greece | .0 | .11 | 21 | −.85 | GRC |
| 140 | Ireland | .0 | .07 | 10 | −2.15 | IRL |
| 141 | Israel | .0 | .09 | 15 | −1.41 | ISR |
| 142 | Jamaica | .0 | .00 | 9 | .26 | JAM |

TABLE 1
(*Continued*)

| Parking Violations Rank | Country Name | Violations per Diplomat, Pre-enforcement (11/1997–11/2002) | Violations per Diplomat, Postenforcement (11/2002–11/2005) | UN Mission Diplomats in 1998 | Corruption Index, 1998 | Country Code |
|---|---|---|---|---|---|---|
| 143 | Japan | .0 | .01 | 47 | −1.16 | JPN |
| 144 | Latvia | .0 | .00 | 5 | .10 | LVA |
| 145 | Norway | .0 | .00 | 12 | −2.35 | NOR |
| 146 | Oman | .0 | .26 | 5 | −.89 | OMN |
| 147 | Panama | .0 | .00 | 8 | .28 | PAN |
| 148 | Sweden | .0 | .00 | 19 | −2.55 | SWE |
| 149 | Turkey | .0 | .00 | 25 | .01 | TUR |

NOTE.—The corruption index is from Kaufmann et al. (2005). A higher score in the corruption index denotes more corruption.

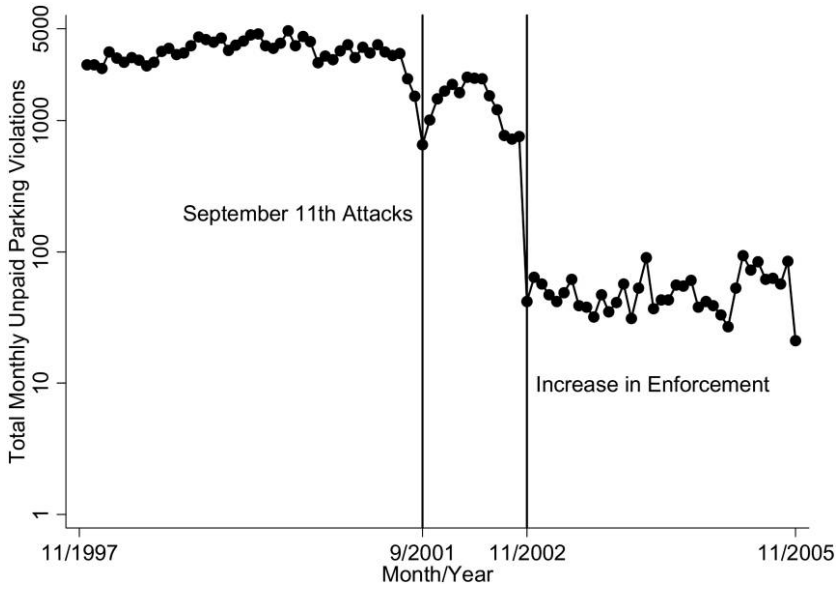


FIG. 1.—Total monthly New York City parking violations by diplomats, 1997–2005 (vertical axis on log scale).

## III. Cross-Country Data

We employ country-level data on economic, political, and social characteristics and in particular consider data on country corruption levels using the measure in Kaufmann, Kraay, and Mastruzzi (2005) from 1998, the earliest year with wide country coverage. This is a composite corruption index that is essentially the first principal component of a number of other commonly used corruption indices, which are usually subjective measures based on surveys of country experts and investors. By definition, therefore, the Kaufmann et al. measure is highly correlated with the commonly used indices and is extremely highly correlated ($\rho = 0.97$) with the Transparency International ratings from the same year. For ease of interpretation, we reverse the sign of the original measure so that higher values indicate greater corruption. By construction, the mean value of this measure across all countries in their sample is zero with standard deviation one, and it ranges from $-2.6$ to $+1.6$ in our slightly restricted sample of countries. The main advantages of this country measure are that its method of aggregation is clearly defined relative to the Transparency International measure, and it has broader country coverage than other indices. Our sample consists of all countries that had 1998 populations greater than 500,000 according to the World Development Indicators, and for which basic country-level data were

