Development and Decay:
Political Organization and Municipal Corruption in Puerto Rico, 1952-2015[**]

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Abstract: Corruption has been a salient feature of Puerto Rico (PR)'s modern history. However, systematic empirical research on this subject has been generally lacking. In this paper, we examine trends and patterns in municipal government malfeasance and corruption during a period spanning over six decades. Using data from all municipal audit reports conducted by the PR Office of the Comptroller between 1952 through 2015, we characterize patterns of corruption across three periods of change that altered governance practices in the territory: the time of hegemonic dominance of the Partido Popular Democrático (PPD), the era of intense political competition between the PPD and the pro-statehood Partido Nuevo Progresista (PNP), and the eventual decay of the territory's institutional model. We show that institutions and political practices, as opposed to economic determinants, play a key role in explaining corruption patterns. We argue that corruption patterns can be explained through the lens of politics in divided and polarized societies.

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1. Introduction

Recent economic and political events in Puerto Rico have revealed the limitations of the institutions that have underpinned its socioeconomic development since the 1950s. The largest municipal debt default in U.S. history, a stagnant economy throughout the better part of the last fifteen years, and massive protests that lead to the resignation of the territory's governor in 2019 are symptoms of declining consent in Puerto Rico politics and of potentially of decaying social and political institutions. Patronage, clientelism, and corruption have been important mechanisms that have anchored political consent in Puerto Rico throughout its history (Pantojas García 2015). Despite a general acknowledgement of this fact among scholars of Puerto Rico's politics, economy, and society and a large scholarly literature documenting its many negative consequences—political instability, low legitimacy of political representatives, hampered democratic functioning, low respect for the rule of law, and low levels of social trust (Acemoglu and Robinson 2012; Besley and Persson 2011; Fukuyama 2014; Seligson 2002)—research on corruption in Puerto Rico has been scarce. Moreover, given that in Puerto Rican society corruption is considered unethical and corrupt politicians and public officeholders should be held accountable[1],[2] shedding light on the magnitude, forms, and causes of corruption is particularly relevant to deepen our understanding of the political conditions that have contributed to institutional decay in Puerto Rico.[3]

This article attempts to address this gap in our knowledge of Puerto Rico's experience with public corruption during a period spanning more than six decades. We take advantage of a unique source of data, the universe of municipal audit reports carried out and published by the Puerto Rico Office of the Comptroller between the establishment of Puerto Rico's Commonwealth in 1952, and 2015, year in which the Puerto Rico government defaulted on its debt obligations and led to the enactment by the U.S. Congress of the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA). We construct a new longitudinal dataset by coding all primary findings documented

[1] See Cámara-Fuertes and Bobonis (2015), Segarra Alméstica and Enchautegui Román (2010), and Enchautegui Román (2010) respectively for evidence of citizens, businesspeople, and public employees' perceptions of corruption levels in Puerto Rico.

[2] One of the best sources is the series *Project on the Misuse of Government Resources* by the Center for Economic Research (Centro de Investigaciones Económicas) of the University of Puerto Rico – Rio Piedras. See http://economia.uprrp.edu/ArticulosFinales.html.

[3] In this essay we start from the premise that the debate on the pros-and cons corruption is settled. Economists have widely shown its adverse consequences for growth, for inequality, and for myriad other economic efficiency and equity outcomes (Olken and Pande 2012). Research across the social sciences had been more sanguine regrading corruption since previous findings appeared to support the claim that corruption could be conducive to social order and/or economic efficiency (Huntington 1968; Stigler 1971). More recently, this view has largely been confirmed to be erroneous (Olken and Pande 2012).

in these reports. Based on this data, we document the extent of corruption and the patterns of malfeasance across all municipal governments throughout the 1952-2015 period, and thereby provide a picture of municipal corruption spanning Puerto Rico's economic and political development and decay. We address three important questions regarding political corruption.[4] First, what are the historical and contemporaneous aggregate patterns of municipal corruption in the island? Second, what is the relationship between public corruption and the structure of political organization and electoral politics? Third, how do economic conditions influence local levels of public corruption?

Our most salient finding is that patterns of municipal corruption in Puerto Rico dovetail closely with three periods of economic and political change that correspond to fundamental transformations in governance practices: A first period, bookended by the creation of the Commonwealth in 1952 and by the last year of uninterrupted gubernatorial control by the PPD in 1968, is characterized by the political hegemony of the Partido Popular Democrático (PPD), and by rapid economic development. We find that municipal corruption levels were moderately high during this period. An interlude, wherein corruption declines, begins approximately in the mid-1960s, soon after 1964--the last year of Governor Luis Munoz Marin's final term in office and lasts to the early 1970s, years of rising support for the pro-statehood Partido Nuevo Progresista (PNP) including the party's first governorship during the 1968-72 term.

A second period (mid-1970s-1999) is characterized by strong bipartisan competition between the PPD and the PNP, by unsteady economic growth, and by increasing reliance by Puerto Rico's government and population on federal monetary transfers. During this period, levels of misgovernance and corruption rose gradually but consistently. The third period, covering the first fifteen years of the XXIst Century (2000-2015), is characterized by continued political polarization and by protracted stagnation and contraction of Puerto Rico's economy. This period is capstoned by the fiscal crisis and the government's declaration of a moratorium on payments of its debt obligations in 2015. Although we observe a considerable reduction in local corruption levels in the early 2000s that coincides with the territorial government's temporary efforts to curb public malfeasance,[5] we observe

[4] Not all corrupt acts are detected by the OCPR municipal audit reports, due to its illegal nature. As we discuss in the paper, given the institutionalization of the OCPR and the competence of its auditors these data are a good reflection of corrupt acts in the municipalities in Puerto Rico.

[5] During the 2001-2004 term, Governor Sila M. Calderón promulgated Executive Order No.2001-06 with the intention of promoting the proper and efficient use of public resources and to complete "the total eradication [sic] of government corruption." To further that effort, the Order created the "Independent Citizens' Commission to Evaluate Government Transactions" (i.e., Blue Ribbon Commission) for the purpose of evaluating significant government transactions.

a gradual return to higher corruption levels that last into the present time and are seemingly coupled to the recent decay of Puerto Rico's institutional and economic model.[6]

In order to ascertain the main factors predicting these trends, we quantitatively analyze the most salient determinants of local public corruption. Specifically, we link municipal audit data with a rich array of political, socio-demographic, administrative, and economic measures. We present evidence that indicates that the configuration of political practices and institutions play a primary role in explaining corruption patterns. Consistent with earlier work by Bobonis, Cámara Fuertes, and Schwabe (2016) [henceforth BCS], we show that government responsiveness and accountability incentives via timely audit reports strongly mitigate corruption. These effects are concentrated in municipalities in which local elections reflect a historical alternation of parties (BCS 2016; Bobonis, Kessler, and Zhao 2021), a finding that supports the view that electoral accountability is an important explanatory mechanism.

We also examine the importance for corruption of party loyalties at the municipal level—which we capture with a measure of a municipality's history of non-competitive elections; and of high co-partisanship—as gauged by the political party correspondence between the governor and a municipality's mayor. Consistent with evidence from other contexts (e.g., Borrella Más 2015), we show that during the period of political competition, specifically throughout the 1990s and onwards, corruption levels tend to be greater in municipalities controlled by co-partisans of the insular government and lower in municipalities with more political competition and turnover. We also show that economic and demographic changes are only weakly related to municipal-level trends in corruption. These findings contrast with research documenting that greater economic complexity due to local economic growth induces higher levels of corruption (see review in Colonnelli, Gallego, and Prem 2020).

We conclude with an interpretation of the trends in Puerto Rico's levels of corruption through the lens of theories of political economy of underdevelopment. Specifically, we argue that changes in misgovernance throughout these decades reflect a transition from clientelist machine politics pervasive in the era of PPD hegemonic dominance, to extremely polarized politics commonly found in highly divided societies (Magaloni 2006; Stokes et al. 2013; Padró-i-Miquel 2007).[7] The demise of the PPD's

[6] Scholars argue that the institutional and economic decay resulted from both the global changes in the geopolitical and economic landscape which severely affected the territory's long-term development prospects and the territorial government's inability to effectively respond to these changes (e.g., Pantojas García 2015; Caraballo Cueto 2020).

[7] We distinguish political polarization from political competition. Political polarization exists when voters have a low likelihood of voting for a party other than the party with which they identify. Jurisdictions in which the electorate's

hegemony as of the late 1960s gave rise to polarization based on political identities, evident in intense allegiances to the territory's political parties, and to a distribution of benefits to constituents largely based on such identities.[8] We argue that politically polarized distribution and resource allocation gave rise to a form of misgovernance detrimental to the majority of the population – as in models of kleptocratic politics with intense political competition (Padró-i-Miquel 2007; Anderson and Francois 2020). Our study also confirms the important role played by the government's monitoring apparatus in countering these forms of misgovernance. Despite the prevalence of intense party-specific political loyalties, we show that technocratic anti-corruption efforts can be effective at reducing corruption.

The article is organized as follows. Section 2 provides contextual information about politics and governance issues in the context of Puerto Rico together with a description of the Office of the Comptroller of Puerto Rico municipal audit program. We follow with a description of the audit reports data and other data sources in Section 3. Section 4 presents the central empirical findings and discusses plausible explanations for the patterns of municipal corruption. Finally, Section 5 concludes with a broad interpretation of the findings and their implications for governance practices in Puerto Rico.

