



Fiscal transfers in Turkey: Do politics matter?

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ABSTRACT

Local fiscal transfer rules in Turkey were revised in 2008, such that, while a significant portion of transfers continued to be based on population size, the remainder was distributed based on other criteria such as the development index. In this paper, we investigate the extent of fiscal fairness in Turkey during the period 2008–2012. We define fiscal fairness by the degree of association of transfers and local spending with the structural and socioeconomic indicators, as opposed to political-party associations. Our empirical analysis reveals that while local fiscal transfers during the investigated period were significantly correlated with the socioeconomic and structural indicators, political factors also played a significant role. Particularly, we find robust evidence that cities where the incumbent party-AKP (Justice and Development Party), who won significantly more votes in the general elections than the main opposition party-CHP (Republican People's Party), received significantly more transfers and fiscal spending than the rest. The evidence also suggests that the metropolitan municipalities held by CHP received significantly more government expenditure than the rest; though less robust than the former. This observation also holds for the metropolitan municipalities held by AKP. Additionally, we observe that cities with metropolitan municipalities that were governed by either the incumbent or the main opposition party, were less fiscally independent than the rest. We also note, however, that given the increasing opacity in data reporting, this study does not account for the large amounts of public funds that are allocated in tenders with special invitees, via public-private partnerships or in the form of social assistance, although they are also likely to constitute a major component of politically-biased fiscal transfers during the study period.

1. Introduction

There is a growing emphasis on the role of public policy in achieving economic growth and stability, especially in the aftermath of the Great Recession, and the consequent rise in structural unemployment and relative wealth inequality. The rising demand for efficient and equitable public goods delivery also draws attention to the role of fiscal decentralization as an important fiscal institutional mechanism.

Fiscal spending and revenue collection duties and responsibilities are shared between the central and local governments to varying degrees in every country. In the first generation of literature on fiscal decentralization, (pioneered by Buchanan (1950), Tiebout (1956)

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and Oates (1972)), it was argued that local governments, especially in heterogeneous societies are better positioned than the central government to observe and respond to local demands. Sub-national governments may face different expenditure needs and resource constraints in their jurisdictions, depending on the level of socioeconomic heterogeneity of a country. Since the local government's borrowing capacity is generally more limited than the central government's, central to local transfers are essential for effective public goods delivery. Vertical and horizontal imbalances exist in almost all countries, and fiscal responsibilities are only partially decentralized even in federalist countries.¹

The second-generation theory of fiscal decentralization underlined the potential effects of political biases in the allocation of fiscal transfers.² This points at the need for transparent and fair fiscal transfer mechanisms to reap the welfare gains from fiscal decentralization. Ma (1999) provides a broad typology of central to local transfer mechanisms based on estimating local expenditure needs, local revenue collection capacity, or both. For a fiscal transfer design, both expenditure needs and revenue collection capacities of local administrations need to be taken into account.

Until 2008, the central to local administration transfers in Turkey were mainly decided according to the population criteria.³ Based on Law No. 5779, dated July 2008, a significant percentage of the central government transfers to special provincial governments and municipalities continued to be allocated according to the population criterion, the rest of the transfers were based on other criteria such as the development index. Appendix Table A2 provides details on the revenue sharing system in Turkey during the period of 2008–2012.⁴

Our empirical analysis focuses on investigating the effects of local fiscal transfers and spending in Turkey on socioeconomic and structural indicators, on the one hand, and political factors, on the other. Given the limitations of municipal level data, we examine city-level fiscal information. Thus, rather than testing the validity of the detailed transfer rules at all sub-national levels, we aim to find whether transfers or the central spending in localities, which are referred to as provincial or city-level administrations in this study, were fully explained by the structural and socioeconomic variables, or whether political factors also played an additional role.

Gürakar (2018) indicated that politically-oriented income and resource transfers in Turkey were mainly channelized through municipalities, via public procurement and tenders, public–private partnerships, and monetary or in-kind donations to citizens. In numerous cases, the founders of the municipal companies were identified as high-level bureaucrats in the municipal administrations. Since 2005, tenders with “exceptional content” and ‘among certain tenderers’ started to occupy a sizable share in the total public tenders, both in number and some nominal amount. Close to 190 changes in the public tender law during the 2000s and the concentration of the ruling party-related firms or municipal companies winning the invited tenders were clear indications of politically targeted transfers. Large-scale road constructions and public housing projects were typical ways of transferring resources to such firms that were exclusively invited to public tenders.⁵

Ilhan (2013) documented the extent of economic inefficiencies arising from the non-competitive position of municipal companies in municipal and municipality-related tenders and procurement, based on 86% of the tenders conducted in 2008 and 2009. Gürakar (2018) also reported a positive correlation between the AKP, the ruling party, votes in municipalities, and such clientelistic activities. However, a lack of transparency in sub-governmental level transfer data shadows such politically-motivated or clientelistic spending, which is the basis for the current study. This study's analysis aims to decipher the possible political biases in central to local administration transfers and in the local fiscal spending.

In this study, we investigate the fiscal redistribution fairness in Turkey by examining whether political variables have a significant effect on either the direct spending or the transfers of the central government across the cities. For this purpose, we compiled data that covers 81 cities over five years (from 2008 to 2012), for which we were able to construct a balanced panel data set on the local fiscal and socioeconomic indicators. Using this data set, we tested the null hypothesis that socioeconomic and structural variables, rather than political factors, explain local transfers. Unlike the transfer rules that were detailed in Law No. 5779, macroeconomic data and fiscal accounts were not available with the necessary details to conduct our analysis at the municipal level. As widely argued, many creative accounting mechanisms also obscure the implementation features of *de-jure* transfer rules. Hence, for the purposes of robustness, we also constructed alternative measures of central transfers to local administrations. As a measure of local development, we compiled a set of 22 socioeconomic indicators, which included educational, social, and macroeconomic indicators for each city. Additionally, we constructed a set of political variables comprising the share of political party representations in each city, based on the results of the general and municipal elections. We also employed dummy variables to control for the political identity of metropolitan municipalities, cities with development priorities, and different geographical regions.

Using the panel data set described above, we estimated our empirical model using fixed or random effects, depending on the specification test results. The empirical findings indicate that controlling for the effects in cities with developmental priorities and regional effects, while socioeconomic variables had a significant explanatory power for local transfer flows and central government's

¹ See, for example, the Fiscal Decentralization Indicators of the World Bank; <http://www1.worldbank.org/publicsector/decentralization/fiscalindicators.htm>.

² See for example, Lockwood (2005), Ansolabehere et al. (2002), Cox and McCubbins (1986) and Neyapti (2010).

³ We use the terms “sub-national,” “provincial,” and “local” interchangeably throughout the study.

⁴ Following the Presidential Republican System that became effective in July 2018, there were several amendments to the laws and regulations regarding the revenue sharing mechanism, vesting the President with additional powers to increase or decrease the allocations indicated by the law. However, since the coverage of the current study ends in 2012, these amendments are not relevant here.

⁵ See, for example, Marschall et al. (2015) empirically showed the positive relationship between public housing and AKP (Justice and Development Party) votes.

local spending, political factors also played a significant role in the redistribution of public funds. More specifically, our empirical findings show that cities where the incumbent party (AKP) won significantly more votes in the general elections than the main opposition party (CHP, Republican People's Party) received significantly higher transfers and fiscal spending than the others. This finding is robust across the alternative variables used in the analysis. Moreover, cities with metropolitan municipalities governed by the main opposition party are shown to have received more than their fair share of fiscal spending than the rest.

Next, we constructed a 'predicted level' of transfers and government spending in each city based on the regression results, where we excluded the effects of the political indicators in the unrestricted model. We called these predictions as the *ideal*, and compared them with the level of actual local transfers and government spending. We consider that the differences between the socioeconomically justified level and the realized level of local transfers can be partly explained by the significant effects of politically oriented transfers.

As an extension, we investigated the effects of both socioeconomic and political indicators on the level of government expenditures and local revenues and their fiscal independence. The latter is measured by the ratio of local revenues to local spending in each city. The evidence reveals that metropolitan municipalities (of both AKP and CHP) were less fiscally independent from the center and also received more total fiscal spending than the rest of the cities. Government expenditure was also significantly large in cities where the AKP won more votes in the local elections than the MHP.

The remainder of the paper is structured as follows. In Section 2, we present the panel data set and the estimation methodology utilized in this study. In Section 3, we report the estimation results, and interpret the findings. Section 4 is the conclusion.

2. Background, data and methodology

In Section 2.1, we first provide an overview of the structure of local administrations and fiscal relations between central and local administrations in Turkey. In Section 2.2, we explain the data set employed in the current study. In Section 2.3, we present the regression model and the methodology used for the empirical analysis.

2.1. An overview of central to local fiscal relations in Turkey

The Turkish Republic is a unitary state where local and central fiscal relations are structured by the Constitution, Laws on local administrations, and Presidential decrees. As common to unitary states, fiscal power and responsibilities are vested heavily with the central government and the state institutions. The main local administrative units are special provincial administrations, metropolitan and other municipalities, and villages, whose leaders are democratically elected.⁶ There are also hybrid institutions, namely regional development agencies and investment auditing and coordination units that intermediate between the local and central administrative functions, as well as municipal corporations with a private status.