TABLE 2
DESCRIPTIVE STATISTICS

| Variable | Mean | Standard Deviation | Observations |
|---|---|---|---|
| | A. Country-Level Data | | |
| Unpaid New York City parking violations:[a] | | | |
| 11/1997–11/2002 | 977.9 | 2,000.9 | 149 |
| 11/2002–11/2005 | 11.3 | 18.4 | 149 |
| Unpaid and paid New York City parking violations, 11/1997–11/2002[a] | 1,066.2 | 2,021.4 | 149 |
| After-hours New York city parking violations, 11/1997–11/2002 [a] | 40.6 | 72.7 | 149 |
| Diplomats in the country UN mission, 1998[b] | 11.8 | 11.1 | 149 |
| Number of license plates registered to the country's UN mission, 2006[c] | 10.5 | 14.0 | 139 |
| Country corruption index, 1998[d] | .01 | 1.01 | 149 |
| Log per capita income (1998 US$)[e] | 7.35 | 1.59 | 149 |
| Average government wage/country per capita income, early 1990s[f] | 2.83 | 2.38 | 92 |
| Log weighted distance between populations[g] | 9.12 | .41 | 149 |
| Log total trade with the United States (1998 US$)[h] | 20.3 | 2.7 | 146 |
| Received U.S. economic aid (indicator), 1998[i] | .69 | .46 | 147 |
| Received U.S. military aid (indicator), 1998[i] | .63 | .49 | 147 |
| | B. Diplomat-Level Data | | |
| Monthly unpaid New York City parking violations:[a] | | | |
| 11/1997–11/2002 | .90 | 3.30 | 25,123 |
| 11/2002–11/2005 | .02 | .19 | 15,806 |
| Length of time at the UN mission in New York City (in months)[b] | 7.7 | 12.4 | 40,929 |

[a] Source: New York City, Parking Violations Database (provided to the authors by the New York City Department of Finance).
[b] Source: United Nations Blue Books, 1997–2005.
[c] Source: U.S. Department of State Office of Foreign Missions (provided to the authors by Deputy Director Murray Smith).
[d] Composite index from Kaufmann et al. (2005), but here higher values indicate more corruption.
[e] Source: World Development Indicators (2005).
[f] Source: Schiavo-Campo et al. (1999); exact year differs by country.
[g] Source: Mayer and Zignago (2005).
[h] Source: U.S. International Trade Commission (2006).
[i] Data from Kuziemko and Werker (2006).

available. Table 2 presents summary statistics for both the country-level and diplomat-level variables.

We include a number of other variables that may affect incentives to comply with local laws. From the data set used by Kuziemko and Werker (2006), we generate an indicator variable denoting whether the country received foreign aid from the United States in 1998. We similarly generate a pair of indicator variables for military and economic aid, since

these two types of aid may reflect different geopolitical interests: while economic aid recipients may feel beholden to the United States, those receiving military aid are typically countries that the United States seeks as strategic allies.

Finally, we include the logarithm of 1998 GDP per capita in U.S. dollars (taken from the World Development Indicators) in most specifications to control for income effects. Country-level income per capita is strongly correlated with corruption and with the rule of law, and some argue that income is influenced by underlying corruption levels, complicating efforts to disentangle corruption effects from income effects. As we discuss below, despite this strong correlation, the main corruption results are robust to including income controls. Second, we include the ratio of government bureaucrats' salaries to GDP per capita (using data from Schiavo-Campo, de Tommaso, and Mukherjee [1999]) for the early 1990s (exact year differs by country) to account for the possibility that bureaucrats occupy different positions in the national income distribution.

## IV. Empirical Results

A count model analysis is appropriate given the dependent variable, the total number of unpaid parking violations by country. We focus on the negative binomial model (the Poisson model can be rejected at high levels of confidence because of overdispersion of the parking tickets outcome variable; result not shown). In the main econometric specification for the cross-country analysis, the dependent variable is Total Unpaid Parking Violations$_{it}$, where $i$ denotes the country. There are two time periods $t$ per country, one for the pre-enforcement period and one for the postenforcement period. Standard errors are robustly estimated, and the disturbance terms for a country are allowed to be correlated. The vector of explanatory variables is

$$\beta_1 \text{Corruption}_i + \beta_2 \text{Enforcement}_{it} + \beta_3 \text{Diplomats}_i + \boldsymbol{X}_i'\gamma,$$

where Corruption is the 1998 country corruption index; Enforcement is an indicator for the post–October 2002 period, when legal enforcement increased sharply against diplomatic parking violators; and $\boldsymbol{X}$ is a vector of other country controls, including the log of 1998 GDP per capita, and region fixed effects,[12] among others depending on the specification.