2. Background

2.A. Puerto Rico's Political Context since 1898

In this section we provide a brief characterization of Puerto Rico's political dynamics that undergird the trends documented in the quantitative analysis.[9] While our analysis of the quantitative evidence focuses on patterns of corruption since 1952, to understand long-term trends requires a discussion of the political and economic context in which it was nested prior to the 1950s. Consequently, we begin our discussion of corruption in Puerto Rico at the turn of the century with the arrival of U.S. military forces during the Spanish-American War of 1898. While we proceed chronologically, our aim is to provide a synthetic sense of the degree to which corruption was pervasive in insular politics.

willingness to cross party lines is low are polarized, and conversely, a high probability of crossing party lines indicates a low level of political polarization (see e.g., Casey 2015). Political competition refers to the absence of an electoral advantage: in a highly competitive political setting, a party's likelihood of winning an election will be approximately matched by that of one or more other parties. Jurisdictions may be both polarized and competitive if the composition of citizens with affinities for each political party are close to equal.

[8] While the divisions in Puerto Rico are political, and not based on ascriptive characteristics, Puerto Rico nevertheless resembles a "deeply divided place". Advocates of power sharing contend that in such settings political competition and the division of powers on their own are unlikely to heal societal divisions and may lead to conflict (O'Leary 2013).

[9] For further details on municipal government administration in Puerto Rico, see BCS.

Colonial Domination and the Spoils System

The formal political incorporation of Puerto Rico into the United States after the Spanish-American War in 1898 ushered in various attempts to contain patronage and corrupt political practices prevalent under the Spanish regime. Early on, colonial authorities noted that pervasive governmental disorganization and a dearth of resources made it difficult if not impossible for municipalities to collect taxes or pay municipal employees. Moreover, the lack of clear budgetary and administrative guidelines, made it possible for corrupt officials to prevail and remain unaccountable (Report of the Military Governor of Puerto Rico on Civil Affairs 1902; Wells 1968).

Under the Foraker Act of 1900 (and subsequently under the Jones Act of 1917), U.S. colonial authorities attempted to contain corruption by implementing greater centralization and control of municipal authorities. These practices, premised on the perceived need for "educating the natives in self-government" (Clark 1972), may have exacerbated corruption since the lack of autonomy led local and insular-level officeholders to prioritize patronage over programmatic politics, a strategy crucial for electoral success throughout the period (Clark 1972). Despite these efforts, throughout the first three decades of the 20th century, patronage remained pervasive, as did other more notable forms of political corruption such as vote buying, and ballot box stuffing. An institutionalized spoils system emerged that covered a whole rafter of appointments across government branches. The prospects of controlling the spoils system drove competition between insular political parties (Wells 1968).

PPD Hegemony

The economic crisis of the 1930s and widespread discontent with the colonial political order led to a breakdown in the support for the political parties that had dominated Puerto Rico politics in the first third of the twentieth century. This crisis ushered in the emergence of the Partido Popular Democrático (PPD). The PPD ran under a platform that promoted more proactive management of the economy, and economic development. These goals entailed the growth of technocratic cadres in public service, and the creation of new government agencies and instrumentalities. Crucially, this entailed breaking with the prevalent spoils system and the rejection of patronage politics.[10]

[10] The activation of the Civil Service Commission, the establishment of standards for selection across government agencies for entrance into middle management, the creation of quasi-tenured and protected employment careers in government, and more indirectly, the prevalence of an underpinning ideology that government ought to serve as a vehicle for development, contributed to the professionalization of the civil service and partially freed it from political pressures. Santana Rabell (1994) refers to this period as the golden age ("la era del fulgor") of public administration in Puerto Rico.

The PPD governed Puerto Rico from the mid-1940s through the late 1960s; under its leadership as a hegemonic party government, it dominated all levels of government. Puerto Rico attained home rule in 1952 with the enactment of the Constitution of the Estado Libre Asociado (ELA) or Commonwealth. The ELA Constitution established the political structure that has persisted until present times (Agrait 1972). The PPDs hegemony was rooted in the broad appeal of its political project and on the territory's positive economic performance throughout this period (Cabán 2002; Villaronga 2010; Toro 2014).

While the PPD made important reforms that helped professionalize the public sector and strengthen technocratic capacity in the management of government affairs (Wells 1968), corruption and patronage were also important for maintaining its political hegemony (Anderson 1965; Pabón 1972). For instance, Catalá (2013) highlights that Governor Luis Muñoz Marín consistently relied on electoral considerations in the design and implementation of economic development policies, even though he consistently won by overwhelming margins. This was enabled by reforms of the executive branch which granted strong discretionary powers to the governor, to cabinet secretaries, and to top administrators, most of whom were political appointees. This deprived professional public employees of decision-making responsibilities (Santana Rabell, 1994; Catalá 2013). Clientelist and patronage politics provided a complementary way of achieving these electoral considerations. For example, public employees were expected to donate a share (i.e., 5-10 percent) of their salaries to the PPD, a practice that was openly enforced by officials in the public bureaucracy. The practice was seen by the PPD leadership as a deterrent against the corruption of accepting donations from big business (Santana Rabell 1994; Catalá 2013).[11]

The Onset of Political Competition and Contemporary Corruption

The era of PPD hegemony ended with the election of 1968, in which the PNP—the island's dominant pro-statehood political party—won the governorship.[12] This election ushered in an era of intense two-party political competition between the PPD and the PNP that has continued into the

[11] However, in 1956, then Secretary of Justice José Trías Monge saw it as an affront to public employees and aimed to end it. Under Muñoz Marín's instructions, Trías Monge worked on legislation to provide public funding to political parties and their electoral campaigns as a way to avoid the need for donations from big business and public employees. As a result, in 1957 the Law Núm. 110, *Ley para establecer el Fondo Electoral, reglamentar las contribuciones a los partidos políticos y establecer penalidades por las violaciones a la Ley*, to regulate political party contributions was approved (Catalá 2013). While the practice of requesting donations from public employees outside their place of work has continued to this day, perhaps the law contributed to the temporary reduction in corruption during the Sánchez Vilella and Ferré administrations.

[12] Besides controlling the governorship and the House of Representatives, it elected mayors in 27 of all 76 municipalities.

present (Agrait 1972; Anderson 1973; Bayrón Toro 1989; Meléndez Vélez 1998; Pantojas García 2015).[13]

Both parties have portrayed changes to the political relationship between Puerto Rico and the United States—the so-called "status issue"—as the key to ameliorating poor economic and social conditions on the island. The distinction between preferences for reforming the current commonwealth status to obtain greater autonomy, and preferences for full political integration through statehood has been the main political cleavage in Puerto Rico over the last fifty years and has become the basis for contested identities within Puerto Rican society (Anderson 1988; Bayrón Toro 1989; Meléndez Vélez 1998; Barreto and Eagles 2000; Cámara-Fuertes 2004).[14]

As we will document below, public corruption has been pervasive in Puerto Rico throughout this period. Although Puerto Rico ranks in international comparisons as a territory with moderate levels of corruption, it underperforms in the dimensions of transparency and bureaucratic efficiency (Segarra Alméstica and Enchautegui Román 2010). Scholars have argued that this is related to highly developed systems of political patronage and clientelism, both at the territorial and municipal levels (Comisión de Derechos Civiles 1993; Santana Rabell 1994; Cordero Nieves 2012).

Puerto Rico's political culture reflects persistently high levels of politization in public administration (Rivera, Seijo, and Colón 1991; Santana Rabell 1994). Public employees are selected based on their partisan loyalties instead of on the bases of merit (Comisión de Derechos Civiles 1993). Additionally, recruitment for public employment is used as a reward for electoral work. The politization of the workforce in the public sector partly accounts for their higher voting turnout rates vis-a-vis private sector employees. There is a strong incentive for public sector employees to vote to protect their jobs and to gain the satisfaction of helping their party win (Cámara-Fuertes 1999). The high levels of politization among public sector employees makes corruption more likely and contributes to public policy focused on maximizing partisan benefit (Santana Rabell 1994). These issues have gained prominence in electoral politics during the last three decades.[15]

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[13] For further reading on transitions from hegemonic (or dominant party) systems towards democracy, see Greene (2007), Magaloni (2006) and Magaloni and Kricheli (2010).

[14] Due to the emphasis on this political cleavage, there have been very limited programmatic policy differences between the PNP and the PPD until recently (Meléndez-Vélez 1998; Cámara-Fuertes 2010).

[15] In every one of the polls conducted between 1995 and 2004 commissioned by the newspaper *El Nuevo Día*, the percentage of people mentioning corruption as a problem ranged from 55 to 72 and corruption ranked between the fourth and the sixth place as an important issue. Furthermore, when people were asked to select the *most* important problem, corruption was among the top five issues mentioned in 1999, 2000, 2002 and 2004. In 2012 and 2013, 65 and 61 percent, respectively, of Puerto Ricans thought that corruption was an important problem. According to the 2018 Puerto Rico

Corruption appears related to the ebbs and flows of available federal transfers, to intensified party competition, and Puerto Rico's growing economic misfortunes. A secular decline in the territory's economic prosperity since the mid-2000s marks a structural break in Puerto Rico's economy that persists to the present day.[16,17] High levels of accumulated public sector debt devolved into a crisis in 2015, when Puerto Rico's government declared it could not pay all its debt obligations (Caraballo-Cueto and Lara 2018). In 2016, the U.S. Congress approved PROMESA, which provided the government with bankruptcy-type protection and created the Puerto Rico Fiscal Oversight and Management Board to supervise government spending.[18]

While the evidence for increased corruption and misuse of public resources at the state level is significant, at the municipal level the situation appears more pronounced. According to Segarra Alméstica and Enchautegui Román (2010), during the 1980s, municipal corruption levels worsened relative to corruption in the territory's Legislative, Judicial, and Executive branches. This difference has become starker in the 1990s and the 2000s.