In the period subject to our investigation, 2008–2012, there were 16 metropolitan municipalities, 65 special provincial administrations, 892 district and metropolitan district municipalities, 1977 townships and 2950 villages (see Yilmaz and Guner, 2013).⁷ Unlike the federal states, the central government is placed higher than all the local administrations in the state hierarchy of unitary states, although local administrative terrains are also determined by law with respect to certain specified spending and revenue decisions. The main actors of local administrations, mayors, are democratically elected.

As with all countries, but more so in unitary states and developing countries, the presence of vertical and horizontal imbalances leads to local fiscal dependence on central transfers. In the Turkish case, the value-added and income taxes that constitute the bulk of public revenues are collected by the central government, whereas revenues that local administrations command are limited, mainly composed of taxes on real estate, sales, environment, and the like. Besides the vertical imbalances, *vis a vis* the relative positions of the central government and local administrative capacities, there are also likely to be wide differences across the cities with respect to both local expenditure needs and revenue collection capacities. Such horizontal imbalances tend to be especially large in developing countries. Thus, the extent of fiscal decentralization may also vary across the cities of a country. Appendix Table A1 shows that the level of fiscal decentralization of Turkish cities appear to exhibit a clear negative association with their level of development; rather, the reverse was the case. That is, cities that were relatively less developed also appeared to be less dependent on central spending and revenues than the average. This observation is actually parallel to the evidence across different countries where the least developed nations are also those where the central government activity does not extend sufficiently to local administrations. This is an indication of the lack of fair redistribution across the country, which is what this empirical analysis aims to shed light on.

The existence of vertical and horizontal imbalances, and thus a reliance on central government finances, requires a carefully designed transfer mechanism for achieving fiscal efficiency and equity.⁸ Till 2008, central to local transfers in Turkey were mainly based on the population criterion. During 2008–2012, local transfers were based on Law No. 5779. As a departure from the past, the transfer rule in this period involved, besides the population size, a development index, though still by a limited share (only 15% of transfers to special provincial administrations, and 20% of transfers to non-metropolitan municipalities was based on the development index) among some other structural characteristics. Appendix Table A2 provides details of the revenue-sharing system during the period studied in this paper.

The literature on the economic and administrative aspects of fiscal decentralization in Turkey is vast, especially regarding the major

⁶ As of 2019, there are 1389 municipalities, of which 30 are metropolitan municipalities and 81 are special provincial governments.

⁷ As of 2020, the number of metropolitan municipalities has risen to 30.

⁸ See, for example, Akin et al. (2016).

reforms in local administration that took place during the 2000s. Among them, [Ayman Guler \(2009\)](#) and [Peker and Fuat \(2011\)](#), for example, discussed the evolution of the administrative structure and fiscal decentralization in the face of globalization. [Yilmaz and Guner \(2013\)](#) gave a detailed account of the expenditure responsibility and revenue sources of local administrations in Turkey, and evaluated that fiscal governance and local administrative accountability has much room for improvement. [Akdemir and Karakurt \(2020\)](#) noted that the extent of fiscal decentralization in Turkey has increased steadily since the 1980s, along with the increasing need for transparency to achieve fiscal discipline. Similarly, [Egeli and Diril \(2012\)](#) discussed the inefficiencies of the current local administrative structures, and argued that it was important to take into account regional disparities while considering the decentralization of revenue collection. [Kızı \(2016\)](#) demonstrated that the regional developmental dispersion had widened during the period 2001–2014, while [Bulut-Çevik \(2020\)](#) noted that the majority of the transfers went to metropolitan municipalities. It has also been widely argued that the governing party-related municipal companies have often been favored in municipal tenders and procurement.⁹ Inefficiencies in local fiscal affairs also manifested in increasing the indebtedness of local administrations, posing a threat to fiscal discipline.

2.2. Data

In this paper, we investigated the determinants of local transfer flows in Turkey. We measured local transfers in alternative ways, both for robustness and for investigating where the possible differences in transfer allocations rise from. In all four alternative measures of transfers that we generate, and denote by TRa, TRb, TRc and TRd, the common term in all these definitions is the provincial share of the item called ‘central government tax and fees’. This item constituted the largest share in the total revenues (about 40%, on average, both across time and cities) of the local administrations. The alternative transfer measures we compiled adds to this budget item the following: for TRa, the current flow of ‘grants, aids and special revenues from the central government budget agencies’; for TRb, the ‘current and capital Treasury aid’; for TRc, ‘current and capital grants, aids and special revenues from the central government’; and for TRd, in addition to ‘the current and capital aid from central government agencies’ (as in TRc), we also included ‘current and capital project aid from general budget agencies’. Hence, TRd is the widest measure of central revenue flows to local administrations. Since this level of decomposition did not exist in the local administrations’ revenue accounts (reported by The Ministry of Treasury and Finance), in constructing these alternative measures, we applied to the provincial data on ‘interests, shares and fines’ and ‘grants, aids and special revenues’ the shares of their relevant components available at the aggregate level (see the Notes under Appendix [Table A3](#) for more details).

In addition to these alternative measures of transfer flows, we also looked at the difference between the total spending made by all levels of government and the revenues collected by the local authorities in a given city. We call this alternative dependent variable *government compensation*, and label it as Gcomp. The coverage of Gcomp is wider than the widest transfer measure TRd for all cities, since it is measured by the overall (local and central) government spending that is not financed by local revenues (correlations between Gcomp and the alternative TR measures range between 36% and 67%). Finally, we also employed the central government’s total spending, ‘including transfers’, in each city, and denoted it by Gc. The definitions and data sources for all the variables we use in our analysis are provided in Appendix [Table A3](#).

As an extension, we estimated the following additional fiscal variables: city-level revenues (R), general government’s local expenditures (E) and *fiscal independence* (FisI), which we measure as the ratio of local tax revenue to spending in each city. The first two of these variables are estimated to see whether the local spending and revenue deviates from the levels that are justified by local socioeconomic and structural factors or not. If political factors are also significant in explaining E and R , we can argue that these variables deviate from the sub-national ‘expenditure needs’ and ‘revenue collection capacity’. This investigation supports the analysis of the determinants of local transfer flows by adding further insight.

Our balanced panel data set is composed of 81 cities of Turkey, from 2008 through 2012, for which a balanced panel is obtained, yielding 405 city-year observations in total. A brief description and the sources of our main explanatory variables: the set of 22 socioeconomic indicators, including data on education, health, structural and macroeconomic indicators (sourced from several government statistical outlets), is presented in Appendix [Tables A3](#) and [A4](#). To obtain a balanced panel, for a few variables, data was not available for all the period covered in this analysis, we repeated a single year’s observation for all the five years (specifically, the 2005 social well-being index and data on access to sewerage and pipe system were repeated for all years in the period 2008–2012, and so was the infant mortality rate, which is only available for 2009 on a city-basis). Additionally, we accounted for several changes made in the primary and middle education categorization during the period examined, as explained in the Appendix (see the Notes under [Table A3](#)). In Appendix [Table A4](#), we report the summary statistics of the data set we thus compiled.

Besides the socioeconomic indicators, our dataset includes the following political variables: the local and general election results in each city; the ratio of parliamentary representation of each party; and the political party association of the mayor in each city. We only take into account the three biggest national political parties, for the political variables: AKP, CHP and MHP, and group the rest of the political parties under the category of ‘Others.’ The political party of the metropolitan mayor is controlled by the use of dummy variables that are labeled as $mAKP$, $mCHP$ and $mOther$, respectively. Since $mAKP$ and $mCHP$ together account for 89% of all the metropolitan municipalities, we only include these two in the regressions, such that their coefficients will be relative to those of the rest of the municipalities. Moreover, the variables $gAKP$, $gCHP$ and $gMHP$, stand for the ratio of parliament members; and $lAKP$, $lCHP$ and

⁹ See, for example, [Gürakar \(2018\)](#).

Table 1
Estimation results (dependent variables: *TRb* and *TRd*).