The New York City unpaid parking violations measure is robustly

[12] United Nations region code data, available at http://unstats.un.org/unsd/methods/m49/m49regin.htm, were used to classify countries into the following regions: (1) North America (including Caribbean), (2) South America, (3) Europe, (4) Asia, (5) Oceania, (6) Africa, and (7) Middle East.

positively correlated with the existing subjective country corruption index conditional on the number of UN mission diplomats for that country in New York City (table 3, regression 1). The relationship is roughly linear (fig. 2). The coefficient implies that the increase in the corruption index associated with going from a highly corrupt country such as Nigeria (corruption score +1.01) to a largely uncorrupt country such as Norway (score −2.35) is associated with a large drop of 48 log points × 3.36 = 161 log points, or approximately 80 percent, in the average rate of diplomatic parking violations. The result is nearly unchanged if Kuwait, the country with the most parking violations per diplomat, is dropped from the sample (not shown). Parking violations also plummet in the postenforcement period, by over 98 percent on average, indicating that legal enforcement is also highly influential.

The coefficient estimate on the country corruption index is robust to the inclusion of log per capita income (table 3, regression 2). This pattern argues strongly against the explanation that richer countries are simply able to purchase more parking spots for their diplomats, in which case we would expect a weakening of the relationship between country corruption and parking violations and a negative coefficient estimate on country income, but we find neither. The result is also robust to controlling for region fixed effects (regression 3). The Middle East and Africa are the regions with the greatest average number of unpaid parking violations relative to the reference region (North America and the Caribbean). The inclusion of higher-order polynomial controls for income (regression 4) and an interaction between country corruption and the postenforcement period (regression 5) also has little effect on the partial correlation of the corruption index with parking violations committed. The interaction term between country corruption and the postenforcement period indicator variable has little predictive power, indicating a largely stable relationship across the pre- and postenforcement periods (see fig. 3).

The results are robust to including the average government wage relative to per capita income (table 4, regression 1) and also to the number of vehicles registered to each mission (regression 2).[13] The inclusion of paid violations in our parking violations measure has no effect on the main results (regression 3), further arguing against the possibility that our country corruption measure is picking up an income effect rather than a corruption effect.

There is also strong evidence that many violations are not work related. We focus on the subset of violations committed between the nighttime hours of 10:00 p.m. and 6:00 a.m. at a distance of more than five

[13] A specification using fixed effects for the number of vehicles per mission generates similar results (not shown).

TABLE 3
COUNTRY CHARACTERISTICS AND UNPAID NEW YORK CITY PARKING VIOLATIONS, NOVEMBER 1997 TO NOVEMBER 2005

| | DEPENDENT VARIABLE: UNPAID PARKING VIOLATIONS | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Country corruption index, 1998 | .48*** | .57*** | .57*** | .56** | .57* |
| | (.18) | (.22) | (.21) | (.28) | (.30) |
| Postenforcement period indicator (post-11/2002) | −4.41*** | −4.41*** | −4.21*** | −4.43*** | −4.41*** |
| | (.21) | (.21) | (.13) | (.20) | (.21) |
| Country corruption index × postenforcement period | | | | | −.01 |
| | | | | | (.28) |
| Diplomats | .05** | .04** | .05*** | .05** | .04** |
| | (.02) | (.02) | (.02) | (.02) | (.02) |
| Log per capita income (1998 US$) | | .06 | .09 | 64.2* | .06 |
| | | (.14) | (.14) | (36.9) | (.14) |
| Africa region indicator variable | | | 2.86*** | | |
| | | | (.48) | | |
| Asia region indicator variable | | | 1.99*** | | |
| | | | (.50) | | |
| Europe region indicator variable | | | 2.24*** | | |
| | | | (.55) | | |
| Latin America region indicator variable | | | 1.67*** | | |
| | | | (.56) | | |
| Middle East region indicator variable | | | 3.23*** | | |
| | | | (.60) | | |
| Oceania region indicator variable | | | 1.51** | | |
| | | | (.64) | | |
| Log per capita income (1998 US$) polynomials (quadratic, cubic, quartic) | No | No | No | Yes | No |
| Observations | 298 | 298 | 298 | 298 | 298 |
| Log pseudolikelihood | −1,570.21 | −1,570.07 | −1,547.69 | −1,567.56 | −1,570.07 |

NOTE.—Negative binomial regressions. White robust standard errors are in parentheses. Disturbance terms are clustered by country (there are two observations per country: pre-enforcement and postenforcement). The omitted region category is North America/Caribbean.

