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Essays on Political Economy in Turkey

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Acknowledgements

Declaration

I certify that this thesis is my original work done for PhD Economics Degree and submitted at University of Warwick; I have not submitted this thesis for a degree to any other University.

Introduction

This thesis is composed by three essays and applies econometric methods to analyse different economic research questions. The first essay (chapter 1) studies the effect of Turkish public television on the voting behaviour of people in the early years of television broadcasting in Turkey. The second essay (chapter 2) analyses the intergovernmental grant allocation in Turkey to shed light discussion whether political motivations play role while central government transfers money to municipalities. The third essay (chapter 3) investigates the phenomenon of flypaper effect and its relation to the local tax effort, by using a new panel data set which consists of all province and district municipalities in Turkey.

The first essay estimates the effect of television broadcasting on the vote shares of main political parties and voter turnout in 1970s. We particularly focus on main left wing party (Republican Peoples' Party, RPP) and right wing party (Justice Party, JP) in 1969 and 1977 elections. Our main hypothesis is that television news content was biased in favour of the incumbent party in government due to the law which allows government to appoint general-director of the Turkish State Television Company (TRT). Hence Left ideological director-generals were appointed to the Turkish State Television Company in the first years of broadcasting. As a result of this, a left wing party, RPP, enjoyed this fact by increasing their vote shares in the elections in 1977; however the main right-wing party, JP, witnessed the vote shares to decrease in the same elections. Therefore we find that television reception influences the voting behaviour of the citizens. An estimation result also shows that voter turnout decreases with the introduction of television. To the best of our knowledge, this paper is the first one which explores this fact and use very detailed election data in Turkey.

The second essay (chapter 2) is related to the public finance literature which studies the transfers of intergovernmental grants from central government to municipalities. In Turkey, intergovernmental grants are transferred to the municipalities based on per capita rule only. This chapter explores whether there was a political motivation of revenue sharing system in Turkey using unique and new dataset. We employ Regression-Discontinuity Design to test this argument to get rid of possible endogeneity between grants and vote shares. We find that politically aligned municipalities to the party in central government enjoy about extra 7 Turkish Liras per capita in grants on average. This effect is stronger in municipalities where the elections were more competitive, i.e. the margin between vote shares of two main parties was very low. Moreover, we do find no evidence of alignment effect on municipal revenues and expenditures.

In the third chapter, we investigate the phenomenon of flypaper effect by using a panel data set that consist of all province and district municipalities between 1997 and 2005 in Turkey. We benefit from dynamic panel data specific Generalized Methods of Moments (GMM) estimator to identify flypaper effect. Estimation results show that the flypaper does exist for the Turkish municipalities. This result is controlled by various econometric specifications where we consider endogeneity between fiscal variables. Coefficient estimates also reveal that Turkish municipalities experience substitution effect of unconditional grants on the revenue collection efforts of localities which means that grants substitute local revenues causing lesser local tax effort.

Chapter 1

Television Reception and Its Effect on Political Outcomes, Evidence from Turkey.

1.1 Introduction

Over the last decade, the political outcomes of mass media have attracted the attention of a considerable number of economists. Especially in developing countries, attempts to capture or influence the media outlets are a common trend employed by politicians to increase their visibility on the political scene.

Information, just like everything else, plays an important role in how people vote and mass media transmits the bulk of information that people need in elections for their preferences about candidates and parties.

Empirical analysis deals with identifying causal media effects using observational data. The effects of the entry of a new mass media and channel or the effects of the propagation in different time periods have been used. To make these new media tools available everywhere is not possible due to various reasons. Geography, lack of infrastructure or economical costs can be counted in this sense.

Modern empirical research on mass media might trace this back to the 1930s. Hitler, for instance, used the radio for Nazi propaganda effectively. Using geographic and time variant radio availability in the context of Germany between 1929 and 1939, the effect of radio on the public political attitude was remarkable. Before Hitler came to

the power, radio decreased Nazi electoral support significantly while after the Hitler's appointment as a chancellor and the Nazi Party took control of radio, the vote share of the Nazis was higher in the next election (Adena, M., R. Enikolopov, M. Petrova, V. Santarosa and E. Zhuravskaya 2013).

Political scientists look for an answer to the question of whether having more information is favourable for voters. The general conclusion from theory is that more information is beneficial for voters unless this information is about national security or personal details of regular citizens.

Along with the introduction of television in 1968, the people in Turkey obtained another information source besides others such as radio, newspaper etc. Therefore it can be argued that citizens became more informed about the Turkish politics, parties and candidates.

In this chapter, I study the effect of television broadcasting on the vote shares of main political parties and voter turnout in 1970s using the exogenous variation in television reception. I particularly focus on main left wing party (Republican Peoples' Party, RPP) and right wing party (Justice Party, JP) in 1969 and 1977 elections. Our main hypothesis is that television news content was biased in favour of the incumbent party in government due to the law which allows government to appoint general-director of the Turkish State Television Company (TRT). Hence Left ideological director-generals were appointed to the Turkish State Television Company in the first years of broadcasting. As a result of this, a left wing party, RPP, enjoyed this fact by increasing their vote shares in the elections in 1977; however the main right-wing party, JP, witnessed the vote shares to decrease in the same elections. Therefore we find that television reception influences the voting behaviour of the citizens. An estimation result also shows that voter turnout

decreases with the introduction of television. To the best of our knowledge, this paper is the first one which explores this fact and use very detailed election data in Turkey. The chapter is organized as follows. Section 2 discusses political bias and its types. Section 3 briefly introduces literature review. Section 4 presents the media in Turkey. Section 5 discusses the political landscape of Turkey. Section 6 presents the structure of television reception in1970s. Section 7 gives data description. Section 8 discusses the econometric strategy. We provide the results in section 9 and conclude the empirical findings in section 10.

1.2 Political Bias

Words have always been important in human communication. They influence us in a number of different ways. They may affect us in a positive way like making us laugh or in a negative way such as making we cry. As mass media is a bunch of words telling us about the world or any news that arouse interest of people, it definitely shapes people's attitudes and behaviours. (Curran, J. 2002) provides a vivid illustration of the ways in which mass media, through their use of words, images and sounds, do things to the world. For instance, he argues how the emergence of the mass circulation newspaper gave a 'voice' to ordinary citizens, as opposed to the political elite. He also states that the mass media made the society more libertarian. With this notion it can be said that the world may become more equal, liberal and democratic. However in order this to happen there must not be asymmetric information between media outlets and citizens. Furthermore all the news produced by the media outlets must be unbiased. Typically the question is whether media accurately represent the world or whether they produce partial or uneven views.

Humanitarian calamities such as earthquakes, floods and famines happen with some frequency in the world. They regularly find a place in our news coverage. To give an example, in 2005 two hurricanes hit the American continent. Both caused more than a thousand people to die and both were the subject of media reports. But how? Hurricane Katrina which hit New Orleans was mentioned 3,105 times in UK papers whereas Hurricane Stanley which hit Guatemala was mentioned only 34 times (Franks, S. 2006, Street, J. 2011). This was a good example of bias in news reporting. This coverage was the product of a greater sympathy for the people of the United States than of Guatemala. This resulted in the former being perceived as the more 'worthy' victims. There are many other examples of selective reporting. All of these absolutely are done with some incentive from the journalist's or agent's perspective.

Elections have always been the source of many of the accusations of political bias. During the presidential elections in 1996, Boris Yeltsin's rivals complained that they were not given coverage to match that which he received in the mass media (Mickiewicz, E. and A. Richter 1996). A similar story comes from Europe. In Italy, Silvio Berlusconi's political opponents complained about their coverage relative to him (Ginsborg, P. 2005). In the United States, the same sense of injustice is expressed in arguments between liberals and the right, both of whom feel under-represented.

All these complaints arise from the fact that mass media affects political outcomes particularly as it relates to political behaviour and to the political behaviour of political elites. We live in a society that is open to being manipulated and controlled by new forms of communication. Especially today, social media such as Facebook

and Twitter are known as a crucial tool for politicians[1] around the world to convey their views to the populations. Activist have also used social media and other social networking sites to rally the masses across the Middle East, Asia and especially North Africa where it is known as the starting point of 'Arab Spring'.

All these realities show that the political effect of mass media deserves highly concentrated research by researchers of political science and economy.

1.2.1 Types of Bias

Bias can appear in a variety of disguises. (McQuail, D. 1992) identifies four types of bias. They are to be distinguished by their place in a two-dimensional matrix. The first dimension concerns the 'explicitness' of the bias - whether it is open or hidden; the second dimension concerns the intention behind it - whether the bias is a result of some deliberate policy or a product of some ingrained, unconscious process. These two dimensions yield a useful set of categories for thinking about bias.

1.2.1.1. Partisan Bias

In this type of bias, a cause is explicitly and deliberately promoted. Examples can be given from editorial comments that recommend support for one political party or take sides in a policy controversy. It can show itself in the form of explicit recommendations to vote for one party or another, or it can be identified in the unconcealed endorsement of a cause. In most circumstances detecting such examples are not so difficult.

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[1] For instance, according to Twitter data, the number of followers of some politicians on Twitter is as follows: Barack Obama, US President: 44.1 M, David Cameron (UK Prime Minister): 718K, Abdullah Gul (The President of the Republic of Turkey): 4.67 M.

1.2.1.2. Propaganda Bias

This is involved where a story is reported with the deliberate intention of making the case for a particular party or policy or point of view, without explicitly stating this. Social security fraud or asylum seekers are reported as news, but in such a way as to make a particular point (about welfare scrounging or immigrants 'swamping' a country). This type of news leads the readers to generalize from the particular case. Sometimes the journalists put a racial image on to the front page of newspaper when reporting a crime. However racial imagery in the reporting of crime can trigger prejudgements about ethnic groups. Propaganda can also be detected in the way that national media report the activities of other countries. For example, Western media always have been criticized by the Middle East people and politicians for giving little or no place what has been going on in violence in those countries. These facts play an important role in reinforcing negative or wrong perceptions of political life in these foreign places (Seymour, E. and S. Barnett 2006).

1.2.1.3. Unwitting Bias

Newspapers do not have an infinite number of pages; similarly, news broadcasts have limited time slots in the schedule. Therefore what to include and what to exclude are the choices to be made. These decisions are about the 'importance' to be given to a story, and they are reflected in the item's place in the running order or its place in the paper or in television broadcasting. Inevitably, these decisions involve a judgement about the issue or people involved. A journalistic convention is that what appears on the front page means that it is the most important news of the day. The same implication is carried by the ordering of broadcast news: the main stories are addressed first and most likely for a longer time. These judgements constitute a form

of bias: X matters more than Y. You can depict this as a particular political party and/or its leader deserves more space in the news programme. In this case, a distinctive bias is generated towards watchers and decision makers.

1.2.1.4. Ideological bias

McQuail (1992) characterizes this category of bias as hidden and unintended, and it can be detected only in a close reading of the text, where the hidden assumptions and value judgements can be extricated. One of the examples of this kind of bias can be revealed in coverage of the developing world. In some reports, researchers document that television presents an increasingly narrow picture of the wider world. International coverage remains limited with certain countries and continents, mainly North America, dominating world news. Even if there is some news related to the developing world, it is either about humanitarian disasters or military conflict. To the extent that coverage is dominated by such images, it can be seen to represent the wider world in general and the developing world in particular in an ideological form (Scott, M. 2009, Smith, J., L. Edge and V. Morris 2006).

1.3. Literature Review

1.3.1. Literature Review of Media and Election Outcomes

Gentzkow, M. (2006) uses variation across markets in the timing of television`s introduction to identify its impact on voter turnout in the United States. He shows that the entry of television in a market coincided with sharp drops in consumption of newspapers and radio and in political knowledge as measured by election surveys. He found a significantly negative effect, accounting for between a quarter and a half of the total decline in turnout since 1950s.

Lehoucq, F. and D. L. Wall (2004) use several OLS models to evaluate the impact of sociological, institutional and spatial approaches to turnout across the municipalities of Guatemala. They find that more citizens turn out to vote as the size of a municipality decreases.

The rational theory of voting suggests that while the payoff from voting increases, ceteris paribus, voter participation will increase also. In previous research, it is mentioned that broadcast media may have had some initial expansionary influence on voter participation in the initial years of the advent of radio and television; however it was soon exhausted (Campbell, A. 1962).

In an article based on a telephone survey of Copenhagen voters, it was found that there is a causal effect of being informed on the propensity to vote in a referendum setting. The average treatment effect of being informed on the propensity to vote is 20 percentage points.

Settle, R. F. and B. A. Abrams (1976) study the effects of some explanatory variables besides radio and television ownership on voter turnout in USA. They find that positive and generally significant coefficients on the radio and television variables indicate that more media related information about candidates encourage voting. They also suggest that income is negatively related to voter turnout.

In a recent study which has been built on assumptions about the way media markets affect politics, it is showed that newspapers have a robust positive effect on political participation (Gentzkow, M., J. M. Shapiro and M. Sinkinson 2009). They estimate that one additional newspaper increases both prudential and congressional turnout by approximately 0.3 percentage points. An interesting result is that the effect on presidential turnout decreases after the introduction of radio and television. Their

result is consistent with a model based on newspapers affecting the political process mainly by providing information.

Literature on media effect has significantly grown in recent years. DellaVigna, S. and E. Kaplan (2007) have looked for an answer for the question, "does media bias affect voting behaviour?" They analyse the entry of Fox News in cable markets and its impact on voting. After the conservative Fox News Channel was introduced into the market in 1996, it is found that there is a significant effect of the introduction of Fox News on the vote share in presidential elections between 1996 and 2000. Republicans gained 0.4 to 0.7 percentage points in the towns that broadcast Fox News.

Oberholzer-Gee, F. and J. Waldfogel (2006) find that Hispanic voter turnout increased by 5 to 10 percentage points, relative to non-Hispanic voter turnout, in markets where local Spanish Language television news became available. Their argument is that television carries both local and national news which are relevant for people in elections.

Djankov, S., C. McLiesh, T. Nenova and A. Shleifer (2001) examine ownership patterns of media in 97 countries across the world. They find that powerful local families hold the private media in their hands. Another salient fact is that 29% of the press and 60% of television companies are state-owned particularly in Africa and the Middle East. This evidence supports the idea that the governments may enjoy the large potential benefits of controlling media.

Besley, T. and A. Prat (2006) examine the relationship between state ownership, concentration, turnover and corruption. They compare the average number of years of political leaders (typically prime ministers or presidents) among countries with

low and high state ownership of newspapers. Political leaders stay in power for 7.21 more years where the high state ownership exists (more than 30% market share).

Introduction of a new media permits exploration of the effects of mass media access on any interested outcome in a more convincing way. Mass media access is not uniformly distributed to everyone. Any mass media forms its specific distribution of informed and uninformed voters due to its specific cost and revenue structure. Therefore, any change in the mass media environment causes substantial differences between citizens who have access to political information and those who do not.

In this sense, Strömberg, D. (2004) attempts to measure the impact of the introduction of radio government policy and voter turnout. He investigates whether radio increased voter turnout and mainly focuses on radio's impact on public spending. He begins from the fact that radio was introduced in the United States in the early 1920s, and spread quickly to reach a household penetration of around 80 percent by 1940. He argues that governors allocated more funds to areas where voter turnout was higher than other places. What he argues is that if radio ownership increases the probability of turnout, then radio can also affect the allocation of relief spending via turnout. Voter turnout is likely to increase with radio penetration since people who listen to the radio become better informed about politics and therefore also more likely to vote. He finds that an increase in the share of households with radios by one percent increases turnout by 0.12 percent.

1.3.2 Media Capture

Following Besley, T. and A. Prat (2006), political outcomes depend on the information of the electorate. If voters obtain true information about the incumbent's type, they are more likely to change from bad politicians to good ones. This leads the

turnover to be high and increases welfare of the state since it improves the quality of government. Figure 1 illustrates the relationship between the probability of the arising of malfeasance and the media's monitoring ability. The probability that a scandal will erupt is an inverse U-shaped function of the media monitoring ability. If the monitoring ability is low that means politicians never get caught, then scandals come to light very rarely. However when the monitoring ability is high, politicians abstain from involving graft since they are sure that they will be caught.

Media control is difficult when there are many media outlets rather than when ownership is unique or only a few. This stems from the fact that politicians must offer many more bribes if there are numerous media outlets to convince them not to write bad news about politicians. Since this increases the cost of turning free media news down, attempts to control media in the country will be very rare. Until 1990, Turkey had only one television company, TRT (Turkish Radio and Television Corporation), a state-owned company. Therefore it is inevitable that politicians or the incumbent party would influence its broadcasting manner in their own favour.