2.B. The OCPR Municipal Government Auditing Program

The Office of the Comptroller of Puerto Rico (OCPR) is an autonomous government agency with the mission to "audit the property and public funds transactions with independence and objectivity to determine if they have been done in accordance with the law[, and] promote the effective and efficient use of the government resources […]" (Office of the Comptroller 2020). To achieve this

World Values Survey, 78 percent of respondents reported having perceptions of abundant public corruption (Hernández Acosta 2019).

[16] Shifts in the global geopolitical landscape (i.e., the fall of the Soviet Union, the advent of the North American Free Trade Agreement (NAFTA) and other preferential and multilateral agreements) have diminished Puerto Rico's strategic importance to the U.S. In 1996, Congress repealed Section 936 of the Internal Revenue Code, a fiscal device used to attract U.S. capital to the island (Caraballo Cueto 2020). The eventual phaseout of this investment subsidy culminated in 2005 and caused a reduction in manufacturing activity, which led in turn to a significant and persistent reduction in aggregate economic activity and in the territorial government's tax revenues. In 2003, the U. S. Navy closed their operations in Roosevelt Roads Naval Station in the municipality of Vieques and shortly after, those in the municipality of Ceiba. This was a sign of the decreasing geopolitical importance of Puerto Rico for the mainland government (Pantojas García 2015; Bobonis, Stabile, and Tovar 2020).

[17] This was followed by a dramatic increase in net migration rates and a rise in public debt levels. An average of 53,020 individuals migrated from the territory in each year between 2010 and 2014 (Duany 2017). Puerto Rico's population decreased from 3.9 million in 2006 at the start of the recession to 3.3 million in July 2017, just before Hurricanes Irma and María devastated the island (Mora, Dávila and Rodríguez 2018).

[18] We refer readers to Cabán (2002) and to Toro (2014; 2017) for more details regarding the political and economic patterns shaping each of the periods highlighted above up to the end of the 20th century, and to Pantojas García (2015) for the period of institutional decay. For more details regarding the issue of public corruption in Puerto Rico, see the series of reports of the *Project on the Misuse of Government Resources* by the Centro de Investigaciones Económicas of the University of Puerto Rico–Río Piedras.

goal, the OCPR audits all branches of the Government of Puerto Rico: the Executive, including its public corporations, and municipal governments, as well as the Judicial and Legislative branches.

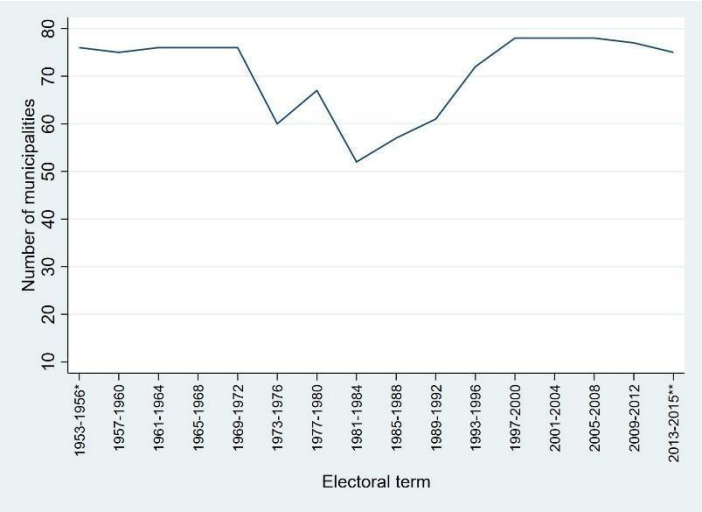
Various dimensions of institutional design are set to ensure the OCPRs autonomy.[19] As established in the 1952 Constitution of the Commonwealth of Puerto Rico, the Comptroller is appointed to a fixed ten-year term and must be confirmed by both of Puerto Rico's legislative chambers. The OCPR is placed under the authority of the Legislative Branch because a majority of its operations focus on audits of the Executive Branch. In addition, auditors are competitively paid, highly trained, and are not allowed to audit the municipality in which they live.

The OCPR has been carrying out audits of each municipal government and of municipal consortia uninterruptedly since 1952. Once a municipality is to be audited, the OCPR sends a team of auditors to examine accounts and documents, inspect works, and interview different stakeholders such as municipal employees and community members. The OCPR team produces a preliminary report which is subsequently shared with municipality officials (i.e., the mayor and top management) to provide them with an opportunity to review, challenge, or explain findings. Once the response is received and evaluated, a final report is issued and disseminated to the public and the media. For large and complex municipalities, the office may complete several audit reports during an audit period.

The forms of public corruption in municipal governments uncovered through the audits take diverse forms. Corruption schemes are typically based on a combination of procurement fraud, illegal hiring and employment practices, and over-invoicing for products or services. In addition, the audit reports also suggest that some individuals simply divert resources for personal benefit. Following the existing literature, we combine these into a single measure (see Section 3.A). An example will help illustrate the types of irregularities uncovered. In a report on the municipality of Maunabo during February-March 1997, contracts for the pavement and maintenance of roads summing up to approximately $138K were partitioned into separate projects in order to avoid carrying out a public auction, and the auditors were unable to confirm the authenticity of other quotes submitted for the projects.[20]

[19] As discussed in Section 4.2 below we find no strong evidence of bias in audit outcomes due to political influence.
[20] For more details of this and other examples of findings of corruption in these reports, see our previous work (Bobonis, Cámara-Fuertes and Schwabe 2016)

Figure 1: Coverage of Municipal Government Audits



*Note: the above graph shows the number of municipalities for which at least one audit report was published during the given electoral term. *Three reports from 1952 are included in the data for the 1953-1956 electoral term. **The latest publication year of reports in our dataset is 2015, and our data therefore does not include all reports in the 2013-2016 electoral term.*

Although by law each municipality must be audited every two years, biennial auditing has not been done consistently. Figure 1 shows the coverage of municipal government audits in each four-year term. A clear dip in the number of municipalities audited in each term can be seen starting in the early 1970s and reaching its lowest point by the early 1980s. After that, audits started to increase steadily until their coverage rose consistently to 78 municipalities (100 percent) in the latter part of the 1990s.

There are various possible explanations for this pattern. By the early 1960s, the state government started to increase in size and complexity and benefitted from a growing influx of federal transfers. In addition, federal government agencies required municipal governments to conduct independent audits of their use of federal funds. Thus, the OCPR may have reallocated its scarce resources to auditing other government units (i.e., state government agencies and public corporations) given a higher expected return in detection of malfeasance in central government units as opposed to local governments.[21]

The decrease in municipal audits also coincided with the severe 1973-74 and 1981-82 recessions, which may have led to budget cuts to municipal auditing activities. The reasons for the

[21] We partially confirm the greater influx in federal transfers based on aggregate data from the Puerto Rico System of National Accounts for the period 1971-2015 (see Figure A1 in the Online Appendix).

reduction in the frequency of audits throughout the 1970s and early 1980s are thus likely due to structural and resource constraints as opposed to being politically motivated. Starting the mid-1980s, stronger leadership from the Comptroller and a string of high-profile municipal corruption investigations by the legislature led to the increase of municipal audits.[22]

3. Data and Empirical Methodology

3.A. Measures of Corruption Based on the Audit Reports

We use all the OCPR municipal audit reports published since it began operations in 1952 until 2015.[23] These 64 years cover 2,243 municipal audit reports. Each report contains information on findings, individuals involved, type of issue, and the amount of funds involved, among other items of information.

Because the OCPR does not officially classify findings as instances of corruption as such, we created a coding scheme that specifies whether each finding constituted an act of corruption or not. We operationalize corruption as an act by any municipal employee that led to a personal financial or political benefit, as interpreted by the information presented in the audit report.[24] Thus, the mayor receiving a bribe for a contract, using municipal employees for his or her electoral campaign, or an employee pocketing part of the municipal tax collections, are classified as corrupt acts. On the other hand, constructing a retaining wall without the proper permits or poor bookkeeping would not, unless the report stated that it involved the cover-up of a corrupt violation.

To construct municipality-level measures of corruption, we follow Ferraz and Finan (2008; 2011) and BCS (2016) and sum the number of findings of corruption using our definition of corruption in each audit report. Because the OCPR may publish multiple reports on a municipality during one auditing period depending on the size or complexity of the municipal government, we normalize our measures by dividing the sum of findings by the number of reports published in that auditing period. In addition to the total number of corrupt violations, we look at corrupt violations by the mayor or vice-mayor, and those referred to the Puerto Rico Department of Justice (DoJ).

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[22] We thank Víctor García San Inocencio and Orlando Sotomayor for their insights in interpreting these data.

[23] Certain reports were excluded from our dataset, for instance if it was impossible to assign the report to a specific municipality.

[24] Our definition is similar to that of Susan Rose-Ackerman and Bonnie J. Palifka (2016), who in turn adopt the definition given by Transparency International (TI): "To encompass the wide range of meanings, we start with TI's definition of corruption as: "the abuse of an entrusted power for private gain.""