* Statistically significantly different from zero at 90 percent confidence.

** Statistically significantly different from zero at 95 percent confidence.

*** Statistically significantly different from zero at 99 percent confidence.

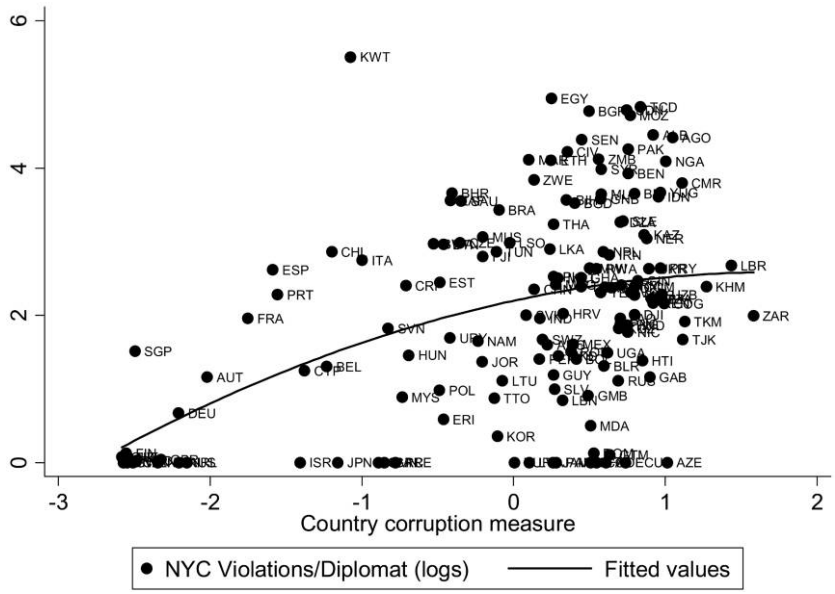


FIG. 2.—Country corruption and unpaid New York City parking violations per diplomat (in logs), pre-enforcement (November 1997 to November 2002). Country abbreviations are presented in table 1. The line is the quadratic regression fit. The *y*-axis is log(1 + Annual NYC Parking Violations/Diplomat).

city blocks (roughly one-quarter mile) away from the UN complex, where most of the missions are centered. We find that a similar relationship between the country corruption and legal enforcement terms also holds for this subset of violations (table 4, regression 4).[14]

The strong relationship between the parking violation corruption measure and the country corruption index is robust to different functional forms. It also holds if the dependent variable is log(1 + Unpaid Parking Violations) across specifications (table 4, regression 5) and is

[14] The results in tables 3 and 4 are nearly identical if distance from the country's UN mission to the UN Plaza is included as an additional explanatory variable (results not shown). We also examined the most socially egregious New York City parking violations. While impoverished diplomats from poor countries might be forced to park illegally in order to avoid the extra expense of renting a parking spot, they could still try to do so in a manner that avoids excessive negative social externalities. As indications of "extreme" violations, we considered (i) parking in front of a fire hydrant and (ii) violations for double-parking on east-west streets between Tenth and 100th streets in Manhattan, relatively narrow streets where double-parking can completely block passage. The main results hold robustly for both types of violations (not shown); in other words, diplomats from high-corruption countries are much more likely to commit the most egregious violations. Hence our results are not driven solely by behaviors causing minimal social harm (i.e., an expired meter in a legal parking spot) or those in which it may be unclear to the diplomat that he or she is generating negative externalities.