Figure 1
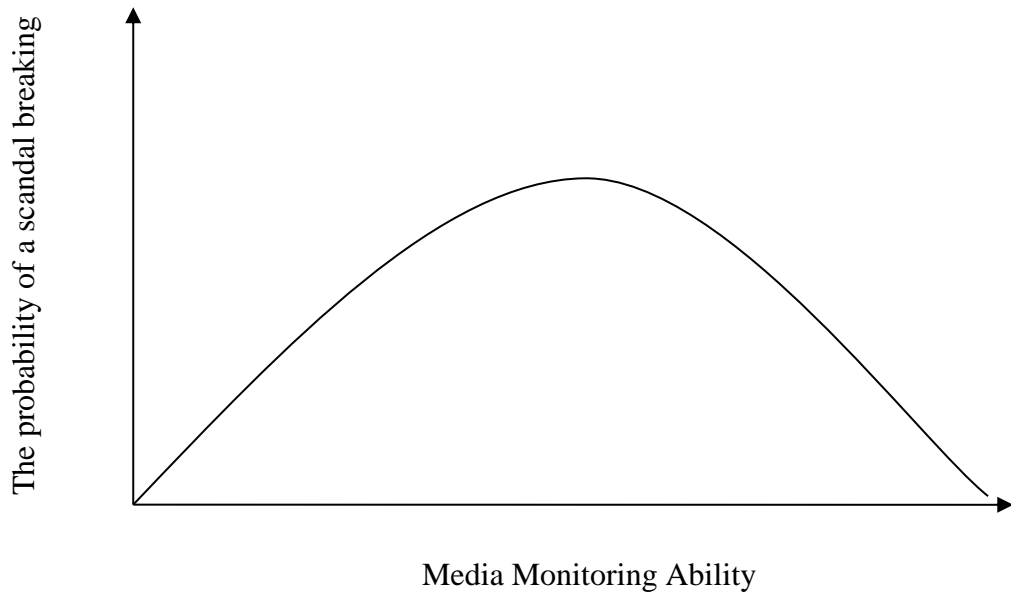
Controlling media in a monopolistic market is easier than in a competitive market since the revenue of the media company might be highly dependent on government advertisements. For instance Petrova, M. (2011) emphasizes that higher advertising revenues make media firms more independent from external political influences. Using data from 19th century American newspapers she shows that in cities with higher advertising revenues, newspapers were more likely to be free from political parties.

1.4. The Media in Turkey in 1970s

The radio became a crucial tool in the 1950s after its broad use as a site of propaganda by the Democrat Party (DP) government (Beybin, K. D. 2001). Therefore those years in Turkish broadcasting history have been called a "partisan radio" period (Aksoy, M. 1960). It is argued that the state radio did not allow the speeches of opposition party members to be read. Yet the discourses given by the DP

members of parliament were read on the radio and lasted for hours. Consequently, a public cooperation, Turkish Radio and Television (TRT) was authorized with the aim of independent broadcasting in 1964. However it was not sufficient in practice since TRT was still subject to partisan use (Sahin, H. 1981).

1.4.1. Television in 1970

Television was introduced in 1968 and until 1985, the year in which the second channel began broadcasting, there was only one black and white channel transmitted to the public. The fact that there was only one television channel in the country might have caused biased news and programmes in favour of the ruling party. Beybin (2001) also states that opposition parties and most of the journalists endeavoured to impede the government's pervasive use of television for its own goals and biased news on the media. Another example of conflict can be given from the 1989 local elections. The High Election Board of Turkey warned TRT about its broadcast after SHP (Sosyal Demokrat Halkci Parti), opposition party at that time, applied several times to the Board to stop TRT's partisan broadcasting. Consequently, TRT did not broadcast the program related to the government's activities which was on the program guide a day before the election. What is prominent after the local elections held in 1989 is that opposition parties obtained a victory and took over many municipalities from the Mother Land Party (Anavatan Partisi), and that Prime Minister Ozal forced the general director of TRT to resign.

1.4.2. Administration of TRT in the 1970s.

Turkey has a history of coup d'états and it witnessed a military memorandum on 12 March 1971. This memorandum had some negative effects especially on TRT's sovereignty. After this memorandum, TRT's sovereignty was upheld by law. Aysel

Aziz (1975) points out that TRT was exposed to government influence and other groups' pressure after this law change.

The coalition government formed by RPP (Republican People's Party), which is a left wing party, and NSP (National Salvation Party), which is an Islamic Party, appointed a director-general to the TRT. Ismail Cem Ipekci[2] was criticised hugely by the conservatives and prominent right-wing figures because of his left political leanings. They were not unfair since he became an MP for the Republican People's Party (RPP) and Democratic Left Party (DLP) in later years. Another criticism made of the director-general was his age. According to the law, the minimum age for a person to be general manager of TRT was 40. Another criteria was that a candidate must have had at least 15 years' state service experience. Ismail Cem did not fulfil these criteria. Therefore, the prime minister of that period, Bulent Ecevit, attempted to issue a decree in favour of him in order to surpass the law. All these factors indicate how crucial the appointment to the TRT Company was for politicians. Naturally, television program contents might have affected bias to the incumbent government. Therefore our main hypothesis is the control of Television Company by the left-wing party appointed director-manager via Ismail Cem Ipekci would benefit the left-wing party and harm the right-wing party in the 1977 election.

It is also worth to mention here that there was upward trend of left-wing parties during 1970s as it is seen in figure 3. However, we argue that the increase in left-wing party vote share was higher with television reception.

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[2] Ismail Cem Ipekci was appointed as a director-general to the TRT and his period of management lasted 500 days. He is known as the youngest manager (34 years old) in TRT history. He was appointed Minister of Culture in 1995, and then he served as Minister of Foreign affairs from 30 June 1997 until 11 July 2002.

Suleyman Demirel, the leader of the Justice Party (*Adalet Partisi*), appealed to the Supreme Electoral Council, offering fair time allocation for the parties in Turkish parliament. The actual rule stated that all parties must have equal time slots on television no matter their representative ratio of citizens. Since the parties have different number of MPs in the parliament and they have heterogeneity to represent the citizens based on their vote shares in the elections, TRT would have to accommodate more time on television news for the larger party than for the others. His main argument was that the responsibility of the main party to the public is higher when compared to parties with small number of seats.

1.5. Political Landscape of Turkey

The first multiparty elections in republican Turkey were held in 1946, though there is general agreement that these were not completely free and fair. However, only four years later, the government changed peacefully and democratically through popular election. The outcome of the 1950 election was rather dramatic. The party (Republican People's Party, CHP) that had founded the Republic was voted down, and the opposition (Democrat Party, DP), who were to govern Turkey for the following decade, won the election with a stunning 83.8 percent parliamentary majority. The DP`s ten-year rule was ended by a coup on May 27, 1960. In 1961, electoral politics resumed with a new constitution and election law that introduced proportional representation.

Although the multi-party era of Turkey experienced three democratic breakdowns and military coups in 1960, 1971 and 1980, popular elections for national and local public offices have become institutionalized in Turkey (Carkoglu, A. and E. Kalaycioglu 2007).

The years 1961 and 1980 came under the influence of the liberal 1961 Constitution and multi-party pluralism, which led to multiplication of political parties in the National Assembly, coalition governments and voluntary associations and a vigorous and free press. The load of mass political participation became so important for the political system that it failed to cope with it. The Turkish political system was interrupted again in 1980 by the military forces. A first parliamentary election after the coup was made in 1983. In comparison to the pre 1980 period of Turkey, Turkish voting participation rates seem to be quite high in the post 1983 period.

A high proportion of citizens participated in the first election after 1980 coup. The citizens demonstrated their protest to military intervention by using their democratic rights. The government which was formed by Turgut Ozal adopted liberal politics particularly in the economic area. Turkey has become more open to the world economy. As a result of this kind of politics, Turkey's economy and politics improved gradually in terms of human rights, gross domestic product and international trade.

1.6. Television and Reception

In the 1970s Turkey had only one television channel that broadcasted over the air and it was the government-run channel, Turkish Radio Television (TRT). TRT started television broadcasting in 1968 with a very limited time a day and rapidly increased its broadcasting day and times with the support of state investments. General information about transmitter locations, its powers and coverage across Turkey can be found in table 9 in the appendix. With the help of the State Planning Organization of Turkey, the population who could receive the television broadcasting was expanded. Despite all these attempts to cover all the country with

television broadcasting, it is not sufficient for the people to watch television in their homes. People must also be able to afford to buy a television set in order to watch television channels. In the 1970s the number of television receivers was relatively less than other countries. Two main reasons can be counted. Firstly, television broadcasting was very new for the population and the schedule of programmes did not run for the whole day. Secondly, Turkey had no capacity to produce domestic television sets, rather they were imported from other developed countries. For this reason, the price of televisions was so high due to import taxes.   Therefore it is crucial to know the total number of receivers for years and per cities. The number of television receivers between 1970 and 1975 can be seen in table 10. As seen in this table, the number of television receivers went up very quickly. The reason for the number in 1970 is that there was no obligation for television set ownership to be registered to the authorities until 1971. After 1971, TRT announced to the public that anyone who bought a television set must inform PTT (The Directorate of Post, Telephone and Telegraph). Hence, the number of television receivers has been obtained thanks to this organization.

The distribution of receivers is based on television signal. The number of receivers was intense at the province centres because of signal strength. There was a very limited number of receivers in the villages due to lack of electricity and signal strength. Television transmitters were set up especially to the areas where the population density is high just because more people could watch television. According to a study in 1973, 5930 villages were under the signal coverage; however in only 184 out of 5930 villages were there television receiver owners. It is also noted that there was no electricity in 1076 villages (Kocabasoglu, U. 1973). Table 4 presents the number of receivers in 3 big cities in Turkey. Table 11 shows that while

the number of receivers in Ankara was rather high in 1971, in the next three years it increased gradually, with an abnormal rise in Istanbul. Doubtless, the main reason for this is that the broadcasting in Istanbul was relatively later than Ankara and people living in Istanbul had more income than those who lived in other cities. Therefore once the television signals covered Istanbul, the number of people watching television immediately rose. Izmir, the third largest city of Turkey, witnessed a doubled increase in the number of television receivers albeit total ownership was less.

It is possible that the number of people who had receivers during this period may have been less in settlements, so it may negatively affect the results. In reality, there is the fact of collective watching. In developing countries where the television sets are relatively expensive, people would go to their relatives or neighbours who have a television receiver to watch television (Aziz, A. 1975). So they would enjoy watching television and of course this increased the number of people who are exposed to the television broadcasting. For instance, if there were one television receiver in a village, it means that most people were informed about television news and programmes. Aziz, A. (1999) calls these new visiting people as "tele-neighbours". Hence, in spite of collective watching, we would argue that many inhabitants found a chance to follow the news by using television over the years even if there were no attempts to spread television transmitters across the country.

1.7. Data

The election data comes from the Turkish Statistical Institute. Province (il) centre and district level election results (ilce) are available to download in the electronic environment, however village level data are not provided as such. Instead we

collected village level election data by hand one by one for each village from archive files.

In the regression analysis we use a number of control variables. Socio-Demographic controls come from the Turkish Census of 1960, 1965, 1970 and 1975. The district and village level variables we use are logarithms of population, gender ratio and fraction of people over 18. Where possible we also include the share of people with literacy and high school degrees to the regressions in order to take account for educational effects on dependent variables.

We also collect geographical distance data of villages and districts to the city centres and transmitter locations. The sources for these variables are Google Earth and ArcGIS package programs. These programs enable us to calculate geographical distance between locations of our interest.

1.8. Empirical Strategy and Specification

1.8.1. Differences in Differences Method

The main idea of this method is to find equivalents of treatment and control groups in which everything apart from the variable of interest (or other things that can be controlled for) are assumed to be the same. But this is often a very difficult claim to make as it is rarely possible to do this perfectly in which case observed differences between treatment and control groups may be the result of some other omitted variables.

But, even if one might not be prepared to make the assumption that the treatment and

control groups are the same in every respect apart from the treatment one might be prepared to make the assumption that, in the absence of treatment, the unobserved differences between treatment and control groups are the same over time.

In this case one could use data on treatment and control group before the treatment to estimate the 'normal' difference between treatment and control group and then compare this with the difference after the receipt of treatment. A graph will make the idea clearer.
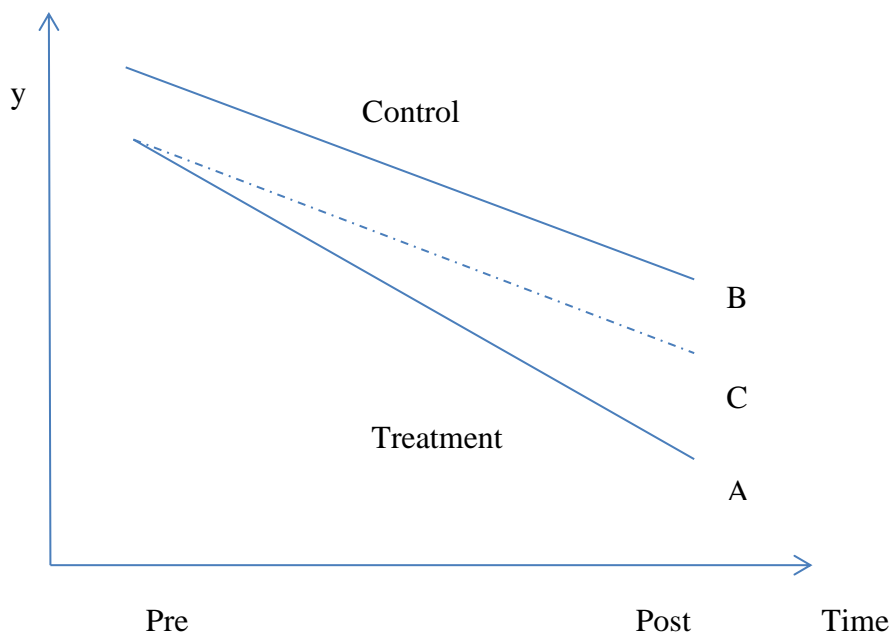
If one just used data from the post-treatment period then one would estimate the treatment effect as the distance AB – this estimate being based on the assumption that the only reason for observing a difference in outcome between treatment and control group is the receipt of treatment.

In contrast the 'difference-in-difference' estimator will take the 'normal' difference between the treatment and control group as the distance CB and estimate the treatment effect as the distance AC.

Differences and Differences is a version of fixed effect estimation. To see this more formally:

Y_{1it} : Vote share of party or Voter Turnout at location i, time t with Television Reception

Y_{0it} : Vote share of party or Voter Turnout at location i, time t without Television Reception

In practice of course we only observe one or the other at the same time.

We then assume that:

$$E\left[Y_{oit} \mid i, t\right] = \gamma_i + \lambda_t$$

In the absence of television reception, vote share or voter turnout is determined by the sum of a time-invariant province or district effect γ_i and a year effect λ_t, that is common across provinces or districts.

Let D_{it} be a dummy for television reception available locations and year.

Assuming $E\left[Y_{1it} - Y_{0it} \mid i, t\right] = \delta$ is the treatment effect, observed political outcome can be written:

$$Y_{it} = \gamma_i + \lambda_t + \delta D_{it} + \varepsilon_{it}$$

Let locations with television reception be TV and locations without television reception NOTV.

Hence;

In TV:

Political Outcome in 1969 elections is:

$$E\left[Y_{it} \mid i = \text{TV}, t = 1969\right] = \gamma_{TV} + \lambda_{1969}$$

Political Outcome in 1977 elections is:

$$E\left[Y_{it} \mid i = \text{TV}, t = 1977\right] = \gamma_{TV} + \lambda_{1977} + \delta$$

The difference between 1977 and 1969 elections is:

$$E[Y_{it} \mid i = TV, t = 1977] - E[Y_{it} \mid i = TV, t = 1969] = \lambda_{1977} - \lambda_{1969} + \delta$$

In NOTV:

Political Outcome in 1969 is:

$$E[Y_{it} \mid i = NOTV, t = 1969] = \gamma_{NOTV} + \lambda_{1969}$$

Political Outcome in 1977 is:

$$E[Y_{it} \mid i = NOTV, t = 1977] = \gamma_{NOTV} + \lambda_{1977}$$

So, the difference between 1977 and 1969 elections is:

$$E[Y_{it} \mid i = NOTV, t = 1977] - E[Y_{it} \mid i = NOTV, t = 1969] = \lambda_{1977} - \lambda_{1969}$$

The differences in differences strategy amounts to comparing the change in political outcome in TV to the change in political outcomes in NOTV. The population differences-in-differences are:

$$E[Y_{it} \mid i = TV, t = 1977] - E[Y_{it} \mid i = TV, t = 1969] - E[Y_{it} \mid i = NOTV, t = 1977]$$
$$- E[Y_{it} \mid i = NOTV, t = 1969] = \delta$$

This is estimated using the sample analog of the population means.

In this paper, I use television reception as an exogenous determinant of television watching. In 1970s Turkey, it is very difficult to find survey data asking the households whether they have a television in their homes or how many hours a day they spent watching television. There are very few studies of television ownership for the aforementioned years, but they are restricted only to the big city centres like Ankara and Istanbul. In this paper, I include 10 cities[3] where television transmitters set up before 1976.

Television signals cannot be blocked by the city or country borders by their nature. Therefore when a transmitter is built on a mountain so that it penetrates a larger area, television signals might reach different places by decreasing its signal strength.

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[3] Province centres that own television transmitters in 1976: Adana, Ankara, Diyarbakir, Edirne, Eskisehir, Gaziantep. Istanbul, Izmir, Samsun and Trabzon.

