Redistributive Consequences of Competitive Authoritarianism: Evidence from the Turkish Mass Housing Administration[*]

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Abstract

Since the rise of the Justice and Development (AKP) party in 2002, Turkey has regressed from democracy into a 'competitive authoritarian' regime: democratic elections still determine the incumbent, but the electoral playing field is wholly unfair due to state abuses of power. Yet, although a plethora of trends-based articles document the erosion of institutions, few contributions study the specific *economic* consequences of the global 'democratic recess', which Turkey is argued to epitomise. In this paper, we therefore aim to fill this gap, focusing on a heavily centralised state-run public good – the Turkish Mass Housing and Development Administration (TOKİ). Notwithstanding previous efforts, we develop our own dataset on TOKİ public procurement expenditures across 3,130 large scale infrastructure projects crossing Turkey's 972 districts between 2004-2020. Using a range of specifications, all evidence suggests the AKP systematically uses TOKİ to reward loyal pro-AKP districts whilst punishing those aligned with its main opposition rival, the Republican People's Party (CHP). Moreover, targeted distribution of infrastructure expenditure was significantly moderated before the erosion of institutions began circa 2011. Overall, we show how the turn towards competitive authoritarianism in Turkey has consequentially transformed housing and infrastructure policy away from being a collective public good to being a highly selective political tool.

"The elections in 2023 are of critical importance for the continuation of these services...I hope we will successfully cross this threshold and walk together towards the construction of a great and strong Turkey."

– Recep Tayyip Erdogan, 7th July 2021, TOKİ 1 Millionth House Ceremony

1   Introduction

The rise to power of the Justice and Development Party (AKP) and Recep Tayyip Erdogan in Turkey since 2002 has shed light on the nature of the global 'democratic recess' scholars argue we are currently experiencing (Bermeo 2016; Diamond 2015). Indeed, Turkey is one of the most frequently cited examples. V-Dem's 'Democracy Report 2021' listed Turkey as being one of the most significant "autocratizers", alongside Poland, Hungary, Brazil and India (Coppedge et al. 2021). The shutting down of media outlets, attacking the judiciary, and fraudulently interfering with elections have all become prominent features of these regimes over the last ten years. Amongst scholars, there is general agreement that 2011 onwards saw major institutional reforms consolidating the AKP's power, with Acemoglu and Üçer (2019) claiming "The institutional slide accelerated during AK Party's third [general election] term that began in June 2011" (p. 31). Figure 1 conveys this erosion of democratic institutions using indices from the V-Dem project; there is a clear sharp autocratic turning point around this period, preceded by marginal, gradual declines since 2006.

Yet, in light of these well-documented political developments, the specific *economic* consequences of democratic backsliding, including the probing of various mechanisms, are not fully spelled out in an empirically meaningful way. Although a plethora of academic studies, think tank reports and media articles document the democratic recess as a global 21st century phenomenon, our understanding of its tangible effects on socioeconomic outcomes remains under-explored. There is an immense literature in political economy elucidating that "institutions rule" for development indicators (Rodrik et al. 2004; Acemoglu et al. 2005). Much of the empirical contributions have a "good institutions" bias, focusing on how the adoption of "inclusive" politico-economic institutions, such as democracy, broadly construed, improves a country's development prospects (Acemoglu and Robinson 2012; Acemoglu et al. 2019). Yet, as the democratic recess makes clear, institutions can easily be weakened, and so flipping the causal process on its head is something that has been relatively neglected.

However, this is not the same as arguing we must thereby explore the economic consequences of authoritarianism. Here, there have equally been multiple contributions analysing this question across samples of authoritarian regimes (Acemoglu et al. 2019; Besley and Kudamatsu 2008; Gehlbach and Keefer 2011). What makes the democratic recess more nuanced surrounds the nature of institutional erosion as a *piecemeal* process versus interpreting autocratization as a "one-shot" event

(which Figure 1 also implicates).[1] Countries such as Turkey, Poland and Hungary are not fully authoritarian (*yet*), and so core elements of the democratic process still matter as part of the institutional composition of the state. The regression from democracy towards autocracy consequently signals that many "autocratizers" are currently "hybrid regimes", being neither perfectly democratic or authoritarian. The pre-existing literature has thus insufficiently examined this aspect of the institutions-development nexus, focusing on regimes and their institutional components as mostly dichotomous objects – inclusive versus extractive, democracy versus autocracy – and paying less attention to the dynamics that facilitate political systems falling in-between these categorisations.[2,3]
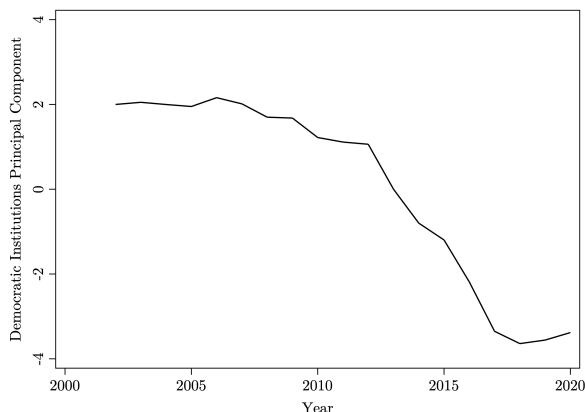

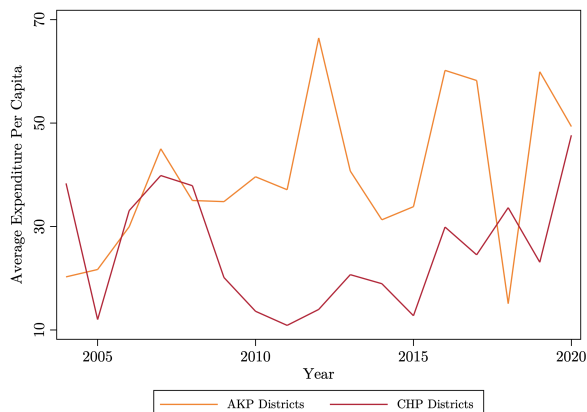Figure 1: Eroding Democratic Institutions in Turkey, 2002-2020

Figure 2: Average Yearly TOKİ Contract Expenditure Per Capita, 2004-2019

Note: see section 3 for information on data sources. In Figure 1, democratic institutions are measured using the first principal component of five indices from V-Dem: legislative constraints on the executive, judicial constraints on the executive, free and fair elections, state ownership of the economy and freedom of expression and alternative sources of information (i.e. media freedom). In Figure 2, AKP districts and CHP districts are defined as those districts with 50% or more of municipal mayors belonging to each respective party in local elections since 2004. Each series represents the average annual TOKİ expenditure per capita.

Based on a variety of evidence from case studies, Turkey can reasonably be classified as a "competitive authoritaian" regime (Esen and Gumuscu 2016; Yılmaz and Turner 2019). As per the seminal contributions of Levitsky and Way (2002, 2010), competitive authoritarian states are defined as "civilian regimes in which formal democratic institutions exist and are widely viewed as the primary means of gaining power, but in which incumbents' abuse of the state places them at

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[1]Lührmann and Lindberg (2019) also document the *gradual* deterioration of Turkey's democracy as part of a "third wave" of autocratization.

[2]This relates tangentially to a broader literature in political science on the measurement of regimes and institutions as either dichotomous or continuous objects (e.g. Collier and Adcock 1999).

[3]Although political scientists have focused extensively on hybrid regimes and concomitant typologies, studying their tangible economic consequences remains limited.

a significant advantage vis-á-vis their opponent" (Levitsky & Way, 2010, p. 5). Turkey no longer satisfies the minimal requirements of what it means to be a functioning democracy. Although they are frequently and constitutionally held, elections are still highly unequal due to the AKP's manipulation of media access, distribution of public goods through elected and unelected officials, and increased defamation lawsuits to suppress freedom of expression and reduce the independence of the judiciary. In an update piece, Levitsky and Way (2020) hence comment on Turkey as exemplifying, amongst other previously strong democracies post-Cold War (e.g. Hungary), a country that has clearly receded from democracy into competitive authoritarianism.

Using Turkey as a felicitous country of interest, this paper consequently explores how institutional erosion has led to biased and targeted redistributive outcomes concerning one of Turkey's largest public investment providers: the Turkish Mass Housing Administration (TOKİ). As the biggest state-run vehicle of public procurement in infrastructure and social housing, directly centralised under the prime minister, we empirically show TOKİ consistently rewards those districts with more AKP municipal mayors during local elections with greater expenditures on contracted infrastructure projects. Specifically, a district with more AKP-affiliated municipality mayors receives ₺1.12 per person for each infrastructure contract. Yet concurrently, in line with competitive authoritarian strategies, TOKİ strictly punish the main opposition party – the Republican People's Party (CHP) – by expending significantly less on public infrastructure projects in CHP-pro districts, receiving only ₺0.8 per person per contract (Esen and Gumuscu 2017).

In exploring specific mechanisms to evidence these growing competitive-authoritarian tendencies over time, we further show how before the AKP's third (general) electoral victory in 2011, the broad turning point scholars argue led to the country's democratic institutional erosion (e.g. Acemoglu and Üçer 2019), such targeted distribution was significantly moderated. This competitively authoritarian-induced distributive bias towards "core" political strongholds is further supported by evidence that those districts with larger AKP vote margins, especially relative to the CHP, receive more TOKİ projects and higher total contract expenditure per capita.

To briefly illustrate these trends, Figure 2 shows the average TOKİ expenditure per capita across those districts whereby 50% or more of municipal mayors are affiliated with either the AKP or CHP. Before 2008, both series trend synchronously and are more or less the same in actual levels. Yet, from 2008 onwards, the respective series begin to diverge, with AKP districts receiving significantly more contract expenditure per capita post-2011, with a peak in 2012. Despite some volatility thereafter, which could be driven by business cycle effects, expenditure per capita in pro-AKP districts has always been greater than that of the CHP. Moreover, notwithstanding the sharp 2018 dip, which coincides with the currency crisis of that year, the immediate bounce back in TOKİ expenditure per capita for AKP districts is also a striking result. As of 2019, voters in pro-AKP

districts receive approximately ₺40 per person more than citizens in CHP districts.[4]

Ultimately, we aim to provide a slightly new angle to the extensive literature on political favouritism.[5] As per Golden and Min's (2013) review, contributions studying distributive politics are heavily concentrated on democracies due to "the absence of reliable, systematic data on the allocation of government goods and services in nondemocratic regimes" (p. 75). We are fortunate to have access to substantial amounts of data at a granular geographic unit of analysis to explore political favoritism in the context of eroding institutions, motivated by the theories developed on competitive authoritarianism. The paper is organised as follows. In section 2, we review the relevant literature and provide some institutional background behind Turkey's trend towards authoritarianism as a current competitive authoritarian regime, and the role the Housing Development Administration has played in enabling this. Section 3 outlines our data collection process. Section 4 showcases the empirical analysis, alongside various robustness checks and probing of plausible mechanisms. Section 5 concludes.

2 Background

2.1 The AKP's Rise to Power, Changing Institutions and Growth

The AKP was founded at a time of a serious power vacuum following the largest economic crisis in the Republic's history. The 1990s was one of the most volatile periods for Turkish politics. In a span of ten years, the Turkish parliament formed eleven different cabinets led by eight different prime ministers (Neziroglu et al., 2013). The country further experienced some of its largest terrorist attacks, as politicians were assassinated, coalitions failed, and multiple parties disbanded (Bugra and Savaskan 2014). The political instability of the 90s drove foreign investment out of the country and led to high unemployment, inflation, and public debt (Akyüz and Boratov 2003). Within the first few months of 2001, the value of the Turkish Lira dropped by 40%, overnight interest rates rose up to 7500%, and twenty-four banks filed for bankruptcy (Dufour and Orhangazi 2009).

Notwithstanding successes as mayor of Istanbul, Erdogan, then a member of the Virtue Party (*Fazilet Partisi*), concocted a reformist faction amongst old Virtue Party members. They billed themselves as a moderate center-right movement that believed in the "modern values of liberalism, human rights, and market economy" (Tezcür 2010). The more traditionalist faction founded the Felicity Party (*Saadet Partisi*, SP), whereas the reformists took the name Justice and Development Party (*Adalet ve Kalkınma Partisi*, AKP) to enter the 2002 general elections. Since its founding,

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[4]The sharp increase in expenditure for CHP districts in 2020 most plausibly reflects the CHP's strong electoral gains in the 2019 local election, especially with shock victories in Turkey's three largest provinces: Ankara (the capital), Istanbul and Izmir.

[5]See Hodler and Raschky (2014) and Curto-Grau et al. (2018) as prominent empirical examples.

the AKP has dominated Turkish politics and won every general election as the majority.[6]

The first term of the AKP is often regarded as a success with increasing productivity, institutional improvements, and "high-quality growth" (Acemoglu and Üçer 2019). Much of this resulted from consequential pro-market institutional reforms in the early 2000s backed by supranational entities such as the IMF, European Union and World Bank, to thwart the instability of the 1990s. The Central Bank of the Republic of Turkey (CBRT) was granted independence, and the Public Finance and Debt Management Law of 2002 and the Public Financial Management and Control Law of 2003 were pivotal in augmenting fiscal transparency and accountability in government (Acemoglu and Üçer 2019). The Public Procurement Law was also a landmark piece of legislation ratified in January 2002, "to make public spending more efficient and transparent and to depoliticize the procurement process" (Gürakar and Bircan 2019, p. 237). This was bolstered by the Public Procurement Agency to oversee procurement as an independent regulator. Figure 2 visualises this depoliticisation in the raw data, given average TOKİ expenditure was broad based across both AKP and CHP districts, being approximately equal in levels.

Following these reform packages, total factor productivity (TFP) growth averaged above 4% every year between 2002-2006 as opposed to "virtually zero" productivity growth since the 1980s (Acemoglu and Üçer 2019). The AKP's economic success was visible and appreciated by the public as the impact of "economic performance evaluations" on general elections, as opposed to ideological orientation, increased from 2002 to 2007 yet deteriorated in the 2011 election (Çarkoğlu 2012). The lesser impact of economic performance on voting and the AKP's landslide victory in the 2011 election suggests that a loyal base for the party in its first two terms had slowly emerged.