3.B. Other Data Sources

We employ additional data available from the P.R. State Electoral Commission (CEE) containing the results of municipal and territorial-level ballots for the 1976 to 2012 elections. Electoral outcomes at the municipal level for the period 1956-1972 were obtained from Cosme Morales (2017) and Nolla-Acosta and Silén-Afanador (2019). These data allow us to construct measures of electoral characteristics and outcomes for each municipal government and term. We also use annual municipal government budget data for the fiscal years 1991-92 through 2015-16 from the Puerto Rico Office of the Commissioner of Municipal Affairs. Finally, we use municipality-level population estimates generated by Puerto Rico's Institute of Statistics using information from the 1950-2010 U.S. Censuses of Population and Housing.

4. Results

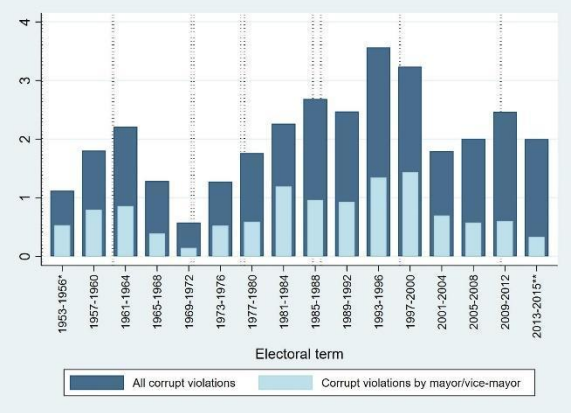
4.1 Trends in Municipal Corruption, 1952-2015

In this section, we present trends in levels of reported corruption throughout this 64-year period. This gives us the opportunity to present an overarching picture of patterns of public corruption in the territory throughout the periods of development and decay. We start the discussion with a graphical analysis of reported violations over time, grouped by electoral term, to shed light on the patterns in the data (Figure 2). Panel A of the figure presents the average number of violations as well as those attributed to the top municipal officials (i.e., mayor or vice-mayor) throughout the period. Panel B also shows the average level of reported findings but compares them to the share of violations referred to Puerto Rico's DoJ. In both panels, the measure of corruption represents violations per number of reports issued for a municipality in each term. This adjustment corrects for differences over time in the frequency of reports issued by the OCPR, thus identifying the prevalence of reported corruption in a municipality when an audit was conducted.[25] For purposes of framing historical episodes, we include marker lines for each Comptroller's term in office and for each governor's term in office in Panels A and B, respectively.

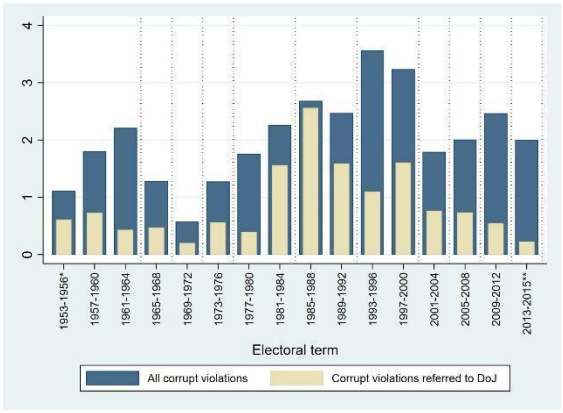
[25] We note that the period under audit is necessarily prior to the issuance of the audit report; violations captured by a report in a given electoral term may therefore have been committed in a previous electoral term.

Figure 2: Average Number of Corrupt Violations by Electoral Term

Panel A: All violations and violations by mayor/vice mayor (with marker lines for Comptroller terms)



Panel B: All violations and violations referred to PR Department of Justice (with marker lines for Gubernatorial terms)



Note for Panels A and B: These figures represent the average number of violations per report in each electoral term. *Three reports from 1952 are included in the data for the 1953-1956 electoral term. **The latest publication year of reports in our dataset is 2015, and our data therefore does not include all reports in the 2013-2016 electoral term. *Panel A*: The dashed vertical lines reflect Comptroller terms (Panel A), and Gubernatorial terms. (Panel B)

Municipal corruption levels were moderately high between the late 1950s and the mid-1960s, at the height of one-party hegemonic dominance of the Partido Popular Democrático (PPD). Corruption findings increase from approximately 1.1 per audit report on average in the 1953-56 period to approximately two findings per report between 1957 and 1964 (1.80 and 2.21 findings per report in the 1957-60 and 1961-64 electoral terms respectively). Corruption levels decreased during the 1965-1968 and 1969-72 electoral terms, to 1.28 and 0.58 findings per report, respectively. These years encompass the last term of PPD gubernatorial control after Luis Muñoz Marín's transition out of gubernatorial office, the ascent of the PNP as a viable contender to the PPD in Puerto Rico politics, and to the election of the PNP candidate Don Luis A. Ferré to the governorship in 1968, an event that ended the PPD's political hegemony.[26]

[26] We conducted statistical tests for differences in corruption levels across electoral terms by estimating a set of linear regression models with electoral term fixed effects; the set of models were estimated with and without municipality fixed effects, used to capture time-invariant determinants of corruption at the municipality level. We find that corruption levels during the 1969-1972 term are statistically significantly lower than those in any other term at the 99 percent confidence level. The levels of corruption during the 1965-1968 electoral term are significantly lower than those in the 1961-1964 term at the 99 percent confidence level (again both with and without municipality fixed effects).

There are several possible explanations as to why we observe a decline in corruption during the 1965-1968 and 1969-1972 electoral terms. One possible explanation is that the Sánchez Vilella administration (1965-68) had a strong anti-corruption stance (Santana Rabell 1994; García San Inocencio and Rivera Hernández 2015; Observatorio de Gobernanza, Transparencia y Rendición de Cuentas de Puerto Rico).[27] A second possible explanation is the unexpected victory of the PNP in the 1968 gubernatorial elections and the consequences of this transformational political event. In spite of Luis A. Ferré's victory at the gubernatorial level, the PNP only won 27 of all mayoral seats (76 at the time), or 36 percent of these (Agrait 1972). For the first time in over two decades, PPD mayors did not have a politically aligned governor in office; the PNP administration controlled the executive, including the investigative apparatus of the DoJ. This political misalignment and greater risk of judicial accountability could have curtailed PPD municipal administrations contemplating malfeasance.[28] A third possible explanation is that the OCPR was more effective in curtailing corruption under the leadership of Comptroller Justo Nieves Torres.[29]

The decrease in corruption seen in the 1969-1972 term – with approximately 0.6 corrupt findings per report on average – is temporary, and is followed by a gradual, consistent rise in reported corruption levels from the mid-1970s until the late 1990s. During the two electoral terms spanning the mid and late-1990s, under PNP governor Pedro Rosselló Nevares, municipal corruption levels respectively reach a peak average level of 3.6 and 3.2 findings per report. This observed rise in corruption is consistent with standard models of clientelist politics: increases in the influx of government revenues tend to lead to increases in corruption and patronage relative to investments in public goods and services (Besley and Persson 2011).

Finally, we observe a considerable reduction in local corruption levels in the 2000s – during the 2001-2004 and 2005-2008 terms – relative to the preceding period: reported levels decrease to

[27] One example of this reformist stance was that the PPD administration in 1967 initiated a significant reform of the public service, which was approved by the legislature in 1968 as the Commission for the Reorganization of the Executive Branch (Santana Rabell 1994). Another is that in 1968, the Sanchez Sánchez Vilella administration established a new Code of Ethics for the executive branch (García San Inocencio and Rivera Hernández 2015). Given the lag between the commission of corrupt acts and the publication in the OCPR reports, this can help explain the persistent decrease in corruption throughout the 1965-1968 and 1969-1972 electoral terms.

[28] The fact that the PNP came into power with the promise to shake things up and to change the status quo—"esto tiene que cambiar" ("this has to change") was the slogan—probably reinforced this view (Agrait 1972). As we will show in Section 4.2, municipalities administered by mayors of a different party than that of the territory-level executive exhibit significantly lower corruption levels.

[29] Although our data does not allow us to separate or directly test these three hypotheses, they jointly provide a set of plausible explanation for the decline in corruption findings during this transitional period in Puerto Rican politics.

approximately 1.8 and 2.0 findings per report, on average.[30] This coincides with the territorial government's temporary efforts to curb public malfeasance by expanding anti-corruption efforts at the territorial government level. Following her campaign promise to tackle corruption, Governor Sila M. Calderón (PPD) issued Executive Order 2001-06 in January 2001 to create the Independent Citizens' Commission to Evaluate Government Transactions, also known as the Blue Ribbon Commission. The Commission was tasked with investigating government corruption acts of the current and past administrations. However, it could only investigate and make referrals to other agencies but could not file charges on its own (United States Court of Appeals, First Circuit 2002).[31]

Reported corruption levels increase moderately in the 2009-2012 period, following the structural break that leads to the current decay of Puerto Rico's institutional and economic model, the start of the 2008 Great Recession, the increase in federal funding through the Economic Stimulus Act of 2008 and the American Recovery and Reinvestment Act of 2009, among others. Average levels of corruption increase to 2.5 findings per report in this term, but moderate levels of corruption persist at approximately 2.0 findings per report during the 2013-2015 period, the end of our study period.