It is obvious to use an exogenous determinant of television watching to isolate the causal effect of media exposure due to some potential reverse causality issues. For example, the government might have set up television transmitters to some cities in which there was more voting potential for the incumbent party in the upcoming elections. Here I use the fact that the mountainous structure of Turkey creates a variation in television reception that is uncorrelated to other district characteristics.

This variation on media exposure can be seen in Figure 1, which shows television penetration in different geographic areas of Turkey. Areas with television signal available are shown in bold black borders.

I run the regression using Differences-in-Differences (DD) estimation method. DD has become an increasingly popular method among applied economists to identify causal relationships. In DD estimation the difference in outcomes after and before the intervention for groups affected by the treatment is compared with the unaffected or so called control group. So with the help of this strategy, I compare the election outcomes of the districts or villages that are exposed by the television signal with those that are not exposed. The main period I am interested is the 1970s. I use election data from the 1969 election and 1977 election. The reason why I chose this time period is that I try to present the initial effects of watching television on election outcomes. Based on television coverage data, nobody living in Turkey was watching television during the 1969 election; however some provinces were enabled to watch television in 1977 thanks to the transmitters located in areas where they could penetrate much more places. In the baseline specification, I include all 67 provinces and their districts into the analysis. One may posit that the government might have set up transmitters to the locations where they could easily manipulate electorates and increase their vote shares in the next election. Or there may be another reason

determining the transmitter locations such as that these provinces with television were already going to vote for the incumbent party. Therefore the government might have rewarded them with television. To overcome these endogeneity problems, I follow a challenging strategy which is widely used in recent empirical political economy of mass media literature.

The strategy is that I identify the locations penetrated by the television signals in related years with the help of a simulation programme. This package programme is commonly used at television companies as well as TRT. The output of this simulation is that it provides us the areas where television signals reach. In fact, due to topologic features of the earth, it is a sinuous or zigzag shaped template. Figure 1 presents the location of 10 transmitters in 1976 and areas with television reception. Thus, it is seen from this figure that there is a large variation across provinces as well as within-province. Even in those provinces with television transmitters, some districts were able to enjoy watching television whereas some were not.

First, we examine the effect of television availability (identified as an indicator variable) on the vote shares of two main parties of the era, Justice Party (JP), Republican People's Party (RPP) using the following specification, which we estimate for the elections of 1969 and 1977:

$$Y_{it} = \beta_0 + \beta_1 TV_i + \beta_2 Post_t + \beta_3 (TV_i * Post_t) + \beta_4 X_{it} + \varphi_i + \varepsilon_{it} \qquad (1.1)$$

where i indexes districts and t indexes elections, Y_{it} is the dependent variable i.e., vote share of a party or voter turnout in district i in election period t, TV takes the value of 1 if the municipality or village are penetrated by television signal and 0 otherwise. X_{it} is the vector of state and time varying covariates. φ_i is province fixed effects. Standard errors are adjusted to allow for clusters within each province. The

coefficient that we are interested in is β_3, the interaction between treatment and post dummies. This coefficient gives us the causal effect of television on political outcomes.

1.9. Estimation Results

Table 1 presents the results of estimation of the equation (1.1) for the vote share of the main right-wing (Justice Party) and left-wing party (Republican People's Party) by comparing general election results in 1969 and 1977 without any controls (Column 1 and 4), with Census demographic controls (Column 2 and 5) and with all controls and province fixed effects (Column 3 and 6). This estimation constitutes the full sample of the analysis such that I include all province and district centres into the regression whether they have television reception or not. As explained in previous sections, there were 7 provinces centres where television transmitters were established. Due to geographic and topographic features of the ground, some districts were penetrated by the television signals and some were not. There were also some other district centres or villages that belonged to other province administration to which television signals reached. In other words, let's say that one or a couple of districts were watching television whereas the people who lived in the province centre of that district were not enjoying television.

Given data obtained after simulation that enables us to see which areas are penetrated by signals, I compare the places (all district and province centres of Turkey)[4] of television reception with no television reception. Table 1, which shows my full sample, indicates that in all specifications television decreases the right party

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[4] In 1976, there were 67 provinces and 571 districts in Turkey.

vote shares whereas it increases left wing party vote shares in the 1977 election. In the specification with controls and fixed effects (Column 3 and 6), the availability of television signals raises the vote share for the left-wing party by 5.926 percentage points. Likewise the availability of television causes the right wing party share to decrease by 2.948 percentage points. Both coefficients are statistically significant.

A key concern related to Diff and Diff estimation is the omitted variable bias that may affect the outcome of interest. Above, we also introduce a set of control variables such as population, gender ratio, population over 18 years old and geographical and province dummies to control whether they affect the results. If there is bias in the estimates due to an omitted variable, when we add control variables, the magnitude of coefficient should be lowered and becomes insignificant. However it is clearly seen in table 1 that the point estimate of the effect of television remains similar with the addition of controls. So I find that the districts with TRT reception voted more for the incumbent party and less for the opposition party.

Following equation (1.1), I analyse the effect of television on voter turnout. I present direct comparisons of turnout in districts by the year when their first television station began broadcasting. I run the regression with the province fixed effects. Voter turnout is the percentage of eligible voters who cast a ballot in the election. The results from this regression are presented in table 2. In table 2, the first column shows basic regression without any controls and fixed effects. The second and third columns include control variables and both fixed effects and controls respectively. The results show that television caused a significant decline in voter turnout in provinces and districts where television was watched by citizens. The magnitude of this effect drops with added controls but remains statistically significant. In the complete specification, introduction of television causes turnout to fall by 2.192

percentage points between two elections. This result provides a parallel conclusion with Gentzkow, M. (2006) study where he also finds a negative effect of television on voter turnout in the US elections. We can argue that people living in the areas where television broadcasting began went less to the polls compared to the areas without television reception. This might have occurred due to substitution effect of time for the people. The entertainment programmes might have hindered the voters to use their citizenship duty. In political participation literature, it is argued that people began to have been informed less with the introduction of television. The reason is that people obtained political information by reading newspapers or listening to the radio, however there were also entertainment programmes such as films and television series on television beside news. Therefore television might have taken over people's time that was spent on obtaining news about politics before.

The fact that television availability is significantly correlated with voting outcomes before the introduction of television is a potential concern, since this may point out that some unobservable characteristics of districts determining our outcomes of interest are correlated with television availability. This would bias the results that rely on the variation in the television reception. In order to overcome this concern, I eliminate the provinces where the state did not build any transmitter. At the same time, I also take into account some districts reached by television signals in those particular provinces. This dataset constitutes my baseline results. By doing that it enables us just to compare close districts with the ones where there is no television signal. Table 3 presents the results of this exercise for the vote shares of two main left-wing and right-wing parties in the baseline sample without province fixed effects and controls (Column 1), with geographic and Census demographic controls

(Column 2), and with all fixed effects and controls (Column 3). The results show that television availability had visibly different effects on the two main party vote shares. There is a negative and significant effect of television on the change in the Justice Party vote share whereas television boosts the Republican People's Party vote share between the elections of 1969 and 1977. In the specification with controls and fixed effects, the availability of state television decreases the vote share for the right-wing party (Justice Party) by 3.8 percentage points and increases the vote share of the left-wing party (Republican People' Party) by 3.1 percentage points. Although the magnitude of the coefficients is lower relative to the extended sample, it is statistically significant.

Table 4 displays the results of the effects of television availability on the other political outcome, which is voter turnout. Similar to table 2, reproducing results from the baseline sample, the availability of television has a negative effect on voter turnout. People living in districts with television reception used their democratic rights for the election less than those who did not watch television. Exposure to television lowered the voter turnout 1.45 percentage points in the specification with full controls and fixed effects.

Figure 2 in appendix illustrates the decline on vote share of Justice Party (JP) in 1969 and 1977 elections by comparing locations with and without television reception. Blue dashed line represents the locations with television reception whereas red solid line shows the locations without television reception. It is clearly illustrated in the graph that Justice Party vote share was higher about 2 percentage points in locations in 1969 election when there was no television in Turkey; however its vote share was lower about 2.5 percentage points at locations with television reception in 1977 election.

Figure 3 in appendix presents left wing (RPP) and right wing parties' votes share in the general elections held in 1969, 1973 and 1977. Figure 3 shows that RPP increases its voters while JP loses its support in Turkey.

1.9.1 Village Level Regression

In order to get more convincing results, I endeavour to find villages barely penetrated by television signals. For this work, I use the map (figure 1) showing penetrated areas within the provinces. I gather all coordinates of places in Turkey in village, county, district and province level[5]. I obtain a huge data set that gives me around 28.500 coordinates of places in Turkey. I use ARCGIS to figure out places on the map and search villages near to the border where television signals are blocked by mountainous areas. For consistence, border village sample was constructed taking villages 5 km either side of the television reception border. This means that all settlements are scanned around the television reception borders which are represented with zigzags in Figure 1. By using this analysis, I compare only villages that could barely reach television signals with the villages where there is no television reception.

I test whether television affects election outcomes, in particular vote shares of the main political parties and voter turnout by estimating the following OLS regression:

$$Y_{it} = \beta_0 + \beta_1 TV_i + \beta_2 Post_t + \beta_3 (TV_i * Post_t) + \beta_4 X_{it} + \varphi_i + \varepsilon_{it} \qquad (1.2)$$

in which Y_{it} denotes again vote share of parties or voter turnout in village i depending on specification, TV takes the value of 1 if the municipality or village are

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[5] This data come from the indexmundi.com website. This website provides country facts all over the world as well as all the latitude, longitude and elevation data for all places in the particular country asked for.

penetrated by television signal and 0 otherwise. X_{it} is the vector of state and time varying covariates. φ_i is village level fixed effects. Standard errors are adjusted to allow for clusters within each province. Again the coefficient that we are interested in is β_3, the interaction between treatment and post dummies. This coefficient gives us the causal effect of television on political outcomes.

Table 5 gives us the effect of television on the two main parties' vote shares at village level. The result is interesting that television does not affect vote shares of parties. While television reception stimulates left-wing party vote shares and hinders right-party votes at province and district level, it is shown that there is no effect at village level. It might be contrary to the previous result; however the economic and developmental reality of Turkey in those years clarifies the case. In 1976, very low numbers of villages did have electricity that is obviously necessary to switch on television sets. According to the Energy Ministry of Turkey, only 20 percent of all villages had electricity and most of them were the villages close to the province or district centres. This fraction is very low even in rural areas of Turkey. Therefore we can say that the coefficient of interested variable in regression is statistically insignificant.

The same story is also valid for the voter turnout effect of television. Table 6 provides the estimation results when the dependent variable is political participation in the elections. Although the sign of coefficient of the interaction variable is negative as we expected, it is not statistically significant. Actually these results convince us that television really influences political outcomes if there are enough technical infrastructures that enable the ownership of television sets.

1.9.2 Placebo Tests

To provide additional evidence in favour of our identification assumptions, we show that Turkish television availability is not associated with outcomes that it was not supposed to affect. Specifically what we do is that we test whether television availability dummy in 1977 affected the change in the share of votes received by the same left-wing and right-wing parties in the elections held in 1961 and 1965. In order that our empirical strategy is correctly specified, one should not expect any effect since television broadcasting did not begin in that period. In addition, we verify that the voter turnout in parliamentary elections in 1961 and 1965 is not related to television signal availability. We include exactly the same places that are used in the main regressions to capture whether the difference in political outcomes is only driven by television signal availability. As a result, we do not find a significant association between television signal availability and any of these placebo outcomes (see table 7), which strengthens our identification assumptions.

1.10. Conclusion

This chapter documents the effect of Turkish public television on voting behaviour in the early years of television broadcasting in Turkey. We find that the content of television programmes and management ideology plays an important role in the parliamentary elections.

Left ideological director-generals were appointed to the Turkish State Television company in 1970s. As a result of this, a left-wing party (Republican People's Party) enjoyed this fact by increasing their vote shares in the elections in 1977 whereas the main right-wing party (Justice Party) vote shares decreased. We find that television

reception influences the voting behaviour of the citizens. Voter turnout also decreases with the introduction of television. This is actually explained in the political science literature as the main source for people to obtain information about politics was through reading newspapers and listening to the radio during those years. Besides the news programmes on television, there were also television series and films that attracted people more. Therefore they went to the polls less than before in the 1977 elections.

Our findings suggest that mass media play a crucial role in the process of institutional change. Even today, Turkey has many agendas with the presidential elections which will be the first in terms of people choosing the president by voting rather than MPs voting. TRT (Turkish State Television) is still criticized by the candidates of other parties for not allocating fair news time compared to Recep Tayyib Erdogan, Prime Minister of Turkey and the AKP candidate.

Appendix

Figure 1: Map of area penetrated by Television Signals in 1976
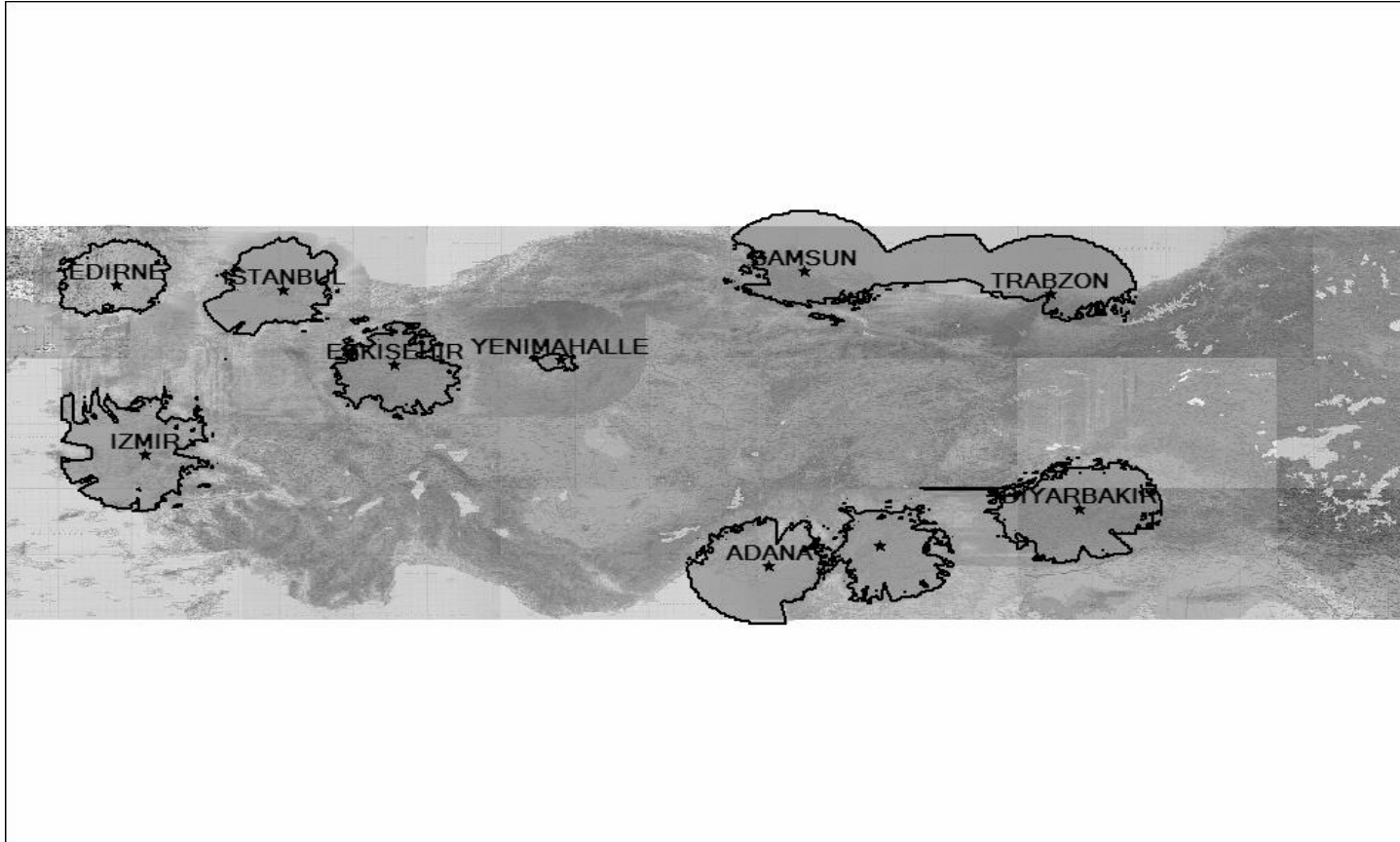
Notes 1: Stars in the figure show the location of television transmitter in each province and Television coverage is presented by plotted areas in the map. It is fractured due to mountainous areas.