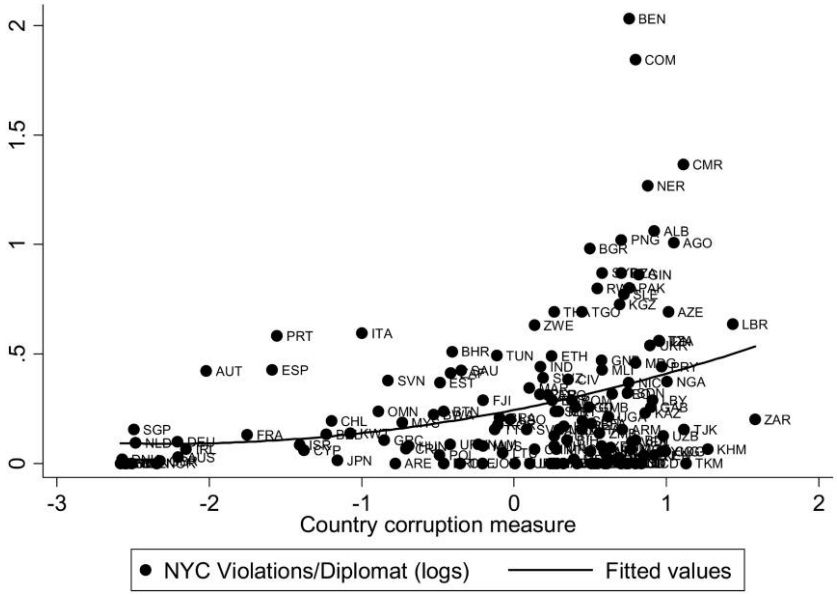


FIG. 3.—Country corruption and unpaid New York City parking violations per diplomat (in logs), postenforcement (November 2002 to November 2005). Country abbreviations are presented in table 1. The line is the quadratic regression fit. The *y*-axis is log(1 + Annual NYC Parking Violations/Diplomat).

similar for an ordinary least squares (OLS) specification with unpaid violations as the dependent variable (regression 6).

Several measures of "proximity" to the United States are correlated with fewer unpaid parking violations. First, the log of the weighted average distance between a country's population and the U.S. population[15] is strongly positively correlated with parking violations (table 4, regression 7), indicating that diplomats from countries in closer geographic proximity to the United States have many fewer New York City violations. We do not have a definitive explanation for this pattern; however, we note that it is not driven by trade volumes, which are not a statistically significant predictor of parking violations (coefficient estimate 0.04, standard error 0.07). Migration, tourism, and some broader cultural affinity between the countries are other possible explanations. Countries that receive U.S. economic aid are significantly less likely to commit diplomatic parking violations (with a large effect of 65 log

[15] Distance from the United States is taken from Mayer and Zignago (2005). Their measure uses city-level data to assess the geographic distribution of population inside each nation and calculates the distance between two countries on the basis of bilateral distances between the largest cities of those two countries, those intercity distances being weighted by the share of the city in the overall country's population.

TABLE 4
Country Characteristics and Unpaid New York City Parking Violations, November 1997 to November 2005: Sensitivity Tests

| | Dependent Variable | | | | | | |
|---|---|---|---|---|---|---|---|
| | Unpaid Parking Violations Negative Binomial (1) | Unpaid Parking Violations Negative Binomial (2) | Paid and Unpaid Parking Violations Negative Binomial (3) | After-Hours Parking Violations Negative Binomial (4) | Log(1 + Unpaid Parking Violations) OLS (5) | Unpaid Parking Violations OLS (6) | Unpaid Parking Violations Negative Binomial (7) |
| Country corruption index, 1998 | 1.01*** | .48** | .47** | .56* | .37** | 123.9* | .74*** |
| | (.32) | (.24) | (.18) | (.30) | (.16) | (72.3) | (.23) |
| Postenforcement period indicator (post-11/2002) | −4.06*** | −4.31*** | −3.36*** | −3.52*** | −2.69*** | −966.6*** | −4.34*** |
| | (.15) | (.19) | (.16) | (.21) | (.14) | (164.6) | (.19) |
| Diplomats | .06** | .01 | .05*** | .04* | | 21.1* | .05 |
| | (.03) | (.02) | (.02) | (.02) | | (11.2) | (.03) |
| Log per capita income (1998 US$) | .32 | .01 | .06 | −.02 | −.24** | −40.0 | .02 |
| | (.20) | (.14) | (.13) | (.17) | (.10) | (68.4) | (.17) |
| Average government wage/country per capita income | .15** | | | | | | |
| | (.06) | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Diplomatic vehicles | | .05* | | | | | |
| | | (.02) | | | | | |
| Log diplomats | | | | | .75*** | | |
| | | | | | (.15) | | |
| Log weighted distance of population from United States | | | | | | | 1.23*** |
| | | | | | | | (.30) |
| Log total trade with the United States | | | | | | | .04 |
| | | | | | | | (.07) |
| Received U.S. economic aid | | | | | | | −.65** |
| | | | | | | | (.30) |
| Received U.S. military aid | | | | | | | .10 |
| | | | | | | | (.23) |
| Observations | 184 | 278 | 298 | 298 | 298 | 298 | 288 |
| Log pseudolikelihood | −967.23 | −1,463.60 | −1,816.45 | −831.14 | . . . | . . . | −1,510.79 |
| $R^2$ | . . . | . . . | . . . | . . . | .52 | .13 | . . . |