Our findings are in line with previous findings in the literature. Using measures of judicial conviction in state and federal courts as well as an index of misuse of public resources (combining corruption and waste) from OCPR audits, Segarra Alméstica and Enchautegui Román (2010) show that both measures increased during the 1980s and 1990s, briefly decreased in the early 2000s, and increased again after 2003.

The richness of the audit reports data allows us to document additional details in aggregate trends in reported corruption during this extensive time horizon. First, the levels of corruption attributed to the top leadership in the municipalities – as indicated by violations for mayors and vice-mayors – follows a pattern very similar to the aggregate findings (see Figure 2, Panel A). Approximately 36 percent of corrupt findings are attributed to the top leadership, and this proportion is generally consistent across time periods. Second, we do not observe a clear pattern in reported corruption levels across periods of incumbency of different Comptrollers.[32]

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[30] Using the same methodology described in footnote 24 above, we find that the levels of corruption during the 2001-2004 term are significantly different from those in the 1993-1996 and 1997-2000 terms at the 99 percent confidence level (both including and excluding municipality fixed effects). However, we cannot reject the hypothesis that corruption levels are different between the 2001-2004 and 2005-2008 terms at conventional confidence levels.

[31] To give the commission legitimacy, Governor Calderón appointed several public figures with a history of fighting corruption such as former Comptroller Ileana Colón Carlo and former Representative David Noriega.

[32] Recall that the measures between each set of vertical dotted lines represents the incumbency period of each Comptroller (see the notes to Figure 3 for details).

Third, we generally observe a positive relationship between the total number of findings across reports and those referred to the DoJ, but this correlation is conditional on the time period of reference (Figure 2, Panel B). For example, during the hegemonic period of PPD rule between the mid-fifties and the late 1960s—the period encompassing four electoral terms but only two governors—there is no strong relationship between municipal corruption and referrals to the DoJ. The relationship becomes strong and positive during the period between the late 1960s and the mid-1980s, when referrals rise to close the gap vis-à-vis the overall level of violations in the 1981-84 and 1985-88 terms. However, this relationship breaks down under the incumbency of Comptroller Ileana Colón Carlo in the 1989-92 electoral term onwards.

The results discussed above paint a picture in which corruption is an important component of the Puerto Rican political landscape. Even in the two periods where corruption decreases, they are rapidly followed by an increase in malfeasance. Why? In his thorough recounting of instances of corruption, Quiñones Calderón (2014) suggests that impunity is one of the main reasons for the increase in corruption in Puerto Rico.[33] Following a thorough documentation of multiple corruption cases in the territory throughout this period, he summarizes quite clearly the perceived logic of corruption in the conclusion: "reviewing the many experiences that cover the following pages—I put the nail in the coffin: because of a false sense of impunity—'they are not going to catch me; I know how to do this' (p. 22)."

We mentioned another example of this above: the Bluer Ribbon Commission established by governor Calderón. Although the Commission completed several reports[34], it never achieved its goals completely because its investigations did not result in criminal charges and because its work was undermined at all levels (Morales Melendez 2015; Rivera 2018).[35] Furthermore, when the Commission

[33] For instance, the number of referrals to the DoJ dropped from thirty-five (35) in fiscal year 2008-09 to four (4) in 2011-12; the sharp drop in referrals appears related to a trend of low levels of cases investigated by the Puerto Rico DoJ. Quiñones Calderón (2014) highlights that in 2013 the OCPR reported that no action was taken in 94 percent of the referrals that were made to the DoJ; with time the OCPR has reduced the number of referrals. He further argues that there are plenty of anticorruption laws—governor Muñoz Marín approved 35 anticorruption laws, Sánchez Vilella 7, Ferré 5, Hernández Colón, 48, Romero Barceló 20, and Rosselló González 72—the problem is with their poor implementation which leads to impunity.

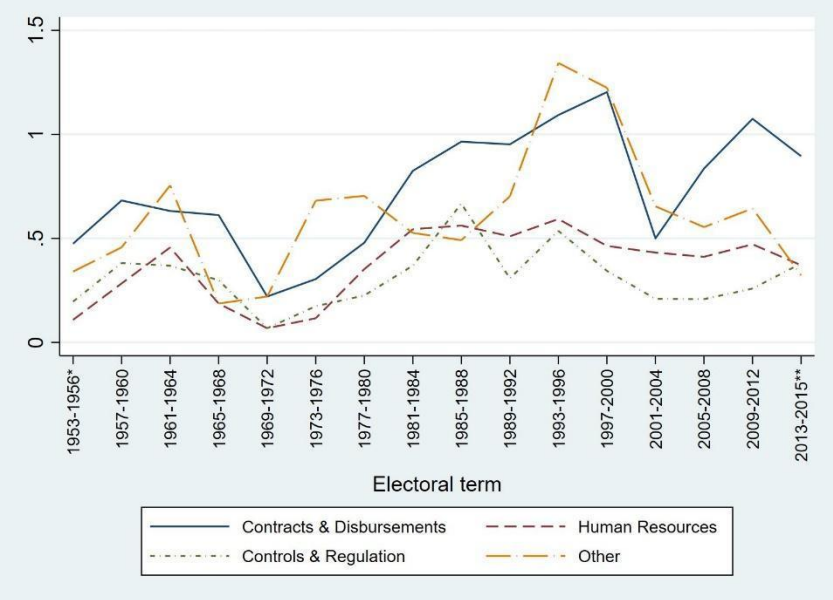
[34] The Commission completed twelve reports, including investigations on fraudulent agricultural tax incentives by the Department of Agriculture, problematic contracts by the Solid Waste Authority, the privatization of the Children's Museum, and irregularities in the development of the fiber optics project by the Puerto Rico Power Authority, among others (Rivera 2018).

[35] Its director, David Noriega, later indicated that outside influences interfered with their work when they focused on important PPD personalities (Torres Gotay 2020). Colón Carlo (2017) highlighted the lack of commitment of the Department of Justice to process those implicated in the Commission's reports, and that this lack of prosecution emboldened officials to continue engaging in corruption.

investigated Ramón Cantero Frau, one of the cabinet secretaries, communications between the Commission and Calderón broke down and it was later disbanded (Quiñones Calderón 2014).

We also document time trends by type of violation identified in the municipal audits by municipal government activity classification (see Figure 3). We identify the three most prevalent types of findings: those related to (i) contracts and disbursements, (ii) human resources management, and (iii) lax regulation and controls.

Figure 3: Average Number of Corrupt Violations per Report, by Electoral Term and Class of Government Activity

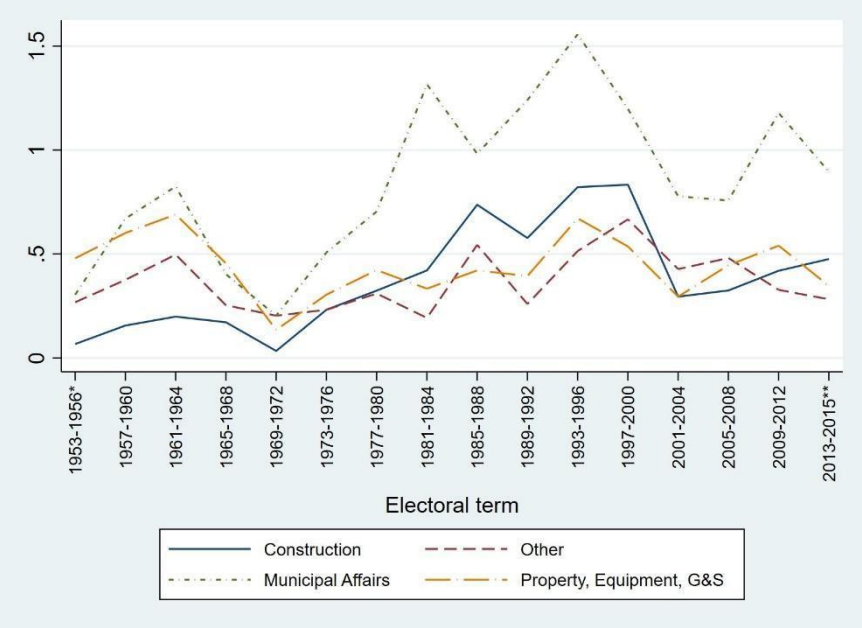


Notes: *Three reports from 1952 are included in the data for the 1953-1956 electoral term. **The latest publication year of reports in our dataset is 2015, and our data therefore does not include all reports in the 2013-2016 electoral term. See online appendix for details of data categories.

Across the period between the 1950s and up to the 2010s, all three types reflect similar trends, albeit with different aggregate frequencies. Findings related to contracts and disbursements are most prevalent in the 1950s and in the 1960s during the period of PPD hegemony, and again throughout the 1980s-1990s during the rise in contracting related to construction (see below). Finally, they increase again during the 2009-2012 period, following the increase in federal funds transferred to the territory through the Economic Stimulus Act of 2008 and the American Recovery and Reinvestment Act of 2009, among others. Independent surveys of public employees and business owners confirm this pattern: public employees reported that corruption took place most often in contracting with private

providers, whereas business owners reported that the need for bribery was most common in the awarding of municipal contracts (Enchautegui 2010).

Figure 4: Average Number of Corrupt Violations per Report, by Electoral Term and Area Classification



Notes: *Three reports from 1952 are included in the data for the 1953-1956 electoral term. **The latest publication year of reports in our dataset is 2015, and our data therefore does not include all reports in the 2013-2016 electoral term. See online appendix for details of data categories.