Vote Share for JP in districts with and without television reception

Figure 2: Vote Share of Justice Party in locations with and without television reception

RPP and JP Vote Shares in 1969,1973 and 1977 Elections
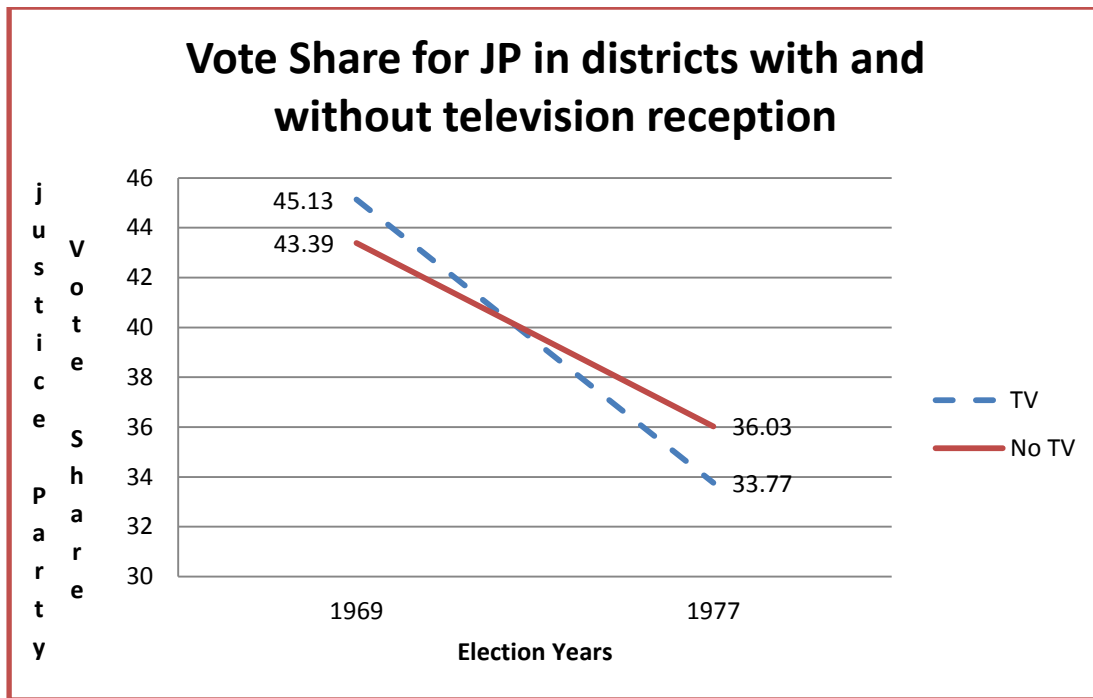
Figure 3: Vote Share of Republican's People Party and Justice Party in 1969, 1973 and 1977 elections.
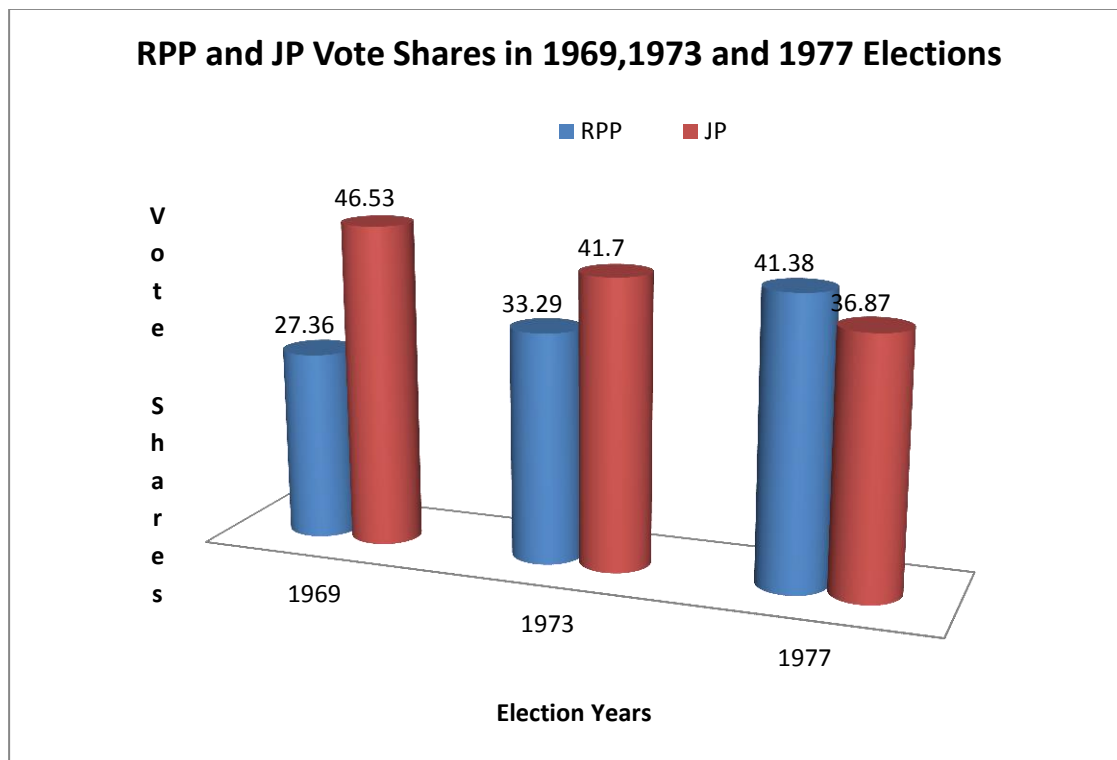
Notes: Vote share of JP in 1973 election is together with Democratic Party vote share, which is founded by leaders, broke away from Justice Party. I include this to show total share of two main right wing parties in 1973 election.

Table 1: Turkish State Television and vote for main right-wing and left-wing parties, Full sample

VARIABLES	Vote Share for the right-wing party			Vote Share for the left-wing party		
	(1) Justice Party	(2) Justice Party	(3) Justice Party	(4) Republican People's Party	(5) Republican People's Party	(6) Republican People's Party
Television Available	1.389	1.556	0.700	3.350**	2.767**	-0.332
	(2.521)	(1.307)	(1.440)	(1.663)	(1.223)	(1.411)
Post	-8.660***	-13.739***	-9.571***	9.689***	6.531***	8.408***
	(0.692)	(0.879)	(0.786)	(0.919)	(0.847)	(0.886)
Television*Post	-2.702*	-4.661***	-2.948***	6.482***	5.196***	5.926***
	(1.577)	(1.218)	(1.057)	(1.846)	(1.207)	(1.242)
Constant	43.747***	27.771***	50.001***	31.102***	-8.591	9.453
	(1.614)	(8.267)	(7.029)	(0.970)	(6.902)	(7.287)
Province Fixed Effects	No	No	Yes	No	No	Yes
Census Controls	No	Yes	Yes	No	Yes	Yes
Observations	1,276	1,276	1,276	1,276	1,276	1,276
R-squared	0.081	0.192	0.510	0.159	0.192	0.381

Notes 2: This specification reports the results of OLS with the observation weighted by the number of eligible voters. The dependent variables are Vote share of Justice Party and Republican People's Party respectively. We include population, urban ratio, gender ratio, and population over 18 years old as control variables. In full sample, all provinces and district centres are included in Turkey. The standard errors in brackets are clustered by province, allowing for correlation between districts in the same province, significant levels at *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 2: Television Reception and Political Participation, Full Sample

VARIABLES	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout
Television Available	0.470	1.584	-0.625
	(1.781)	(1.129)	(1.161)
Post	12.886***	13.862***	16.872***
	(0.742)	(0.636)	(0.628)
Television*Post	-3.999***	-3.391***	-2.192**
	(1.197)	(1.022)	(1.016)
Constant	59.143***	79.634***	103.127***
	(0.620)	(5.818)	(5.448)
Province Fixed Effects	No	No	Yes
Census Controls	No	Yes	Yes
Observations	1,276	1,276	1,276
R-squared	0.289	0.312	0.516

Notes: This specification reports the results of OLS with the observation weighted by the number of eligible voters. The dependent variables are Vote share of Justice Party and Republican People's Party respectively. We include population, urban ratio, gender ratio, and population over 18 years old as control variables. In full sample, all provinces and district centres are included in Turkey. The standard errors in brackets are clustered by province, allowing for correlation between districts in the same province, significant levels at *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 3: Television Penetration and Party Vote Shares, Baseline sample

VARIABLES	Vote Share for the right-wing party			Vote Share for the left-wing party		
	(1) Justice Party	(2) Justice Party	(3) Justice Party	(4) Republican People's Party	(5) Republican People's Party	(6) Republican People's Party
Television available	1.740	2.541	1.358	2.935	2.289	0.781
	(2.748)	(1.680)	(1.562)	(1.994)	(1.554)	(1.507)
Post	-7.364***	-11.240***	-7.164***	12.191***	8.417***	10.191***
	(0.768)	(1.296)	(1.322)	(1.599)	(1.354)	(1.374)
Television*Post	-3.997**	-5.298***	-3.836***	3.980*	2.520*	3.189**
	(1.541)	(1.402)	(1.316)	(1.975)	(1.492)	(1.522)
Constant	43.396***	25.395***	60.750***	31.517***	-3.826	7.673
	(2.433)	(9.266)	(9.527)	(1.974)	(10.191)	(10.333)
Province fixed effects	No	No	Yes	No	No	Yes
Census and Geographic Controls	No	Yes	Yes	No	Yes	Yes
Observations	524	524	524	524	524	524
R-squared	0.112	0.182	0.457	0.259	0.310	0.484

Notes: This specification reports the results of OLS with the observation weighted by the number of eligible voters. This baseline sample includes only the provinces which at least one county penetrated by television signal. We include population, urban ratio, gender ratio, and population over 18 years old as control variables The standard errors in brackets are clustered by province, allowing for correlation between districts in the same province. *** Significant at 1%, **significant at 5%,* significant at 10%.

Table 4: Voter Turnout and Television Reception, Baseline Sample

VARIABLES	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout
Television Available	-0.876	-0.005	-1.191
	(1.689)	(1.315)	(1.229)
Post	11.832***	12.246***	15.422***
	(1.431)	(1.054)	(1.059)
Television*Post	-2.945*	-2.548**	-1.450
	(1.455)	(1.291)	(1.266)
Constant	60.489***	60.614***	91.354***
	(1.056)	(8.157)	(8.274)
Province fixed effects	No	No	Yes
Census and Geographic Controls	No	Yes	Yes
Observations	524	524	524
R-squared	0.230	0.250	0.507

Notes: This specification reports the results of OLS with the observation weighted by the number of eligible voters. This baseline sample includes only the provinces which at least one county penetrated by television signal. We include population, urban ratio, gender ratio, and population over 18 years old as control variables The standard errors in brackets are clustered by province, allowing for correlation between districts in the same province. Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 5: Turkish State Television and vote for main right-wing and left-wing parties in villages where barely television signals penetrate

VARIABLES	Vote Share for the right-wing party			Vote Share for the left-wing party		
	(1) Justice Party	(2) Justice Party	(3) Justice Party	(4) Republican People's Party	(5) Republican People's Party	(6) Republican People's Party
Television available	-1.960	-0.939	-2.289	1.749	0.983	1.945
	(4.614)	(4.671)	(3.976)	(3.954)	(4.112)	(4.239)
Post	-7.571	-8.740	-6.732	4.846	5.675	5.742
	(5.222)	(5.323)	(5.149)	(4.328)	(4.516)	(4.345)
Television*Post	3.863	4.072	3.922	0.679	0.496	0.404
	(6.041)	(6.039)	(4.892)	(5.485)	(5.555)	(4.527)
Constant	48.403***	33.684***	57.420***	27.005***	37.390***	38.543***
	(4.057)	(9.391)	(16.087)	(3.325)	(10.412)	(12.838)
Village fixed effects	No	No	Yes	No	No	Yes
Census Controls	No	Yes	Yes	No	Yes	Yes
Observations	438	438	438	438	438	438
R-squared	0.020	0.041	0.760	0.023	0.035	0.774

Notes: This specification reports the results of OLS with the observation weighted by the number of eligible voters. This sample includes villages close to the signal penetration border which is presented by Figure 1. We include population, urban ratio, gender ratio, and population over 18 years old as control variables The standard errors in brackets are clustered by provinces, allowing for correlation between villages in the same province. Robust standard errors in parentheses, significant levels at *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 6: Turkish State Television and vote for main right-wing and left-wing parties in villages where barely television signals penetrate.

VARIABLES	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout
Television Available	-5.463*	-5.375*	-5.567*
	(3.241)	(3.156)	(3.628)
Post	6.427**	6.756**	7.146**
	(2.983)	(2.943)	(2.859)
Television*Post	-1.010	-0.744	-0.389
	(3.977)	(3.940)	(3.494)
Constant	81.158***	85.798***	87.551***
	(2.533)	(3.575)	(4.025)
Village fixed effects	No	No	Yes
Census Controls	No	Yes	Yes
Observations	438	438	438
R-squared	0.073	0.095	0.725

Notes: This specification reports the results of OLS with the observation weighted by the number of eligible voters. This sample includes villages close to the signal penetration border which is presented by Figure 1. The standard errors in brackets are clustered by provinces, allowing for correlation between villages in the same province. Robust standard errors in parentheses, significant levels at *** p<0.01, ** p<0.05, * p<0.1

Table 7: Placebo Tests for the election 1961 and 1965 when there were no television signal in Turkey

VARIABLES	Vote Share for the right-wing party			Vote Share for the left-wing party		
	(1) Justice Party	(2) Justice Party	(3) Justice Party	(4) Republican People's Party	(5) Republican People's Party	(6) Republican People's Party
Television available	4.917	4.069	1.301	3.230**	3.543***	2.908
	(5.163)	(5.340)	(3.095)	(1.183)	(1.121)	(1.735)
Post (1965)	17.914***	17.882***	17.969***	-9.124***	-9.113***	-9.100***
	(3.786)	(3.807)	(3.899)	(1.205)	(1.203)	(1.232)
Television*Post	-4.389	-4.510	-4.445	0.849	0.891	0.887
	(3.594)	(3.557)	(3.690)	(1.398)	(1.405)	(1.436)
Constant	34.197***	33.250***	35.716***	37.145***	37.520***	37.689***
	(5.213)	(5.203)	(2.168)	(1.142)	(1.268)	(1.070)
Province fixed effects	No	No	Yes	No	No	Yes
Census and Geographic Controls	No	Yes	Yes	No	Yes	Yes
Observations	536	536	536	536	536	536
R-squared	0.175	0.179	0.628	0.231	0.234	0.358

Notes: This specification reports the results of OLS method using the election outcomes in 1961 and 1965 when Turkey has not been introduced by television broadcasting in the country. This baseline sample includes only the provinces which at least one county penetrated by television signal. We include population, urban ratio, gender ratio, and population over 18 years old as control variables. The standard errors in brackets are clustered by province, allowing for correlation between districts in the same province. Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

VARIABLES	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout
Television Available	-0.479	0.440	1.176
	(1.443)	(1.303)	(0.847)
Post	-9.981***	-9.948***	-9.939***
	(0.950)	(0.947)	(0.970)
Television*Post	0.159	0.276	0.312
	(0.927)	(0.918)	(0.937)
Constant	82.774***	83.923***	83.672***
	(0.862)	(0.941)	(0.554)
Province fixed effects	No	No	Yes
Census and geographic controls	No	Yes	Yes
Observations	536	536	536
R-squared	0.334	0.370	0.609

Notes: This specification reports the results of OLS method using the election outcomes in 1961 and 1965 when Turkey has not been introduced by television broadcasting in the country. This baseline sample includes only the provinces which at least one county penetrated by television signal. We include population, urban ratio, gender ratio, and population over 18 years old as control variables. The standard errors in brackets are clustered by province, allowing for correlation between districts in the same province. Robust standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 9: Technical Features and Coverage Information of Transmitters in 1970s

Main stations	Power (Kw)	Coverage area		Coverage Population		Introduction Year
		Km^2	%	(Thousand people)	%	
Ankara	5	1250	0.2	1210	3.4	1968
Istanbul	100	9000	1.2	3115	3.6	1972
Izmir	100	20535	2.6	2082	5.8	1973
Eskisehir	100	30600	3.9	1200	3.3	1974
Adana	30	17000	2.2	1546	4.3	1974
Edirne	30	16500	2.1	800	2.2	1974

Table 10: The development of television receivers in Turkey per years

Year	Total number of television receivers
1970	3279
1971	102152
1972	121537
1973	212788
1974	357668
1975	472216

Source : PTT Statistic and Research Department via (Aziz, A. 1975)

Table 11: The number of receivers in 3 big cities

Cities\Year	1971	1972	1973	1975
Ankara	59.043	67.257	74.389	95.770
Istanbul	32.149	67.195	92.596	204.053
Izmir	4.333	14.150	21.679	55.933

Source : Uygur Kocabasoglu (1973)

Chapter 2

Does Partisan Alignment Affect The Allocation of Intergovernmental Grants? Empirical Evidence from Turkish Municipalities

2.1 Introduction

The traditional literature on the allocation of intergovernmental transfers argues that grants should be allocated to municipalities or local governments in order to foster development by considering efficiency and equity criteria. For instance a welfare maximising government may wish to transfer money from richer regions to poorer using lump-sum grants. However, for political reasons this argument may not match the reality of what has happened in countries.