	<i>TRb</i>	<i>TRd</i>		<i>TRb</i>	<i>TRd</i>
<i>logpop</i>	0.517 (0.72)	0.0168 (0.11)		0.25 (0.3)	− 0.63 (− 0.54)
<i>pca1</i>	0.32*** (13.16)	0.12*** (3.87)	<i>pce1</i>	0.12*** (5.09)	0.14*** (2.99)
<i>pca2</i>	− 0.05* (− 1.86)	0.06** (2.44)	<i>pce2</i>	0.04*** (4.59)	0.04*** (3.05)
<i>pca3</i>	0.04 (1.11)	− 0.03 (− 1.39)	<i>pcs1</i>	0.29*** (6.98)	0.37*** (6.16)
<i>pca4</i>	0.05*** (4.18)	0.02 (1.48)	<i>pcs2</i>	0.08 (1.35)	0.12 (1.23)
<i>pca5</i>	0.05** (2.63)	− 0.02 (− 0.77)	<i>pcs3</i>	0.1*** (4.21)	0.13*** (4.04)
<i>pca6</i>	− 0.03 (− 1.06)	0.03 (0.61)	<i>pcm1</i>	0.06 (1.14)	− 0.02 (− 0.31)
<i>D^d</i>	−	0.28** (2.32)	<i>pcm2</i>	0 (0.11)	0.07 (1.42)
<i>gAKP-gCHP</i>	0.19*** (2.9)	0.38* (1.89)		0.21*** (3.4)	0.37*** (3.04)
<i>IAKP-İCHP</i>	− 0.223 (− 1.39)	− 0.04 (− 0.17)		− 0.2 (− 1.35)	− 0.39 (− 1.54)
<i>gAKP-gMHP</i>	− 0.05 (− 0.50)	0.24 (1.25)		− 0.09 (− 0.89)	− 0.02 (− 0.12)
<i>IAKP-İMHP</i>	0.22 (1.28)	− 0.52** (− 2.17)		0.23 (1.39)	0.37 (1.23)
<i>gAKP-IAKP₋</i>	− 0.03 (− 0.11)	− 0.67 (− 1.23)		0.02 (0.09)	− 0.03 (− 0.05)
<i>gAKP₋-IAKP</i>	− 0.08 (− 0.29)	− 0.71 (− 1.28)		− 0.08 (− 0.29)	− 0.18 (− 0.32)
<i>mAKP</i>	0.05 (1.49)	0.11 (0.91)		0.06 (1.54)	0.06 (1.27)
<i>mCHP</i>	0.02 (1.2)	0.26 (1.64)		− 0.01 (− 0.46)	− 0.03 (− 0.72)
<i>Avg of fixed effect/constant</i>	2.13 (0.52)	5.51*** (5.31)		3.68 (0.8)	9.06 (1.37)
Method	Fixed E.	Random E.		Fixed E.	Fixed E.
Observations	405	405		405	405
<i>F</i> -statistic for fixed effects	14.72***	9.79***		13.82***	11.27***
<i>F</i> or Wald stat. for Political variables	3.06***	17.81**		3.78***	2.52**
<i>F</i> or Wald statistic for PCs	62.43***	62.86***		56.65***	31.46***
Hausman Test chi-sq statistic	138.17***	− 38.36		7469.87***	135.75***
LM Test chi-sq statistic	114.63***	90.46***		117.73***	95.95***
Wald Stat. for region dummies	−	51.39***		−	−
<i>R</i> -sq within	0.69	0.43		0.6836	0.53
Modified Wald test	52842***	−		52408***	31909***

(1) The level of significance is indicated by * if $p < 0.10$, ** if $p < 0.05$, *** if $p < 0.01$.

(2) The values in parenthesis indicate *t* or *z*-statistics.

(3) The estimates of regional dummies are not reported to save space.

(4) The fixed effect models are estimated with the robust standard errors.

İMHP, stand for the ratio of mayors from AKP, CHP and MHP, respectively, in the total number of mayors in each city.

To differentiate the effect on fiscal transfers and spending of the incumbent party from the opposition parties, we explore the effect of the differences between the ratio of the votes won by AKP and the main opposition parties, CHP and MHP, in both the general and local elections. We call these variables *gAKP-gCHP*, *IAKP-İCHP*, *gAKP-gMHP*, and *IAKP-İMHP*. We interpret the significant coefficients of these variables as the indication of the presence of political biases in redistributive policies, or the lack of fiscal fairness. Additionally, we also investigate whether the differences in the general and local election results affect the transfer and spending decision of the incumbent party, by constructing the variable *gAKP-IAKP*. We conduct this investigation both for the case where general elections preceded the local elections in the period covered, and for its opposite, denoting these two cases as *gAKP-IAKP₋* and *gAKP₋-IAKP*, respectively.

Table 2
Estimation results (dependent variables: *Gc* and *Gcomp*).

	<i>Gc</i>	<i>Gcomp</i>		<i>Gc</i>	<i>Gcomp</i>
<i>logpop</i>	0.57 (1.06)	- 0.17 (- 0.31)		0.36 (0.61)	- 0.46 (- 0.75)
<i>pca1</i>	0.19*** (11.94)	0.2*** (13.16)	<i>pce1</i>	0.07*** (5.98)	0.08*** (6.95)
<i>pca2</i>	- 0.04** (- 2.13)	- 0.04** (- 2.18)	<i>pce2</i>	0.01*** (2.67)	0.01** (2.06)
<i>pca3</i>	0.08*** (3.38)	0.07*** (3.05)	<i>pcs1</i>	0.18*** (7.3)	0.2*** (7.73)
<i>pca4</i>	0.02*** (4.2)	0.03*** (4.62)	<i>pcs2</i>	0.09** (2.24)	0.11** (2.45)
<i>pca5</i>	0.01 (0.42)	0.02* (1.67)	<i>pcs3</i>	0.06*** (4.01)	0.06*** (4.25)
<i>pca6</i>	- 0.01 (- 0.67)	- 0.03* (- 1.72)	<i>pcm1</i>	0.05** (2.63)	0.05** (2.58)
<i>D^d</i>	-	-	<i>pcm2</i>	- 0.04*** (- 2.79)	- 0.04** (- 2.18)
<i>gAKP-gCHP</i>	0.19*** (3.53)	0.15*** (3.53)		0.19*** (4.43)	0.16*** (3.93)
<i>IAKP-ICHP</i>	- 0.01 (- 0.05)	0 (0.02)		- 0.01 (- 0.11)	0.01 (0.07)
<i>gAKP-gMHP</i>	0.05 (0.79)	0.02 (0.29)		0.02 (0.3)	- 0.01 (- 0.16)
<i>IAKP-IMHP</i>	- 0.18* (- 0.89)	- 0.08 (- 0.75)		- 0.13 (1.47)	- 0.04 (- 0.36)
<i>gAKP-IAKP₁</i>	- 0.16 (- 0.95)	- 0.12 (- 0.57)		- 0.14 (- 0.83)	- 0.08 (- 0.4)
<i>gAKP₂-IAKP</i>	- 0.18 (- 1.06)	- 0.13 (- 0.64)		- 0.16 (- 0.97)	- 0.11 (- 0.54)
<i>mAKP</i>	0 (- 0.14)	0.06** (2.4)		- 0.01 (- 0.26)	0.06*** (2.85)
<i>mCHP</i>	0.06*** (4.46)	0.07*** (4.9)		0.05*** (2.8)	0.06*** (3.05)
<i>Avg of fixed effect/constant</i>	3.95 (1.28)	8.36*** (2.71)		5.18 (1.56)	10*** (2.89)
Method	Fixed E.	Random E.		Fixed E.	Fixed E.
Observations	405	405		405	405
<i>F</i> -statistic for fixed effects	52.73***	41.09		86.68***	63.76***
<i>F</i> or Wald stat. for political variables	15.64***	12.30***		12.24***	10.54***
<i>F</i> or Wald statistic for PCs	89.3***	76.3***		86.6***	75.6***
Hausman Test chi-sq statistic	277.6***	186		75.68***	37.01***
LM Test chi-sq statistic	451.89***	399.21***		453.08**	411.87***
<i>R</i> -sq within (overall if Random E.)	0.77	0.73		0.78	0.75
Modified Wald test	14522***	-		7153***	7442***

(1) The level of significance is indicated by * if $p < 0.10$, ** if $p < 0.05$, *** if $p < 0.01$.

(2) The values in parenthesis indicate *t* or *z*-statistics.

(3) The estimates of regional dummies are not reported to save space.

(4) The fixed effect models are estimated with the robust standard errors.

Given the high degree of correlation among some of the socioeconomic and structural indicators (see Appendix Table A5), we estimate our regression model, both controlling for all of these variables separately and alternatively, using their principal components. The principal components are constructed in two alternative ways: first, by constructing three sets of principal components for the subsets of indicators we grouped under education, social and macroeconomic variables, which we label as *PCe*; *PCs* and *PCm*,

respectively. Second, we construct the principal components of all 22 indicators, which we simply call PCs. To select the number of principal components for each case, we use the most widely used criterion of the eigenvalues being greater than 1, which yields two, three, two; and six principal components for *PCe*, *PCs*, *PCm*; and *PC*, respectively. This selection criteria also correspond to the criterion that the selected number of PC's in each case covers at least 70% of the whole variation exhibited by the 22 indicators.¹⁰

2.3. Regression model and the estimation method

The main hypothesis of our empirical investigation is that political factors are not statistically significant in explaining fiscal redistribution, after controlling for the explanatory power of the socioeconomic indicators. Hence the specification of our regression model, in the generic form, is as follows:

$$Y_{it} = a_{(i)} + b.X_{it} + c.Z_{it} + d.\lnpop_{it} + e.D_{it}^d + \eta_{i,t} (+\varepsilon_i) \quad (1)$$

where the subscript *i* refers to each city; *Y* stands for the dependent variable, which are the natural log of per capita TR, or *Gcomp*, *E*, and *R*, in addition to *FisI*; *X* stands for the set of socioeconomic indicators (in per capita terms) that are in either of the two forms of principal components into the regression; *Z* stands for the set of political variables (*gAKP-gCHP*; *IAKP-ICHIP*; *gAKP-gMHP*; *IAKP-IMHP*; *gAKP-IAKP*; *gAKP-IAKP*; *mAKP* and *mCHP*); and *lnpop* is the natural logarithm of the population size. Given that the estimation method involves city-level effects in the fixed effects (FE) specification in case of some of the regressions, we denote the constant term by $a_{(i)}$. Likewise, given that some regressions are estimated with a random effects (RE) method, the error term may vary across individuals as denoted by the term $\eta_{i,t}$.