Despite these efforts of liberalisation, democratic consolidation, as hoped by many, did not follow. Gradually the AKP used its ruling hegemony to dismantle the pro-market reforms of the early 2000s. Politically, with its increasing popularity, the AKP government dismissed the military's attempts to influence politics and took steps to weaken its clout (Esen and Gumuscu, 2016). The party further utilized the opportunity to redesign the judiciary following the success of its signature constitutional referendum in 2010, including high courts and the Supreme Council of Judges and Prosecutors (Esen and Gumuscu, 2016). According to Esen and Gumuscu (2016), both the military and the judiciary used to be "veto-players" in the country, holding power over elected officials, though the AKP were successful in overturning this status quo (Tsebelis 2002). The government further mobilized the bureaucracy in electoral campaigns and directed state resources to businesses with close ties to the AKP (Gürakar and Bircan 2019). Using state-owned TV channels and radio stations for party propaganda alongside acquisitions of newspapers by AKP benefactors, the party effectively established a single-handed dominance in the mainstream media (Esen and Gumuscu 2016). All of

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[6]The June 2015 elections were an exception, leading to a snap election in November 2015 following the unsuccessful attempts of the opposition to form a coalition government.

these events signal the methods used by the AKP to establish a competitive authoritarian regime against the initial promises of democracy, as conveyed by Figure 1.

The AKP's increased hold on power subsequently led to the deterioration of the institutional reforms of the early 2000s, eventually ending the high-quality growth period of 2002-06 (Acemoglu and Üçer 2019). A key manifestation of this surrounded gradual amendments in the Public Procurement Law itself. The Procurement Law was amended one-hundred and fifty times from 2002 to 2018, substantially altering the transparency of government-business auctions (Gürakar and Bircan 2019). Political pressures further damaged the credibility of the CBRT and its ability to affect inflation expectations, as recently evidenced by Erdogan's single-handed removal of the central bank governor in May 2021, alongside other senior officials in October of the same year (Çakmaklı and Demiralp 2020). As a result, the politically driven and nontraditional central bank policies recently have contributed to rising inflationary pressures, increased interest rates, and the devaluation of the Turkish lira. Productivity has consequently remained stagnant and unemployment stayed high throughout the 2010s. Growth in the past decade was largely driven by the construction sector instead of improvements in technology and higher employment, and the gains in prosperity were low and not enjoyed equally among the public (Acemoglu and Üçer 2019).

2.2 TOKİ and Political Favouritism

Founded in 1984, Turkey's Mass Housing Development Administration (TOKİ) aims to provide affordable housing to citizens and acts as a lever to speed up urbanization.[7] Organisationally, TOKİ is directly connected to the prime minister's office, and is thus a heavily centralised state-run vehicle of public procurement. TOKİ subsequently liaise with private contractors to lease public lands in the development, primarily, of vast housing projects. From the outset, it has been exempt from the Public Procurement Law of 2002, but was initially regulated by the Public Finance and Debt Management Law until 2005. The exemption of TOKİ from the Procurement Law was dedicated purely to its housing functions at first. However, since 2011, this exemption remit was expanded to include all construction projects undertaken by TOKİ. Thus, aside from housing projects, TOKİ also build shopping centers, public parks, government buildings, stadiums, mosques, amongst a variety of other conspicuous developments. Table 1 outlines the variety of projects for which we have data going back to 2004. 'Government Housing', 'Infrastructure', 'Social Housing', 'Government Services', 'Urban Planning' and Requested' projects are the most common types of developments, and are also the most costly.

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[7]Initially TOKİ was funded by the government-backed Mass Housing Fund. However, in 2001 the fund was abolished and TOKİ's main revenue source shifted towards the sales of units from its projects, in addition to housing loans it provides as affordable alternatives to private lenders. The restructuring was successful, and TOKİ's increased autonomy led to a significant rise in the development of new houses. TOKİ only built 43,145 houses prior to 2001, but has constructed 847,954 houses since 2002.

As per the multitude of amendments made to the Procurement Law by the AKP, an ever-increasing set of "exceptions" were passed to decrease the regulatory impediments on business engagements involving the government. From 2005 to 2016, the number of "openly awarded" contracts fell precipitously from 100,820 to 65,437 (Gürakar and Bircan 2019). Moreover, the autonomy of the Public Procurement Agency was substantially quelled (Esen and Gumuscu 2017). Informal networks between pro-AKP local businessmen and government officials have thus come to dominate several of TOKİ's auctions in line with decreased transparency and accountability to an independent regulator. In line with the extensive literature on politically connected firms (e.g. Faccio 2006), Gürakar and Bircan (2019) show that firms directly linked to the AKP receive 42% of all TOKİ contracts, whilst those firms linked to opposition parties receive only 6%. This highlights the competitive authoritarian tendencies of the AKP that have emerged vis-á-vis the country's politico-economic institutional changes: "using its access to state resources, the [AKP] has rewarded its supporters and punished or isolated its enemies" (Esen and Gumuscu 2016, p. 1590). These have been consequential developments for Turkey's economy, especially given just less than 10% of public procurement accounts for overall GDP and hence has large distributive impacts for swathes of the populace (Gürakar and Bircan 2019).

The massive politicisation of public procurement highlights questions of political favoritism. As a similar argument made by Burgess et al. (2015) with regards to road construction, TOKİ infrastructures are typically highly "visible" projects. This consequently makes political favouritism around TOKİ a salient public investment with which to study in the context of democratic backsliding, given voters can "see" this expenditure. Moreover, regional favouritism is commonly used by the AKP as a reward system in exchange for loyal voting behaviour (Cinar 2016). Marschall et al. (2016) demonstrate that the level of TOKİ investments in a district is a significant predictor of the AKP's performance in local elections. The members of the main opposition party, the CHP, have also accused the government of misusing its authority over TOKİ and planning housing in areas where the AKP had relatively more votes (Lıcalı 2014).

Although Luca (2016) argues that distributive politics has a limited causal explanation on province-level economic growth in Turkey between 2005-2012, this conclusion doesn't necessarily crossover to public procurement. TOKİ projects create a significant amount of job opportunities and generate spending in many sectors related to construction. Moreover, even though previous studies have evidenced targeted distribution by the AKP, most of this work has been at the level of Turkey's eighty-one provinces (e.g. Luca 2016; Luca and Rodríguez-Pose 2015). Albeit insightful, studies at more granular units of analysis permit analysing more plausible mechanisms.

Table 1: Summary Statistics of

TOKİ Expenditure by Project Type, 2004-2020

	(1) Contracts	(2) Mean	(3) Std. Dev.	(4) Max.
Government Housing	557	575,307	5.116e06	2.252e08
Disaster Relief	49	72,468	3.165e06	3.016e08
Low-Income Housing	91	72,132	1.275e06	5.147e07
Replenishment	82	55,506	1.305e06	7.454e07
Ministry of Education	29	12,466	371,689	3.413e07
Restoration	14	2,246	187,392	2.315e07
Infrastructure	758	454,083	3.971e06	2.676e08
Consulting	2	219.6	19,802	1.786e06
Stadiums	18	47,157	1.611e06	1.098e08
Parks	73	70,363	5.350e06	6.790e08
Shared Income	24	115,256	4.536e06	3.428e08
Social Housing	419	428,725	4.461e06	2.466e08
Maintenance	15	2,674	129,791	8.839e06
Government Services	131	82,189	2.415e06	2.531e08
Agricultural	40	16,926	472,317	4.099e07
Urban Planning	163	280,147	4.377e06	2.692e08
Other	29	37,584	1.418e06	9.705e07
Requested	204	123,675	1.392e06	5.166e07

Note: Mean values refer to pooled 2004-2020 time averages, with corresponding standard deviations. 'Contracts' refers to the number of contracted projects that have been procured from TOKİ per project category, and provides the overall total. 'Mean' refers to average contract expenditure per project category. All expenditure is denoted in real Turkish lira. The projects are grouped in types by TOKİ, but the types are not explained on TOKİ's website or documents. Government Housing (*idare konut*) type consists of mass housing projects. Disaster Relief (*afet konut*) projects are constructions of new housing units following earthquakes, floods, and wildfires. Replenishment (*ikmal ihalesi*) projects include state hospitals, police stations, dorms, and job training centers. Ministry of Education (*protokol meb*) projects include schools and education centers. Infrastructure type (*altyapı ve/veya sosyal donati*) consists of rehabilitation centers, hospitals, health centers, gyms, nuclear research centers, and universities. Shared Income (*gelir paylasimli*) projects include apartments, entertainment centers, schools, and mosques. Government Services (*kamu hizmet*) consist of construction of government buildings. Urban Planning (*kentsel donusum*) group includes housing projects, landscaping, and shopping centers. Requested (*talep organizasyon*) group consists of mass housing and landscaping projects. The following types consist exclusively of projects that do not include any housing: Ministry of Education, Restoration, Consulting, Stadiums, and Parks.

As such, even though various prior studies have explored the impact of political connections to the AKP and increased favouritism concerning public procurement and TOKİ, many of these studies have certain gaps we try to fill. First, many contributions have not explored the period post-2011

with Erdogan's concentration of power and the decrease in executive constraints that have being solidifying since the AKP's third general election win. Ideally we want to explore the impact of democratic backsliding over the last two decades, given Figure 1 illustrates there are clearly two entirely different decades of institutional strength. Second, various studies have also not addressed the key endogeneity issues that could inhibit unbiased estimates of the effects of AKP incumbency power on socio-economic outcomes (Marschall et al. 2016). Albeit substantively interesting and motivating our own contribution, kitchen-sink styled regressions provide limited empirical leverage over key politico-economic relationships of interest (e.g. Marschall et al. 2016; Luca 2016; Gürakar and Bircan 2019). The absence of significant efforts to explore mechanisms further leaves much of the evidence as being merely reduced-form amongst these contributions. We thus make a more serious effort in this paper to tackle some of these issues.

3 Data

3.1 Districts and Local Elections

In this paper we focus on local elections at the district level versus other studies focusing on general elections at the provincial level (e.g. Luca 2016). General elections determine the seats in the Grand National Assembly of Turkey, whereas local elections determine the mayor of a given municipality and its council members. Mechanistically, run using a first-past-the-post electoral system, local elections are the most important political determinant of TOKİ projects.[8] This is because local elections, held every five years (2004, 2009, 2014 and 2019), elect municipal mayors who have seen increased autonomy in local government-business relations, such as the ability to take out loans. As per Bircan and Saka (2021), "[s]ignificant executive powers make the mayor the single most important authority, who presides over a local council that sets municipal budgets" (p. 6). In similarly studying local elections, Bircan and Saka (2021) thereby show a political business cycle exists with regards to credit lending by state-run banks in Turkey's metropolitan municipalities. Hence, the coordination of TOKİ is very much a "localised" phenomenon whereby pro-AKP businessmen and mayors interact across informal networks to negotiate contracts via increasingly closed auctions. We subsequently collected this data on local election vote shares across parties from Turkey's Supreme Election Council website.[9]

As of 2021, Turkey consists of 972 districts which belong to 81 larger provinces. Given mayors are elected at the municipality level, which themselves comprise districts, ideally we would use municipalities as our unit of analysis. However, our TOKİ project data was unavailable at this level. Hence, aggregating up to the district was the next best option to explore the effect of local

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[8]General elections, in contrast, are run using a version of proportional representation (the D'Hondt method).
[9]ysk.gov.tr

elections on TOKİ distribution. District level analysis is still more granular than many other studies we have encountered in the literature on Turkey. Some notable reasons for this are lack of data and inconsistency of district borders over long periods of time. For local elections, such an adjustment was not needed as the name and border changes coincide with local election years (although this was problematic for general elections; see below). Table 2 provides summary statistics on our key variables of interest.

Table 2: Summary Statistics of Key Variables

| | (1) | (2) | (3) | (4) | (5) |
	Obs.	Mean	Std.	Min.	Max.
AKP-aligned district	16,332	0.613	0.487	0	1
CHP-aligned district	16,332	0.167	0.373	0	1
Ln(TOKİ expenditure per capita+0.01)	16,261	-3.358	3.206	-4.605	9.486
Ln(nightlights)	14,688	1.143	1.276	-4.605	4.518
Local Election Turnout Rate	16,332	86.13	7.001	46.46	98.8
Local Election Invalid Votes	16,332	4.154	1.296	0.458	20.93
General Election Turnout Rate	16,261	83.86	12.19	48.33	100
General Election AKP Vote Share	16,261	45.70	18.32	1.2	95.90
General Election CHP Vote Share	16,261	18.90	13.79	0.2	92.50

Note: Mean values refer to pooled 2004-2020 time averages, with corresponding standard deviations. Nightlight data was only available from 2004-2019, hence the slightly fewer observations. Due to district splits, the number of observations available for local and general elections are not exactly equal.

Regarding our main independent variable, there are various ways to measure the AKP's local incumbency power. Although Bircan and Saka (2021) define AKP-aligned provinces based on whether the central district mayor in provincial provinces and the mayor in metropolitan municipalities (i.e. provinces) is AKP-affiliated, there is no reason to suggest this approach is apposite to TOKİ, given projects can be distributed across multiple districts, of which a non-central mayor could help facilitate such contract arrangements. Hence, because local elections occur at the municipality level and we are aggregating up to the district level, a natural method is to look at the proportion of mayors attached to the AKP per district. Related to this, a second measure is to create a dummy variable for whether at least 50% of municipalities in a district have AKP mayors as another measure of aggregate district-wide control of electoral office. This simply has the advantage of making specification interpretation easier by using a dummy variable to replicate "difference-in-differences"-styled approaches. If using the proportion of mayors, this variable would appear in "chunks" between election periods. Finally, a third separate way is to sum the total votes across all municipalities in a given district, and see if the AKP's total number of votes is the largest amongst all other

parties' aggregates. Our preferred measure of district-level AKP local incumbency power is the second mentioned, although our results are robust to any of the other highlighted versions.

3.2 TOKI

TOKİ publishes project names and auction documents on its website. Each project belongs to one of eighteen infrastructure categories as listed in table 1. We scraped this data and matched each project with a district and year based on the project name and auction date. We take the winning bid as the approximate cost (i.e. overall expenditure) of the project.[10] For twenty-four projects whose cost variable is missing, we take the average cost of the given category as a measure of central tendency to maintain the observations. The overall number of distinct contracts we scraped data on totalled 3,130 covering 2004 to 2020.

To convert our TOKİ cost variable to real Turkish Liras, to control for any inflationary pressures, we further obtained quarterly macroeconomic variables such as inflation and exchange rates from CBRT's Electronic Data Delivery System (EVDS). EVDS pulls together data from across multiple ministries and the CBRT. Moreover, to account for district "size" and to configure our analysis in per capita terms, we used the Turkish Statistical Institute's regional variables database for district level population measures in the years 2007-2020. There is a lack of annual data in earlier years as Turkey transitioned from an original nationwide census to an address-based population counting system in 2007. We thus estimated the previous years using 2000 census data and assumed a linear trend between 2000 and 2007.