Findings of corruption related to human resources subsume a wide-array of employment-related issues, covering nepotistic hiring, political discrimination, and the uncovering of "ghost" employees, generally used as a device for outright diversion of public funds. Violations related to lax regulation under the category of controls and regulations typically cover practices that enable theft of inventory, loose or absent supervision of private gifts, and of donations between private actors and public officials related to, but not limited to, currying favors, and to bribing of public employees. Finally, we classify under the rubric of "other" a fairly heterogeneous, but by no means unimportant, set of violations, related to accounting and financial mismanagement, extravagant expenses, and extortion. In general, the frequency of the reported violations for human resource issues and lax regulation appears to be fairly low and map consistently over time to aggregate and to the "other" category. They exhibit a similar rise in the latter part of the 20th century.

Figure 4 shows time-trends in corrupt behavior by classification of government activity. This categorization shares some overlap with the conceptualization of municipal affairs owing to how internal municipal operations are oftentimes unclassifiable into particular sectors. We identify the three most common areas involving corrupt activities: (i) construction, (ii) issues related to internal administration, and (iii) procurement, purchase and rental of property, equipment, goods, and services. Activities associated with health, education, telecommunications, advertising, transfers to groups and individuals, law enforcement, solid waste management, and other maintenance services, are grouped jointly due to the low levels of reported malfeasance in these areas.

Between the 1950s and the early 1970s, the incidence of corruption in the construction sector was low, with a relatively low average level that ranged between 0.03 and 0.20 findings per report. Subsequently, between the mid-1970s and the late 1990s corruption increased to an average rate of 0.64 per report. Corruption incidents peaked in the 1993-96 and 1997-2000 electoral terms at 0.82 and 0.83 findings per report, respectively. Overall, corruption has increased over time, but has been uneven across sectors. The increase has been stronger in the construction sector and in the category of municipal affairs (including municipal taxes, human resources, professional services and consulting, vehicles and garages, Auction Board, Municipal Assembly, Automated Uniform Accounting System, funds/investments, and legal. These trends are possibly consistent with underlying changes in government activities over time and with an increase in funds allocated to municipal governments. Unfortunately, we do not have granular data on municipal government revenue sources and expenditures throughout the period to allow us to assess real changes in the sectors addressed by municipal governments in their projects.

4.2 Relationship with the Political and the Socio-Economic Environment

In this section, we aim to address more fully the underlying relationship between public corruption in Puerto Rico and the structure and competition between political parties, clientelist politics, and short- and long-run economic conditions. To do so, we report correlations between the municipal audit data and a rich array of political, socio-demographic, administrative, and economic measures at the local level.[36] Importantly, we show evidence that the configuration of political practices and institutions play a first-order order role in explaining corruption patterns.

[36] Although we are not isolating causal pathways in our analysis, some of the relationships we document have been found to be causal in past research in ours and other contexts. Our view is that some of the patterns we document are therefore

As discussed above, the sudden decrease in public corruption during the start of the period of intense political competition followed by the steady rise in malfeasance in the subsequent decades, suggests that political organizations and clientelist politics have influenced the level of corruption. Puerto Rico's political system has traditionally been one of very strong levels of partisan identification and attachment to disciplined political parties (Cámara-Fuertes 2004). This is reflected in the citizenry's political culture. That is, at least up to the 1990s Puerto Ricans had some of the strongest levels of partisan attachment among established democracies and this attachment had important consequences for voter turnout and electoral decisions (Cámara-Fuertes 2004).[37] Anecdotal discussions by political commentators suggest that the levels of political attachment have decreased in the past two decades, a pattern that is confirmed by the support of third parties and independent candidates in the 2016 and 2020 gubernatorial elections.

The political environment is arguably that of a divided and polarized society, where politics are organized along group preferences regarding the territory's political status and party affiliation and where the distribution of benefits to groups organized along such lines is of paramount interest to constituents. The increase in corruption levels also happens concurrently with the greater influx in federal transfers and the last period of sustained growth in the territory.[38] In such weakly institutionalized environments with limited constraints on the use of public resources, increases in the influx of government revenues tend to lead to increases in corruption and patronage relative to investments in public goods and services (Besley and Persson 2011). We thus proceed to characterize aggregate corruption patterns along political and economic lines.

We estimate a series of regression models to sort out the relative relevance of competing explanations of this phenomenon. Within the limits of our data and research design, we aim to distinguish between the competing explanations regarding political structures and organizations, partisanship and electoral incentives, and short-run economic conditions discussed above. We use the data covering the period 1991-2014 due to the lack of availability of municipal budget data for the period preceding the early 1990s.[39]

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causal, but we cannot ascertain that all of them are. For convenience, we will use the terms 'cause', 'influence', 'explain', 'relationship', and 'correlate' to discuss the patterns we identify.

[37] Rivera, Seijo and Colón (1991) argue that these levels had already started to weaken somewhat by the end of the 1980s.

[38] We show the trends in gross real federal transfers to Puerto Rico for the period 1971-2015 as Figure A1 in the Online Appendix.

[39] The results on the political and administrative determinants of corruption reported below are robust to expanding the analysis period to the early/mid-1980s, for which we do not have municipal budget information. We exclude data for the year 2015 given we do not have information around the 2016 election, necessary for the timely auditing analysis described below.

We estimate the relationship between municipal corruption levels and an array of political, administrative, and economic determinants using the following empirical model:

$$c_{m,t} = \beta X_{m,t} + \gamma_t + \alpha_m + \varepsilon_{m,t}, \qquad (1)$$

where $c_{m,t}$ denotes the number of corrupt violations per report in municipality m around election year t, and $X_{m,t}$ is a set of municipality and mayor characteristics expected to influence a municipality's level of corruption. The terms α_m and γ_t represent municipality and election intercepts, respectively, and $\varepsilon_{m,t}$ denotes unobserved characteristics that determine our measure of corruption at time t. We estimate three models, one for each of the following outcome variables: all corrupt violations, those attributed to the mayor or vice-mayor, and those referred to the DoJ.

A growing body of research finds that voters' access to evaluations of politician performance enhances government responsiveness, reduces corruption and rent-seeking behaviors, and promotes electoral accountability, both in the context of Puerto Rico and internationally (BCS 2016; Finan, Olken, and Pande 2017). Following this literature, we take advantage of the structure of OCPR audits and reports to investigate whether and how structural political and electoral factors influence levels of corruption. First, audit reports released in the two-year period leading up to an election – defined in BCS 2016 as "timely audits" – are more likely to inform on the incumbent mayor's activities than reports published shortly after an election, due to issues of salience, voter's short-term memory, and the high turnover rate of politicians, irrespective of audit reports. Therefore, we use variation in the timeliness of audits within municipalities over time to measure the effects for political responsiveness and accountability to citizens. Theories of political agency predict that we should observe significantly lower levels of corruption in governments exposed to timely audits due to their disciplining and accountability consequences. In other words, audit reports released in the two years before an election are more likely to catch the voter's eye and influence their voting choice—and thus are more likely to restrain municipal corrupt behavior.

Our empirical model thus includes as an important explanatory variable an indicator for whether or not the municipality had a timely audit. We also expand the empirical model with a series of indicator variables that capture potential political and administrative determinants of corruption, the first being an indicator variable for the political party in power, which measures the regression adjusted-difference in corruption levels in PNP relative to PPD-controlled administrations. A second set of variables indicate whether the mayor is in the opposition, relative to the territorial government (i.e., gubernatorial office); and whether the mayor is in the opposite party of the one that appointed

the Comptroller in office at the time of the audit.[40] Also included are indicator variables for whether the incumbent mayor's party has won in the past three or more elections (a measure of party incumbency advantage and limited political competition or turnover); and for whether the mayor is in his or her first term in office (as opposed to being a more experienced incumbent).[41] Finally, we control for population levels and municipal budget sizes to account for measures of economic prosperity of the municipality that vary across electoral terms.

We highlight two aspects of the empirical model that are important for understanding the partial correlations described below. First, the models include municipality fixed effects, which control for characteristics of municipalities that do not vary over time, such as geographic or historical factors affecting corruption outcomes. This specification however prevents us from measuring how these fixed characteristics of the municipality lead to higher or lower corruption levels, on average. That is, the empirical model relies on measuring how *changes* across electoral terms in these explanatory variables within a municipality correlate with *changes* in municipal corruption levels. Second, including electoral term fixed effects captures aggregate changes that affect all municipal governments in a particular electoral term (i.e., greater levels of federal transfers to the state government). We thus measure how the observed characteristics lead to higher or lower levels of corruption relative to other municipalities in the same period. Note that these municipality and term fixed effects allow us to consider indirectly—but exclude directly from our empirical models—measures of socioeconomic conditions of the municipality that are very persistent, such as household per capita income, poverty rates, or educational attainment levels of the population.[42]

We report the partial correlation coefficient estimates for each one of the main explanatory variables, together with 95 percent confidence intervals, in Figure 5.[43] Consistent with our earlier work for the period up to 2005 (BCS 2016), we find that timely and foreseeable audits induce a significant short-term reduction in municipal corruption levels of 1.48 (67 percent) fewer reported corrupt

[40] Since the person responsible for overseeing the audits, and of assigning resources and auditors to them, is the Comptroller, we study if a Comptroller appointed by a governor of a different party than the mayor would lead to different levels of corruption than if they belong to the same political party. For example, would a Comptroller appointed by a PPD governor be more "thorough" on audits of a PNP municipality? This difference may be reflected on the levels of corruption in a municipality shown in an audit.