The variable *lnpop* is taken as separate from the rest of the socioeconomic and structural variables, as we investigate the determinants of per capita transfers, or government spending. We thus explore whether the role of population size is overemphasized in the redistribution. Having controlled for the city level socioeconomic and structural indicators, our main objective is to test whether the set of political variables are significant in explaining the transfers. We also note that the administrative duties and responsibilities of, and therefore the amounts of transfers received, by the 16 cities that have metropolitan municipalities differ from the rest of the sample. Noting that the majority of these metropolitan municipal mayors are headed by AKP, and the rest by CHP, in the period investigated here, the two dummies for the metropolitan municipalities, headed by AKP and CHP (*mAKP* and *mCHP*) are intended to see whether these two parties differ in receiving transfer flows to metropolitan cities, having controlled for all the other factors that may affect the latter.¹¹ Additionally, there are 49 cities designated as priority development area. To control for the exceptional transfer flows to this category, we also employ the development priority dummy: D^d .

Given the data and the regression model, we selected the appropriate estimation method by conducting the following specification tests. We first utilized the Hausman test for all three versions of our regression model (that is, for the estimation of all of our dependent variables, with all 22 variables, or with the two types of principal components summarized above). The null hypothesis is that the differences between the coefficients of the FE and RE models are not systematic. In case the test rejects the null, we proceeded with the FE model. In this case, we also applied a modified Wald test for heteroskedasticity. In case the null of Hausman was not rejected, we used the LM-test to decide between the RE specification or the ordinary least squares (OLS) estimation; in case the null of the LM-test was rejected, we proceeded with the RE model. We also used an F-test for all $a_{(i)} = 0$ to decide between FE and OLS. If the null was rejected, we proceeded with the FE model. Each of these test results can be found under each regression reported in [Tables 1](#) and [2](#). As we are essentially interested in finding out the extent to which transfers and local fiscal spending can be explained through the socioeconomic indicators, and not political motives, we also reported the significance test for the groups of variables we indicated in Eq. (1) above as *X* and *Z*, under each regression.

3. The results

In this section, we report the regression results (Section 3.1); investigate the differences between what we call the *ideal* or *fair* measure of local transfers (Section 3.2); and present the extensions and the robustness tests (Section 3.3).

3.1. Regression results

In [Table 1](#), we report the estimation results of the regression model given in Eq. (1) for two alternative measures of transfers, TRb, and TRd, as our dependent variables. For the purpose of clarity, we do not report the regression results for TRa and TRc, because the correlation between TRa and TRb is 0.95, and that between TRc and TRd is 0.99. Furthermore, their regression results are very similar

¹⁰ The factor loadings of each of these components are reported in [Table A6](#) of Appendix A. The different signs of the loadings for different components arise from the orthogonality of each of the PCs to one another. This also reflects in the possibly alternating signs of the PCs in the reported regressions. Since PCs are composite variables that cannot be interpreted individually, the overall significance of the PC sets is also reported at the bottom of the regression tables. The percentage of variation in the underlying 22 variables explained by each PC is available from the authors upon request.

¹¹ These two account for 89% of the all metropolitan municipalities, hence their coefficients will be relative to those of the other municipalities.

to TRb and TRd.¹² We also report the estimation results for Gcomp and Gc in Table 2, which stand for general and central government local spending respectively. We use the same model, with the aim of identifying the determinants of fiscal compensation of the localities that are not captured solely by the transfer flows. For the purpose of robustness, all four dependent variables are estimated using the two alternative PC construction methods described above.

The regression results reported in the first two columns of Table 1 are obtained by using the principal components constructed from all 22 socioeconomic indicators (PCs). The second block of estimation results, on the other hand, are based on the regressions where we employ the principal components of the three sub-groups of the socioeconomic indicators (PCe, PCs, PCm). Additionally, we have the controls for the regional dummies, as well as the dummies for the priority regions (D^d) and metropolitan municipalities of AKP and CHP (mAKP and mCHP). Depending on the specification chosen, based on the Hausman, LM, and F test results reported under the table, D^d and the region dummies are dropped from the regressions in case of fixed effects.

In all the regressions reported in the table, we observe that the population size ($\ln pop$) has an insignificant association with per capita transfer flows and central government spending across the cities. On the other hand, socioeconomic and structural indicators, combined into the set of principal components, are highly significant across the regressions, shown by the F -statistic at the bottom of the table.¹³ These two observations together indicate that the relative socioeconomic and structural positions of the localities, rather than their size, explain their local fiscal compensation in per capita terms. Even if the transfer rules stated in Law number 5779 gives a high weightage to the population size, this finding possibly reflects the pull-factor since largely populated cities also coincide with better socioeconomic indicators and structural features. Thus, the size of the city does not have an additional effect on the per capita redistribution. Hence, the observations reported thus far indicate that the fiscal compensation of the localities can be justified by the localities' structural and socioeconomic characteristics.

Note that D^d and regional dummies are only included in the regression with the random effects specification, which is only chosen for the estimation of TRd (the second column). Both D^d and the set of regional dummies, jointly, are highly significant in that regression, as expected. While we do not report the coefficients of regional dummy variables individually, we note that among the regional dummies, those that stand for the West Marmara, West Blacksea and the Aegean Regions stand out significantly with a negative sign in the estimation of TRd.

We now turn to the estimates of the effects on TRb and TRd of the political indicators, measured by the ratios of elected parliament members from each major political party (denoted by prefix g), the ratio of votes they won in the local elections (denoted by prefix l), and the mayor's party in case the city is classified as metropolitan (denoted by prefix m). Based on the findings, we note that the positive coefficient of $gAKP-gCHP$ is robustly significant across all the regressions, indicating that transfers went in significantly larger amounts to the cities where the incumbent party won higher votes than the main opposition party in the general elections. In the second column, $lAKP-lMHP$ is negative, indicating that the second party in the opposition received significantly more transfers than the incumbent one, when the former won more votes than the latter in the local elections. One interpretation of this could be that it is a strategic decision by the incumbent party to invest in those cities to win them in the future elections. We note, however, that this observation is not robust across the remaining specifications.

The estimation results for Gc and Gcomp reported in Table 2 provide robust support for the observation noted in Table 2: $gAKP-gCHP$ is highly significant in explaining both of these variables, using both of the alternative principal component specifications. The rest of the political variables are not significant at the conventional levels, except for the metropolitan municipal dummies. Of the metropolitan municipalities, which are legally entitled to receive higher transfers than others, we observe that mCHP is robustly significant in explaining both variables, while mAKP is only significant in explaining Gcomp.

In view of Tables 1 and 2, we conclude that there is robust evidence that political variables significantly affected the local transfers and public spending in Turkey during the period investigated. Specifically, cities where the ruling party collected relatively more votes than the opposition received more transfers and more fiscal spending than others. Second, the evidence shows that metropolitan municipalities held by the main opposition party received significantly more fiscal spending than the rest, while this is less robust for the ruling party. Lastly, we note that the differences in the votes of the incumbent party in the local and general elections were not associated with the local transfers or government spending in any significant way.

Noting the differences in some of the findings with regard to the determinants of our dependent variables, we proceeded to investigate the sources of these differences. For this purpose, we formed the following additional variables: $TRd - TRb$, and $Gcomp - TRd$, which we regress on the same right-hand side variables as in Eq. (1).¹⁴ The first difference stands for transfers other than those originating from Treasury accounts, a sizable portion of which comes from aids and grants on education spending and transfers classified as 'other'. It should be noted that the item listed as 'other' constitutes more than half of the central government's current grants, aids and special revenues, and comes to about a quarter of the central government's capital grants, aids and special revenues.¹⁵ We explored the determinants of this difference ($TRd - TRb$) using the same regression model as above, and found that, besides the significant effect of the socioeconomic indicators, this difference could also be significantly explained by the difference of votes between AKP and CHP in the general elections ($gAKP-gCHP$). However, we do not report in the interest of space. This additional finding not only confirms the above findings that the ruling party made more transfers and spent more than average in cities where it won the

¹² The results are available from the authors upon request.

¹³ Note that the alternating signs of the PCs is not unexpected, since the PCs are constructed orthogonally to each other and the direction with which the 22 indicators imply development varies.

¹⁴ These regression results are not reported, but are available from the authors upon request.

¹⁵ These are Lines 4.2.1.99 and 4.2.2.99, respectively, in ECODE4, see the Notes under Appendix Table A3.

majority of votes, but also shows that those transfers were less transparent in its end use than in the rest of the cities. The second difference above ($Gcomp - TRd$) stands for direct spending by the (central and local) governments, excluding transfers to the local administrations and local revenues. The evidence shows no significant effect of the political variables on this variable, except for the positive significant effects of the metropolitan municipalities.

3.2. Ideal versus actual transfers

In the search for an answer to the query about the extent that political factors affect transfer allocation, we turn to the following exercise. Using the above estimations, we constructed a measure of the socioeconomically justified, or 'ideal', levels of transfers by excluding the effects of Z (see the regression model given by Eq. (1)) from the estimated values of TR and Gcomp. mAKP and mCHP were exempted since they span almost all the metropolitan municipalities, which we thought should be kept as a structural characteristic of the cities. In doing this, we avoided the omitted variable bias by using the estimated values of the dependent variables from the unrestricted model, and thus obtained values that would have existed, had the effect of the political variables been absent:

$$\widehat{Y}_{it} = \widehat{a}_{(i)} + \widehat{b} \cdot X_{it} + \widehat{d} \cdot \lnpop_{it} + \widehat{e} \cdot D_{it}^d + \widehat{\eta}_{it}(\widehat{\epsilon}_i) \quad (2)$$

where $\{\widehat{a}_{(i)}, \widehat{b}, \widehat{d}, \widehat{e}, \widehat{\eta}_{it}(\widehat{\epsilon}_i)\}$ were obtained as the predicted values, based on the estimation of the regression model given by Eq. (1) whose results are reported in Table 1. \widehat{Y}_{it} in Eq. (2) represents the ideal or fair measure of local transfers, standing for transfers that could be justified solely on the grounds of socioeconomic and structural differences across cities, excluding political effects. We then constructed the predicted deviation of the actual level of transfers or overall government spending from their ideal level variable: $(Y - \widehat{Y})$.