3.3 Other Covariates

In terms of other relevant covariates, a major possible alternative explanation for TOKİ distribution relates to patterns of economic output and growth across districts, especially if more urban, and hence richer, areas receive more projects. Given there does not exist GDP statistics at the district level, we use the common proxy of nightlights (Chen & Nordhaus 2011; Henderson et al. 2012). We use the annual DMSP-OLS Nighttime Lights Time Series from the Earth Observation Group as used by Michalopoulos and Papaioannou (2013). Unfortunately, these nightlights only exist from 1999-2013. Although there exist VIIRS Nighttime Lights data post-2013, both the DMSP-OLS and VIIRS datasets differ in their configurations of measurement, and it is difficult to harmonise both series in a sensible manner due to scaling issues, although some efforts have been made to do this (e.g. Li et al. 2020). Hence, we take the 2004-2013 median growth rate in DMSP-OLS Nighttime Lights, g, and use a basic compound approach by multiplying the 2013 values by $(1+g)^n$

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[10]Although the actual total cost of a project may not match the agreed upon winning bid by contract over the life-cycle of the project, due to various idiosyncratic firm-level factors such as construction delays, the winning bid itself is still a good proxy for the total investment granted by the AKP in a given district.

to estimate the 2014-2019 values, for $n \in [1,6]$. To ensure our growth-predicted estimates of DMSP-OLS nighttime lights post-2013 are somewhat accurate, we correlate these estimates with the VIIRS data we have for 2014-2019. Generally we find a close correlation between our estimates and the VIIRS observations, despite the scales being slightly dissimilar due to differences in data collection method by satellite as mentioned (see Appendix B).

Another key covariate concerns general election outcomes that may also impact TOKİ distribution and local-level electoral support. We hence gathered this data again from Turkey's Supreme Election Council. Due to the nature of district splits that have occurred during our time period of interest, there was some discrepancy in districts between general elections and local elections which required harmonisation in certain cases.

In the span of 2004-2020, the names of 11 districts were changed and 72 additional districts were formed. Most of the district-level literature discards these discontinued or newly formed districts and focuses solely on the ones with continuous borders (Marschall et al. 2016; Bircan & Saka 2021). Such a method would result in us omitting a considerable number of TOKİ projects from our analysis. To avoid losing these observations, we reflected the district changes in the election data as well. For some districts, this meant a simple name change. When there is a change in borders, however, we estimated hypothetical general election results taking averages across the municipalities forming the new district. For local elections, we also gather data on the turnout rate to account for the possibility that more politically active districts demand greater TOKİ projects. Moreover, we also gather data on the proportion of "invalid votes" to control for any electoral malpractice, which could concurrently affect the distribution of TOKİ across districts and the AKP's local support.

4 Empirics

4.1 Baseline Approach

Our baseline approach exploits the panel structure of our dataset, using standard two-way fixed effects that capture time-invariant heterogeneity at the district level and annual global idiosyncratic "shocks". This expands upon previous work that has explored the impact of TOKİ housing projects on AKP vote shares at the local level but simply pooled all data over time without accounting for heterogeneity bias (e.g. Marschall et al. 2016). Our main specification of interest is hence the following:

$$y_{dprt} = \alpha_d + \delta_t + (\gamma_r \times \delta_t) + \beta m_{dprt}^i + \rho \mathbf{x}_{dprt}' + \varepsilon_{dprt}, \tag{4.1}$$

$$\text{where } y_{dprt} = \log\left(\frac{\text{Expenditure}_{dprt}}{\text{Population}_{dprt}} + \epsilon\right)$$

y_{dprt} represents the natural logarithm of total contract expenditure on TOKİ infrastructure projects per capita in district d of province p in region r during year t. Given the thick-tailed distribution of TOKİ projects with multiple zeroes, we add a small amount, ϵ, when taking the natural logarithm so observations remain non-missing.[11] As standard, normalising contract expenditure by population helps account for any population dynamics that could affect TOKİ distribution, such as the "size" of districts if they were metropolitan areas or cities. District-level fixed effects, α_{dpr}, help control for unobserved time-invariant heterogeneity, such as geography or very slow-moving variables such as culture. Year fixed effects, δ_t, will help capture global idiosyncrasies, such as nationwide constitutional changes, in addition to important macroeconomic factors that could affect TOKİ distribution and funding, such as the exchange rate, inflation rate and national interest rate. Our main regressor of interest is m_{dprt}^i, representing our measure of local mayoral power of party $i \in \{\text{AKP}, \text{CHP}\}$. We do not lag our main regressor given that local elections always occur at the end of March of the relevant election year, and our TOKİ data comprises all expenditure over the entire financial year; temporal precedence is thus maintained by construction[12]. Finally, $\mathbf{x}'_{dprt}$ captures other district-level observable characteristics that could affect both TOKİ distribution and party vote shares, such as turnout rates from local elections, local GDP as measured by nightlights, general election support of the respective party, alongside other population dynamics. Due to limited controls available at the district level, we also include region-year fixed effects, $\gamma_r \times \delta_t$, to further capture any macro shocks across Turkey's twelve NUTS-1 regions per year, such as region specific natural disasters in a given year.[13]

As per table 3, we see a clear positive effect of AKP mayoral incumbency within a given district and the amount of TOKİ contract expenditure per capita. Column 1 shows that if 50% or more of municipalities within a given district have AKP-affiliated mayors, such districts receive ₺1.18 per person, and this estimate is significant to the 5% level. Upon the inclusion of various controls across columns 2-5, such as nightlight to capture any confounding effects from the output levels of districts, the result remains qualitatively similar in magnitude and significance. Using column 5 as our preferred specification for the AKP, pro-AKP districts based on our measure receive ₺1.19 per capita on TOKİ expenditure. On the other hand, for the CHP, it is clear that we consistently obtain negative estimates for pro-CHP districts and TOKİ expenditure. Column 6 shows that if 50% or more of municipalities within a given district have CHP-affiliated mayors, such districts only receive ₺0.79 per person on TOKİ expenditure. Again, this result is robust to the inclusion of

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[11]Similar to Michalopoulos and Papaioannou (2013) regarding excess zeroes with nightlight data, we use $\epsilon = 0.01$, although results are robust to alternative values (see Appendix Table A.1).

[12]The Turkish tax year ends on December 31st.

[13]Results are also robust to their removal and/or using province-level linear time trends. See Appendix Tables A.2 and A.3. See Appendix A.12 for a range of random permutation tests where we randomly generate our treatment variable of AKP/CHP mayoral incumbency from a uniform distribution and repeat our core specifications 10,000 times.

various relevant controls across columns 7-10. This exact effect is also estimated in column 10, as our preferred specification for the CHP. Based on these results for the AKP and CHP, this clearly evidences the classic strategy underpinning competitive authoritarian regimes: rewarding loyalists but punishing rivals.

Table 3: AKP and CHP Aligned Districts and TOKİ Expenditure Per Capita

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent variable is Ln(TOKİ expenditure per capita)									
AKP district$_t$	0.176**	0.178***	0.191***	0.164**	0.182**					
	(0.068)	(0.068)	(0.071)	(0.068)	(0.071)					
CHP district$_t$						-0.224**	-0.223**	-0.214**	-0.230**	-0.217**
						(0.095)	(0.095)	(0.099)	(0.094)	(0.099)
Observations	16,154	16,154	14,428	16,154	14,428	16,154	16,154	14,428	16,154	14,428
Number of districts	1,002	1,002	916	1,002	916	1,002	1,002	916	1,002	916
Local Election Controls	No	Yes	No	No	Yes	No	Yes	No	No	Yes
Economic Controls	No	No	Yes	No	Yes	No	No	Yes	No	Yes
General Election Controls	No	No	No	Yes	Yes	No	No	No	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

It could be argued that the negative results for the CHP simply stem from the outcome that the AKP wins where the CHP loses, and vice versa, so the effects are more or less equal and opposite in magnitude because of the strong inverse correlation between our pro-AKP and pro-CHP district dummies. However, in light of Turkey being a multi-party system, despite the AKP and CHP being the main two parties, there is no reason to believe this is driving the results for columns 6-10. A basic pooled correlation between our pro-AKP and pro-CHP district dummies yields a correlation coefficient of only -0.4306. Hence, we have reason to believe the negative estimates for the CHP are not simply stemming from a perfect inverse relation between where the AKP wins relative to the CHP, as other parties could also receive substantial electoral support but may not be targeted against by TOKİ in a systematic manner. Overall, in light of these specifications, which control for a whole range of fixed effects and relevant politico-economic controls, these results are strong indicators of a pro-AKP and anti-CHP bias regarding contract expenditure distribution by TOKİ.[14]

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[14]See Appendix Table A.4 for results using the proportion of AKP/CHP mayors in a district as the main regressor of interest. Appendix Table A.5 combines AKP and Nationalist Movement Party (MHP) mayors as another alternative

4.2 Robustness Checks

Dealing with Excess Zeroes

As per table 2, our TOKİ expenditure data is strongly overdispersed given standard deviations are substantially greater than respective means. This is because TOKİ projects are large infrastructure contracts worth millions of lira, negotiated over lengthy periods of time, and so are by no means frequent sources of state expenditure across all districts annually. Between 2004-2020, our dataset shows there have only been 3,130 total distinct TOKİ projects across just less than approximately 1,000 districts covering 19 years (i.e. $1000 \times 17 = 17000$ district-year observations). Hence, many districts have multiple zeroes over time for expenditure (82% of our TOKİ variable is simply zeroes), thus leading to overdisperson resulting from a zero-inflated distribution of TOKİ projects.

To the best of our knowledge, no standard empirical model has been developed for data with a panel structure that contains an "excess zeroes" problem, nor have we seen any applications in the wider literature.[15,16] Hence, to try and deal with any threats to inference resulting from excess zeroes, we perform ad hoc robustness checks by dropping certain districts using various relevant criteria. First, we drop all districts that never received a TOKİ project over our entire time period of interest, 2004-2020.[17] Although it could be the case that some CHP districts never receive a single TOKİ project in light of having pro-CHP electoral tendencies, dropping districts in this manner allows us to explore whether even amongst districts that receive at least one project from 2004-2020, the AKP receive more expenditure whereas the CHP receive less. Next, we drop all districts that received TOKİ projects less than 10% of years over their existence (e.g. for districts that have always been around since 2004, we drop districts that received distinct projects over less than $[(2020 - 2004 + 1)/10 \approx]2$ different years; we apply a similar calculation to newly created districts).

As per table 4, all results are robust to dropping districts that receive either zero or very few projects over a district's entire existence. Somewhat reassuringly, once dropping potentially "irrelevant"

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measure of district-level incumbency, given the AKP and MHP formed the National Alliance in 2018 as a coalition. Appendix Table A.6 repeats specifications from Table 3 but also controls for province-level characteristics, such as whether a district is coincident with an AKP cabinet member who represents or originates from the district's overall province. We collected the birthplace and province represented of all the cabinet members who served during 2002-2020. The sources for our cabinet member data are the Official Gazette of the Republic of Turkey, the AKP's website, and the Every Politician Wikiproject (Besley, Chikareddy and Dann 2021).

[15]Engel and Moffatt (2014) develop methods to estimate double-hurdle models using panel data, but this only deals with random effects.

[16]Other contributions in the broader political economy literature using standard outcome variables with excess zeroes do not model the zeroes as being driven by a separate underlying data-generating process. See for example Burgess et al. (2012) and Michalopoulos and Papaioannou (2013).

[17]For districts that were newly created around 2013, we drop those districts that never received a TOKİ project since their inception.

districts that contribute to this zero-inflated distribution of the dependent variable, the coefficient estimates actually increase in magnitude for the AKP and decrease in magnitude for the CHP. Hence, even amongst those districts that receive at least one project in a given year or multiple projects over distinct years greater than 10% of a district's lifetime, the pro-AKP and anti-CHP bias is even sharper. Of course, one could question why any TOKI distribution would be dedicated in CHP districts at all if there is such a strong pro-AKP distributive strategy. Yet, some of our TOKI project categories refer to types of infrastructure that may be less prone to "targetting", such as disaster relief expenditure which the AKP may have less selective choice in responding to, especially if there are spillover effects into AKP districts (e.g. earthquakes, wildfires, etc). Using column 4 as our preferred specification for the AKP, pro-AKP districts receive ₺1.44 per capita, which is now a stronger effect than our results from table 3. Moreover, using column 6 as our preferred specifications for the CHP, pro-CHP districts receive ₺0.6 per capita; this is again a stronger effect than what was estimated in table 3 using the full sample.

Our principal dataset used for tables 3 and 4 looks at TOKI expenditure annually and carries over the pro-AKP or pro-CHP "treatment" dummy into non-election years. Hence, in dealing with excess zeroes, a second strategy we pursue is to look solely at inter-election year observations to reduce the overall number of zeroes in the data by averaging or summating TOKİ expenditure between elections. Although this drops a substantial number of years from our sample, meaning we have panel data "with gaps" whereby $t \in \{2004, 2009, 2014, 2019\}$, this is but another way to try and reduce the number of zeroes in the dataset. Here we further exploit two different ways of measuring TOKİ expenditure. First, we take the election year (inclusive) and inter-election year average contract expenditure per capita as a measure of central tendency between election periods.[18] Second, we create another variable summing all expenditure for the election year (inclusive) and inter-election period, dividing by the sum of population over this same time period. This further ensures our averaging process between elections is not sensitive to outliers in TOKİ contract expenditure or any serial correlation that arises.

As per table 5, even when using this "trimmed" version of the dataset, all estimated effects are robust and are still similar in direction. This applies regardless of whether taking averages between the election and inter-election years or summing all contract expenditure over this entire time period. Again, coefficient sizes increase for the AKP and decrease for the CHP even more than from table 4. Although it is hard to tell whether this reflects a genuine increase (decrease) for pro-AKP (anti-CHP) targeted distribution of TOKI when trimming the data between election

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[18]So for the 2004 election, we take the 2004-2008 average, for the 2009 election we take the 2009-2013 average, etc. We include the election year itself as part of this average given local elections occur at the end of March, and so TOKİ projects could be in commencement from April-December of the election year and hence should not be omitted.

periods, or whether this simply reflects a loss of sample size, the fact that results remain similar and significant to our baseline results in table 3 provides confidence in the overall approach. For the AKP, preferred specifications of columns 2 and 4, controlling for a range of fixed effects and relevant controls, show that pro-AKP districts receive ₺1.43 contract expenditure per person, which is also qualitatively similar to the estimates from the previous sub-sections. For the CHP, preferred specifications of columns 4 and 8 show that pro-CHP districts receive ₺0.53 contract expenditure per person; again, a qualitatively similar estimate in direction and magnitude to tables 3 and 4.