NOTE.—White robust standard errors are in parentheses. Disturbances are clustered by country.
* Statistically significantly different from zero at 90 percent confidence.
** Statistically significantly different from zero at 95 percent confidence.
*** Statistically significantly different from zero at 99 percent confidence.

points), suggesting that the goodwill engendered by these ties may help to limit abuse of diplomatic privileges in New York and pointing to the broader role of sentiment in driving norm compliance.[16]

Since we can follow individual diplomats during their tenure at the United Nations, we examine the related question of how diplomat behavior evolves while in New York City. Conceptually, the relative plausibility of socialization to U.S. norms versus convergence to a uniform high-corruption norm is unclear. If convergence is to U.S. corruption norms, individuals from high-corruption countries (e.g., Nigeria) should have declining parking violations over time, but there should be no change in behavior for diplomats from the low-corruption societies (e.g., Norway). Alternatively, individuals may begin their stay in New York City unsure as to the extent to which they can get away with violations. Once they successfully "got away with it" a few times (or heard stories about others doing so), diplomats may become bolder in their violations. Thus convergence to this zero-enforcement norm predicts increasing violations over time, particularly among diplomats from less corrupt countries.

In practice, to estimate these effects, we use a negative binomial regression like that discussed above, but with observations at the diplomat-month level of analysis. We include month-year fixed effects ($\alpha_t$). The two key explanatory variables are the effect of increased time spent working as a consular official in New York City on parking violations and the differential time effect for diplomats from countries with higher corruption (the interaction effect of time spent working in New York City with the country corruption index). Disturbance terms are allowed to be correlated across the monthly observations for the same individual. The parking violations included in the individual-level analysis are a subset of those used at the country level: violations committed using official consular vehicles are excluded below since they cannot be matched to any one diplomat.

The frequency of unpaid violations increases rapidly and statistically significantly with tenure in New York City (table 5, regression 1), seemingly ruling out convergence to the U.S. norm of rule adherence. On average, parking violations increase by 8.4 percent with each additional

[16] An additional direct measure of affinity is provided by the Pew Global Attitudes Survey from 2002 (the earliest year that the survey was performed), based on responses to the question "Please tell me if you have a very favorable, somewhat favorable, somewhat unfavorable, or very unfavorable opinion of the United States." This is coded to take on values from one (most favorable) to four (least favorable) and then averaged across respondents. In some specifications, the anti-U.S. sentiment term is a large and statistically significant predictor of more parking violations (see Fisman and Miguel 2006). However, the result does not robustly hold when the negative binomial specification is used, and thus we do not emphasize it. A main limitation of the analysis with the Pew data is the small sample of only 42 countries. The data are available at http://pewglobal.org/.

TABLE 5
UNPAID PARKING VIOLATIONS AT THE DIPLOMAT LEVEL, NOVEMBER 1997 TO NOVEMBER 2005

| | DEPENDENT VARIABLE: UNPAID PARKING VIOLATIONS (Monthly) | |
|---|---|---|
| | Negative Binomial (1) | Negative Binomial (2) |
| Country corruption index, 1998 | .150 | .390*** |
| | (.120) | (.117) |
| Log length of time in New York City (in months) | .084*** | .090*** |
| | (.005) | (.006) |
| Log length of time in New York City × country corruption index | | −.027*** |
| | | (.006) |
| Month fixed effects | Yes | Yes |
| Observations (diplomats) | 40,929 | 40,929 |
| | (5,338) | (5,338) |
| Log pseudolikelihood | −23,733 | −23,621 |

NOTE.—White robust standard errors are in parentheses. Disturbance terms are clustered by country. Observations are at the diplomat-month level. Month fixed effects are included in all regressions (thus the postenforcement indicator is not included). The log per capita income (1998 US$) term is included as a control in cols. 1–2 (results not shown).