In the two plots under Fig. 1, we show the differences between the actual and ideal levels of TRd and Gcomp ($Y - \widehat{Y}$) based on the PC controls (corresponding to the first two sets of regression reported in Tables 1 and 2) for each city. The heights of the columns illustrate the averages of these deviations for TRd or Gcomp, respectively, during 2008–2012, where the order of the columns follows the license plate numbers of the cities. One can interpret these plots as follows: cities shown above the zero-line received more fiscal compensation (TRd and Gcomp) than the average level justified by the non-political set of variables. In contrast, cities below the zero-line are those that received less than justified, or below ideal, levels of fiscal transfers or spending.

In the top plot of Fig. 1, we observe that among the cities that received notably higher than average ideal levels of transfers for their level of socio-economic and structural strata (\widehat{TRd}), five were relatively less developed than the average: Hakkari, Kocaeli, Agri, Gumushane, Cankiri, Siirt and Sirnak (in order of magnitude). Of them, only Kocaeli and Cankiri were developed above the average. The cities that showed the greatest negative deviation from the ideal level were, Malatya, Mersin, Kirklareli, Elazig and Kilis.

In the bottom plot that shows the distribution of government compensation (Gcomp) across the cities, we observe that the positive deviation from the ideal level were the highest for Hakkari, Sirnak, Van, Agri, Mus, Siirt and Bitlis, all of which are economically disadvantaged cities located in the eastern part of Anatolia and partly overlap with the list above. Among the cities that exhibited the greatest negative deviation from the ideal level of Gcomp, on the other hand, are Istanbul, Bursa, Izmir, Tekirdag and Denizli, to list a few, that are wealthier than the average.

These observations point at some of the outliers in the data, with respect to unequal distribution of the deviation from the average per capita levels of transfers and government compensation that could be justified by these cities' socioeconomic and structural characteristics. The significant coefficients of the political variables that are reported in Tables 1 and 2 are likely to account for these deviations, although some unobserved idiosyncrasies cannot be ruled out.

3.3. Extensions

We investigate the effects of the socio-economic and political variables directly on the general government spending in each locality, local revenues, and local fiscal independence from the center (E and R and, $FisI$, respectively) in an extension of the above analysis. We report these results in Appendix Table A7. The purpose of this exploration is to look into the key factors that necessitate transfers, namely, the 'expenditure needs', 'revenue collection capacities' and 'fiscal independence' of the cities. We consider that if E , and R were explained solely by the city-specific socioeconomic and structural indicators, they would represent the actual *expenditure needs* and *revenue collection capacities*. Whether, in practice, E , R , and $FisI$ were also affected by the political variables or not is what we wish to explore with this extended analysis. Hence, our set of explanatory variables are the same as in Eq. (1).

The results of the regression analysis reported in Table A7 reveal that, first, the set of socioeconomic indicators, controlled for by two types of principal components, had significant associations with E and R , but not with $FisI$. Second, the joint effect of political indicators is highly significant for all three variables. Third, similar to the estimation results for Gcomp and Gc reported in Table 1, metropolitan municipalities of both AKP and CHP are observed to have a strong positive association with E . In contrast, these coefficients are significantly negative in the estimation of $FisI$. Hence, focusing only on robustly significant findings at conventional levels, the empirical findings suggest that metropolitan municipalities spend more and are financially less independent than others. These findings are consistent with the estimation results of government compensation (Gcomp) reported in Table 2. Another robustly significant result is that cities where AKP won more votes in the local elections than the second opposition party, MHP, are observed to have spent more and collected more revenues, though the latter is not robust.

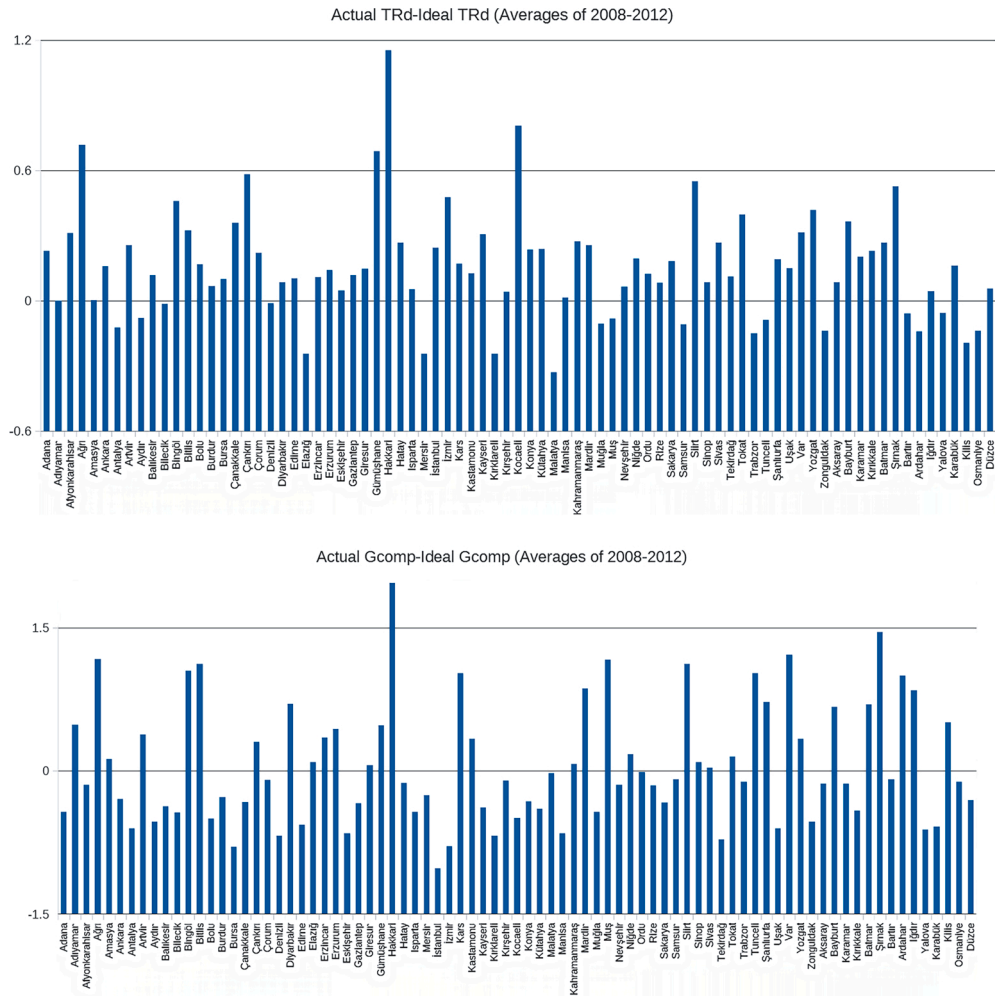


Fig. 1. Actual minus ideal transfers (measured by *TRd* and *Gcomp*) by city.

We concede that further analysis of robustness through additional endogeneity and simultaneity tests are hindered by data limitations. For instance, we attempted to utilize the propensity score matching technique to confirm whether the significance of the political indicators is due to the differences across the cities that are not already accounted for in the regression model. However, as common to this technique for a macroeconomic investigation, the problem was that the control and treatment samples were not sufficiently large enough to conduct the test. Likewise, further endogeneity tests could not be performed due to the lack of sufficient instruments; including the set of socioeconomic indicators in the years that preceded the current period of investigation.

4. Conclusion

In this study, we investigated the determinants of central to local transfers in Turkey during the period 2008–2012. During this period, legislation on the transfers to the various levels of local administrations was amended to take the development index and some other structural variables into account, in addition to the population criteria. Given the data limitations, our analysis focuses on a city-level fiscal activity to investigate the association of central to local transfer and government spending flows with socioeconomic and structural characteristics of, and the political party representation in each city.

Our analysis reveals robust empirical evidence that enables us to affirmatively answer the question we asked in the title: “do politics matter?” The evidence indicates that both-the set of socioeconomic indicators and the set of political factors-show significant associations with the city-level per capita transfer flows (measured in different ways), and government expenditures during the period investigated. Most importantly, our findings show that cities where the incumbent party won higher votes than the main opposition party in the general elections received significantly more fiscal spending and transfers than the rest. Additionally, the empirical results reveal that metropolitan cities led by AKP and CHP are associated with higher government spending, and show lower fiscal independence than the rest of the cities. Hence, we show that fiscal redistribution in Turkey during 2008–2012 was not solely based on the socioeconomic and structural criteria, and politics played a significant role in the process. We therefore conclude that there is much room for improving redistributive fairness across the cities in Turkey.