Table 4: Dropping Districts with Excess Zeroes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is Ln(TOKİ expenditure per capita)							
AKP district$_t$	0.250***	0.255**	0.346***	0.373***				
	(0.095)	(0.099)	(0.129)	(0.134)				
CHP district$_t$					-0.348**	-0.346**	-0.450**	-0.502**
					(0.137)	(0.145)	(0.207)	(0.225)
Observations	12,118	10,817	8,442	7,430	12,118	10,817	8,442	7,430
Number of districts	753	690	535	478	753	690	535	478
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zero Project Districts	Yes	Yes	No	No	Yes	Yes	No	No
10% Districts	No	No	Yes	Yes	No	No	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Zero project districts refers to the sample of districts when we drop those districts that never received a single TOKI project over its entire existence. 10% districts refers to the sample of districts when we drop those districts that received TOKI projects less than 10% of the time across distinct years over its existence. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

Table 5: Using Inter-Election Year Averages and Summations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is:							
	Ln(Average Expenditure per capita)				*Ln(Summated Expenditure per capita)*			
AKP district$_t$	0.450***	0.363**			0.452***	0.366**		
	(0.165)	(0.167)			(0.165)	(0.167)		
CHP district$_t$			-0.639***	-0.612**			-0.641***	-0.614**
			(0.234)	(0.239)			(0.234)	(0.239)
Observations	3,820	3,607	3,820	3,607	3,820	3,607	3,820	3,607
Number of districts	1,002	916	1,002	916	1,002	916	1,002	916
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Columns 1-4 use the average expenditure per capita between an election year (inclusive) and inter-election period. Columns 5-8 use the summated expenditure per summated capita between an election year (inclusive) and inter-election period. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

Intensive versus Extensive Margin: Count Models

As mentioned previously, given we are focusing principally on large infrastructure contracts that TOKİ has awarded in certain districts, such projects are generally uncommon across these districts per year. Although taking the natural logarithm of TOKİ contract expenditure per capita and adding a small amount, ϵ, to this figure was one method to try and normalise the dependent variable, the distribution post-logarithm is still fairly fat-tailed. Hence, models that rely on normally distributed variables may poorly "fit" the data, which could subsequently lead to specious inference. An alternative approach to measuring TOKİ distribution is thus to look at the total number of projects (i.e. contracts) of any project type awarded to a given district. This transformation of the dependent variable subsequently permits the use of count models. Specifically, we first use the fixed-effects Poisson quasi-maximum likelihood (QML) count model with cluster-robust standard errors by using the following specification (Hausman et al. 1984; Wooldridge 1999; Cameron and Trivedi 2015):

$$\mathbf{E}[P_{dpt}|m_{dpt}^i, \alpha_{dp}] = \alpha_{dp} \exp(\beta m_{dpt}^i) \tag{4.2}$$

Again, α_{dp} represents our district-level fixed effects. Now, P_{dpt} represents the number of TOKİ projects across all project categories that a district receives in a given year. As a second strategy, we also create a dummy variable for whether a district receives at least one project in a given year, thus permitting the use of a fixed-effects ordered logit model.

Finally, over and above statistical purposes, transforming the dependent variable in this way also has substantive motivations. The previous two tables have focused on TOKİ expenditure per capita as our dependent variable of interest. Yet, this treats the nature of targeted distribution by TOKİ as existing on the intensive margin by focusing on expenditure. Another key aspect of the puzzle is consequently to explore this phenomenon on the *extensive* margin – are pro-AKP districts not only receiving more expenditure, but also more overall projects? Probing the distribution of TOKİ in this way allows us to further understand whether targeted expenditure for pro-AKP districts is not being solely driven by a few expensive infrastructure contracts in the dataset (e.g. a one-off stadium built in an AKP stronghold).

Table 6: Count Models for No. of TOKİ Projects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is:							
	No. of TOKİ Projects				*TOKİ Project Dummy*			
AKP district$_t$	0.237***	0.215***			0.253***	0.235***		
	(0.068)	(0.069)			(0.075)	(0.082)		
CHP districts$_t$			-0.330***	-0.369***			-0.301***	-0.332***
			(0.099)	(0.122)			(0.112)	(0.125)
Observations	12,069	10,353	12,069	10,353	12,057	10,349	12,057	10,349
Number of districts	746	657	746	657	743	656	743	656
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses for columns 1-4. Standard errors in parentheses for columns 5-8. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Columns 1-4 use the number of TOKI projects as the dependent variable, using the QML fixed-effects Poisson model. Columns 5-8 use a dummy variable for whether a district received at least one TOKI project in a given year, using an ordered-logit fixed-effects model.

As table 6 shows, even when using count models, we still see a strong pro-AKP and anti-CHP bias in the delivery of TOKİ projects. Given we do not normalize projects by population, we now

include the natural logarithm of each district's population size as a control. Regarding columns 6 and 8 as preferred specifications for the project dummy variable, AKP districts are likely to receive a TOKİ project of any type with a 55.8% probability, whereas CHP districts are only 41.8% likely to receive at least one project of any type. More colloquially, there is a greater than 50:50 chance of an AKP district receiving a TOKİ project, and less than a 50:50 chance of a CHP district receiving a TOKİ project. These are similar estimates in magnitude and size to preferred specifications of columns 2 and 4 which run Poisson QML models using the number of TOKİ projects as the outcome. Consequently, additional to the results from tables 3-5, targeted distribution of infrastructure projects is working on *both* the intensive and extensive margins. Pro-AKP districts receive more expensive projects, in addition to more contracted projects in general, whereas pro-CHP districts receive less of both.[19,20]

4.3   Dynamic Panel Models

Another key threat to inference is the possible reverse causality between local mayoral incumbency power at the district level and TOKİ distribution. As highlighted previously, Marschall et al. (2016) argue that TOKİ distribution probabilistically increases the number of times local districts vote for AKP mayors. Hence, the posited direction of causality is exactly opposite to ours. However, there are a few issues with Marschall et al.'s (2016) approach. First, by pooling AKP support and TOKİ housing projects and expenditure from 2003-2014, they do not exploit within-district variation to try and isolate an unbiased effect. Arguably, without controlling for basic factors such as time-invariant heterogeneity at the district-level and common macro "shocks", identification is inevitably plagued by omitted variables. Moreover, in light of the drastic institutional changes that have occurred over the 2010s, ideally we want to explore TOKİ distribution patterns vis-á-vis AKP/CHP support over the entire last two decades.

Including lags of TOKİ expenditure per capita in specification (4.1) is one ad hoc method to try and

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[19]Appendix Table A.7 repeats the specifications from Table 6 but using the "trimmed" inter-election year and election year inclusive data.

[20]As another set of robustness check on the baseline results, we run several specifications where we try to account for population dynamics and processes of urbanisation that could be driving TOKİ distribution and political support. This helps account for the possibility that the AKP simply control districts that are more urban and hence are more likely to receive TOKİ projects by design. Appendix Table A.8 looks solely at districts in non-metropolitan municipalities. Given all provinces possess a *merkez ilçe*, which acts as the central district(s) of a province, we run specifications dropping all of these districts in Appendix Table A.9. This ensures TOKI distribution is not necessarily driven by mayors who control the central district, but also ensures the most urban areas of a province are not driving our overall results. Next, as Esen and Gumuscu (2017) highlight, "the AKP privatized public land through public–private partnerships under TOKİ's control, thus letting entrepreneurs capture significant rent in metropolitan areas" (p. 7). Hence, we examine specifications conditioning only on Turkey's sixteen metropolitan municipalities pre-2013 and the thirty metropolitan municipalities post-2013 after new legislation increased this total. Appendix Table A.10 drops districts in the three largest provinces of Ankara, Izmir and Istanbul.

control for this dynamic relationship between AKP local mayoral incumbency power and TOKİ distribution. This also helps control for any "pre-trends" that may be driving increased TOKİ expenditure and electoral support in districts. Figure 2 evidenced a divergence in expenditure across AKP and CHP districts around 2008, slightly before major institutional changes commence in 2011, so this additional threat to inference is also worth addressing. In light of the aforementioned issues, we thus run the following specification:

$$y_{dprt} = \alpha_{dpr} + \delta_t + (\gamma_r \times \delta_t) + \theta_k \sum_{k=1}^{T} y_{dprt-k} + \beta m^i_{dprt} + \rho \mathbf{x}'_{dprt} + \varepsilon_{dprt} \qquad (4.3)$$

Here, $\sum_{k=1}^{T} y_{dprt-k}$ represents the inclusion of lags from year $t-1$ up until year T. Exploiting this rich lag structure should help account for any previous TOKİ expenditures that may affect the decision to allocate further infrastructure projects whilst also affecting local incumbency support in elections. As table 7 shows, even when including five lags of TOKİ expenditure per capita ($T = 5$), which covers the entire inter-election period between two local elections, we still see the pro-AKP and anti-CHP bias regarding TOKİ distribution. Columns 2 and 6 are the most demanding specifications using the fixed-effects estimator with lags. Including this rich set of lags does not subsequently change the overall size or significance of results across both the AKP and CHP, relative to our baseline results in table 3.

Nonetheless, in light of our "small T, large N" panel setting, lags of the dependent variable inevitably induce the standard Nickel (1981) bias which is of order $1/T$. Consequently, we rely on the Arellano-Bond GMM estimator, exploiting instruments "within" the system, to try and identify the effect of district-level AKP/CHP power whilst controlling for a rich set of lags concerning TOKİ expenditure. Because we are looking at TOKİ expenditure between local election periods over half decadal intervals, there is likely to be a large potential for serially correlated errors. As such, we require a sufficient number of lags to overcome any model misspecification, which thus motivates are opting for $T = 5$.

Columns 3-4 for the AKP and 7-8 for the CHP now use the Arellano-Bond GMM estimator. Using preferred specification of column 4 for the AKP, aligned districts receive ₺1.2 more expenditure per capita. Using preferred specification of column 8 for the CHP, CHP-aligned districts receive only ₺0.74 expenditure per capita. These results are indeed qualitatively and quantitatively similar to our baseline results in table 3, and are robust even when including region-year fixed effects which control for a range of shocks. AR(2) tests also confirm that five lags is sensible for identification, as we fail to reject the null hypothesis of no AR(2) correlation in the first-differenced residuals as a condition for consistent estimation using the Arellano-Bond GMM estimator.

We also estimate long-run effects of permanent changes to the AKP or CHP, calculated by dividing the estimate for AKP/CHP-aligned districts by the estimates of all TOKİ expenditure lags,

subtracted from 1: $\hat{\beta}/[1 - \sum_{k=1}^{T} \hat{\theta}_k]$.[21] All long-run effects estimated from specifications using the Arellano-Bond GMM estimator are again similar in magnitude to the short-run effects estimated in table 3. A permanent transition to the AKP leads to ₺1.2 more expenditure per capita; a permanent transition to the CHP leads to only ₺0.74 expenditure per capita. Hence, in light of the previous robustness checks, in addition to using GMM estimators, the triangulation of evidence provides further confidence in the overall notion that the AKP systematically uses TOKİ to reward loyalists and punish rivals.

Table 7: Dynamic Panel Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is Ln(TOKİ expenditure per capita)							
AKP district$_t$	0.269***	0.263***	0.270**	0.264**				
	(0.083)	(0.083)	(0.122)	(0.116)				
CHP district$_t$					-0.446***	-0.434***	-0.478**	-0.416**
					(0.120)	(0.121)	(0.196)	(0.184)
Ln(TOKİ expenditure per capita)$_{t-1}$	-0.099***	-0.102***	0.014	0.013	-0.099***	-0.102***	0.015	0.014
	(0.011)	(0.011)	(0.015)	(0.014)	(0.011)	(0.011)	(0.015)	(0.014)
Ln(TOKİ expenditure per capita)$_{t-2}$	-0.100***	-0.102***	0.015	0.015	-0.100***	-0.102***	0.017	0.017
	(0.011)	(0.011)	(0.013)	(0.013)	(0.011)	(0.011)	(0.013)	(0.013)
Ln(TOKİ expenditure per capita)$_{t-3}$	-0.068***	-0.069***	0.048***	0.050***	-0.067***	-0.068***	0.049***	0.051***
	(0.011)	(0.011)	(0.013)	(0.014)	(0.011)	(0.011)	(0.013)	(0.014)
Ln(TOKİ expenditure per capita)$_{t-4}$	-0.067***	-0.067***	0.037***	0.039***	-0.067***	-0.067***	0.038***	0.040***
	(0.012)	(0.012)	(0.014)	(0.014)	(0.012)	(0.012)	(0.014)	(0.014)
Ln(TOKİ expenditure per capita)$_{t-5}$	-0.066***	-0.065***	0.032**	0.034**	-0.066***	-0.065***	0.032**	0.035***
	(0.012)	(0.012)	(0.013)	(0.013)	(0.012)	(0.012)	(0.013)	(0.013)
Observations	13,085	13,085	12,090	12,090	13,085	13,085	12,090	12,090
Number of districts	995	995	985	985	995	995	985	985
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
AR(2) test p-value			[0.361]	[0.368]			[0.359]	[0.365]
Long-run effect of AKP/CHP affiliation	0.192***	0.188***	0.316**	0.311**	-0.319***	-0.309***	-0.563**	-0.494**
p-value	[0.001]	[0.002]	[0.027]	[0.023]	[0.000]	[0.000]	[0.015]	[0.024]

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses for columns 1-2 and 5-6. Robust standard errors in parentheses for columns 3-4 and 7-8. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Columns 3-4 and 7-8 use the Arellano-Bond GMM estimator, instrumenting for lags of TOKİ expenditure per capita with double lags. The AR(2) row shows the p-value of a test for serial correlation of the residuals in the TOKİ expenditure per capita series. The long-run effect row divided the estimate of the AKP/CHP district estimate by one minus the summation of lagged effects for TOKİ expenditure per capita. The p-value for this long-run effect is estimated using the delta method. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

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[21]Standard errors for these estimates are calculated using the delta method.

Could it still be the case that electoral promises are made by the AKP using TOKİ, of which projects are then built post-election, meaning the direction of causality actually works in reverse? This is a difficult mechanism to unpack quantitatively. As argued by Gürakar and Bircan (2019), "the AKP majority government has used public procurement as an influential tool to increase its electoral success, build its own elites, and finance politics" (p. 242). Notwithstanding this, although it is admittedly quite likely that TOKİ is used to make some pre-election promises, the fact that such promises are delivered on to loyal voters post-election still evinces the overall competitive authoritarian strategy of the AKP. Under the hypothesised counterfactual, had a district not rewarded the AKP with incumbency at the district-level, or even converted entirely to the CHP, those citizens would not have received increased expenditure and contracts, irrespective of any electoral promises made.