* Statistically significantly different from zero at 90 percent confidence.
** Statistically significantly different from zero at 95 percent confidence.
*** Statistically significantly different from zero at 99 percent confidence.

month a diplomat lives in New York, perhaps as he or she learns about the reality of diplomatic immunity. Diplomats from low-corruption countries show the most rapid proportional increases in violations over time (regression 2), consistent with partial convergence to the zero-enforcement norm, although the large proportional increases among diplomats from low-corruption countries are from a much lower base rate of violations. This increase in parking violations among those from low-corruption countries occurs almost entirely in the pre-enforcement period (result not shown), an indication that their attachment to home country anticorruption norms was partly eroded by time spent in New York City's lawless pre–November 2002 parking environment.[17]

*Alternative explanations.*—Informal or formal social sanctions against diplomats in the home country could be partially responsible for restraining parking violations through, for example, public embarrassment in the media upon returning home or punishment by the dip-

[17] Similar results hold with alternative specifications, including a linear regression model (not shown). When diplomat fixed effects are included in a linear model, the coefficient estimate on the interaction between months in New York City and country corruption is negative but no longer statistically significant. Results are virtually identical if individuals who arrived only after the earliest UN Blue Book was published are excluded, which allows us to more accurately capture tenure in New York City (not shown).

lomatic service. If the potential response of others in the home country, either informally or formally, is responsible for limiting parking violations, then diplomats' behaviors are better interpreted as an indication of their home country's cultural tolerance for corruption rather than their own personal values. However, this is still consistent with the basic interpretation of the level of New York City parking violations as a revealed preference measure of country corruption norms in the absence of formal legal enforcement. In such cases, diplomats' behaviors are better interpreted as an indication of their home country's norms or culture rather than their own personal values.

Several findings argue somewhat against this interpretation that nonlegal punishments such as media embarrassment or workplace punishment are the main drivers of our findings. First, a Lexis-Nexis search of 504 European news outlets (English language or in translation) using the terms "diplomats" and "parking" and "New York" yielded only 25 stories during the entire study period, and these stories were concentrated in just four countries (the United Kingdom, Germany, France, and Russia). Further, with the exception of several Russian articles, the stories were about the general problem of diplomatic parking violations in New York City and the 2002 crackdown rather than reporting on the behavior of home country diplomats. The possibility of sanctions for returning diplomats who accumulated parking tickets while abroad is apparently not a leading media issue, in Europe at least.

Second, we considered whether unpaid parking violations early in an official's tenure at the United Nations in New York City are correlated with the length of his employment there, and further whether these early violations interact in any way with corruption in the country of origin (i.e., perhaps violators from low-corruption countries could be punished by their government and sent home early). We find no evidence for any such effects of parking violations on diplomat tenure (regressions not shown).

Obviously, neither of these two findings is completely conclusive in terms of pinning down the exact channel for the culture results. In equilibrium the number of violations committed could reflect choices made, in part, to avoid home country sanctions. But they are certainly consistent with the widely held view among New York City officials that home country enforcement is typically weak or nonexistent.[18] A related concern is that public pressure could have a larger effect on diplomats' choices in a more democratic political setting. However, we do not find that the number of parking violations is statistically significantly related

[18] Gillian Sorensen, former New York City Commissioner for the United Nations and Consular Affairs in the 1980s, claims that during her tenure UN missions in New York City rarely, if ever, punished their employees for parking tickets, even in the most egregious cases (personal communication, February 8, 2007).

to democracy (as measured by the Polity IV democracy scale in 1998), nor is the coefficient on corruption affected at all by its inclusion (regressions not shown).[19]

## V. Conclusion

We exploit a unique natural experiment—the stationing in New York City of thousands of government officials from 149 countries around the world—in a setting of zero legal enforcement of parking violations to construct a revealed preference measure of official corruption, and then estimate how behavior changes when legal enforcement increased. We find that the number of diplomatic parking violations is strongly correlated with existing measures of home country corruption. This finding suggests that cultural or social norms related to corruption are quite persistent: even when stationed thousands of miles away, diplomats behave in a manner highly reminiscent of government officials in the home country. Norms related to corruption are apparently deeply ingrained, and factors other than legal enforcement are important determinants of corruption behavior. Nonetheless, increased legal enforcement is also highly influential: parking violations fell by over 98 percent after enforcement was introduced. New York City is an attractive location to study increased enforcement relative to many less developed countries, where official changes "on the books" may not always translate into greater actual enforcement on the ground.