Beyond the official data we utilized for the empirical evidence presented in this paper, it needs to be noted that numerous reports on the Supreme Court of Public Accounts indicated that public auctions and procurement in many occasions have been directed to specific, party related firms. Close to two hundred amendments to the public procurement and tender laws during the incumbency period of AKP also generated much suspicion on the competitiveness of public resource allocation. Large amounts of public funds being allocated towards municipal companies that are identified with incumbent party associations, and these municipal companies escaping official auditing due to their private status also raised much concern about the efficiency and fairness of fiscal redistributive activities in Turkey.

The analysis presented here uses city-level aggregates, and the officially reported data portrays only part of the picture regarding fiscal redistribution to localities during 2008–2012. It is nevertheless a step in the direction of exploring the extent of fairness in redistributing public resources. The finding that political factors have significant effects on the policy implication indicates that there is a need for improving transparency in public accounting procedures and scrutinizing the local redistributive mechanisms. Eliminating possible inefficiencies emanating from political patronage would be expected to help improve welfare and income distribution, an area subject to further exploration as reliable data becomes available.

Appendix A

NOTES

(1) The variables TRa, TRb, TRc, and TRd are constructed using the Local Administration’s Consolidated Budget Revenues and Expenditures reported by the Republic of Turkey Ministry of Treasury and Finance (ECODE4: <https://muhasebat.hmb.gov.tr/iller-itibariyle-mahalli-yonetim-butce-istatistikleri-2006-2018> and <https://muhasebat.hmb.gov.tr/mahalli-idareler-butce-istatistikleri> and <https://muhasebat.hmb.gov.tr/mahalli-idareler-butce-istatistikleri>).

For the components of $y(i)$ and $x(i)$ indicated below, that are not available but needed to compute the alternative transfer measures on a city-basis, we used the shares of those components in the aggregate figures: for city i

$y(i)$ = grants, aids and special revenues (Line 4.0);
 j = current (Line 4.2.1);
 w = treasury aid current (Line 4.2.1.0.1);
 k = capital (Line 4.2.2);
 v = treasury aid capital (Line 4.2.2.0.1);
 u = project aids, current from general budget agencies (Line 4.5.1.0.1);
 t = project aids, capital from general budget agencies (Line 4.5.2.0.1);
 $x(i)$ = interest, shares and fines for city i (Line 5.0);
 z = from central management revenues (Line 5.2.2.5.1).

Using these data, we compute:

Table A1

Ranking of cities according to expenditure and revenue decentralization.

Cities Ranked from highest to lowest	Expenditure decentralization	Cities ranked highest to lowest	Expenditure decentralization	Cities ranked from highest to lowest	Revenue decentralization	Cities ranked from highest to lowest	Revenue decentralization
Hakkari	0.89	Kahramanmaraş	0.45	Hakkari	1	Bartın	0.34
Bingöl	0.68	Kastamonu	0.43	Bingöl	0.60	Artvin	0.34
Gümüşhane	0.66	Osmaniye	0.43	Gümüşhane	0.59	Ordu	0.33
Bitlis	0.66	Konya	0.43	Bitlis	0.59	Bilecik	0.33
Muş	0.64	Bilecik	0.43	Tunceli	0.57	Konya	0.32
Bayburt	0.63	Bartın	0.42	Bayburt	0.56	Sakarya	0.31
Tunceli	0.63	Artvin	0.42	Muş	0.54	Aydın	0.31
Ağrı	0.62	Düzce	0.41	Ağrı	0.53	Isparta	0.31
Şırnak	0.62	Isparta	0.41	Şırnak	0.52	Kahramanmaraş	0.31
Mardin	0.61	Aydın	0.40	Siirt	0.52	Osmaniye	0.29
Siirt	0.60	Uşak	0.40	Van	0.51	Uşak	0.29
Çankırı	0.59	Denizli	0.40	Karaman	0.50	Düzce	0.29
Karaman	0.58	Kütahya	0.38	Mardin	0.48	Denizli	0.29
Erzincan	0.57	Kayseri	0.37	Erzincan	0.46	Çanakkale	0.28
Yozgat	0.57	Adana	0.37	Çankırı	0.46	Rize	0.28
Kilis	0.56	Yalova	0.37	Batman	0.45	Karabük	0.27
İğdir	0.55	Karabük	0.36	Yozgat	0.45	Kütahya	0.27
Batman	0.55	Çanakkale	0.36	İğdir	0.45	Bolu	0.26
Van	0.55	Aksaray	0.35	Giresun	0.43	Adana	0.26
Adıyaman	0.54	Bolu	0.35	Kilis	0.42	Aksaray	0.25
Amasya	0.54	Samsun	0.35	Kars	0.42	Trabzon	0.25
Niğde	0.54	Trabzon	0.35	Niğde	0.42	Yalova	0.25
Şanlıurfa	0.54	Rize	0.34	Şanlıurfa	0.42	Balıkesir	0.24
Kars	0.53	Balıkesir	0.33	Nevşehir	0.41	Kayseri	0.24
Giresun	0.52	Manisa	0.33	Adıyaman	0.41	Muğla	0.23
Tokat	0.52	Antalya	0.33	Ardahan	0.40	Antalya	0.23
Nevşehir	0.51	Kırkkale	0.30	Amasya	0.39	Samsun	0.22
Kırşehir	0.50	Muğla	0.30	Afyonkarahisar	0.39	Manisa	0.22
Çorum	0.49	Eskişehir	0.29	Çorum	0.39	Edirne	0.21
Gaziantep	0.49	Edirne	0.29	Kırşehir	0.38	Kırklareli	0.20
Ardahan	0.49	Kırklareli	0.27	Sivas	0.38	Kırkkale	0.20
Diyarbakır	0.49	Bursa	0.26	Tokat	0.38	Eskişehir	0.20
Afyonkarahisar	0.49	Zonguldak	0.22	Gaziantep	0.38	Bursa	0.17
Malatya	0.48	Hatay	0.21	Sinop	0.37	Zonguldak	0.16
Sivas	0.47	Mersin	0.18	Diyarbakır	0.37	Tekirdağ	0.12
Sinop	0.47	Tekirdağ	0.17	Malatya	0.36	Hatay	0.11
Erzurum	0.47	Ankara	0.14	Erzurum	0.36	Mersin	0.11
Ordu	0.47	İzmir	0.14	Burdur	0.35	İzmir	0.09
Sakarya	0.46	İstanbul	0.13	Elazığ	0.35	Ankara	0.08
Elazığ	0.46	Kocaeli	0.06	Kastamonu	0.35	İstanbul	0.08
Burdur	0.45					Kocaeli	0.03

Expenditure decentralization is defined as local spending in total government spending in a city.

Revenue decentralization is defined as local revenues in total government revenues in a city.

$TRa_i = (z/x) x_i + (k/y) y_i$: 'int.shares and fines + current grants, aids and special rev.' for city i.
 $TRb_i = (z/x) x_i + ((w + v)/y)y_i$: 'int.shares and fines + current and capital treasury aid' for city i.
 $TRc_i = (z/x) x_i + ((j + k)/y) y_i$: 'int.shares and fines + current and capital grants, aids and sp.rev.' for city i.
 $TRd_i = (z/x) x_i + ((j + k + u + t)/y) y_i$: 'TRc_i + 'int.shares and fines + current and capital project aid.' for city i.

Gcomp and Gc are also constructed using the Local Administrations' Budget Expenditures and Revenues and Central Government Budget Expenditures from Republic of Turkey Ministry of Treasury and Finance (ECODE4: <https://muhasebat.hmb.gov.tr/iller-itibariyle-mahalli-yonetim-butce-istatistikleri-2006-2018> and <https://muhasebat.hmb.gov.tr/iller-itibariyle-merkezi-yonetim-butce-istatistikleri-2004-2019>). Again, given data limitations, we use the following method to obtain city level data:

Let c_i = total local government expenditures for city i; e_i = total central government expenditures for city i; r_i = total local government revenues for city i. Then, we compute $Gcomp_i = c_i + e_i - p_i$; and $Gc_i = e_i$.

(2) We group the school enrollment rate and teacher to student ratio under education; inflation, saving deposits, GDP, agricultural share in GDP, unemployment, and employment rate under macroeconomic conditions, and the other independent variables are categorized as social variables. (Source: Turkish Statistical Institute: <https://biruni.tuik.gov.tr/ilgosterge/?locale=tr>).

(3) FinI = Local own revenues/Local spending. (Source: Local Administration's Consolidated Budget Revenues and Expenditures (ECODE4) and Central Government Budget Expenditures from Republic of Turkey Ministry of Treasury and Finance (<https://muhasebat.hmb.gov.tr/iller-itibariyle-mahalli-yonetim-butce-istatistikleri-2006-2018> and <https://muhasebat.hmb.gov.tr/iller-itibariyle-merkezi-yonetim-butce-istatistikleri-2004-2019>).

(4) The saving deposit data is obtained from the Bank Association of Turkey (<https://www.tbb.org.tr/tr/bankacilik/banka-ve-sektor-bilgileri/veri-sorgulama-sistemi/illere-ve-bolgelelere-gore-bilgiler/73>); the political variables are collected from Supreme Election Council (<http://www.ysk.gov.tr/tr/secim-arsivi/2612>).

(5) Nominal variables are expressed in 2008 constant prices (rebased 2003 Consumer Price Index series), per capita terms and natural logarithms.

(6) NUTS stands for the Nomenclature of Territorial Units for Statistics. Inflation and poverty rate data are region-level, NUTS-2 and NUTS-1 respectively. City-based data is created repeating values of cities of the same regions.