As a final comment, it is interesting that for columns 3-4 and 7-8, only the deeper lags of TOKİ expenditure are positive and statistically significant. This suggests that straight after an election, when our regressor of interest possibly varies/switches, TOKİ distribution increases. Yet, within the two years prior, there is no consequential increase in contracted projects. In light of this, suggestive evidence of a political business cycle in TOKİ expenditure is not apparent, which stands in contrast to the nature of credit lending being used as a political tool by the AKP for electoral purposes (Bircan and Saka 2021). This further implies that it is indeed AKP incumbency at the local level which is primarily driving TOKİ distribution, and not the other way around.

5 Mechanisms

5.1 Disentangling Swing versus Core Strategies

A priori, it is unclear what kind of electoral strategy the AKP uses with regards to TOKİ distribution. As per the theory developed by Levitsky and Way (2010), competitive authoritarian incumbents are predisposed to reward loyalists and punish rivals using state assets and other branches of government; the results above show there is indeed a pro-AKP and anti-CHP bias. But *how* exactly the AKP set about doing this requires further exploration regarding plausible mechanisms. This relates to the broader literature in political economy on the "core" versus "swing" vote hypotheses of political redistribution. Cox and McCubbins (1986) famously argue that (risk-averse) candidates/parties will target their core constituencies when seeking re-election. Cox (2009) motivates this in terms of mobilization of voters and coordination of candidates around ideological platforms, which outweighs resources dedicated to identifying and then persuading swing voters. On the other hand, Lindbeck and Weibull (1987) argue that candidates/parties will target swing voters in competitive constituencies, given core voters will vote for their preferred party regardless of promises of distribution. Dixit and Londregan (1996) provide further theoretical foundations for

this approach.

In light of the "core" and "swing" vote hypotheses, there are consequently two plausible strategies the AKP could be pursuing with regards to TOKİ distribution. On the one hand, the AKP could use it's hegemony to use TOKİ in attracting swing voters in districts where electoral competition is high, as Bircan and Saka (2021) find for state-bank credit lending. On the other hand, the AKP could simply be rewarding its "base" or core voters. Our main dummy variable of interest in the above regressions do not disentangle these two strategies alone, and little work has connected the core and swing vote hypotheses to institutions – in a competitive authoritarian setting where elections are still relevant, despite being highly unfair, what strategy of political redistribution would an incumbent pursue?

Given the pre-existing literature on competitive authoritarianism, we expect more evidence in favour of the core vote hypothesis in less democratic settings, although theories of competitive authoritarianism are not well connected to the literature on the swing versus core vote hypotheses. Robinson and Torvik (2009) are arguably one of the closest theoretical models that reveal conditions for the "real swing voters curse". Based on their model, in weakly institutionalised societies, incumbents who can use repression and violence during elections will coerce non-ideological swing voters, as it increases the amount of rents the incumbent can maintain by disenfranchising a swathe of the electorate. Although this formal theory does not directly translate into TOKİ distribution, it still provides conditions for when directing policy against swing voters, versus vying for their support with, say, increased transfers, is an equilibrium outcome. Further theoretical work is definitely necessary to unpack these mechanisms further.[22]

To try and empirically disentangle these two competing electoral strategies, we now use the AKP's and CHP's respective vote margins relative to the next largest party in a given district (given Turkey is a multiparty democracy). Larger AKP vote margins should correlate with greater TOKİ expenditure per capita to provide evidence of the core vote hypothesis, and larger CHP vote margins should yield smaller levels of such expenditure. Following on from section 4.2, we again proceed to use our inter-election year dataset; if we used our annual time-series, the vote margins would appear in "blocks" to cover the inter-election year period and hence standard errors could be misleading (Pischke 2005).[23]

Interestingly, as per table 8, while the AKP margin variable is statistically significant across both expenditure per capita and number of projects, there is more mixed evidence for the CHP. The fact that the CHP margin does not affect expenditure per capita is perhaps suggestive that, irrespec-

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[22]Tribin (2020) is one effort to achieve this, albeit indirectly, with applications to Colombia.

[23]Appendix Table A.11 uses the non-trimmed dataset for Table 8 as a robustness check, of which results do not change.

tive of margin size, CHP-aligned provinces receive less TOKI contract expenditure regardless.[24] Nonetheless, when using the QML fixed-effects Poisson for the number of TOKI projects within a given district, we do see the conventional pattern that CHP-aligned districts receive fewer projects. Notwithstanding this, the AKP vote margin variables across both versions of the dependent variable are statistically significant and positive. This further supports the notion of the "core" vote hypothesis, whereby those districts that have a higher AKP margin receive both more expenditure per capita and more overall projects. From the theoretical perspective of competitive authoritarianism, these results are also in line with the hypothesis of rewarding loyalists using state assets (Levitsky and Way 2002, 2010).

Table 8: Results Using Vote Margin

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is:							
	Ln(Summated TOKİ expenditure per capita)				*Summated No. of TOKİ Projects*			
AKP vote margin$_t$	1.133**	1.008**			0.759***	0.740***		
	(0.440)	(0.443)			(0.275)	(0.235)		
CHP vote margin$_t$			-0.775	-0.907			-0.601**	-0.634**
			(0.548)	(0.578)			(0.291)	(0.287)
Observations	3,815	3,602	3,689	3,477	2,877	2,683	2,766	2,573
Number of districts	1,002	916	1,000	915	741	678	731	669
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	No	No	No	No

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. All specifications are run on an inter-election year panel, which consists of observations in five-year intervals for every local election: 2004, 2009, 2014 and 2019. Columns 1-4 use the summated TOKI expenditure per summated population over each election year (inclusive) and the inter-election period. Columns 5-8 use the summated number of TOKI projects over each election year (inclusive) and the inter-election period. We add 0.01 to TOKİ expenditure across specifications 1-4 before taking the natural logarithm.

To further hone in on how the core vote hypothesis relates to competitive authoritarianism – rewarding loyalists but punishing rivals – we now create a variable for the vote margin specifically between the AKP and CHP. If there are indeed competitive authoritarian tendencies to reward loyalists and punish the main rivals, then a higher incumbent vote share relative to the main opposition should be more consequential to the targeted distribution of TOKİ expenditure. As per

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[24]The lack of statistical significance could also plausibly be driven by using the trimmed dataset.

table 9, we again see a statistically significant and positive effect of the the AKP-CHP vote margin. This implies that districts with higher AKP vote shares relative to the CHP receive greater TOKI contract expenditure per capita and more overall TOKI projects. Somewhat unsurprisingly, the results in table 9 are not hugely different in magnitude to those for the AKP vote margin row in table 8. This is most likely because our AKP-CHP vote margin is no different to the AKP vote margin variable in table 8, given the CHP are the second largest party in Turkey. Notwithstanding this, table 9 illustrates similarly large effects of AKP support relative to the CHP. Using preferred specification 2 for expenditure, an increase in vote margin by 10% increases expenditure per capita by ₺1.11 per capita.

Table 9: Results Using AKP Vote Margin Relative to CHP

	(1)	(2)	(3)	(4)
	Dependent variable is:			
	Ln(Summated TOKI		*Summated No. of*	
	expenditure per capita)		*TOKI Projects*	
AKP-CHP Vote Margin$_t$	0.966*	1.131**	0.629**	0.750***
	(0.493)	(0.508)	(0.267)	(0.266)
Observations	3,683	3,471	2,761	2,567
Number of districts	1,000	915	731	668
Local Election Controls	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	No	No

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. All specifications are run on an inter-election year panel, which consists of observations in five-year intervals for every local election: 2004, 2009, 2014 and 2019. Columns 1-2 use the summated TOKI expenditure per summated population over each election year (inclusive) and the inter-election period. Columns 3-4 use the summated number of TOKI projects over each election year (inclusive) and the inter-election period. We add 0.01 to TOKİ expenditure for specifications 1-2 before taking the natural logarithm.

5.2 Heterogeneous Effects and Institutions

As we saw in the last section, the AKP tend to pursue a "core" strategy by rewarding their base: those AKP districts with higher vote margins receive more projects, especially those with higher AKP vote margins relative to the CHP as the main national opposition party. This further conveys how competitively authoritarian the AKP regime is, by using state hegemony and assets to reward loyalists and punish rivals. In light of this evidence, we now proceed to explore these effects vis-á-vis the institutional changes that have occurred in Turkey over the last two decades. Although our results above evidence there is indeed a competitively authoritarian-induced bias regarding TOKİ distribution, ideally we want to explore how this bias has evolved over time in light of the democratic erosion facilitated by the AKP. This subsequently requires the examination of heterogeneous effects based on institutions. Similar to Burgess et al. (2015) regarding ethnic favoritism of road development over Kenya's post-colonial democratic experience, we explore how the targeted distribution of TOKİ has changed pre-post the change in institutions.

To capture these dynamics, we code Turkey as having mostly democratic institutions between 2004-2010. As highlighted previously, there is general agreement that 2011 onwards saw major institutional reforms consolidating the AKP's power, as evidenced by Figure 1. We thus run the following specification:

$$y_{dprt} = \alpha_{dp} + \delta_t + (\gamma_r \times \delta_t) + \beta_1 m^i_{dprt} + \beta_2 (m^i_{dprt} \times \mathbf{1}[t < 2011]) + \rho \mathbf{x}'_{dprt} + \varepsilon_{dprt} \qquad (5.1)$$

Here, by interacting our main regressor of interest for party i's local mayoral incumbency power, m^i_{dprt}, with a dummy capturing pre-2011 institutions, we should expect equal and opposite signs if the trend towards competitive authoritarianism has truly shaped the TOKİ distributive bias across parties. This can easily be captured using an F-test, whereby $H_0 : \beta_1 + \beta_2 = 0$. If we fail to reject the null hypothesis, then this would evidence that pre-2011, surrounding a more democratic environment, TOKİ distribution was not skewed towards one party or the other; democratic institutions would thus moderate the targeted distribution of projects (e.g. Besley & Persson 2011). To capture institutional variation, which tends to occur over multiple years and decades, we now return to using our annual panel series.[25]

As per table 10, we see some striking results. First, with regards to the AKP, we still find a pro-AKP bias in TOKİ distribution, and the pre-2011 interaction term is negative and almost equal in sign. The F-test for the null hypothesis that both coefficients are equal and opposite in sign fails to be rejected, which hence provides some suggestive evidence that a more democratic environment

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[25]We do not use the specifications incorporating the rich lag structure from section 4.3 due to losing a significant number of years in the early period of our dataset (e.g. 2004-2008). As per Figure 1, these are important years to include in the analysis to evidence the effect of institutional change on TOKİ expenditure pre-post 2011; omitting them would lose this important variation in TOKİ distribution over time vis-á-vis the erosion of democratic institutions.

pre-2011 moderated much of the targeted distribution of TOKİ we are seeing today towards AKP strongholds. Preferred specification of column 4 suggests that TOKİ expenditure towards AKP-aligned districts increases from ₺0.85 per person to ₺1.27 per person once institutions begin to be eroded post-2011. Notwithstanding this, the interaction term itself is statistically insignificant, so it is hard to draw any major conclusions on the mollifying effect of democratic institutions on the AKP's bias towards rewarding its own loyal districts at the local level. In light of this result, all four specifications from columns 1-4 suggest that there has always been a strong pro-AKP bias over our entire time period of study, totalling ₺1.27 per person.

Table 10: Results for Institutional Heterogeneous Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is Ln(TOKİ expenditure per capita)							
AKP district$_t$	0.231***	0.231***	0.223***	0.246***				
	(0.084)	(0.089)	(0.086)	(0.091)				
AKP district$_t$ × $\mathbf{1}[t < 2011]$	-0.126	-0.118	-0.116	-0.146				
	(0.111)	(0.113)	(0.118)	(0.121)				
CHP district$_t$					-0.318***	-0.348***	-0.327***	-0.357***
					(0.111)	(0.120)	(0.110)	(0.119)
CHP district$_t$ × $\mathbf{1}[t < 2011]$					0.230*	0.299**	0.273*	0.337**
					(0.139)	(0.150)	(0.144)	(0.152)
Observations	16,154	14,428	16,154	14,428	16,154	14,428	16,154	14,428
Number of districts	1,002	916	1,002	916	1,002	916	1,002	916
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
F-test, $H_0: \beta_1 + \beta_2 = 0$	1.283	1.473	1.278	1.078	0.504	0.148	0.176	0.0235
p-value	[0.258]	[0.225]	[0.259]	[0.299]	[0.478]	[0.701]	[0.675]	[0.878]

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. The F-test row reports the value of the test statistic from the F-test that the non-interacted and interacted coefficients are equal and opposite in sign. The p-value row below reports the p-value of the F-test. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

However, the somewhat more interesting result concerns the CHP. Here, the interaction term is now statistically significant and also more or less equal and opposite in sign to the non-interacted variable of CHP majority incumbency in a given district. The F-test also supports this with

very high p-values, failing to reject the null hypothesis that the CHP received TOKİ expenditure per capita to an equal and opposite magnitude vis-á-vis what it receives post-2011. Preferred specification of column 8 suggests that TOKİ expenditure decreased from ₺1.39 per person, under a more democratic environment, to ₺0.69 per person post-2011 – a striking 50% reduction in expenditure on contracted infrastructure projects.

Considering the results for both the AKP across columns 1-4 and the CHP across columns 5-8, this consequently suggests that even though democratic institutions may not have moderated the AKP's distribution towards its own core districts, the more democratic environment pre-2011 "protected" the CHP against targeted distribution. This is perfectly consistent with both theoretical and empirical contributions in the political economy literature on how democratic institutions support common versus narrow interests (e.g. Besley & Persson 2011; Burgess et al. 2015). Overall, the results from table 10 further support the notion that as Turkey has autocratized, and "backslided" from democracy to a competitive authoritarian regime, this has had the specific economic consequences of increases in targeted distribution of public infrastructure, especially against the main political rivals. This is the classic competitive authoritarian story.

5.3 TOKİ Bias Over Time

Although the above analysis evidences the general pro-AKP and anti-CHP bias with regards to TOKİ distribution, these are average effects covering 2004 to 2020. In light of the general widespread politico-economic changes that have occurred in Turkey over the last two decades, ideally we want to explore how these biases have changed *dynamically* over time. Section 5.2, exploring heterogeneous effects vis-á-vis institutions, was one method at showing how targeted distribution of TOKİ projects has changed pre-post 2011 as an autocratic turning point. Nonetheless, these specifications focused solely on within-district variation; an alternative approach is to also explore cross-sectional between-district variation for each distinct year over our period of study. Although controlling for district-level fixed effects is always preferable to capture time-invariant heterogeneity that could contribute to omitted variable bias, between-district variation is also insightful to know quite plainly whether pro-AKP districts receive more TOKİ projects and pro-CHP districts receive less TOKİ projects in a given year, and whether this bias changes systematically over time. As a final exercise, we thus run the following specification:

$$y_{dpr}^t = \alpha^t + \beta^t m_{idpr}^{it} + \rho^t \mathbf{x}_{dpr}^{\prime t} + \varepsilon_{dpr}^t, \text{ for } t \in \{2004, \ldots, 2019\} \tag{5.2}$$

y_{dpr} again represents the natural logarithm of TOKİ expenditure per capita with some small ϵ added to maintain observations with zeroes. We thus repeat specification (4.4) for every year t from 2004-2019 as a cross-section, and plot coefficient estimates with 90% confidence bands.[26]

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[26]We can only estimate specification (5.2) up until 2019 versus 2020 due to the incorporation of our nightlights

Moreover, to check robustness of trends, we also estimate cross-sectional negative binomial models using the number of TOKİ projects awarded as the dependent variable. A negative binomial model is appropriate for our setting by virtue of exploiting cross-sectional variation and having an overdispersed count outcome variable. For both models, we also include all standard local election, economic and general election controls previously used throughout the analysis.