The principles of apportionment of grants to municipalities are explained in the Law in Turkey. According to this law, apportionment shall be distributed to the municipalities according to the population of municipalities[6]. Nadaroğlu, H. and R. Keleş (1991) argue that those allocation criteria are subjective and not clear. Therefore this statement might have left the door open for political competition. This

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[6] As of 2008, Law 5779 states that apportionment to municipalities according to the rates indicated in Article 2, 80 percent shall be distributed by the Bank of Provinces to the municipalities according to the population of municipalities and 20 percent according to the development index.

means that the government attempted to take into account both objective and economic factors such as regional income levels and socio-economic factors. Many scholars argue that grants are allocated to localities to increase the probability of re-election of the incumbent or to increase votes in the next election (Grossman, P. J. 1994, Levitt, S. D. and J. M. Snyder Jr 1995) (Arulampalam, W., S. Dasgupta, A. Dhillon and B. Dutta 2009) (Johansson, E. 2003) (Brollo, F. and T. Nannicini 2012) (Bracco, E., F. Porcelli and M. Redoano 2013).

In this chapter, I analyse grant allocation in Turkey to test empirically the hypothesis that municipalities aligned with central government (i.e. controlled by the same party) will receive more grant than those that are unaligned.

I use a rich and new database for Turkish municipalities, which provide information on grants received by nearly 3200 municipalities during the period 1997–2005, from two different upper-tier governments (Central and Municipality level). This database helps us to overcome data quality problems encountered by other authors trying to test the alignment hypothesis. Firstly, in our database, there is cross section variation in the partisan control in two of the upper-layer governments (Central and Municipality level).

Secondly, since there are three election outcomes during the period, we have enough within-municipality variation in partisan alignment (due to changes in partisan control at all layers of government) to provide reliable regression discontinuity design estimates of the effect of alignment on the amount of grants coming from each source. In the sample, there are also different central governments while the local ones don't change. Another important factor during this period is that Turkey witnessed a post-modern coup in 28 February 1997. In 1997 the military generals issued some decisions of a National Security Council meeting. This process

precipitated the resignation of Prime Minister Necmettin Erbakan of the Welfare Party and the end of his coalition government with True Path Party (Dogru Yol Partisi (DYP)).

Following the military memorandum, Erbakan, the Prime Minister, was forced to resign. Although DYP, RP and BBP declared that they should form the new government under the prime-ministership of Tansu Ciller, the leader of DYP, the President appointed the ANAP leader, Mesut Yilmaz, to form the new government. He formed a new coalition government with Bulent Ecevit (the DSP leader) and Husamettin Cindoruk (the founder and the leader of the DTP, a party founded after the 28th February Process by former DYP members) on 30 June 1997. The Welfare Party was closed by the Constitutional Court in 1998.

As a result of these vital events in Turkey, the central government changed at the upper level without a general election, while there was no change at local level, since the local elections were going to be held in 1999, two years later. Therefore we have enough within-municipality variation from the changes at central level. Hence the party or coalition government might have favoured the municipalities who are aligned with the same party.

My empirical strategy to identify the alignment effects on grants and fiscal variables uses a regression discontinuity design (RDD). Basically, I compare municipalities where the elected mayor is just aligned with central governments with ones where the mayor is just not aligned. RDD reveal the results from barely won and barely lost municipalities. Using this design, I find that, if a municipality is politically aligned with the same party in central government, it will be allocated an extra 6.9 Turkish Lira per capita in grants. Although alignment seems to reduce the tax burden of residents and increase expenditure on public goods per capita, it is not statistically

significant. Therefore we cannot mention anything related to municipal revenues and expenditure. However, this may suggest that our specification is robust so that we only find evidence for the alignment effect for grants, not the other variables.

The chapter is organized as follows. The next section discusses briefly fiscal decentralization. Section 4 presents the structure of local public finance of municipalities in Turkey. Section 5 briefly introduces Turkish political system. Section 6 discusses the related literature. Section 7 presents data description and econometric strategy. Section 8 discusses the main empirical results on grants and local expenditure and income. Section 9 illustrates the graphical analysis and Section 10 concludes the chapter.

2.2. Fiscal Decentralisation in Theory

Decentralisation is defined from different perspectives in the public choice literature, however most focuses on the same thing, which is dispersing or distributing power from the centre to the localities. In more detail, it can also be defined as the transfer of responsibility for management, planning, resource raising and allocation from central government to local or regional administration (Rondinelli, D., J. R. Nellis and G. S. Cheema 1983)

In a broad sense, fiscal decentralisation is central government abandoning its fiscal controls to subnational governments. According to advocates of fiscal decentralisation, giving responsibility and fiscal power to lower levels of government can increase economic efficiency since governments at local level have more information about citizens. Hence, this shift will increase the efficiency of resource allocation. In other words, subnational governments whose responsibility is

to closely meet local needs are in a more available position to provide the public goods and services (Justin Yifu Lin and Zhiqiang Liu 2000).

*2.*1. Objectives of Decentralisation

It has been expressed that decentralisation will reduce burden and congestion in the channels of administration and communication. Therefore it is expected that delays will be reduced.

There are also some political advantages of decentralisation such as power-sharing between the centre and localities and the promotion of democracy. (Wolman, H. 1990) argues that decentralisation stimulates greater responsiveness of policy makers to the will of the citizens. He also states that decentralisation improves democratic values and provides the opportunity for people to discuss issues at the local level.

2.2. Economic advantages of decentralisation

As the main topic of this paper is the determinants of grant allocation in Turkey, it is worth discussing the economic advantages of decentralisation because revenue sharing is the result of decentralisation. In this sense, distribution, stabilisation and allocation can be counted as the fiscal functions of government (Musgrave, R. and P. Musgrave)

The role of local governments in allocation, among those mentioned above, has been seen as substantial and it is argued that the efficiency of resource allocation is maximised under highly decentralised political structures. The argument that decentralisation may facilitate allocation efficiency proceeds on the following grounds (Sagbas, I. and M. Bagdigen 2003).

Decentralisation is more suitable to accommodate diversity. In public life, different groups of citizens have different preferences, needs and desires. For instance, for people living in warmer areas, air conditioning may be crucial whereas some people who live in poorer regions may find no need for it. Homelessness is a largely urban problem, while transportation is more likely to be a major need in rural areas (Ulbrich, H. H. 2011).

Local authorities are better positioned than central governments to overcome informational and perceptual obstacles. In a decentralised structure, local authorities can easily reach communities whose preferences are different. By allowing citizens to make different choices in different communities, they become possible to accommodate.

Decentralisation also leads to competition among local governments. This competition between regions was first mentioned by regional economist Charles Tiebout (Tiebout, C. M. 1956). The logic of Tiebout's concept was based on the assumption that both workers and firms are mobile while they participate in self-interested decision-making processes. They can move from one community to another, so that they can choose from several competing communities that offer the best tax and service packages that suit them. Communities, in turn, try to obtain an optimal population that minimises the average cost of providing public goods and services. Therefore people will gather in communities with tastes and preferences for public services and taxes that are relatively homogenous (Ulbrich, H. H. 2011).

2.3. Intergovernmental Grants

A government may be federal or unitary; however there are always fiscal interactions between levels of government. As explained above, these fiscal linkages arise from shared responsibilities for programmes and services. In order to maintain the cost of these programmes or services, upper level governments transfer funds to lower level governments that are primarily responsible for providing services. Such transfers are called intergovernmental grants.

Lower level governments do not have to raise all the revenue to fund their programmes and services thanks to the allocation of grants. For instance, intergovernmental grants make up almost 50% of total budget revenues of municipalities in Turkey. This large amount of money, transferred from the central government, allows local government to provide more public goods without thinking about the funding or levying new taxes.

Although there is a normative theory of intergovernmental grants, empirical and practical applications imply that ideology and political motivation play an important role in the design of policy.

The main aims of intergovernmental grants are (Oates, W. E. 1999):

1. The internalisation of spill-over benefits to other jurisdictions

2. Fiscal equalisation across jurisdictions

3. Equitable and efficient tax systems via revenue sharing between central and decentralised governments.

The forms of intergovernmental transfers can be classified in two main categories: a) revenue sharing, and b) grants. The main difference between these two forms is due

to their allocation methods. In revenue sharing, collected revenues are shared between the centre and local authorities in a fixed proportion. Local taxes or central taxes may be the source of these revenues. However grants are directly allocated by central governments, disregarding the central government's revenue collection yield (Sagbas, I. and M. Bagdigen 2003).

In Turkey, revenue sharing, which is the most common type of intergovernmental transfer in developing countries, has prevailed. It is distributed according to a set of criteria including population, the development index of a region and whether the municipality is metropolitan. In the period of interest of this paper (1997-2005), a population-based or per-capita scheme was implemented in the revenue sharing system.

2.3.1. Explaining intergovernmental grants

There are two main competing theories regarding the determinants of grants in a local public system.

2.3.1.1. Efficiency and equalisation model

According to this theory the allocation of grants to local government is based on the assumption of efficiency and equalisation. The efficiency and equalisation model (EEM) thinks of intergovernmental transfers as a policy tool of benevolent government. The existence and necessity of intergovernmental grants as a tool of benevolent government is inevitable once the government functions are split to different levels of government. The economic justification for grants assumes that central government may attempt to close any gaps between the revenue-raising capacities of cities and the cost differentials in the provision of publicly provided

goods and services. In turn, closing these gaps helps central government to achieve a minimum level of services across municipalities (Tekeli, R. and M. Kaplan 2008).

2.3.1.2. The Public Choice Approach

Beside the fact that a grant may be used as an economic device, some argue that this kind of central assistance might sometimes be provided with political motivation. Intergovernmental grants are part of the relationship between money spending and votes at an election ((Alperovich, G. 1984) (Bungey, M., P. Grossman and P. Kenyon 1991) (Faith, R. L. 1979) (Grossman, P. J. 1989) (Holcombe, R. G. and A. Zardkoohi 1981) (Rich, M. J. 1989)) . The process of grant allocation can be explained, at least partly, by factors associated with political interests forming the second view based on the PCA. Bungey, M., P. Grossman and P. Kenyon (1991) stated that the public choice approach argues that politicians, whose aim is to maximise the probability of staying in power, will use intergovernmental grants. In this approach, the importance of the possibility of vote trading and bargaining in the political marketplace is stressed.

It is clear that a grant can provide many advantages to the recipient. For example, the recipient can provide more local services without imposing new taxes or raising existing tax rates, and local government can even reduce its own tax rates without reducing local spending. But here the question that is supposed to be asked is, why do politicians at the central level transfer resources to local government? It has been argued that the behaviour of governments in the democratic process is a result of efforts to maximise the probability of re-election.

2.4. Local Governments in Turkey

Turkey is divided into provinces on the basis of geographical situation, economic conditions and public service requirements; provinces are further divided into lower level administrative entities according to their population sizes, such as districts or townships. In each district and township there are urban settlements, which are called municipalities. As of 2012, there are 81 provinces and around 2950 municipalities in Turkey. Table 1 shows the number of municipalities by their type in Turkey. According to table 1, Turkey have 16 Metropolitan, 143 metropolitan district, 65 provincial, 749 district and 1977 town municipalities. About two thirds of all municipalities are formed by township municipalities, where more than 2000 inhabitants live, according to the latest population census. Each municipality is established to meet the common needs of inhabitants living within the municipal borders. The mayor and municipal council, which is the decision-making organ of the municipality, are acceded in the elections.

Table 1: Numbers of Municipalities by Type

Municipalities	Count
Metropolitan Municipality[7]	16
Metropolitan District Municipality	143
Provincial Municipality	65
District Municipality	749
Town Municipality	1977
Total	*2950*

Source: Ministry of Interior, General Directorate of Local Governments

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[7] As of November 2012, a draft law to restructure municipalities, such that 13 provinces with populations exceeding 750.000 will gain "metropolitan municipality status", was approved by Parliament.

The head of the municipal administration is the mayor and he/she represents its legal personality. The mayor is elected by the public for a period of five years. The municipal councils are also elected for five years and vary in size according to each town`s population. They decide issues such as budgets, housing plans, reconstruction programmes, tax rates and fees which are essential for municipal services.

2.4.1. Revenues

The revenues of municipalities comprise their own revenues, shares from state tax revenues, state aid and other revenues. About half of the total revenues come from the share of state tax revenues. Table 2 demonstrates the main components of the municipal revenue, as of 2010, in Turkey. It is clearly seen from table 2 that shares received from the General Budget Tax Revenues forms the main income for the municipalities in Turkey.

Table 2: Municipal Revenues

Types of Revenues	*Thousand TL*	*%*
Shares Received from the General Budget Tax Revenues	17,333,265	50.6
Tax Revenues	5,854,566	17.1
Enterprise and Ownership Revenues	4,824,058	14.1
Interests, Shares and Fines	3,075,067	9.0
Capital Revenues	2,533,815	7.4
Other Revenues	613,092	1.8
Total Revenues	*34,233,863*	*100*

Source: General Activity Report of Local Authorities, 2010

Table 3 shows municipalities' own revenues and their ratio to total revenues, which is the sum of the allocated tax and other revenues from the central budget. In total 48.8% of their revenues are generated from their own municipal budget. However metropolitan municipalities are much more dependent on the revenues allocated by central government, such that only 34.9% of their total revenues comprise own revenues.

Table 3: Revenues by Type of Municipality

Type	Own Revenues	Total Revenues	%
Metropolitan Municipalities	4,650,915	13,322,111	34.9
Provincial Municipalities	2,106,546	3,872,328	54.4
District and Township Municipalities	9,953,330	17,039,424	58.4
Total	16,710,791	34,233,863	48.8

Source: General Activity Report of Local Authorities, 2010

According to Law No.5779, 2.85% of the total amount of budget tax revenues collected must be allocated to municipalities, conditional on their population, through The Bank of Provinces, which is the organisation responsible for the allocation of credits and grant to the local governments in Turkey. The Bank of Provinces distributes the share to municipalities as follows:

- 80% according to the population of municipalities
- 20% according to inter-municipal disparities in terms of development (Local Authorities in Turkey, 2011, accessed 06.12.2012)

Here again, It is necessary to stress that the only criteria used to allocate grants to the municipalities was population during the period of our analysis.

2.4.1.1. Municipal Revenues

39% of total municipal revenues come from revenues raised locally although the tax rates and fees are almost exclusively centrally determined.

Municipalities' revenues are derived from different sources and can be divided into three main groups; tax revenues, revenues other than taxes and aid and funds. Tax revenues cover the shares received from general budget tax revenues, municipal taxes and municipal duties. Municipal taxes come directly from several sources. These taxes are mainly property taxes, environment cleanliness taxes and other municipal taxes including fire insurance taxes, and advertisement and notification taxes. In addition some other own resources, called duties, are levied from local residents such as street lightning duty, work at the weekend and on holiday duty, and mineral water duty.

2.4.1.2. Central Government Transfers

Central government transfers to municipalities account for about 2% of GNP and correspond to around 50% of the municipalities revenues. The transfers are made through three mechanisms: 6% of national taxes are allocated to the municipalities according to population levels (55% of transfers); 4.1% of taxes collected within the province of a metropolitan municipality are transferred back to the metropolitan municipality (30% of transfers); and there are transfers through special government programs (15% of transfers).

The official budget size of municipal governments is about 4-6% of GDP, which is on par with many European countries. The largest share of revenues is made up of transfers (grants) from the central government, while property taxes are one of a few locally determined sources of revenues. Transfers are largely determined by

population and whether a municipality is a district or province centre (Worldbank 2004). The central government has left local public services and urban development (building permits) as the responsibility of the municipal mayor.

Albeit that population is a criterion for distribution of national taxes (grants) to municipalities, money given by the central government is largely a political allocation of central resources. The relationship between a municipality and central government may play an important role in a process of political competition for resources and power. Central government is often keen to allocate more funds to municipalities governed by the same political party (Sagbas, I. and M. Bagdigen 2003)

2.4.2. Municipal Spending

As with every entity in economics a municipality has budget constraint, spending their revenues collected in a year. So a municipalities' spending is bound to the limit of its revenues. If the expenditure of any municipality exceeds its revenues, the only way to overcome it is by borrowing money. Therefore two components of a municipal budget are domestic and foreign borrowings.

Municipal borrowings for investment have been limited to either loan from Iller Bank or the use of the Treasure Guarantee System (TGS) to access loans from international financial institutions for larger municipalities. According to the estimates, 85% of total debt, including to Treasury, Iller Bank, tax and social security offices is not serviced since municipalities have failed to keep up their payments. Metropolitan municipalities are the ones who have more debt to Treasury. Most foreign loans made to municipalities arise from International Financial

Institutions, such as World Bank, European Investment Bank for the infrastructure investments. Treasury guarantees the loans typically made to municipalities.

TGS facilitates large municipalities to access foreign credits. As of 2004, The US$ 3.7 billion outstanding to Treasury represents municipalities' debt to Treasury after guarantees were invoked and Treasury paid creditors, on Municipalities behalf (World Bank, 2004).

Municipalities have shown irresponsible stance during 90s to repay loans due to the expectations of that Treasury will wipe out debts. Therefore central government has put an upper-limit to municipal borrowing under Treasury guarantees. Borrowing has also become subject to a permission of Treasury.