(7) Poverty rate is measured based on 60% of the median income. Due to the lack of data on poverty and inflation rates at the city level, they are repeated for all the cities of a region.

(8) Dj's for $j = 1, 2, \dots, 12$ indicate Istanbul Region, West Marmara Region, Aegean Region, East Marmara Region, West Marmara Region, Mediterranean Region, Central Anatolia Region, West Black Sea Region, East Black Sea Region, Northeast Anatolia Region, Central East Anatolia Region, Southeast Anatolia Region respectively.

(9) In 2012, Law no.6287 brought 4 + 4 + 4 Turkish educational system into action. The previous system proposed five-year compulsory primary school education that followed with four-year high school education; the new system proposed four years of primary, four years of junior high school, and four years of high school education. We averaged four years of primary and four years of junior-high-school enrollment rates to obtain the first eight years of school enrollment rate. We combined this variable with the one before this law brought into action to obtain the first eight years school enrollment rate variable.

(10) For the political variables, the values of the year which the election has been hold is repeated until the next election. The only exception is the year 2011. Since the general election in 2011 was hold in June, we have taken the average of the 2007's and the 2011's election data while constructing the year of 2011's values.

Table A2

Law No. 5779 (2/7/2008).

Municipalities (except metropolitan municipalities)	2.85% of the general budget tax revenues	İlBank distributes 80% of the general tax revenue based on population criterion, while 20% of it is distributed based on development index.
Metropolitan district municipalities	2.5% of the general budget tax revenues	70% of the general budget tax revenues allocated for metropolitan district municipalities and metropolitan municipalities is distributed according to population criteria.
Special Provincial Administrations	1.15% of the general budget tax revenues	50% of the general tax revenue that is allocated to special provincial administrations is distributed based on population, 10% of it is distributed based on area, 10% of it is distributed based on the number of villages, 15% of it is distributed based on the village population, 15% is distributed based on development index.
Metropolitan municipalities	30% of the general budget tax revenues allocated for metropolitan district municipalities +5% of the general tax revenues that is collected within metropolitan municipality borders	70% of the funds that is allocated to the metropolitan municipalities directly transferred to metropolitan municipalities' account. Remaining 30% is distributed based on population.

(i) 0.1% of the general budget tax revenues is allocated as equalization allowance that is to be distributed to the municipalities with population less than 10,000 people. 60% of this is used for the municipalities with population up to 5000 people; 40% of it is used for the municipalities with population of 5001–9000 people.

(ii) According to law No. 5779, except for the equalization allowance and the revenue share allocated for the local governments, it is not possible to transfer funds to local governments as interest, fund or private account.

Table A3
Data descriptions.

<i>Dependent variables</i>	
TRb and TRd	Alternative measures of local transfers (TL) (ln) ^a
E	General Government's local expenditures (TL) (ln)
R	Local revenues (TL) (ln)
Gc	Central government's local expenditures (TL) (ln)
Gcomp	Government compensation (TL) (ln)
FinI	Financial independence
<i>Independent Variables</i>	
Inpop	Population (ln)
School	Net school enrollment rate
Fschool	Female net school enrollment rate
TeacherSt	Teacher to student ratio
HighTeacherSt	Teacher to student ratio in high schools
life	Well-being index
water	Rate of population who have access to sewerage and pipe system
physician	The number of physicians
Infmortality	Infant mortality rate
Popdens	Population density (ln)
electricity	Electricity consumption (KWh) (ln)
car	Number of cars per people
rural	Rate of population living in towns and villages
dependency	Age dependency ratio
marriage	Average age at female's first marriage
poverty	Poverty rate
hospital	The number of hospital beds per people
inflation	Inflation rate
Sdep	Saving deposit (TL) (ln)
gdp	Gross gometric product (TL) (ln)
agriculture	Share of agriculture in GDP
U	Unemployment rate
emp	Employment rate
<i>Dummy variables</i>	
D ^d	Cities with development priorities
D ^j	Regional dummy variables
mAKP	Metropolitan mayor elected from the Justice and Development Party
mCHP	Metropolitan mayor elected from the Republican People's Party
mOTHER	Metropolitan mayor elected from other parties
<i>Political variables</i>	
gAKP-gCHP	Difference between ratio of parliament members elected from the Justice and Development Party and the Republican People's Party
IAKP-ICHP	Difference between ratio of mayors elected from the Justice and Development Party and the Republican People's Party
gAKP-gMHP	Difference between ratio of parliament members elected from the Justice and Development Party and the Nationalist Movement Party
IAKP-IMHP	Difference between ratio of mayors elected from the Justice and Development Party and the Nationalist Movement Party
gAKP-IAKP_	Difference between ratio of mayors and the ratio of parliament members elected from the Justice and Development Party for the case where general elections preceded the local elections
gAKP_ -IAKP	Difference between ratio of mayors and the ratio of parliament members elected from the Justice and Development Party for the case where local elections preceded the general elections

^a See the Notes below for details and data sources.

Table A4
Descriptive statistics.

	Obs	Mean	Std. Dev.	Min	Max
<i>Dependent variables</i>					
TRd	405	5.615	0.338	4.202	7.181
TRb	405	5.153	0.303	3.909	6.242
Gc	405	7.252	0.341	6.571	8.663
Gcomp	405	7.446	0.317	6.853	8.767
E	405	6.800	0.739	5.091	9.815
R	405	5.311	0.403	3.440	6.890
FinI	405	0.416	0.101	0.210	1.015
<i>Independent variables</i>					
lnpop	405	5.727	0.405	4.872	7.142
school	405	0.970	0.025	0.860	1
Fschool	405	0.968	0.027	0.843	1
TeacherSt	405	0.053	0.010	0.028	0.094
HighTeacherSt	405	0.054	0.012	0.023	0.086
life	405	0.525	0.104	0.277	0.674
water	405	0.744	0.157	0.311	1.000
physician	405	0.001	0.000	0.001	0.004
infmortality	405	0.013	0.003	0.005	0.022
popdens	405	4.221	0.826	2.303	7.888
electricity	405	7.464	0.597	6.201	9.055
car	405	0.080	0.040	0.007	0.209
rural	405	0.363	0.138	0.010	0.681
dependency	405	0.529	0.116	0.350	0.917
marriage	405	22.78	0.898	21.00	25.90
poverty	405	0.198	0.019	0.149	0.261
hospital	405	0.002	0.001	0.001	0.005
inflation	405	0.083	0.023	0.034	0.135
Sdep	405	7.068	0.814	4.916	8.791
gdp	405	9.218	0.361	8.274	10.172
agriculture	405	0.189	0.089	0.002	0.469
U	405	0.100	0.040	0.037	0.265
emp	405	0.445	0.078	0.223	0.628
<i>Political variables</i>					
gAKP-gCHP	405	0.470	0.352	- 1.000	1.000
IAKP-ICHP	405	0.360	0.271	- 0.510	0.920
gAKP-gMHP	405	0.547	0.266	- 0.500	1.000
IAKP-IMHP	405	0.388	0.203	- 0.210	0.920
gAKP-IAKP_	405	0.059	0.140	- 0.253	0.690
gAKP_-IAKP	405	0.075	0.164	- 0.500	0.800

Table A5
Correlation table.

	Sch-}	Fsc-}	Tea-}	Hig-}	lif-}	wat-}	phy-}	Inf-}	Pop-}	ele-}	car}	rur-}	dep-}	mar-}	pov-}	hos-}	inf-}	Sde-}	gdp}	agr-}	U}	emp}	
School	1																						
Fschool	0.22	1																					
TeacherSt	–	0.20	1																				
	0.05																						
HighTeacherSt	–	0.25	0.83	1																			
	0.13																						
life	0.03	0.45	0.51	0.66	1																		
water	0.13	0.27	–	–	0.35	1																	
			0.17	0.01																			
physician	0.05	0.34	0.20	0.29	0.44	0.44	1																
Infmortality	–	–	–	–	–	–	–	1															
	0.06	0.26	0.42	0.40	0.42	0.09	0.31																
Popdens	0.04	0.30	–	–	0.12	0.53	0.26	–	1														
			0.44	0.29				0.06															
electricity	–	0.50	0.19	0.37	0.63	0.49	0.33	–	0.40	1													
	0.03							0.37															
car	–	0.51	0.35	0.54	0.73	0.47	0.56	–	0.31	0.71	1												
	0.02							0.40															
rural	–	–	0.16	0.04	–	–	–	0.11	–	–	–	1											
	0.06	0.30			0.34	0.72	0.50		0.52	0.44	0.47												
dependency	0.02	–	–	–	–	–	–	0.52	–	–	–	0.32	1										
		0.49	0.61	0.70	0.81	0.30	0.49		0.16	0.67	0.73												
marriage	–	0.27	0.15	0.06	0.18	0.27	0.38	–	0.32	0.31	0.25	–	–	1									
	0.01							0.29				0.35	0.42										
poverty	–	–	–	–	–	–	–	0.20	–	–	–	0.21	0.28	–	1								
	0.10	0.02	0.13	0.23	0.33	0.13	0.13		0.21	0.34	0.25			0.19									
hospital	–	0.25	0.40	0.48	0.55	0.22	0.73	–	–	0.24	0.45	–	–	0.23	–	1							
	0.03							0.23	0.08			0.25	0.48		0.15								
inflation	0.06	–	–	–	–	–	–	0.08	–	–	–	0.08	0.12	–	0.02	–	1						
		0.05	0.15	0.04	0.12	0.06	0.09		0.07	0.14	0.16			0.07		0.09							
Sdep	–	0.57	0.46	0.61	0.75	0.38	0.53	–	0.32	0.69	0.81	–	–	0.46	–	0.43	–	1					
	0.01							0.52				0.36	0.89		0.24		0.13						
gdp	0.07	0.51	0.35	0.46	0.76	0.46	0.52	–	0.33	0.77	0.79	–	–	0.46	–	0.36	–	0.84	1				
								0.52				0.53	0.82		0.36		0.12						
agriculture	–	–	0.20	0.10	–	–	–	0.20	–	–	–	0.58	0.31	–	0.29	–	0.05	–	–	1			
	0.04	0.20			0.30	0.53	0.37		0.60	0.43	0.31			0.54	0.18		0.35	0.45					
U	0.08	–	–	–	–	0.23	–	0.31	0.32	–	–	–	0.31	0.11	–	–	–	–	–	–	1		
		0.11	0.51	0.47	0.38		0.01			0.09	0.22	0.29			0.06	0.26	0.01	0.21	0.21	0.29			
emp	–	0.27	0.54	0.52	0.48	–	0.11	–	–	0.24	0.34	0.24	–	0.10	–	0.29	–	0.47	0.38	0.13	–	1	
	0.01					0.23		0.41	0.16				0.53		0.06		0.06						0.74