As per figures 3 and 4, two clear patterns emerge with regards to TOKİ expenditure per capita and number of projects granted per year. First, although the majority of estimates for both parties have 90% confidence intervals that frequently cross zero, there is a clear pro-AKP effect and anti-CHP effect that varies seasonally. All statistically significant estimates for the AKP are positive, whereas all statistically significant estimates for the CHP are negative. This further confirms the competitive authoritarian tactics the AKP has pursued as it has consolidated power. Specifically with regards to the CHP, such districts consistently receive less TOKİ expenditure per capita from 2009-2014 – a key period covering the major institutional changes around 2011 following the AKP's third general election win. The minor increase in TOKİ expenditure and projects for the CHP post-2014 possibly reflects the electoral gains the CHP made during the 2014 local election; after filing legal claims of electoral fraud against the AKP, recounts and repeat elections led to the CHP overturning some AKP municipalities.

Secondly, in terms of the AKP, we interestingly do not see a political business cycle, but find that TOKİ expenditure per capita increases *post*-election whilst decreasing the year prior to a local election. This is unsurprising. Realistically, large TOKİ projects with regards to social housing and large-scale infrastructure take months, if not years, of planning. The process of taking some project from its initial blueprint phases through to its auctioning off with legal contractual obligations and subsequent physical development is not something that can be conjured up within a short period of time. This consequently stands in contrast to Bircan and Saka's (2021) contribution. Yet, for their study, unlike ours, the focus of credit via state-run banks is more plausible in terms of political business cycles, as credit can be much more quickly transacted as an asset relative to massive infrastructure projects. This combination of findings is thus further insightful into what kinds of strategies the AKP pursue depending on type of economic asset. Of course, the estimated effects from figures 3 and 4 are suggestive and illustrative at best, and are by no means causal, but they show a striking pattern with regards to TOKİ distribution over the last two decades.

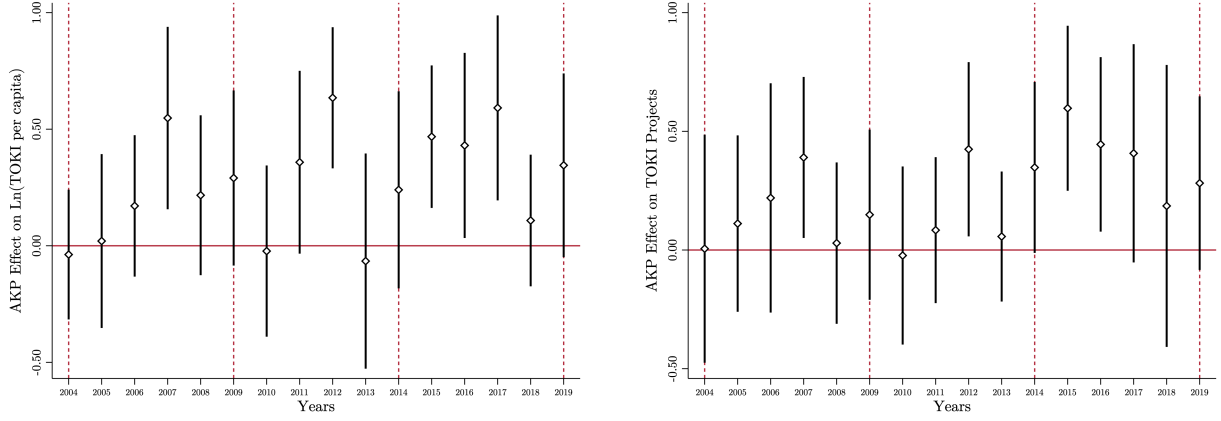control, which recall is only non-missing until 2019.

Figure 3: TOKİ Expenditure per Capita and Projects Bias for AKP districts, 2004-2019
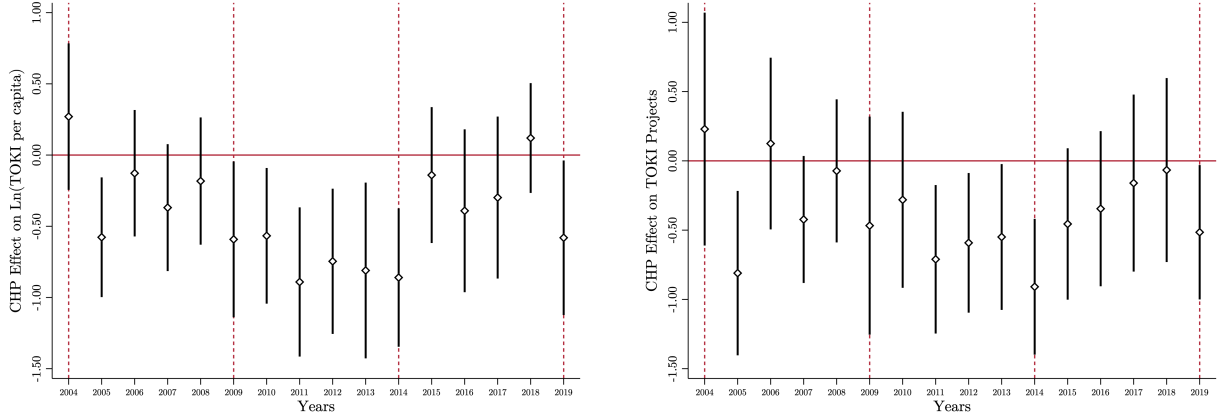

Figure 4: TOKİ Expenditure per Capita and Projects Bias for CHP districts, 2004-2019

Notwithstanding the lack of clear identification from these cross-sectional specifications, figures 3 and 4 thus provide further support on the temporal precedence between TOKİ distribution and AKP support. As highlighted previously, Marschall et al. (2016) argue that the AKP uses TOKİ to maintain power, whereas we argue the causal direction is opposite. The absence of a political business cycle means infrastructure projects are not distributed just before elections for the purposes of electoral support. Figures 3 and 4 actually evidence the opposite pattern – TOKİ expenditure per capita and number of contracted projects appear to increase in the few years *after* an election. This corroborates the initial findings from our dynamic panel specifications in table 7, whereby deeper lags of TOKİ expenditure were positive and statistically significant but lags two years prior were inconsequential. Hence, it appears to be the case that once the AKP gain or maintain power in certain districts, mayors are then in a position to negotiate with various stakeholders on TOKİ projects, of which the effects materialise in the few years following the election.

6   Conclusion

This paper has documented how the regression from democracy towards competitive authoritarianism in Turkey has increased the targeted distribution of TOKİ projects and expenditure across the two major parties. In essence, as Turkey has shifted away from democracy post-2011, we find robust evidence that the state specifically rewards those districts that are loyal to the AKP in local elections, providing them with greater TOKİ projects and expenditure per capita, whilst punishing districts loyal to the rival CHP party with fewer infrastructure contracts.

Moreover, with regards to the "core" versus "swing" vote hypotheses in the political economy literature, the evidence suggests that the AKP pursue the former strategy, given higher AKP vote margins are correlated with higher levels of TOKİ expenditure. Although we do not find evidence of a political business cycle per se, given TOKİ distribution tends to increase post-election once the AKP is in power at the local level, our findings complement that of Bircan and Saka (2021). The AKP appear to use credit lending as a tool around election periods to consolidate support, but then exploit TOKİ post-election to reward loyalists and punish rivals. Ultimately, our findings suggest that the economic consequences from democratic backsliding can be sharp. How institutional erosion has played out amongst other common autocratizers' economies, such as Poland, Hungary and Brazil, is thus open to further investigation.

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Appendix

Appendix A   Robustness Checks

A.1   Using An Alternative ϵ

Here we use $\epsilon = 1$ as an alternative transformation of the dependent variable. This ensures our choice of $\epsilon = 0.01$, despite keeping in line with previous approaches (e.g. Michalopoulos and Papaioannou 2013), is not driving the results as a specific constant of choice.

Table A.1: Using an Alternative ϵ

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent variable is Ln(TOKI expenditure per capita+1)									
AKP district$_t$	0.091**	0.092**	0.099***	0.085**	0.094**					
	(0.036)	(0.036)	(0.038)	(0.036)	(0.038)					
CHP district$_t$						-0.108**	-0.107**	-0.102*	-0.110**	-0.103*
						(0.051)	(0.051)	(0.053)	(0.051)	(0.053)
Observations	16,154	16,154	14,428	16,154	14,428	16,154	16,154	14,428	16,154	14,428
Number of districts	1,002	1,002	916	1,002	916	1,002	1,002	916	1,002	916
Local Election Controls	No	Yes	No	No	Yes	No	Yes	No	No	Yes
Economic Controls	No	No	Yes	No	Yes	No	No	Yes	No	Yes
General Election Controls	No	No	No	Yes	Yes	No	No	No	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant.

A.2 Baseline Results without Region-Year Fixed Effects

Table A.2: Baseline Results Omitting Region-Year Fixed Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent variable is Ln(TOKI expenditure per capita)									
AKP district$_t$	0.180***	0.182***	0.195***	0.165**	0.180**					
	(0.069)	(0.069)	(0.072)	(0.069)	(0.071)					
CHP district$_t$						-0.236**	-0.233**	-0.214**	-0.252***	-0.227**
						(0.095)	(0.095)	(0.099)	(0.095)	(0.099)
Observations	16,154	16,154	14,428	16,154	14,428	16,154	16,154	14,428	16,154	14,428
Number of districts	1,002	1,002	916	1,002	916	1,002	1,002	916	1,002	916
Local Election Controls	No	Yes	No	No	Yes	No	Yes	No	No	Yes
Economic Controls	No	No	Yes	No	Yes	No	No	Yes	No	Yes
General Election Controls	No	No	No	Yes	Yes	No	No	No	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	No	No	No	No	No	No	No	No	No	No

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

In this table we drop all region-year fixed effects to show this isn't driving the results by absorbing a lot of the variation in TOKI expenditure per capita.

A.3 Baseline Results with Province-Level Time Trends

Table A.3: Baseline Results with Province-Level Time Trends

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent variable is Ln(TOKI expenditure per capita)									
AKP district$_t$	0.163**	0.168**	0.177**	0.155**	0.177**					
	(0.068)	(0.068)	(0.070)	(0.068)	(0.070)					
CHP district$_t$						-0.252***	-0.248***	-0.238**	-0.260***	-0.236**
						(0.096)	(0.095)	(0.098)	(0.095)	(0.098)
Observations	16,154	16,154	14,428	16,154	14,428	16,154	16,154	14,428	16,154	14,428
Number of districts	1,002	1,002	916	1,002	916	1,002	1,002	916	1,002	916
Local Election Controls	No	Yes	No	No	Yes	No	Yes	No	No	Yes
Economic Controls	No	No	Yes	No	Yes	No	No	Yes	No	Yes
General Election Controls	No	No	No	Yes	Yes	No	No	No	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province Time Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. All specifications now include province-level linear time trends. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

Here we include province-level linear time trends to further capture any time-invariant heterogeneity that varies smoothly over time across provinces. This is a fairly saturated group of regressions however, by also including region-year fixed effects.

A.4 Using the Prop. of Municipal Mayors in a District as the Independent Variable

Here we use the proportion of mayors as the independent variable versus our dummy of whether a district has 50% or more of municipality mayors aligned with either the AKP or CHP. Thus, if $m_{dprt}^i = 1$, then all municipal mayors within a given district belong to party $i \in \{AKP, CHP\}$.

Table A.4: Robustness Checks Using Proportion of Municipal Mayors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent variable is Ln(TOKI expenditure per capita)									
Prop. AKP mayors$_t$	0.224***	0.230***	0.236***	0.211***	0.229***					
	(0.077)	(0.077)	(0.080)	(0.077)	(0.080)					
Prop. CHP mayors$_t$						-0.245**	-0.246**	-0.214*	-0.258**	-0.222*
						(0.110)	(0.110)	(0.114)	(0.110)	(0.114)
Observations	16,154	16,154	14,428	16,154	14,428	16,154	16,154	14,428	16,154	14,428
Number of districts	1,002	1,002	916	1,002	916	1,002	1,002	916	1,002	916
Local Election Controls	No	Yes	No	No	Yes	No	Yes	No	No	Yes
Economic Controls	No	No	Yes	No	Yes	No	No	Yes	No	Yes
General Election Controls	No	No	No	Yes	Yes	No	No	No	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Independent variable now refers to the proportion of municipality mayors that are AKP or CHP affiliated in a given district. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

A.5 Combining AKP and MHP Results

Table A.5: Combining AKP and MHP Results

	(1)	(2)	(3)	(4)	(5)
	Dependent variable is				
	Ln(TOKI expenditure per capita)				
AKP-MHP district$_t$	0.186***	0.188***	0.205***	0.183***	0.199***
	(0.069)	(0.069)	(0.072)	(0.069)	(0.071)
Observations	16,154	16,154	14,428	16,154	14,428
Number of districts	1,002	1,002	916	1,002	916
Local Election Controls	No	Yes	No	No	Yes
Economic Controls	No	No	Yes	No	Yes
General Election Controls	No	No	No	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. AKP-MHP district now refers to whether a district has 50% of municipality mayors or more aligned to the AKP alone pre-2018, and then post-2018 refers to whether a district has 50% of municipality mayors or more aligned to the AKP or MHP given the formation of the National Alliance. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

A.6 Baseline Results with Province-Level Covariates

Table A.6: Baseline Results with Province-Level Covariates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent variable is Ln(TOKI expenditure per capita)									
AKP district$_t$	0.167**	0.169**	0.184**	0.157**	0.178**					
	(0.068)	(0.068)	(0.072)	(0.068)	(0.071)					
AKP metro. mayor$_t$	0.218	0.232	0.097	0.188	0.094					
	(0.150)	(0.149)	(0.152)	(0.148)	(0.150)					
Cabinet member origin$_t$	-0.054	-0.055	-0.065	-0.058	-0.053					
	(0.115)	(0.114)	(0.116)	(0.114)	(0.116)					
Cabinet member representative$_t$	0.130	0.130	0.143	0.112	0.101					
	(0.121)	(0.121)	(0.127)	(0.121)	(0.128)					
CHP district$_t$						-0.224**	-0.223**	-0.217**	-0.231**	-0.220**
						(0.095)	(0.095)	(0.099)	(0.095)	(0.099)
CHP metro. mayor$_t$						0.011	0.005	0.110	0.045	0.108
						(0.147)	(0.146)	(0.156)	(0.148)	(0.156)
Observations	16,154	16,154	14,428	16,154	14,428	16,154	16,154	14,428	16,154	14,428
Number of districts	1,002	1,002	916	1,002	916	1,002	1,002	916	1,002	916
Local Election Controls	No	Yes	No	No	Yes	No	Yes	No	No	Yes
Economic Controls	No	No	Yes	No	Yes	No	No	Yes	No	Yes
General Election Controls	No	No	No	Yes	Yes	No	No	No	Yes	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Cabinet member origin refers to whether a sitting cabinet member of the AKP in a given year is coincident with the province they originate from. Cabinet member representative refers to whether a sitting cabinet member of the AKP in a given year is coincident with the province they represent as part of the Grand National Assembly of Turkey. The metropolitan mayor variables refer to whether a metropolitan mayor is the incumbent for the AKP or CHP for a given province. For non-metropolitan provinces, we assign zeroes versus treating the data as missing in order to not arbitrarily lose observations. Cabinet member origin, cabinet member representative and the metropolitan mayor variables are all dummy variables at the province level. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

In this table we include province-level covariates of whether the metropolitan mayor belongs to either the AKP or CHP, in addition to whether a sitting cabinet member is coincident with a given province based on representation in the Grand National Assembly of Turkey or based on birth.