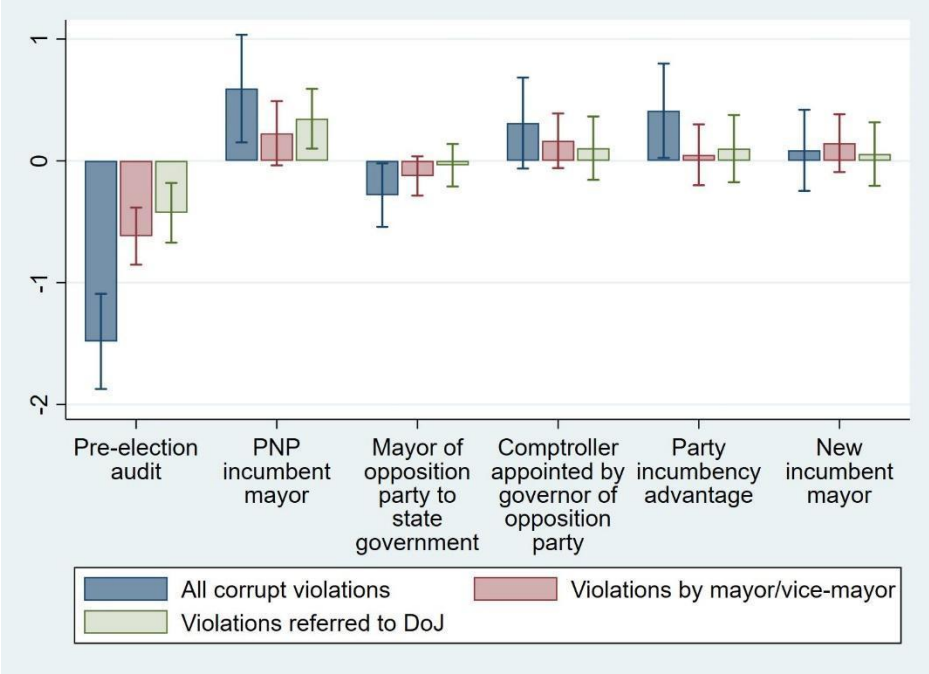
[41] We include in the regression models the number of municipal government reports, the number of municipal consortia reports issued, and the incumbent party's win margin in the previous election as additional controls, to capture additional heterogeneity in audit effort and the short-term political environment in the municipality.

[42] Using a different methodology with analogous OCPR municipal audits data, Segarra Alméstica (2010) includes these and other socio-economic measures as controls and find these are generally moderately correlated with municipal corruption levels. Their report conducts a thorough literature on socio-economic determinants of corruption.

[43] The graph was prepared using the *coefplot* command in Stata (see Jann 2014).

violations in municipalities with timely audits relative to those whose audit reports were published after the election. We also find 0.62 (71 percent) fewer corrupt violations per report attributed to the mayor or vice-mayor, and 0.43 (56 percent) fewer violations per report referred to the Department of Justice (all significant at conventional confidence levels). This is strong evidence that the municipal audits program has important effects on electoral accountability and disciplining. Knowing that a report is likely to come out shortly before an election, municipalities improve their governance practices.[44]

Figure 5: Audit Structure, Political Characteristics, and Corruption Levels: 1991-2014



Notes: Coefficient estimates (bars) and 95 percent confidence intervals (whiskers) from OLS regressions; standard errors clustered at the municipality level. Each set of bars of a specific color represents the partial correlation estimates from a different regression for each of the three dependent variables: all corrupt violations; violations attributed to the mayor or vice-mayor, and violations referred to the DoJ. See Section 4.2 for a description of all additional control variables.

To understand the mechanisms through which this may occur, we searched El Nuevo Día—arguably the most important newspaper in Puerto Rico—for any news coverage of the municipal audit reports during the 2000 and 2004 election years (January 1st through election-day on the first Tuesday

[44] In Bobonis, Cámara-Fuertes, and Schwabe (2016), using data for the 1987-2005 period, we document that this improved governance is not sustained in subsequent terms.

of November). In 2000, there were 127 news articles on OCPR municipal audit reports in 10 months of coverage relating to 37 municipalities, whereas there were 35 news reports covering 22 municipalities in 2004. Most of the coverage was from press conferences by politicians themselves, in addition to news where the OCPR was the source. This meant that the information would be diffused in the campaign trail by speeches, press releases, and the media. Thus, OCPR audit reports became, in at least some races, part of the electoral campaign itself (Cámara-Fuertes and Bobonis 2015).

Results in Figure 5 also allow us to examine whether municipal governments politically aligned with the party of the governor's office are more or less likely to incur in acts of corruption. The higher-level government may transfer resources disproportionately to politically aligned municipalities: this might induce greater corruption levels through multiple mechanisms discussed in the literature.[45] These mayors may also perceive to be less electorally or judicially accountable if there were less oversight or more protection from higher levels of government. We find mixed evidence regarding this hypothesis: non-aligned municipalities exhibit 0.28 (21 percent) fewer reported corrupt violations than aligned ones (p-value = 0.032), but the pattern is not statistically robust (0.12 fewer corrupt violations attributed to municipal leaders (24 percent; p-value = 0.127).

We also find very suggestive evidence of higher reported corruption levels in municipalities in which the mayor is in the opposite party of the one that appointed the Comptroller in office at the time of the audit. The point estimates suggest that non-aligned municipalities exhibit 0.31 (27 percent) higher reported corrupt violations than aligned ones (p-value = 0.102). The differences are less precisely estimated but similar in proportional terms when we study corruption attributed to the municipal leadership and findings referred to the DoJ.[46] Among other competing explanations, this may be the result of the OCPR placing more auditing resources and effort on municipalities governed by a representative of the rival party.

There is a modest and statistically significant correlation of municipal corruption levels with (a) our measure of long-term party incumbency advantage at the municipal level (p-value = 0.037) as well as with (b) first term mayors.[47] There are competing forces that could help explain such moderate

[45] See Solé-Ollé and Sorribas-Navarro (2008), Brollo and Nannicini (2012), Timmons and Broid (2013), Corvalan, Cox, and Osorio (2018) for evidence of co-partisan bias in the allocation of intergovernmental transfers in Spain, Brazil, Mexico, and Chile, respectively. Borrella Más (2014) finds that politically aligned municipal governments in Spain exhibit higher levels of corruption than non-aligned ones, controlling for numerous other determinants.

[46] The estimates of the gap using the findings attributed to the municipal leadership and those referred to the DoJ are 0.17 (41 percent; p-value = 0.146) and 0.10 (26 percent; p-value = 0.43), respectively.

[47] The relationship is similarly modest and imprecisely estimated if we alternatively use a linear control for the number of terms an incumbent mayor has been in office.

effects. For example, more political competition could help improve the selection of honest leaders or those with preferences congruent with those of constituents or induce stronger discipline and responsiveness among those elected incumbents.[48] On the other hand, party competition that is extraneous to an incumbent's performance while in office could limit an incumbent's expected time horizon in power. Although mayors with more seniority tend to be more competent than first term mayors (BCS 2016), they may engage in more corruption as there may be "learning by doing" in the establishment of spoils systems and patronage networks. On the other hand, incumbents in more competitive seats or in their first term may engage in corruption as their restraint may not improve their re-election prospects.

We examine the evidence regarding the gap in corruption levels between PNP and PPD municipal administrations. Estimates from the empirical model show that municipal governments under the control of mayors affiliated to the PNP exhibit higher levels of corruption when conditioning on numerous other political, economic, and administrative determinants of municipal corruption. The point estimate indicates that we observe 0.59 more findings of corruption per report in these administrations relative to administrations by PPD-affiliated mayors (a 55 percent increase in proportional terms; p-value = 0.009). A similar pattern emerges when examining findings referred to the DoJ: 0.35 more findings per report, a 111 percent difference in proportional terms (p-value = 0.006), and although somewhat less precisely estimated, a similar pattern emerges for corruption attributed to the top leadership (0.23 more findings per report, a 53 percent difference in proportional terms; p-value=0.091). This is a robust stylized fact, given that our model essentially estimates comparisons across administrations of different political parties within the same municipality. This gap is also noticeable based on a comparison of the unadjusted difference.[49] We posit several possible explanations that are eminently speculative since we have none or insufficient data to examine these rigorously. A first possible explanation is related to structural aspects of the PNP and its political base that may induce higher levels of corruption, on average. For instance, the party may disproportionately attract politicians and bureaucrats more prone to engage in corruption, a political selection effect. The political agency literature argues that corruption may be more valuable for dishonest politicians or bureaucrats, or those with worse outside options in the labor market – those politicians of "lower

[48] See Besley (2006) and Finan, Olken and Pande (2017) for a detailed review of these arguments and a survey of the empirical evidence regarding the plausibility of these effects, respectively.
[49] See the discussion on corrupt violations, by electoral term and incumbent party at the municipal level (and Figure A2) in the Online Appendix for details.

quality" (Besley 2006; Brollo et al. 2013). If the party and voters disproportionately tend to select lower quality candidates for office, on average, this could partly explain the observed differences across administrations.