To argue that municipalities face a balanced budget is difficult in this sense. They face a soft budget constraint in the sense that a municipality expects an additional subsidy if it experiences financial difficulty. More recently, the problem of soft budget constraints has become an issue in intergovernmental relations. The problem arises because, with decentralization, the central government has limited control over sub-national government spending and borrowing, but it maintains a strong interest in the affairs of lower-level governments. Hence, soft budget constraint arise when sub-national governments perceive that they will receive additional resources from the central government in the case of financial difficulty. This perception leads subnational governments to behave strategically in selecting spending and borrowing levels, and this may precipitate requesting more resources from the central government (Vigneault, M. L. 2005). However in Turkey, municipalities are not fully independent and are audited by the Turkish Courts of Accounts (Sayistay). Borrowing for municipality is not unlimited and subject to some rules. For instance, according to Law 4749, a municipality can borrow from abroad only for some

investment projects that is clearly specified in investment program. They cannot receive foreign loans for current spending. Upper limit for a municipality to borrow are calculated as follows; the total debt stock including interest payments cannot exceed the total budget revenue of the last final account year considering revaluation, that is a number used in Turkish account system for an inflation rate. This borrowing limit is multiplied by 1.5 for metropolitan municipalities (DOĞAN, M. and A. İ. BAŞ 2013).

2.5. Turkish Political System or Local Government Electoral System in Turkey

Local administration in Turkey is composed of three administrative and political layers; precincts and villages, municipalities, and provincial administrations. The municipalities are locally elected bodies. Provincial administration in Turkey is organised by a provincial council, elected by popular vote, for a period of 5 years, and an executive committee, elected by the provincial council and headed by a governor. Governors are civil servants appointed by the central government in Ankara. They act as the representatives of the state. The elections for the provincial councils are run based on the proportional representation (PR) system and are held simultaneously with the municipal electoral contests (Incioglu, N. 2002). Except for the sixteen provinces with metropolitan municipalities, the electoral districts for provincial council elections are the same as those used for the parliamentary elections. In three provinces (Istanbul, Ankara and Izmir), there are several electoral districts in parliamentary elections but only one for the provincial council elections. Although provincial councils in Turkey are empowered with large formal functions

and responsibilities, in fact the actual powers and actions of the provincial administrations are quite limited.

Around 80% of municipalities have a population of fewer than 10,000. Both the mayors and the members of the municipal councils are elected by the voters for five-year terms. The municipal executive committees are headed by the mayors and they include members elected by the municipal councils and appointed members from the staff of the municipal administration (Incioglu, 2002).

The importance of the Turkish local administrative system has increased as a result of migration to the cities from the rural areas in Anatolia, particularly after 1980. Currently about 65% of the population lives in urban areas and this is expected to increase further in the future. Although the pressures regarding urbanisation have been high, Turkey has maintained urban services to its citizens. Overall coverage of transport, water and solid waste management is high and, per capita, municipal spending has increased over time.

Considering the large concentration of voters in urban areas due to the aforementioned reasons, political parties have increasingly noticed that local elections are crucial in order to expand their electoral popularity in the national elections. Winning the mayoral seats in municipalities provides a party a substantial political influence and visibility in national politics. It is also argued that the party may reach for new sources of political patronage (municipal jobs, short or long term contracts for investment etc.) that can generate new activists via recruitment, and supporters in the future (Incioglu, N. 2002). The Welfare Party, RP (Refah Party), an Islamist party, is a good example of this. The RP won the mayoral elections in two of three biggest metropolitan cities (Istanbul and Ankara) in 1994 and then in 1995 they became the largest party at a general election with a share of 21.37% of the total

votes. This success of RP in general elections is linked to their popularity in the local elections, held just one year before.

The organisational structure of the municipalities differs according to whether they are metropolitan or not. There is a two-tier system called "The Greater City Municipality (Buyuksehir Belediyesi)" in 16 metropolitan cities[8]. The lower tier includes a number of district municipalities that are responsible for the provision of basic municipal services in their areas of administration. They are headed by district mayors. The upper tier is responsible for implementing large projects such as strategic planning and investment, transportation networks and major public facilities. These Upper City Municipalities are governed by metropolitan mayors. A proportional representation electoral system is used in the elections. Mayoral races, both at the Upper City and the district levels, are run through the use of the plurality electoral formula.

Unlike national elections, which are proportional and include restrictions on minority representation, local mayoral elections are determined by single-round plurality elections which allow the use of RD design[9].

2.5.1. Gaining Strength of Islamic Parties in the 1990s

Although there have been Islamic Parties on the Turkish political scene since the 1960`s (National Order Party (Milli Nizam Partisi), National Salvation Party (Milli Selamet Partisi), Welfare Party (Refah Partisi), Virtue Party (Fazilet Partisi), Felicity Party (Saadet Partisi) and more recently The Justice and Development Party (AK

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[8] These cities are Istanbul, Ankara, Izmir, Adana, Bursa, Gaziantep, Konya, Mersin, Kayseri, Eskisehir, Diyarbakir, Antalya, Samsun, Izmit, Erzurum and Sakarya.
[9] In order for a party to be in parliament, it has to receive at least ten per cent of the national vote.

	1994 Local Elections			1999 Local Elections			2004 Local Elections		
Right wing votes (%) and number of municipalities they won	ANAP	22,97	793	FP	18,40	488	AK PARTY	40,18	1778
	DYP	18,90	886	ANAP	17,43	779	MHP	10,12	248
	MHP	7,51	118	MHP	15,14	499	DYP	9,45	382
	RP	19,07	329	DYP	12,75	736	SP	4,78	60
	BBP	0,94	11	BBP	1,22	25	ANAP	2,96	101
	DP	0,32	6	BP	0,16	6	BBP	0,63	12
				DP	0,13	4	GENC PARTY	2,41	13
Left wing votes (%) and number of municipalities they won	CHP	4,36	64	DSP	15,19	189	CHP	20,70	473
	DSP	7,87	23	CHP	13,83	373	SHP	4,75	67
	SHP	16,70	436	HADEP	3,37	38	DSP	1,95	31
Independents and number of municipalities they won		0,78	44		0,65	61		1,03	55

Party)) their vote shares did not exceed 12%, and they did not show a significant vote share in local and general elections until the 1990s. Following the 1994 local elections, political Islam found a lot of support in industrialised and urban areas.

Table 4 demonstrates the changes in the political spectrum in local elections between 1994 and 2004. Through the multi-party era the total votes have been around 30% for the left wing parties and around 70% for the right. While central right parties, DYP and ANAP, led the election races in 1994, the Islamist party Refah Party, RP, showed great success too. RP became the second party, winning 2 metropolitan cities, Istanbul and Ankara, together with 329 municipalities across the entire country. RP won 19% of the vote in the 1994 local elections and 21.4% of the national vote in the 1995 general elections.

Table 4 also illustrates that the number of municipalities which the Islamist Parties hold increased in the 1999 local elections reaching 488, from 329. Once again the Fazilet Party (Virtue Party) was banned by the Constitutional Court, the AK Party which was formed after that, gained 1778 municipalities in the 2004 local elections. AK Party became the winning party, achieving 40,78% of the vote in the elections.

Another prominent thing shown in Table 4 is that the dominant parties in local elections changed significantly between 1994 and 2004. In terms of the alignment issue of the municipalities with the parties in central government, we also need to look at the replacements in the central tier. Since the municipality grants data used in this paper cover years between 1997 and 2005, we show the picture of the Turkish political arena in this period.

The construction of how municipalities were aligned and which party or parties were in power between 1997 and 2005 is as follows.

2.5.1.1. Refah Party

Since RP was the winner of the general election in 1995, RP established a coalition government with the True Path Party (Dogru Yol Partisi, DYP), which lasted for only 11 months. The leader and Prime Minister, Necmettin Erbakan, resigned after the military intervention of February 28, 1997 (Atacan, F. 2005). The constitutional court in Turkey decided to shut down the largest party in parliament, the pro-Islamist Welfare Party, for violating the principle of secularism in the constitution.

The answer to the question of who voted for Islamic parties in the 1990s is given by Esmer (1995). Esmer argues that young, male voters living in rural areas were more likely than other people to vote for the RP (Refah Partisi), whereas women in urban areas, especially those gainfully employed were least prone to vote RP.

Erder (1996) demonstrates that RP found relatively strong support from small farmers, low-scaled businessmen and industrial workers, to whom the leader of RP, Necmeddin Erbakan, pledged a "fair system" for all people in the country no matter who they are. However he received very little support from professionals and bureaucrats.

The fact that the AK Party (AKP) has little support in cities where there is a growing tourism economy was also true for the previous Islamic parties, RP and FP (Fazilet Partisi). The performance of these parties was also poor in the 90s (Güneş-Ayata, A. 2002). However the RP/FP performed well in Istanbul and Kocaeli, the two most highly industrialised provinces. (Kumbaracibasi, A. C. 2009) explains this by the fact that both provinces have enjoyed large numbers of migrants from all over the country.

2.6. Literature Review on parties and Economic Outcomes

New deal spending in the United States is a good example of how politics matter for the allocation of governmental resources across regions. During the 1930s, people realised that money that was expected to go to the poor south had been transferred to the already wealthy states in the west[10]. In order to understand this pattern, researchers started to think that political variables may play a role, alongside economic variables, that could explain the allocation of New Deal spending. Wright, G. (1974), for example, found a noticeably higher coefficient of determination in the political regression than in the economic regression, when running cross section estimations for the period 1933-1940 on 48 states. These regressions are based on a theoretical model where the president maximises the probability of winning and where voters are positively sensitive to new spending programmes.

Using panel data techniques, Wallis, J. J. (1996) also found that economic variables did matter and that excluding Nevada[11] from the sample, Wright's presidential variables are still significant in the regression.

(Pettersson-Lidbom, P. 2008) seek an answer to the question of to what extent party control in local governments determines fiscal and economic policies. He uses a regression-discontinuity method, which is applied to a panel data set from Swedish local governments, on which party control changes discontinuously at 50% of the vote share. According to his findings, there is a significant effect such that left wing parties spend and tax 2-3% more than right wing parties. In terms of employment, the political entities where left wing parties govern have 7% lower unemployment rates.

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[10] See, e.g., Arrington (1969) and Reading (1973) for an analysis of New Deal spending.
[11] Nevada was the state receiving the largest per capita grants during the period.

In the political economics literature that investigates whether political parties have some effect on economic variables, the studies have generally focused on states or countries. Ferreira, F. and J. Gyourko (2007) discuss cities in the US instead of states. They found that no matter whether the mayor is a Democrat or Republican, it does not influence the size of government or the distribution of local public spending. But they show that there is a significant political advantage for incumbents, in the next elections.

Many papers have tested the hypothesis that municipalities controlled by the same party as upper-tier governments receive more grants than those that are controlled by other parties in opposition.

Recently many papers have tested hypotheses which are derived from electoral competition models. These hypotheses concern the effects of political incentives on apportionment of grants. Many scholars argue that grants are allocated to localities to increase the probability of re-election chances of the incumbent or to increase votes in the next election (Grossman, 1994; Levitt and Snyder, 1995; Dasgupta et al., 2004; Johanson, 2003; Brollo and Nannicini, 2012; Bracco et al., 2012). For example, according to (Lindbeck, A. and J. W. Weibull 1987) and (Dixit, A. and J. Londregan 1998), upper-layer or central governments should transfer more grant to states in which there is a high proportion of voters who are not specifically linked to any of the parties (so called 'swing voters'). Case, A. (2001) suggests that there is a positive, significant and robust relationship between bias in favour of the Democratic Party and the size of the commune's block grant in Albania.

Sole-Olle, A. and P. Sorribas-Navarro (2008) use a rich Spanish database, which provides information on grants allocated to nearly 900 municipalities during the period 1993-2003 from three different upper-tier governments. Benefitting from differences-in-differences estimation method, they suggest that partisan alignment has a sizeable effect on the amount of grants received by municipalities such that aligned municipalities enjoy 40% more grants than unaligned ones.

Dahlberg, M. and E. Johansson (2002) take a temporary grant program in Sweden which differs from traditional intergovernmental grants in several aspects and examine whether there were any tactical motives behind the distribution of these grants. They find that the incumbent government used the grant program in order to win votes. Parties distribute transfers to regions where there are many swing voters. However they do not find any evidence that incumbent governments transfer more money to their own supporters.

An alternative hypothesis found in the literature posits that, if politicians are risk averse, grants will be allocated to states where electors are evidently aligned to the incumbent party, called 'core supporters'.

Arulampalam et al. (2009) derived a testable prediction from the model of redistributive politics where the central government is opportunistic and uses its preference in allocation of transfers to state governments. They test this prediction using Indian data for 14 states from 1974 to 1997 and find that a state which is both 'aligned' and 'swing' in the last state election obtains more transfers than a state which is 'unaligned' and 'non-swing'.

As Sole-Olle, A. and P. Sorribas-Navarro (2008) point out, several papers, such as Levitt and Snyder (1995) for the USA, (Worthington, A. C. and B. E. Dollery 1998)

for Australia, (Khemani, S. 2003) for India, have tested this hypothesis in which aligned states receive more grants from upper-tier government. Grossman (1994), for instance, developed a model of vote-maximising federal politicians and tested this empirically using cross-sectional data for 49 states of the United States for the years 1974, 1977, 1980 and 1983. According to the estimation results, similarity of party affiliation between federal and state politicians increases grants transferred to a state.

Most of them confirmed that aligned states receive more funds. Sole-Olle et al. (2008) argue that most of these empirical papers include a common issue. The fact that the partisan control at the upper layer of government in the periods they examined does not change, leads to some doubt about robustness of the results.

Therefore without change in control at the federal level, the democratic control at the state level might reveal other factors influencing the allocation of grants (e.g. more need in poor states controlled by the democrats); this problem is even more striking in that paper, since the analysis was performed with cross-sectional data. The same problematic issue can arise in the other papers, which use panel data but for time periods of unchanged partisan control at the national level (e.g. Khemani, 2003). Therefore, the main problem in these papers is that central government does not change during the years of study, so this weakens the correctness of the results.

2.7. Data and Empirical Model

The data set for our study consists of annual observations spanning the financial years from 1997 to 2005 for around 3000 municipalities of Turkey. Of these 3000 municipalities, we have 16 metropolitan, 143 metropolitan district, 65 provincial, 749 district and 1977 town municipalities where the population is mostly less than

5000 inhabitants. We exclude from our study the metropolitan municipalities that receive additional, "origin-based", revenue shares. These are centrally determined taxes which are transferred back to their place of origin, that is, back to the jurisdiction from where they were collected (Sagbas, I. 2001).

The grant variable that we use is defined as the per capita transfer at constant price (1998 Turkish Lira) from central government. All financial variables are deflated using The State Planning Organisation deflator.

Table 5: Summary Statistics for the variables used

Variable	Obs	Mean	Std.Dev.	Min	Max
Grants (TL)	12590	566381	2158340	1021	476000000
Grants per capita (real TL per capita)	12590	13.89	27.95	0.84	2924.35
Population	14116	22711	71024	318	990073
Property Tax (real TL per capita)	11451	6.26	19.59	10	569
Population below 18 (%)	13140	36.94	24.95	25	53
Local Expenditure (real TL per capita)	14116	62.02	132.97	212	11183
Local Income (real TL per capita)	14116	53.89	169.65	192	16968
Alignment Dummy	20357	0.38	0.48	0	1
Alignment Margin	20357	-8.44	30.56	-100	100

In Table 5, the observation, mean, standard deviation, minimum and maximums for the variables used are given. All variables are in per capita terms and economic or fiscal variables are transformed to real terms using The State Planning Organisation

(SPO) deflator. Table 5 gives statistics for the full sample. According to Table 5, the mean of the alignment dummy is 0.38, in other words 38% of all municipalities in the regression sample are aligned to the central government.

From an empirical view, every attempt to estimate the causal impact of political alignment on the amount of inter-governmental grant is clearly complicated by endogeneity issues. Without finding a credible source of exogenous variation in political alignment, the empirical correlation between alignment and grants may be entirely driven by socio-economic factors influencing both dimensions. To deal with this problem, we use Turkish data and adapt the regression discontinuity (RD) design for close electoral races, pioneered by (Lee, D. and T. Lemieux 2010).

Regression discontinuity (RD) design has been used in a wide range of social science disciplines for many years. It has also been popular in economics recently, particularly in applied microeconomics, in order to exhibit treatment effect. The main motive of using RD design is to avoid the endogeneity problem which is commonly seen in econometrics. RD is a non-experimental setting where treatment is determined by whether an observed "assignment" variable exceeds a known cut-off point (Lee, D. and T. Lemieux 2010).

Panel estimation techniques, which control for year and fixed state effects, should make estimates less prone to omitted-variable bias than simple cross-sectional estimates. The effects of having an aligned mayor or an unaligned one can be better identified using regression-discontinuity estimators, which rely on data taken from candidates who win elections by small margins. Since such elections are presumably determined with some randomness, these estimators have quasi-experimental properties (Albouy, D. 2013).

The effect of partisan alignment on central government funding across municipalities is modelled empirically using a flexible control function for the vote share going to a mayor who is aligned (or non-aligned) with the central government party or coalition, to produce regression-discontinuity estimates, which improve identification.