A.7 Using Trimmed Dataset with Poisson QML

Table A.7: Using Trimmed Dataset with Poisson QML

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Dependent variable is:				
	Average No. of Projects				*Summated No. of Projects*			
AKP district$_t$	0.239*	0.148			0.235***	0.194***		
	(0.143)	(0.135)			(0.068)	(0.064)		
CHP district$_t$			-0.530**	-0.612***			-0.329***	-0.385***
			(0.210)	(0.229)			(0.099)	(0.111)
Observations	1,432	1,314	1,432	1,314	2,881	2,688	2,881	2,688
Number of districts	377	333	377	333	741	679	741	679
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. The inter-election year and election year (inclusive) trimmed dataset is now used. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant.

A.8 Using Non-Metropolitan Municipalities Sample

Table A.8: Using Non-Metropolitan Municipalities Sample

	(1)	(2)	(3)	(4)
	Dependent variable is			
	Ln(TOKI expenditure per capita)			
AKP district$_t$	0.141	0.150		
	(0.088)	(0.091)		
CHP district$_t$			-0.181	-0.135
			(0.134)	(0.139)
Observations	9,678	9,040	9,678	9,040
Number of districts	690	665	690	665
Local Election Controls	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
Non-Metropolitan Municipalities Sample	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Non-metropolitan municipalities sample refers to dropping all districts in metropolitan provinces. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

Here we look solely at districts in non-metropolitan municipalities. The results are now statistically insignificant. But this is unsurprising in light of the fact that metropolitan municipalities are more likely electoral battlegrounds due to being the largest provinces in Turkey, and making up close to 80% of Turkey's entire population. So in this respect the non-significance of results is reassuring, in that the real-world mechanism appears "where it should".

A.9 Population Dynamics and Urbanisation

Table A.9: Robustness Checks for Large Urban Areas

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is Ln(TOKI expenditure per capita)							
AKP district$_t$	0.156**	0.169**			0.212*	0.228*		
	(0.066)	(0.069)			(0.127)	(0.134)		
CHP district$_t$			-0.199**	-0.185*			-0.312**	-0.353**
			(0.095)	(0.098)			(0.148)	(0.154)
Observations	14,125	13,010	14,125	13,010	6,476	5,388	6,476	5,388
Number of districts	852	820	852	820	529	457	529	457
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region x Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Non-*Merkez Ilçe* Sample	Yes	Yes	Yes	Yes	No	No	No	No
Metropolitan Municipalities Sample	No	No	No	No	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Non-centres sample refers to dropping those districts that are the central districts of a given province. Metropolitan municipalities sample refers to those districts that fall within metropolitan municipalities (i.e. provinces). We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

As table A.9 shows, even when dropping central districts of provinces and focusing only on districts within metropolitan municipalities, we still uncover the same estimated effects, with a pro-AKP and anti-CHP bias in TOKI expenditure per capita.

A.10 Dropping Districts in Ankara, Izmir and Istanbul

Table A.10: Dropping Districts in Ankara, Izmir and Istanbul

	(1)	(2)	(3)	(4)
	Dependent variable is			
	Ln(TOKI expenditure per capita)			
AKP district$_t$	0.153**	0.164**		
	(0.069)	(0.072)		
CHP district$_t$			-0.148	-0.132
			(0.098)	(0.103)
Observations	14,612	13,052	14,612	13,052
Number of districts	906	827	906	827
Local Election Controls	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes
Non-Largest Provinces Sample	Yes	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Non-largest provinces sample drops districts in the provinces of Ankara, Istanbul and Izmir simultaneously. We add 0.01 to TOKİ expenditure across all specifications before taking the natural logarithm.

Large provinces, such as Ankara, Izmir and Istanbul, may simply receive more projects because they are electoral battlegrounds with high population densities. Hence, here we also perform specifications dropping all districts belonging to these provinces which are the largest three in Turkey by population. We now find statistically insignificant effects for the CHP, thus suggesting that districts in Ankara, Istanbul and Izmir are key areas where the AKP consequentially award fewer TOKI projects and hence expend less in CHP-aligned districts.

A.11 Using Non-Trimmed Dataset for Table 8

Table A.11: Using Non-Trimmed Dataset for Table 8

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent variable is:							
	Ln(TOKI expenditure per capita)				*No of TOKI Projects*			
AKP vote margin	0.451**	0.442**			0.747***	0.757***		
	(0.194)	(0.196)			(0.279)	(0.261)		
CHP vote margin			-0.173	-0.125			-0.578*	-0.636**
			(0.235)	(0.246)			(0.298)	(0.293)
Observations	16,129	14,403	15,501	13,779	12,049	10,333	11,520	9,821
Number of districts	1,002	916	1,000	915	746	657	735	645
Local Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
Economic Controls	No	Yes	No	Yes	No	Yes	No	Yes
General Election Controls	No	Yes	No	Yes	No	Yes	No	Yes
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region × Year Fixed Effects	Yes	Yes	Yes	Yes	No	No	No	No

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors clustered by district in parentheses. Local election controls refer to specifications including local election turnout rate and proportion of votes that were invalid. Economic controls refer to specification including the natural logarithm of nightlights. Nightlights are only available for old districts and extrapolated up until 2019, hence the drop in number of districts available for analysis. General election controls refer to specifications including the general election turnout rate and the vote share for the AKP/CHP where relevant. Columns 1-4 use the linear fixed-effects model. Columns 5-8 use the QML fixed-effects Poisson model. We add 0.01 to TOKİ expenditure across columns 1-4 before taking the natural logarithm.

Here we look at the AKP versus CHP vote margin results but applied to our annual series dataset. The results are very similar to those found in table 8 which uses the inter-election and election year (inclusive) trimmed dataset.

A.12   Random Permutation Tests

Here we randomly generate our treatment variable of interest, drawn from a uniform distribution, and repeat our core specifications 10,000 times.[27] In essence, this exercise means randomly generating data on election outcomes for local elections for the years 2004, 2009, 2014 and 2019. We first do this for our baseline fixed effects specifications. We then repeat this exercise using the Poisson QML regressions with number of projects as the outcome variable.
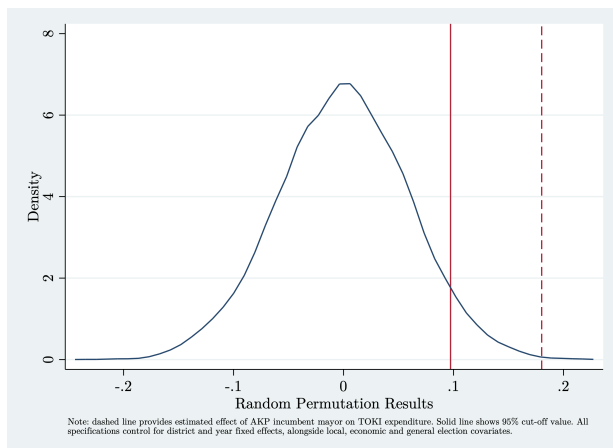

Figure A.1: AKP Permutation Test
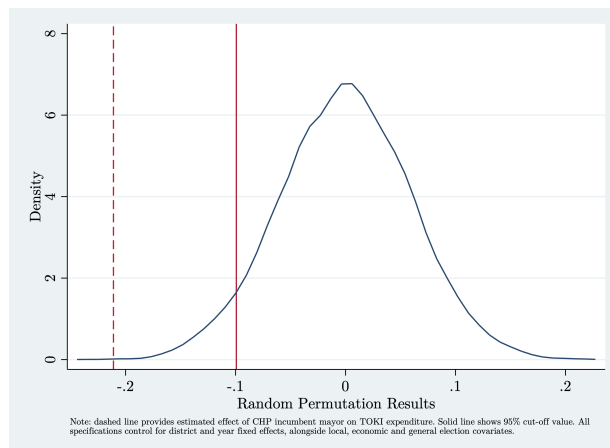
Figure A.2: CHP Permutation Test

As per Figures A.1 and A.2, our core results for the AKP and CHP (columns 5 and 10 respectively from Table A.2) are well within the threshold of statistical significance to the 5% level.
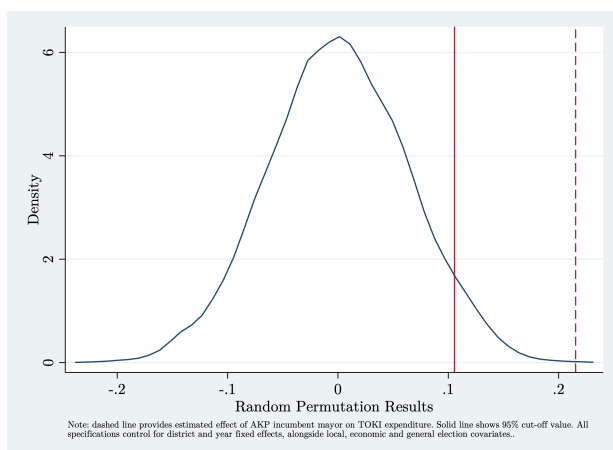
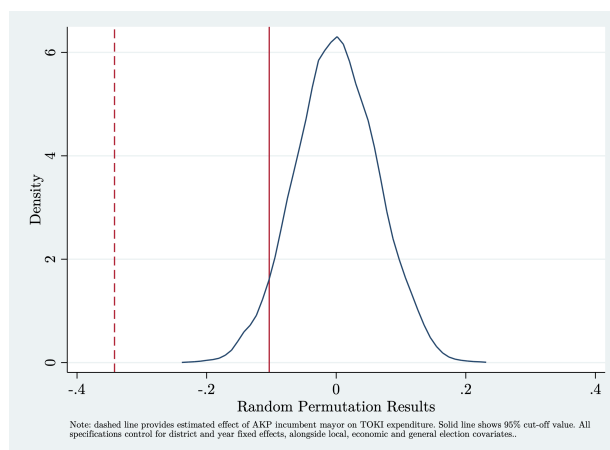Figure A.3: AKP Permutation Test

Figure A.4: CHP Permutation Test

As per Figures A.3 and A.4, our core results for the AKP and CHP (columns 2 and 4 respectively from Table 6) are again well within the threshold of statistical significance to the 5% level. For the

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[27]We omit region-year fixed effects due to its computational intensity when performing the permutations.

CHP, no randomly generated result was even able to match the size of the estimated coefficient from Table 6. Albeit again not causal evidence, the permutation tests provide further support that the results we are obtaining are sizable and not subject to just random chance.

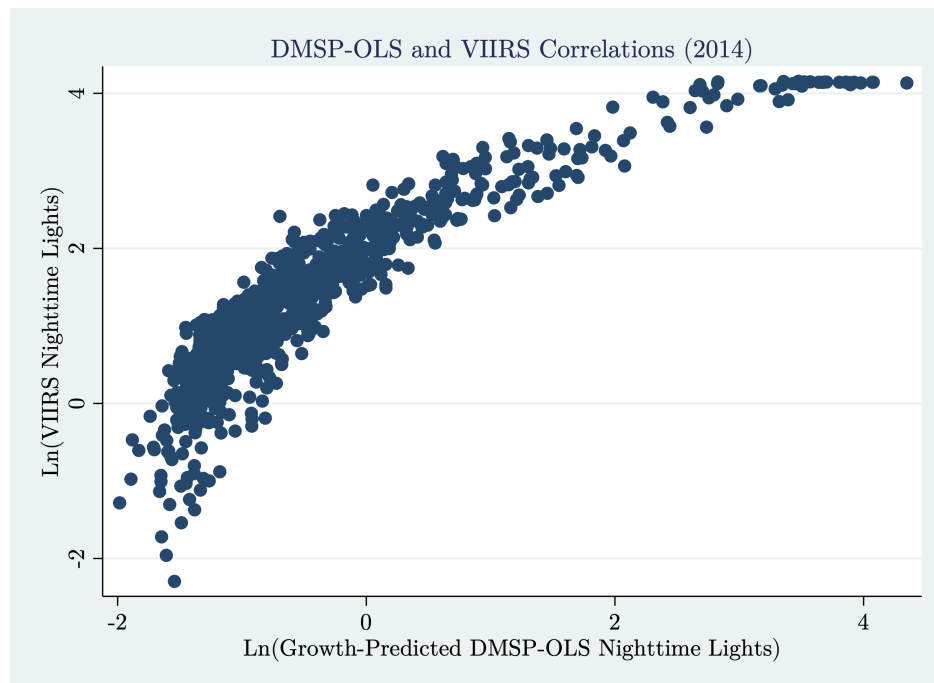# Appendix B   Growth-Predicted DMSP-OLS and VIIRS Nighttime Lights Correlations Post-2013