The result on sticky corruption cultures raises the critical question of whether there are policy interventions that can modify corruption norms over time. For example, the Bloomberg administration's enforcement efforts in New York City in 2002 were extremely successful in changing diplomats' behaviors, and it would be useful to know whether these changes might additionally have had persistent effects on norms once individuals become habituated to rule-compliant behavior. Such long-run effects of temporary interventions necessarily rely on a shift in norms (or tastes) and would be consistent with the findings of Di Tella and Schargrodsky (2003) on the persistent effects of auditing on corruption

[19] A final consideration is whether there is a differential selection mechanism for UN diplomats across countries that might account for the pattern we observe. In particular, it would be problematic if the relatively more corrupt government officials (within the distribution of officials in a country) were selected for New York postings from high-corruption countries. We have no rigorous statistical test to explore this possibility, but we feel that it is unlikely to be of first-order importance for several reasons. First, UN mission staff are selected along a range of common characteristics, including English language skills, education, and diplomatic experience, and this reduces the gap between diplomats in terms of their personal attributes. Further, we are not concerned with differential selection of "corrupt" types into the government bureaucracy vs. the private sector across countries, since we are interested in the behavior of actual government civil servants, such as the UN mission diplomats we observe.

in Argentina. Unfortunately, our context does not accommodate this analysis. Understanding better how corruption norms evolve is likely to be critical for the success of anticorruption reforms such as those currently widely advocated by the World Bank and other foreign aid donors.

## Data Appendix

### *A. New York City Diplomatic Parking Violation Data*

The New York City Department of Finance supplied listings of all unpaid parking violations of UN missions. The violations covered the period from November 24, 1997, to November 21, 2005. In order to appear in the database, a violation had to go unpaid for at least 100 days. Data were at the level of the violation and included the following entries for each violation:

- Summons: unique identification number for the violation
- License plate number of the violating car
- The person to whom the violating car was registered, often the mission itself
- Time of violation: included both hour and minute as well as calendar date
- Type of violation, e.g., expired meter, fire hydrant
- Street address of violation
- Initial dollar value of fine issued
- Additional dollar penalty for not having paid the fine on time
- Amount paid toward the fine, generally zero
- Name of country to which the car is registered

Data on UN diplomats' paid parking violations (violations that did not go into arrears) were made available to us in aggregate form by the New York City Department of Finance.

### *B. UN Blue Books*

The United Nations issues its list of mission personnel, or Blue Book, twice yearly. We utilize edition numbers 278 (January 1997) through 294 (October 2005). Documents were retrieved from the UN Official Document System, available at http://documents.un.org/advance.asp. Searching for the symbol ST/SG/SER.A/### with truncation turned off returns the relevant Blue Book (where ### is the Blue Book edition number). Edition 280 (May 1998) was checked by hand to count the mission staff and spouses for each country in the Blue Book, producing the following variables:

- Mission: indicator variable indicating whether the country had a UN mission
- Staff: simple count of staff (staff members are always listed with their surnames in bold)

To create the longitudinal data set of diplomat parking violations, the Blue Book data were first converted into filtered html format. A program was used to parse the name and country of each diplomat in each Blue Book. Next, diplomat names from the Blue Books were matched to the parking violation data. A name was considered to have "matched" if the country, last name, and first four letters of the first name corresponded across data sets. There was some

manual double-checking of apparent spelling typos and duplicate or otherwise confusing names. Diplomats are considered "present" in New York City in the analysis for the months after their first appearance in a Blue Book and before the first Blue Book in which they no longer appear. Since Blue Books are produced only sporadically, in months between a final Blue Book appearance and the first "nonappearance," we assume arbitrarily that diplomats left New York at the midpoint in time between these months.

### *C. Diplomatic Vehicles*

Data were provided by Murray Smith, Deputy Director at the U.S. State Department's Office of Foreign Missions in April 2006. These data report counts of the number of vehicles with diplomatic license plates registered to each mission in early 2006.

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