There are two types of RD design which are called Sharp and Fuzzy RD. In this paper I use Sharp RD which is used when treatment status is a deterministic and discontinuous function of covariate, x_i. Suppose for example, that

$$D_i = \begin{cases} 1 & if\ x_i \geq x_0 \\ 0 & if\ x_i < x_0 \end{cases},$$

where x_0 is a known threshold or cut-off. This assignment mechanism is a deterministic function of x_i since once we have got information about x_i we know D_i. Treatment is a discontinuous function of x_i because no matter how much x_i converges to x_0, treatment is not changed until $x_i = x_0$ (D., A. J. and P. Jörn-Steffen 2009).

We can formalise RD in a simple model. If the potential outcome can be described by a linear, constant effect model;

$$E[Y_{0i}|x_i] = \alpha + \beta x_i$$

$$Y_{1i} = Y_{0i} + \pi$$

The first equation above represents untreated outcome, Y_{0i}, while the second is the treated outcome that includes treatment, π. If we combine these two statuses, we get this regression,

$$Y_i = \alpha + \beta x_i + \pi D_i + \vartheta_i,$$

where π is the causal effect of interest. The crucial thing in RD is that D_i, the regressor of interest, is not only correlated with x_i, it is also a deterministic function of x_i. RD reveals causal effects by distinguishing the nonlinear and discontinuous function, $1\,(x_i>x_0)$, from the smooth and linear function, x_i.

Following this approach, we would like to estimate the pure alignment effect on grants which are transferred by the central government every year. As shown in previous sections, grants play an important role in Turkey since they account for almost half of the total revenue of municipalities. In order to find the causal effect of alignment, we compare municipalities where the elected mayor is barely aligned with central government with those where the mayor is barely unaligned. Barely aligned means that the mayor won the election with a little margin and the mayor and the party in central government is the same.

The model we estimate is the following form:

$$Y_{it} = \mu_i + \delta_t + \gamma_0 AL_{it-1} + f(MA_{t-1})\varphi + \beta^{'} X_{it} + v_{it} \tag{2.1}$$

where Y_{it} per capita grants for municipality i in time period t, μ_i is a municipality fixed effect, δ_t is a time-specific effect, AL_{it-1} is the alignment dummy taking the value of 1 if the ruling party at the municipality level is the same party as the party in power in the central government, this is our treatment indicator. $f(MA_{t-1})$ is a control function, i.e. the margin of alignment which is calculated as the difference between the vote share obtained by the candidate who is aligned with the central government and the second largest party in election in municipality i. In this way, the variable *MA* implies that all observations with a positive (negative) *MA* are municipalities which are aligned (unaligned) with the central government, and

observations close to 0 from each side refer to mayors who won or lost the elections with a very small margin. (i.e. If *MA* is negative (positive), it means the aligned candidate lost (won) the election).

The control function $f(x_i)$ is some continuous function usually an n-order polynomial in the forcing variable on each side of the cut-off. The parameter of interest γ_0, party alignment effect, measures the average difference in the amount of grants between aligned and unaligned municipalities. The main reason for including fixed municipality and time fixed effects is to enhance efficiency because there is no need to include additional covariates except for $f(x_i)$ in the model to get an unbiased estimate of γ_0.

Imbens, G. W. and T. Lemieux (2008) point out that the estimation method may be sensitive to outcome values for observations far away from the threshold. As a robustness check, we address this fact and implement the local linear regression approach, which restricts the sample to municipalities in the interval $MA_{it} \in \left[-h,+h\right]$, where h is optimally chosen bandwidth, and we follow the methodology suggested by (Imbens, G. and K. Kalyanaraman 2011)

The alignment dummy variable is included in order to account for the political dimension in the process of grants allocation. While a zero coefficient of alignment would indicate that this process is free of political considerations, a significant coefficient, either positive or negative, would indicate the relevancy of political considerations in this allocation process.

Essentially, the question is whether, in its attempt to maximise the prospects for re-election, the government should pursue policies which reward its supporters or policies which reward its opponents. While theory indicates that the answer to this

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question is complicated and depends crucially on the voting behaviour of the two groups, almost all researchers seem to believe that under the observed behaviour of voters in the U.S., governments seeking re-election should pursue policies which reward their supporters (Alperovic, 1984).

2.8. Estimation Results

In this section, we present the main empirical results of the alignment effect on fiscal policies (grants, local own revenues and, local current expenditures). The results are shown in Tables 6, 7, 8, 9, 10, 11 and 12. All tables are constructed on the same principle, such that tables have 6 columns of results that represent up to the 6th polynomial of the alignment margin variable. We follow AIC (Akaike information criterion) approach to select the best model. In practice we start with a set of candidate models' corresponding AIC values. We rank the set of models according to AIC values and the model with the smallest AIC value is deemed the optimal model among the set of candidates. AIC values for each polynomial are also shown in the tables. Based upon AIC procedure, best model is 4th polynomial with smallest AIC value. Table 6 displays the regression results for whether alignment to the party in central government affects grants transferred to the municipalities, without control variables. We present the regression results with and without control variables in different tables. We include these control variables in order to check whether the alignment status is as good as randomly assigned. The inclusion of these additional covariates should not have any impact if alignment status is as good as randomly assigned conditional on $f(MA)$[12]. We also report some standard information on the

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[12] See PETTERSSON-LIDBOM, P. (2008): "Do Parties Matter for Economic Outcomes? A Regression-Discontinuity Approach," *Journal of the European Economic Association*, 6, 1037-1056.

specification, such as the number of observations and municipalities and R-squared. All specifications include time and municipality fixed effects. Robust standard errors, clustered at municipal level, are reported in all specifications.

Beginning with Table 6, the coefficient of interest (alignment variable) is always positive and statistically highly significant in all our specifications. According to these findings, we can clearly state that aligned municipalities enjoy more grants compared to non-aligned ones. The value of γ_0 changes between 2.569 and 4.978. For instance, using the specification with the 6th polynomial form in the control function, being aligned with the party in central government leads to an additional 4.511 Turkish Lira per capita in grants to the people living in that municipality. Table 7, which includes covariates, produces similar results. Following the choice of the best polynomial order, we conclude that municipalities that are politically aligned with the central government receive, on average for each individual, more grants for 5.888 Turkish Liras. The specification with and without controls provide very similar results and this is consistent with the hypothesis that the inclusion of further controls becomes redundant thanks to the use of the control function.

When we look at the results for municipal own revenue such as taxes or fees, shown in Table 8 and Table 9, we see that being aligned to the party in central government causes a municipality to collect less revenue than a non-aligned municipality in the second column. The coefficient is only statistically significant in the first polynomial and insignificant in the others. Although its sign is negative as we expected, it is not enough to imply anything.

Table 10 and Table 11 present the results for municipality expenditures. We excluded personnel salary payment from this variable so that we get more sense in

terms of public finance literature that deals with public good provision[13].By doing this, we focus on only expenditure on public good or services. Here again, the picture tells us that alignment does not statistically affect municipal expenditure. Here again, we did not consider to present AIC values for the regression results of municipality revenue and expenditure since the coefficients obtained from the regression are not statistically significant. None of the coefficients are statistically significant, however their sign is positive, most likely due to fact that aligned municipalities take more grants than non-aligned ones and hence they provide more public goods and services in their jurisdiction. The coefficient goes from -2.769 to 5.928.

All the results presented here allow us to conclude that aligned municipalities are awarded more grants from the central government in Turkey while they distress their residents less and might spend more compared to unaligned ones.

The population variable is included in order to take into account possible economies of scale in the provision of services by local authorities. It is suggested in the literature that the average cost of providing such services decreases with city size. Thus, the inclusion of the population variable intends to capture government's grants policy concerning such economies. Accordingly, it is expected that the sign of population variable will be negative. The property tax variable is included in order to represent income level in each municipality.

Due to development basis of municipalities or regions, the government should allocate grants to less developed or poor areas. In parallel to this fact, the coefficient of collected property tax income is positive and significant. A positive sign of this

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[13] Even if we run the regression for all expenditures including personnel payments made in a municipality, our results do not change significantly.

variable indicates that the richer municipalities enjoy more grants than poor areas. This contradicts what is supposed to be, based on development reasons. Therefore we can argue that political considerations play an important role while grants are transferred to local authorities in Turkey.

Table 12 shows the alignment effect on grants in municipalities where the winning margin is very close to zero. Columns report the same specification but with different margins of victory in the elections. Our empirical results show that, in razor close competitive elections where the alignment margin is very close to zero, municipalities with a mayor affiliated with the coalition of the Turkish government receive more grants than others. In parallel to the RD estimation spirit, we run the fixed effect regression for barely won elections by the mayor with margin 1%, 2%, 3%, 4% and 5% respectively. According to the results shown in Table 12, the coefficient of the alignment dummy gets stronger as long as the alignment margin converges to 0. For example, municipalities who are aligned to the party at central level and win the election with 1% margin of votes, take 12.205 Turkish Lira more than those who are not aligned. There are 256 municipalities in this position, with 1% margin of victory. The magnitude of coefficient is 12.918 in 2% margin and 8.755 in 3% margin. In the margin of 4 % and 5%, the coefficient is statistically insignificant though its sign is still positive and the effect on grant allocation is smaller. This estimation provides us with a more robust result since the specification method used here is exactly what regression discontinuity asked for. In other words, we compare the municipalities where the mayor barely won the election and barely lost the election.

This means that the central government allocates more grants to aligned municipalities where it believes that the competition is very high in those places and

aimed to increase its existing votes in the next election by transferring more money which can be used to produce more public goods or services.

Finally, in the table 13, we report the results for the local linear regression model, where the sample is restricted to observations within an optimally chosen bandwidth, calculated following Imbens and Kalyanaraman (2012). As a robustness check we also present results for when the sample is restricted to double as well as half the optimal bandwidth size.

2.9. Graphical Analysis

Graphical analysis is an integral part of RD analysis. Since the nature of RD design suggests that the treatment effect can be measured at the cut-off of the forcing variable, we should able to observe this reality in a graph. This will give us a powerful way to visualise the identification strategy. Therefore we follow the procedure of (Lee, D. and T. Lemieux 2010) and (Calonico, S., M. D. Cattaneo and R. Titiunik 2014)[14]. We especially use (Calonico, S., M. D. Cattaneo and R. Titiunik 2014) command that implements a data-driven optimal length choice of evenly-spaced bins used to approximate the underlying regression functions in RD estimation.

Figures 1-7 show the graphs for the difference of percentage of votes between the party who are aligned with the central government and the unaligned one who is the runner-up (reported on the horizontal axis) in the election and the dependent variables used in the regression discontinuity analysis (reported on the vertical axis).

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[14] All Regression Discontinuity graphs are visualized using *rdbinselect* command of CALONICO, S., M. D. CATTANEO, and R. TITIUNIK (2014): "Optimal Data-Driven Regression Discontinuity Plots," Working paper, University of Michigan.

This means that right half of the figure shows the municipalities aligned whereas left half of the figure shows the municipalities which are not aligned.

All figures present the fitted values from a regression model estimated separately on each side of the cut-off point, using the polynomial of the forcing variable. We illustrated the graph according to the 4th order polynomial, however all others are also visualised and we cannot see any apparent difference.

Figure 1 show very clear evidence of discontinuity at the cut-off point where the dependent variable is intergovernmental grants per capita. One can easily see that there is jump just after the cut-off point that enables us to be safe in our analysis. Figures 2-4 also report that when we narrowed the margin of alignment to 1%, 2% and 3% respectively, we testify that the treatment effect is more robust in the municipalities where the election has been more competitive.

Figure 5 and Figure 6 show the case where the dependent variable is municipal own revenues and municipal expenditures respectively. We see that there is no discontinuity at the cut-off point. Actually this is the result that we should expect because the treatment variable is not significant in our regressions in the previous section.

Finally, another crucial test for the validity of the RD design is to examine whether covariates do not exhibit any discontinuity at the cut-off point on the margin of victory. Figures 7 and 8 show no evidence of discontinuity at the cut-off, confirmed also by a formal RD regression using up to the 4th order polynomial in the control function.

2.10. Conclusion

Empirical evidence from across the world has shown several cases in which intergovernmental grants are affected by political motivations even though some governments have adopted some formulae for revenue sharing mechanisms. Turkey is one of the countries where intergovernmental grants are transferred to the municipalities according to population criteria. This paper explored whether there was political motivation of revenue sharing in Turkey. We also endeavoured to find an effect of alignment on municipal own revenues and expenditures.

We tested these questions using a new, unique and first-time-used dataset of Turkish municipalities and elections between 1997 and 2005. We employed regression discontinuity design, allowing us to compare municipalities, aligned and non-aligned to central government, at local elections.

In particular, we found that, if a municipality is politically aligned with the same party in central government, it will be allocated an extra 6.9 Turkish Lira per capita in grants. Although alignment seems to reduce the tax burden of residents and increase expenditure on public goods per capita, it is not statistically significant. Therefore we cannot mention anything related to municipal revenues and expenditure. However, this may suggest that our specification is robust so that we only find evidence for the alignment effect for grants, not the other variables.

Table 6: The effect of alignment on grants without control variables

VARIABLES	Polynomials					
	1st	2nd	3rd	4th	5th	6th
Alignment	2.569***	3.034***	4.059***	4.978***	4.459***	4.511***
	(0.306)	(0.397)	(0.509)	(0.681)	(0.728)	(0.839)
Constant	10.130***	10.176***	10.039***	9.475***	9.395***	8.835***
	(0.333)	(0.352)	(0.377)	(0.471)	(0.521)	(0.617)
Observations	12,502	12,502	12,502	12,502	12,502	12,502
R-squared	0.055	0.055	0.055	0.055	0.056	0.056

Notes: 1: Dependent variable is intergovernmental grant per capita in reel term. This table shows estimation of equation (1.1) for polynomials from 1st to 6th. Municipality and year fixed effect included in regressions. Robust standard errors in parentheses and clustered at the municipal level. Significant levels are *** p<0.01, ** p<0.05, * p<0.1

Table 7: The effect of alignment on grants with controls

VARIABLES	Polynomials					
	1st	2nd	3rd	4th	5th	6th
Alignment	3.853***	3.782***	4.367***	5.888***	5.900***	6.919***
	(0.666)	(0.647)	(0.850)	(1.430)	(1.655)	(2.594)
Constant	-3.620*	-2.972	-3.223	-4.089**	-4.170**	-4.435**
	(1.878)	(2.094)	(1.973)	(1.779)	(1.742)	(1.771)
Observations	10,526	10,526	10,526	10,526	10,526	10,526
R-squared	0.164	0.164	0.164	0.164	0.164	0.165
AIC value	92890.46	92894.28	92893.56	92890.18	92896.32	92899.09

Notes: 2: Dependent variable is intergovernmental grant per capita in reel term. This table shows estimation of equation (1.1) for polynomials from 1st to 6th. Municipality and year fixed effect included in regressions. Robust standard errors in parentheses and clustered at the municipal level. AIC values are given to choose optimal polynomial, which is the 4th. Control variables include population, population under 18, property tax per capita as a proxy for local income, male ratio. Significant levels are *** p<0.01, ** p<0.05, * p<0.1

Table 8: The effect of alignment on Municipal Own Revenues without controls

| VARIABLES | Polynomials | | | | | |
	1st	2nd	3rd	4th	5th	6th
Alignment	-12.756*	-3.487	5.742	-1.285	-8.517	-4.520
	(6.938)	(8.498)	(10.767)	(17.297)	(22.418)	(18.919)
Constant	1.455	0.111	-1.008	3.892	5.123	-5.971
	(4.401)	(8.060)	(13.130)	(18.055)	(18.532)	(13.460)
Observations	13,985	13,985	13,985	13,985	13,985	13,985
R-squared	0.068	0.068	0.068	0.068	0.069	0.069

Notes: 3: Dependent variable is Municipality own revenues per capita in reel term. This table shows estimation of equation (1.1) for polynomials from 1st to 6th. Municipality and year fixed effect included in regressions. Robust standard errors in parentheses and clustered at the municipal level. Significant levels are *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 9: The effect of alignment on Municipal Own Revenues with controls

| VARIABLES | Polynomials | | | | | |
	1st	2nd	3rd	4th	5th	6th
Alignment	-6.131	0.051	1.684	-5.379	-2.210	-7.597
	(3.792)	(4.789)	(6.231)	(9.585)	(12.236)	(11.059)
Constant	-18.404***	-19.257***	-18.675**	-18.154*	-13.060	-19.674**
	(6.238)	(6.529)	(8.114)	(9.373)	(9.723)	(7.878)
Observations	13,140	13,140	13,140	13,140	13,140	13,140
R-squared	0.058	0.059	0.059	0.059	0.059	0.060

Notes: 4: Dependent variable is Municipality own revenues per capita in reel term. This table shows estimation of equation (1.1) for polynomials from 1st to 6th. Municipality and year fixed effect included in regressions. Robust standard errors in parentheses and clustered at the municipal level. , Control variables include population, population under 18, property tax per capita as a proxy for local income, male ratio. Significant levels are *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 10: The effect of alignment on municipal expenditures without controls