Figure B.1: Growth-Predicted DMSP-OLS and VIIRS Nighttime Lights, 2014
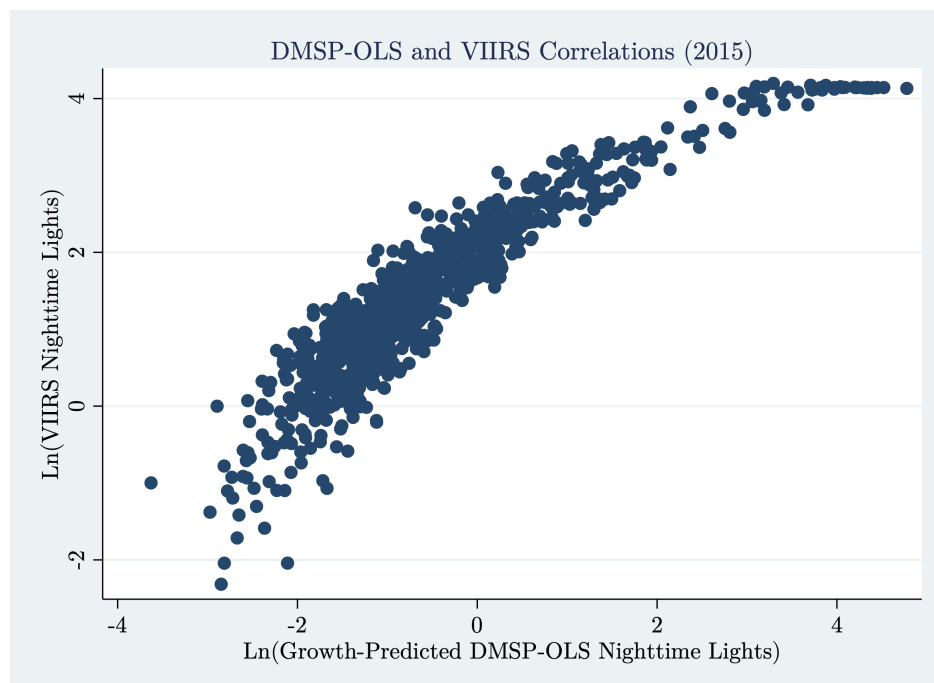

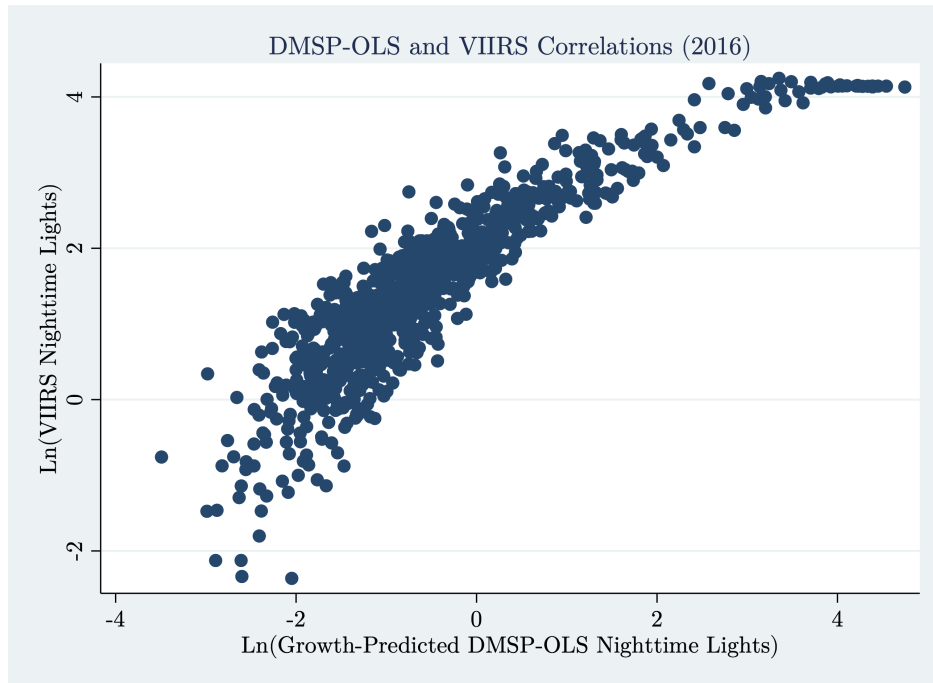Figure B.2: Growth-Predicted DMSP-OLS and VIIRS Nighttime Lights, 2015

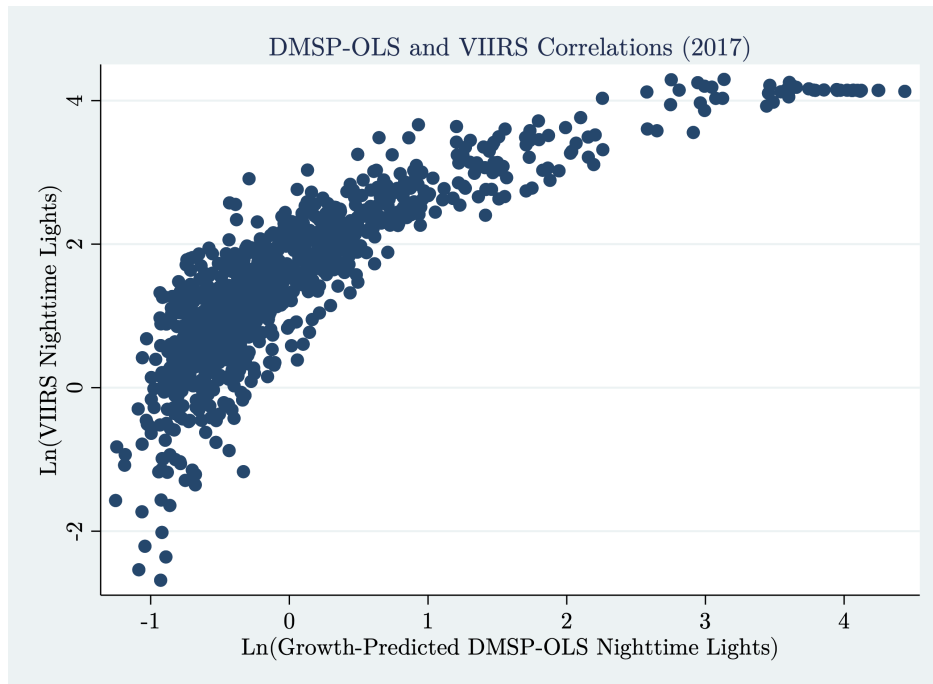Figure B.3: Growth-Predicted DMSP-OLS and VIIRS Nighttime Lights, 2016

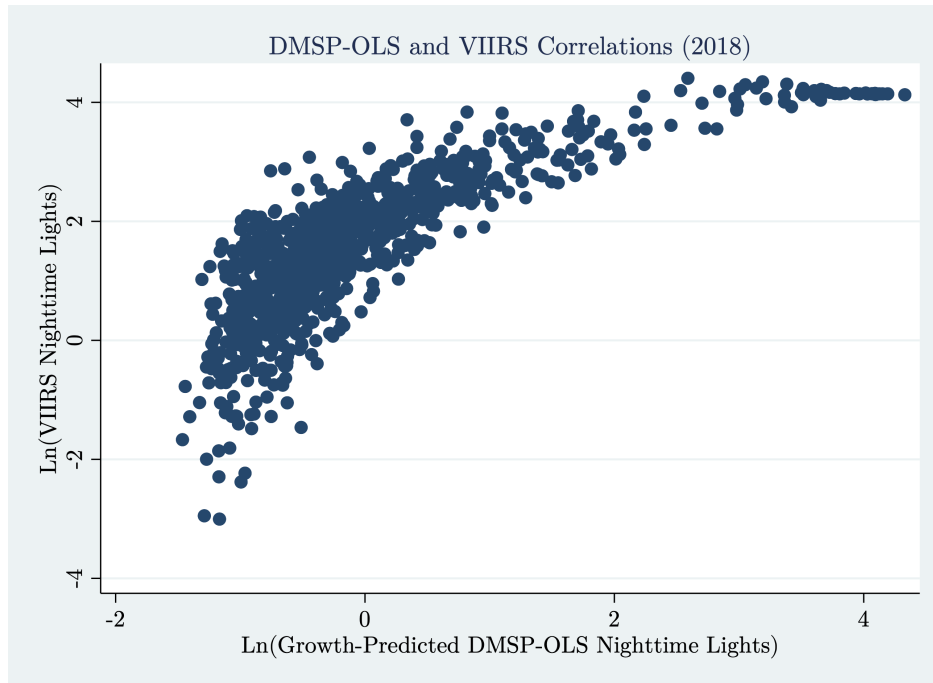Figure B.4: Growth-Predicted DMSP-OLS and VIIRS Nighttime Lights, 2017

Figure B.5: Growth-Predicted DMSP-OLS and VIIRS Nighttime Lights, 2018
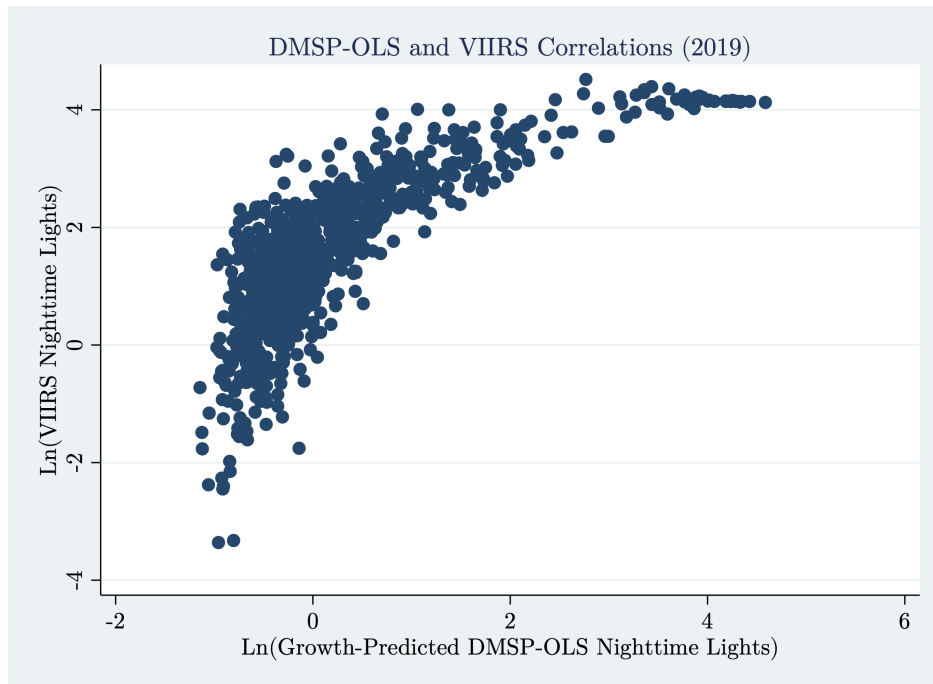

Figure B.6: Growth-Predicted DMSP-OLS and VIIRS Nighttime Lights, 2019

Appendix C Data

Table C.1: Changes Made to General Elections Data to Keep Observations on Newly Created Districts

change year	change type	province	old districts	new districts	action taken on general elections	# years effected
2008	split and merged	ankara	altindag, cubuk	pursaklar	average election results and make new district	3
2008	split and merged	istanbul	kadikoy, uskudar, umraniye, kartal	atasehir	average election results and make new district	3
2008	split and merged	istanbul	umraniye, kartal	sancaktepe	average election results and make new district	3
2008	split and merged	izmir	konak, buca, gaziemir	karabaglar	average election results and make new district	3
2008	name	erzurum	ilica	aziziye	changed name to match	3
2008	merged	istanbul	eminonu	fatih	changed name to match	3
2008	split	istanbul	gaziosmanpasa	arnavutkoy	changed name to match	3
2008	split	adana	seyhan	cukurova	copy paste results with new names	3
2008	split	adana	yuregir	saricam	copy paste results with new names	3
2008	split	antalya	merkez	aksu, dosemealti, kepez, konyaalti, muratpasa	copy paste results with new names	3
2008	split	diyarbakir	merkez	baglar, yenisehir, sur, kayapinar	copy paste results with new names	3
2008	name	erzurum	merkez	palandoken, yakutiye	copy paste results with new names	3
2008	split	eskisehir	merkez	tepebasi, odunpazari	copy paste results with new names	3
2008	split	istanbul	buyukcekmece	basaksehir	copy paste results with new names	3
2008	split	istanbul	buyukcekmece	beylikduzu	copy paste results with new names	3
2008	split	istanbul	umraniye	cekmekoy	copy paste results with new names	3
2008	split	istanbul	buyukcekmece	esenyurt	copy paste results with new names	3
2008	split	istanbul	gaziosmanpasa	sultangazi	copy paste results with new names	3
2008	split	izmir	bornova	bayrakli	copy paste results with new names	3
2008	split	kocaeli	golcuk	basiskele	copy paste results with new names	3
2008	split	kocaeli	merkez	cayirova, darica, dilovasi, izmit, kartepe	copy paste results with new names	3
2008	split	mersin	merkez	akdeniz, mezitli, toroslar, yenisehir	copy paste results with new names	3
2008	split	sakarya	merkez	adapazari, arifiye, erenler, serdivan	copy paste results with new names	3
2008	split	samsun	merkez	atakum, canik, ilkadim	copy paste results with new names	3
2013	name	aydin	merkez	efeler	changed name to match	2
2013	split	denizli	merkez	merkezefendi	changed name to match	2
2013	merged	denizli	akkoy, merkez	pamukkale	changed name to match	2
2013	name	siirt	aydinlar	tillo	changed name to match	3
2013	name	mardin	merkez	artuklu	changed name to match	2
2013	name	ordu	merkez	altinordu	changed name to match	2
2013	name	trabzon	merkez	ortahisar	changed name to match	2
2013	split	balikesir	merkez	altieylul, karesi	copy paste results with new names	2
2013	split	hatay	merkez	antakya, arsuz, defne, payas	copy paste results with new names	2
2013	split	kahramanmaras	merkez	dulkadiroglu, onikisubat	copy paste results with new names	2
2013	split	manisa	merkez	sehzadeler, yunusemre	copy paste results with new names	2
2013	split	mugla	merkez	mentese, seydikemer	copy paste results with new names	2
2013	split	sanliurfa	merkez	eyyubiye, haliliye, karakopru	copy paste results with new names	2
2013	split	tekirdag	merkez	ergene, kapakli, suleymanpasa	copy paste results with new names	2
2013	split	van	merkez	ipekyolu, tusba	copy paste results with new names	2
2013	split	zonguldak	merkez (split and still continued)	kilimli, kozlu	copy paste results with new names	2
2013	merged	malatya	merkez	battalgazi, yesilyurt	deleted old	2
2017	name	ankara	kazan	kahramankazan	changed name to match	1
2017	split	aksaray	merkez	sultanhani	copy paste results with new names	1
2017	split	artvin	hopa	kemalpasa	copy paste results with new names	1
2018	split	hakkari	semdinli	derecik	copy paste results with new names	3