Table A6
Factor loadings of the principal components.

	PC1	PC2	PC3	PC4	PC5	PC6	PCe1	PCe2	PCs1	PCs2	PCs3	PCm1	PCm2
<i>School</i>	0.01	- 0.07	- 0.21	0.66	- 0.39	- 0.03	- 0.06	0.78					
<i>Fschool</i>	0.21	- 0.04	- 0.19	0.41	0.18	0.20	0.31	0.61					
<i>TeacherSt</i>	0.18	0.36	0.11	- 0.09	- 0.12	0.01	0.66	- 0.09					
<i>HighTeacherSt</i>	0.22	0.30	0.13	- 0.08	- 0.03	- 0.23	0.68	- 0.12					
<i>life</i>	0.30	0.09	0.01	0.05	0.06	- 0.24			0.35	- 0.28	- 0.10		
<i>water</i>	0.17	- 0.32	0.13	0.14	0.16	- 0.17			0.28	0.42	0.15		
<i>physician</i>	0.23	- 0.10	0.48	0.15	- 0.10	0.17			0.32	- 0.04	0.50		
<i>infmortality</i>	- 0.20	- 0.11	0.20	0.08	0.23	- 0.24			- 0.22	0.30	0.26		
<i>popdens</i>	0.11	- 0.37	- 0.24	- 0.04	0.12	0.10			0.20	0.54	- 0.16		
<i>electricity</i>	0.27	- 0.10	- 0.24	- 0.09	0.20	- 0.18			0.34	0.04	- 0.34		
<i>car</i>	0.30	- 0.02	0.01	0.06	0.23	- 0.14			0.37	- 0.09	- 0.05		
<i>rural</i>	- 0.18	0.33	- 0.18	- 0.05	- 0.07	0.10			- 0.29	- 0.41	- 0.17		
<i>dependency</i>	- 0.32	- 0.09	0.05	0.06	0.00	0.00			- 0.36	0.27	0.14		
<i>marriage</i>	0.17	- 0.15	- 0.01	- 0.24	- 0.36	0.53			0.22	0.12	0.02		
<i>poverty</i>	- 0.13	0.06	0.16	0.30	0.50	0.50			- 0.17	0.01	0.43		
<i>hospital</i>	0.20	0.08	0.57	0.12	- 0.14	0.04			0.26	- 0.31	0.52		
<i>inflation</i>	0.32	0.02	- 0.10	- 0.02	0.07	0.07						0.56	- 0.21
<i>Sdep</i>	0.32	- 0.05	- 0.14	- 0.02	0.00	- 0.04						0.54	- 0.27
<i>gdp</i>	- 0.16	0.33	0.03	0.19	0.21	- 0.13						- 0.19	0.62
<i>agriculture</i>	- 0.10	- 0.36	0.10	- 0.11	- 0.10	- 0.08						- 0.35	- 0.56
<i>U</i>	0.16	0.32	- 0.23	0.05	0.01	0.22						0.47	0.42
<i>emp</i>	- 0.06	0.00	- 0.07	0.32	- 0.38	- 0.21						- 0.11	0.11

Table A7
 Estimation results (dependent variables: *FisI*, *E* and *R*).

	<i>FisI</i>	<i>E</i>	<i>R</i>		<i>FisI</i>	<i>E</i>	<i>R</i>
<i>logpop</i>	1.16* (1.9)	- 0.24 (- 0.36)	0.89 (0.72)		1.16* (1.89)	- 0.74 (- 0.91)	0.39 (0.32)
<i>pca1</i>	- 0.05** (- 2.18)	0.21*** (10.22)	0.15*** (4.29)	<i>pce1</i>	- 0.06** (- 2.05)	0.06*** (2.99)	- 0.04 (- 0.98)
<i>pca2</i>	0 (0.21)	- 0.02 (- 1.11)	- 0.06* (- 1.93)	<i>pce2</i>	0 (0.95)	0.02 (1.63)	0.03*** (3.09)
<i>pca3</i>	0 (0.2)	0.07* (1.93)	0.07* (1.71)	<i>pcs1</i>	0 (- 0.01)	0.22*** (7.47)	0.24*** (5.21)
<i>pca4</i>	- 0.01 (- 1.06)	0.05*** (4.13)	0.04** (2.41)	<i>pcs2</i>	0 (- 0.07)	0.07 (1.53)	0.1 *** (1.08)
<i>pca5</i>	- 0.04* (- 1.92)	0.03 (1.38)	- 0.01 (- 0.34)	<i>pcs3</i>	0.01 (0.52)	0.08*** (4.1)	0.01*** (4.06)
<i>pca6</i>	0.03** (2.01)	- 0.04 (- 1.58)	0.01* (0.14)	<i>pcm1</i>	- 0.01 (- 0.53)	0.01 (0.31)	- 0.01 (- 0.11)
<i>D^d</i>	-	-	-	<i>pcm2</i>	0.01 (0.47)	0.02 (0.58)	0.01 (0.3)
<i>gAKP-gCHP</i>	- 0.06 (- 1.04)	0.02 (0.29)	- 0.08 (- 0.74)		- 0.07 (- 1.37)	0.02 (0.21)	- 0.12 (- 0.96)
<i>IAKP-ICHP</i>	0.15 (1.16)	0.03 (0.18)	0.27 (1.03)		0.13 (1.06)	0.03 (0.18)	0.24 (1.05)
<i>gAKP-gMHP</i>	- 0.01 (- 0.16)	- 0.14 (- 1.03)	- 0.14 (- 0.86)		- 0.05 (- 0.69)	- 0.2 (- 1.37)	- 0.26* (- 1.70)
<i>IAKP-IMHP</i>	- 0.08 (- 0.79)	0.4** (2.06)	0.36 (1.36)		0 (- 0.07)	0.46** (2.24)	0.56*** (2.78)
<i>gAKP-IAKP₋</i>	0.15 (1.11)	0.37 (0.94)	0.65* (1.54)		0.22 (1.43)	0.46 (1.14)	0.87** (2.16)
<i>gAKP₋-IAKP</i>	0.18 (1.17)	0.46 (1.18)	0.72* (1.69)		0.25 (1.53)	0.52 (1.27)	0.91** (2.24)
<i>mAKP</i>	- 0.07*** (- 3.89)	0.07** (2.15)	0.03 (0.87)		- 0.09*** (- 5.31)	0.1*** (2.95)	0.02 (0.55)
<i>mCHP</i>	- 0.05*** (- 3.85)	0.1*** (5.74)	0.06** (2.03)		- 0.03*** (- 2.69)	0.08*** (3.18)	0.05 (1.48)
Avg of fixed effect/constant	- 6.23* (- 1.78)	8.34** (2.18)	0.02 (0)		- 6.24* (- 1.77)	11.19** (2.41)	2.88 (0.42)
Method	Fixed E.	Fixed E.	Fixed E.		Fixed E.	Fixed E.	Fixed E.
Observations	405	405	405		405	405	405
<i>F</i> -statistic for fixed effects	3.51***	40.90***	6.93***		4.31***	38.12	7.2***
<i>F</i> or Wald stat. for political variables	9.03***	10.5***	1.99*		8.86***	9.25***	1.88*
<i>F</i> or Wald statistic for PCs	1.52	48.6***	12.14***		2.39**	40.08***	14.72***
Hausman Test chi-sq statistic	64.12***	56.6***	95.3***		144.5***	50.11***	29.78***
LM Test chi-sq statistic	6.83***	534.6***	117***		8.86	531.3***	118.3***
<i>R</i> -sq within	0.16	0.54	0.21		0.17	0.52	0.23
Modified Wald test	12493***	210000***	25039***		43138***	11574***	13147***

(1) The level of significance is indicated by * if $p < 0.10$, ** if $p < 0.05$, *** if $p < 0.01$.

(2) The values in parenthesis indicate *t* or *z*-statistics.

(3) The estimates of regional dummies are not reported to save space.

(4) The fixed effect models are estimated with the robust standard errors.

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