Another hypothesis is heterogeneity in the preferences and composition of the supporters of these two parties may induce these differences. For multiple reasons documented in the literature, constituents of higher socio-economic status tend to be less forgiving of corruption than those of lower status. Given that the PNP has traditionally garnered support from poorer and less-educated citizens—especially the urban poor—perhaps supporters of the PNP at the local level tend to be on average more forgiving of corruption than supporters of the PPD and this is reflected in the governance choices of incumbents. We do not have data to examine this hypothesis empirically, but others have shown qualitative evidence in favor of this composition of PNP supporters (e.g., Romero Barceló 1974; Benítez 1991; Quintero Rivera 1986).

We finally show suggestive evidence that additional socio-demographic and resource-related factors influence corruption levels in the short-run. However, these relationships are not significant in statistical terms once we condition on multiple political factors. Specifically, the association between corruption and local government resource levels (budget size) predicts that an increase in $100 million dollars in resources would decrease corruption by 0.61 findings per report; however, the relationship is very imprecisely estimated (p-value = 0.44).[50] The estimated relationship with municipal population levels implies that an increase in 10,000 residents would increase reported corruption by 0.085 findings per report, a moderate and statistically insignificant relationship (p-value=0.592). These relationships are qualitatively similar in a comparison of unadjusted differences.[51] These results are consistent with the argument that macroeconomic processes are not sufficiently strongly linked to changes in the levels of corruption over time, in contrast with earlier work examining aggregate trends at the territorial level.[52] We conclude that the overall findings are broadly consistent with the view that corruption is

[50] The point estimates of the correlation between findings attributed to the top leadership and municipal budgets (in hundreds of millions of dollars) is -0.535, a large relationship but imprecisely estimated (p-value=0.235). The relationship reverses in sign for findings referred to the DoJ (point estimate = -0.221, p-value=0.632).

[51] See the discussion on the relationship with municipal population levels and municipal government budgets (as well as Figures A3 and A4) in the Online Appendix for details.

[52] These findings stand in contrast with previous work examining the relationship of economic conditions across PR municipalities and the misuse of public resources. Using a different outcome variable, an index that incorporates both public corruption and waste, and a design that captures variation in the level of corruption (excluding municipality and time fixed effects), Segarra Alméstica (2010) identifies that the local unemployment rate as well as the municipal population's education attainment levels and poverty rates correlate with the outcome measure. She also shows that a comparable index at the state level is positively associated with the territory's business cycle.

strongly linked to political processes related to political competition and party alignment and, importantly, to the monitoring of public officials.

5. Discussion and Conclusion

Public corruption and patronage politics have been at the front and center of Puerto Rico's trajectory throughout the past century. Despite this history—and the broad public discussion regarding the characterization of Puerto Rico as a clientelist society—there has been limited scholarly work addressing this issue. Our study represents a step towards understanding aggregate patterns of public corruption in the territory – with a focus on municipal governments affairs. It is based on a unique longitudinal database of all 2,243 municipal audit reports carried out by the Office of the Comptroller of Puerto Rico throughout a sixty-four-year period, since its inception in 1952 until 2015.

We show that the most salient trends in public corruption at the local level broadly correspond to the three periods of economic and political change that altered governance practices in the territory. In addition, we perform a partial correlation analysis that sheds light on the relative importance of competing determinants of municipal corruption. The evidence resulting from our analysis suggests that patterns of municipal corruption are strongly linked to political cleavages. Our findings are less consistent with explanations that highlight the importance of macroeconomic factors in accounting for the dynamics of corruption over time.

Our study of municipal corruption in Puerto Rico informs discussions regarding Puerto Rico's failure to sustainably develop into a non-clientelist, "successful" society.[53] Substantial research points to the idea that in captured democracies, elected politicians are neither accountable nor responsive to their constituencies (e.g., Lizzeri and Persico 2001; 2004; Keefer 2007; Stokes et al. 2013).[54] As shown empirically in other contexts, the prevalence of patron-client arrangements in exchange for electoral support curtails the effective delivery of public services. This gives clientelist machines an electoral advantage as well as the ability to engage in corruption and rent seeking while maintain sufficiently broad electoral support (Anderson, Francois, and Kotwal 2015; Bobonis et al. 2018; 2019) In the

[53] Clientelist societies are characterized by a pervasive prevalence of patronage and corruption networks; the dependence on social connections between privileged groups over the criterion of merit in all kinds of economic and political relations; a high degree of dysfunctionality and inefficiency of the state apparatus and bureaucracy; and capture of government by elites and special interest groups for their private benefit as opposed to the public's welfare (Acemoglu and Robinson 2012; Fukuyama 2014).

[54] See Piattoni (2001), Kitschelt and Wilkinson (2007), Baland and Robinson (2008), Bardhan and Mookherjee (2012), Robinson and Verdier (2013), Stokes et al. (2013), and Anderson, Francois, and Kotwal (2015) as examples of the literature characterizing clientelist politics and its consequences.

specific context of Puerto Rico, the high levels of corruption that prevailed during the hegemonic dominance of the Popular Democratic Party was rooted in highly effective clientelist arrangements.

Patronage and public corruption rose again and have remained high since the early 1970s. This trend is consistent with the view that heightened political polarization strengthens corruption owing to how the electorate across competing political factions evaluates the costs of having opposing political representatives in power. In such societies, political leaders can be corrupt and still receive the group's support because replacing them increases the chances that the opposition will gain control of government.[55] In societies where the distribution of benefits to groups organized along such lines is of paramount interest to constituents, the "politics of fear" prevail (Padró-i-Miquel 2007). The fear of another political group coming to power is heightened since they too could be represented by a corrupt representative, an outcome that may result in fewer or even no benefits. An equilibrium emerges wherein political leaders more willing to be corrupt are more likely to ascend to power across political parties. Under such circumstances officials are able to extract enormous resources from the economy and even from their own supporters (Padró-i-Miquel 2007; Burgess et al. 2015; Anderson and Francois 2020). In the case of Puerto Rico, corruption since the early 1970s is consistent with this perspective since political polarization increased, and the organization of sociopolitical life along group identity lines solidified – with strong allegiances to the PPD and the PNP, manifested in intense electoral competition rooted in part on preferences regarding the territory's political status (Pantojas García 2015; 2021).

Our study also confirms the important role played by the OCPR's monitoring apparatus in countering these forms of misgovernance. Despite the prevalence of intense party-specific political loyalties, technocratic anti-corruption efforts are effective at reducing corruption, particularly in more competitive jurisdictions (BCS 2016). Moreover, as we have shown in earlier work information regarding corruption is processed across ideological loyalties in Puerto Rico in a manner that enables voters to sanction and hold corrupt officials accountable. These accountability efforts are thus effective in spite of the prevalence of high electoral loyalties—as proxied by de-facto non-competitive elections—and of high ideological affinity—as indicated by correspondence between the governor's and the mayor's party—which appear to influence the proclivity to engage in corruption among

[55] In places with deep societal divisions, history has shown that groups have ample reason to fear control of government by their opponents; one possibility is that governments will exercise their control in a discriminatory fashion, leveraging their resources to organize the dominant group and to systematically exclude others (O'Leary 2013).

elected municipal officials. While clientelism exists and appears linked to political loyalty and to corruption, it does not fully determine voters' behavior.

At the same time, judicial impunity has been one of the principal factors sustaining corruption in ample sectors of the Puerto Rican political class. In his thorough recounting of corruption over the course of Puerto Rico's history, Quiñones Calderón (2014) argues that it is the result of a sense of impunity prevalent among politicians, not due to the absence of laws proscribing many of its forms. His interpretation appears validated by the low levels of investigation and prosecution by Puerto Rico's Department of Justice of referrals by the Office of the Comptroller. Further research on the extent to which referrals by the OCPR lead to indictments and convictions and how enforcement practices by the territory's DoJ and the courts contribute to the issue, will improve our understanding of its underlying causes. Another avenue for future research relates to how the Federal Government's anti-corruption activities on Federal programs affect corruption in the territory and municipal governments.

Our study has important limitations: in particular, we are unable to delve deeply into understanding the detailed mechanisms and pathways through which municipal corruption operates, as would be possible in a study design that included case studies. Future work would benefit from detailed case studies of the networks of corrupt officials, of the organizational culture of municipal administrations, and of the relationships between political parties and municipal officials. Also, one fruitful possibility for future research would be to examine microhistory explanations for aggregate patterns of corruption in municipalities over time. Second, the impact of Puerto Rico's colonial relationship to the United States on public corruption, while plausibly relevant, is beyond the capabilities of what we can examine rigorously with the data at hand as well as given the design of our study. Expanding on both aspects would provide valuable contributions to the literature on corruption in Puerto Rico as well as internationally.

We conclude with an overarching challenge posed by citizens, scholars, and policymakers alike: the perceived limited effectiveness of the public's ability to mitigate clientelism and corruption by the political class. In a recent interdisciplinary review of the literature on what works to reduce corruption, Gans Morse et al. (2018) conclude with the recognition that when corruption is a systemic problem, addressing it requires broad, large-scale, comprehensive efforts instead of piecemeal or individual-level solutions. In a more critical review, Prasad, Martins da Silva, and Nickow (2019) argue that systems of social norms considered moral according to certain criteria (i.e., taking care of one's kin) contribute to the pervasiveness of political corruption and limit the effectiveness of even broad anti-

corruption efforts. Future research will benefit from a more in-depth examination of these issues and from the detailed study of the institutional frameworks that may be necessary to achieve stronger social and political development in the territory.

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