VARIABLES	Polynomials 1st	2nd	3rd	4th	5th	6th
Alignment	-4.807	0.956	6.834	2.990	1.701	2.244
	(2.963)	(3.686)	(4.566)	(6.611)	(8.500)	(7.898)
Constant	3.391	1.867	1.066	1.647	1.583	-4.074
	(2.091)	(3.191)	(4.745)	(6.298)	(6.642)	(5.546)
Observations	13,985	13,985	13,985	13,985	13,985	13,985
R-squared	0.152	0.153	0.153	0.153	0.153	0.153

Notes: 5: Dependent variable is Municipality expenditures per capita in reel term. We exclude personnel salary payments to get more sense on public good provision. This table shows estimation of equation (1.1) for polynomials from 1st to 6th. Municipality and year fixed effect included in regressions. Robust standard errors in parentheses and clustered at the municipal level. Significant levels are *** p<0.01, ** p<0.05, * p<0.1

Table 11: The effect of alignment on municipal expenditure with controls

VARIABLES	Polynomials 1st	2nd	3rd	4th	5th	6th
Alignment	-2.769	2.699	5.928	1.842	1.269	1.072
	(3.006)	(3.759)	(4.764)	(6.846)	(8.655)	(7.871)
Constant	-55.767***	-57.438***	-57.618***	-56.884***	-55.181***	-59.982***
	(7.802)	(7.932)	(8.471)	(9.131)	(9.120)	(8.392)
Observations	13,140	13,140	13,140	13,140	13,140	13,140
R-squared	0.168	0.168	0.168	0.168	0.168	0.168

Notes: 6: Dependent variable is Municipality expenditures per capita in reel term. We exclude personnel salary payments to get more sense on public good provision. This table shows estimation of equation (1.1) for polynomials from 1st to 6th. Municipality and year fixed effect included in regressions. Control variables include population, population under 18, property tax per capita as a proxy for local income, male ratio. Robust standard errors in parentheses and clustered at the municipal level. Significant levels are *** p<0.01, ** p<0.05, * p<0.1

Table 12: The effect of alignment on grants in very close margins and local linear regression

VARIABLES	(1) 1% Margin	(2) 2% Margin	(3) 3% Margin	(4) 4% Margin	(5) 5% Margin
Alignment	12.205***	12.918***	8.755**	5.008	4.884
	(1.924)	(1.924)	(4.091)	(3.927)	(3.023)
Constant	-89.555	-6.178	5.307	6.480	10.801**
	(79.978)	(6.229)	(6.646)	(5.804)	(4.444)
Observations	434	873	1,345	1,776	2,191
R-squared	0.271	0.318	0.192	0.147	0.003

Notes: Table reports coefficients on alignment dummies. Clustered standard errors in parentheses clustered at municipal level, significant levels *** p<0.01, ** p<0.05, * p<0.1, All regressions include municipality and year dummies. Control variables include population, population under 18, property tax per capita as a proxy for local income, male ratio. Columns present the alignment effect in grants where the margin of victory is very low in the elections.

VARIABLES	(1) Local Linear Regression h	(2) Local Linear Regression half h	(3) Local Linear Regression double h
Alignment	6.372***	5.367**	4.772***
	(2.244)	(2.488)	(1.574)
Population	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
Constant	9.047***	11.747**	9.780***
	(1.900)	(4.549)	(1.236)
Observations	2,859	1,476	5,189
R-squared	0.004	0.199	0.008

Notes:7: The table reports coefficients on alignment dummies and population variable. Controls include: municipal population, population under 18, property tax per capita as a proxy for local income, male ratio. Time dummies are included in all regressions. Optimally chosen bandwidth (h) in local linear regressions is +/−6.56. Significance at 1% is represented by ***, at 5% by ** and at 10% by *. Robust standard errors in brackets are clustered at municipal level.

Appendix
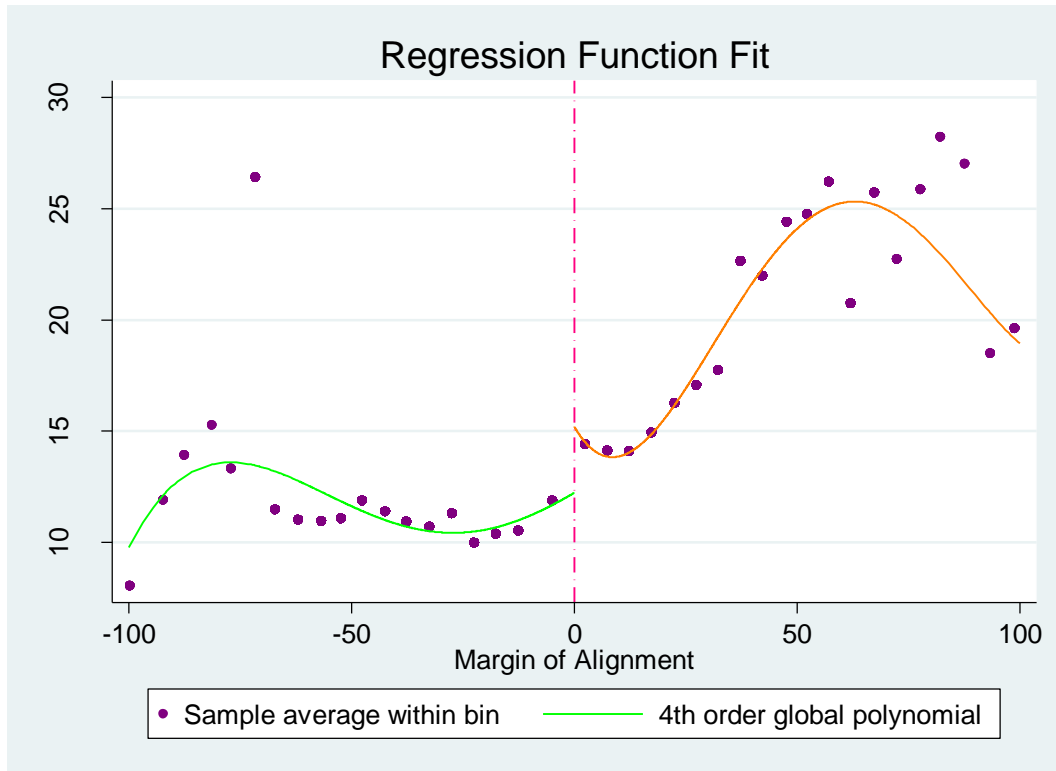
Regression Function Fit in 1% Margins

- Sample average within bin   —— 4th order global polynomial

Regression Function Fit in 2% Margins

- Sample average within bin   —— 4th order global polynomial

Regression Function Fit in 3% Margins

Regression Function Fit

Regression Function Fit

Legend:
- Sample average within bin
- 4th order global polynomial
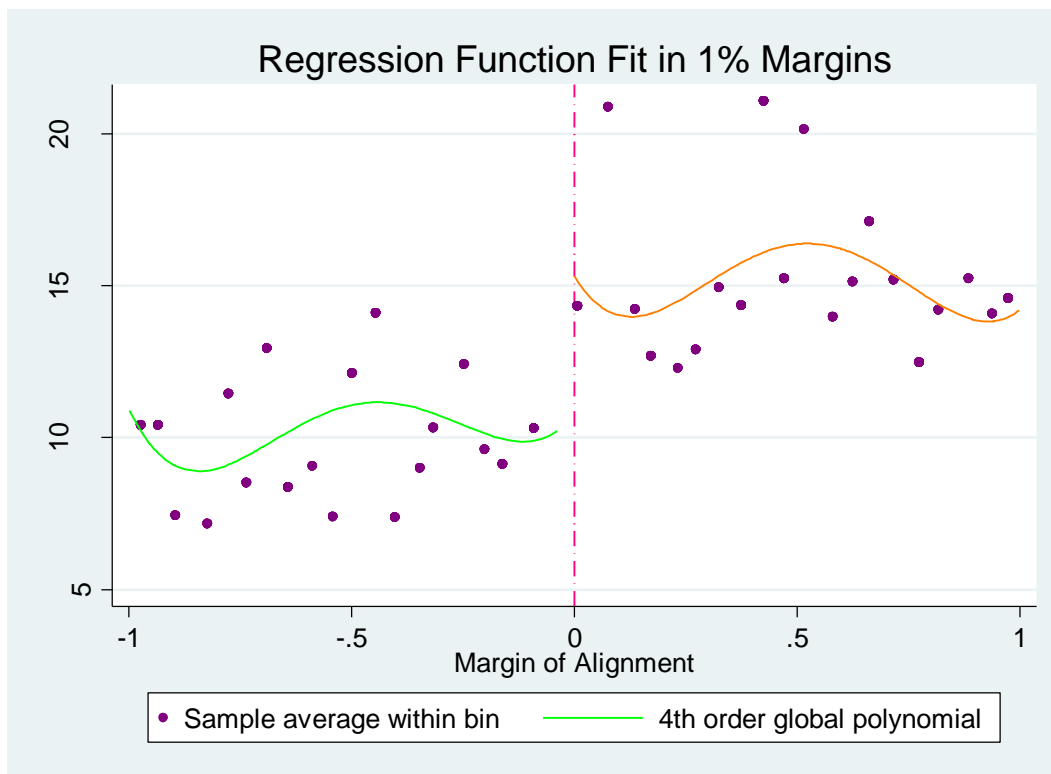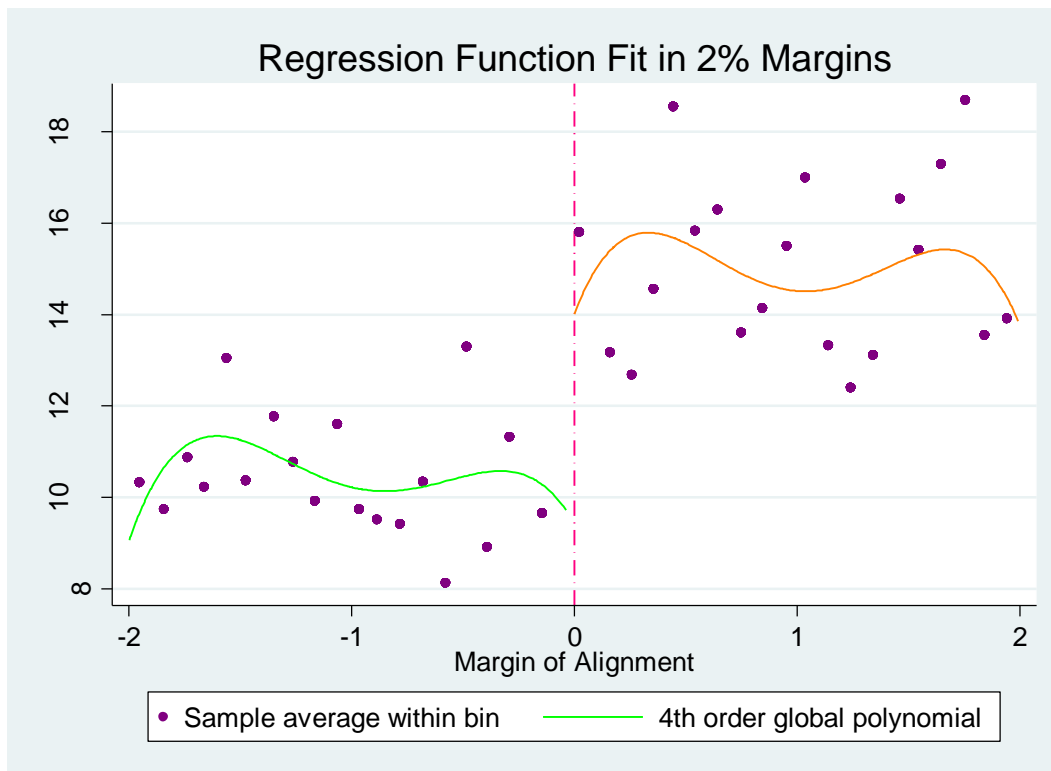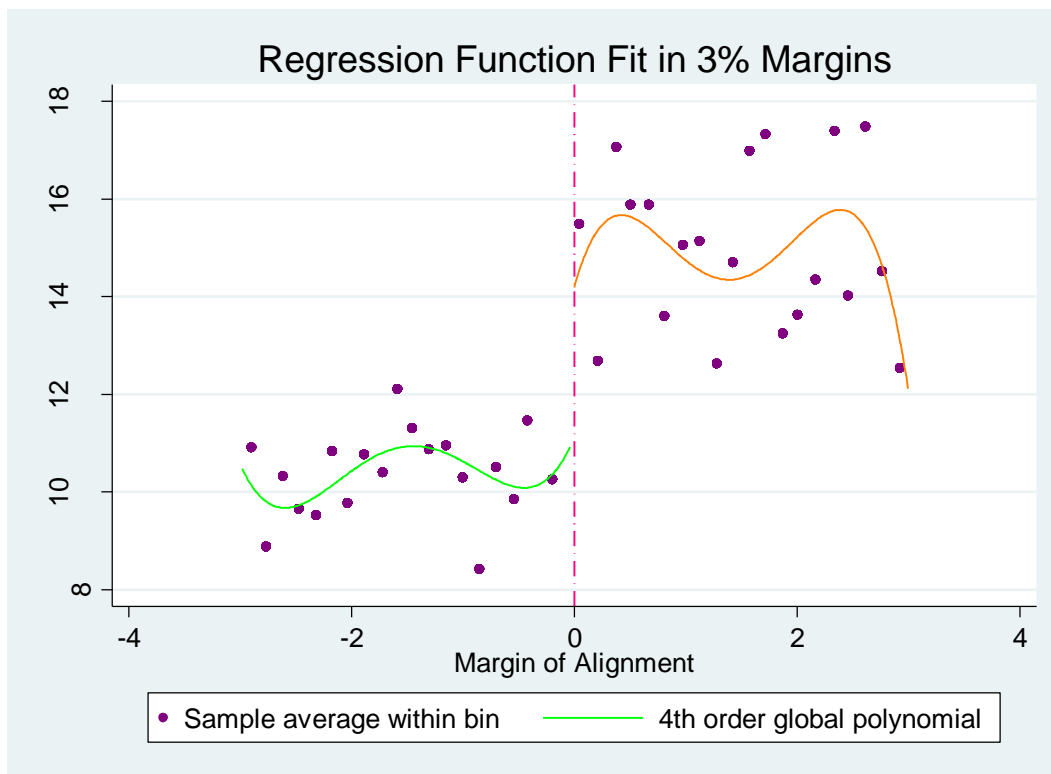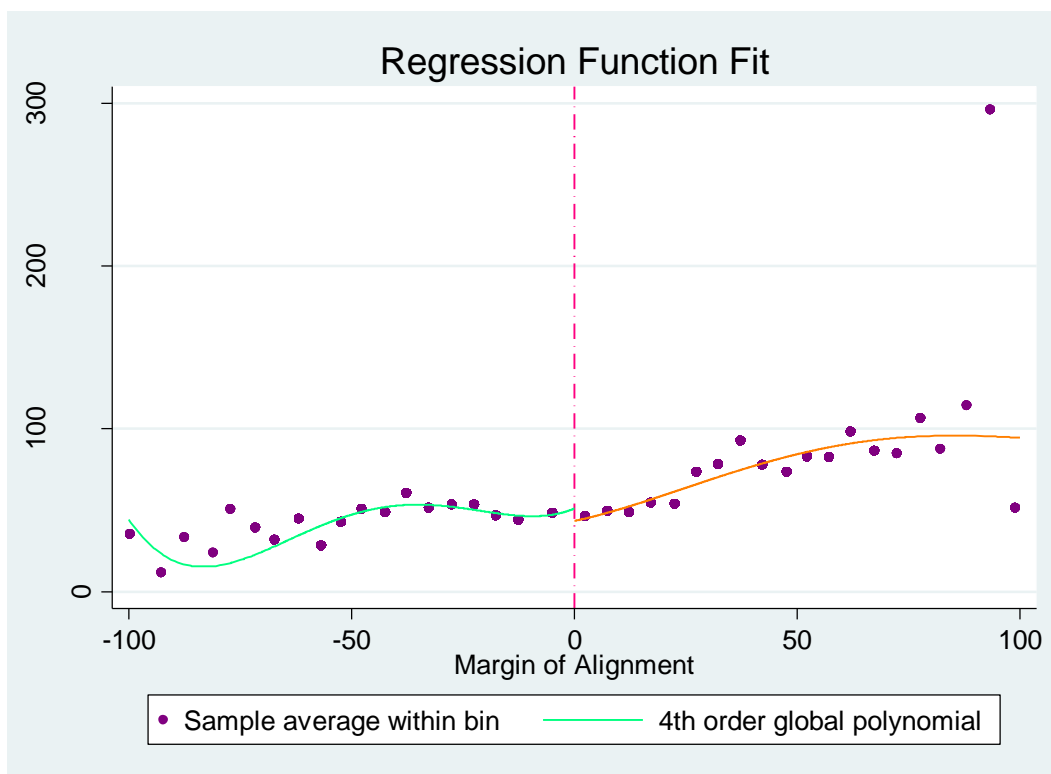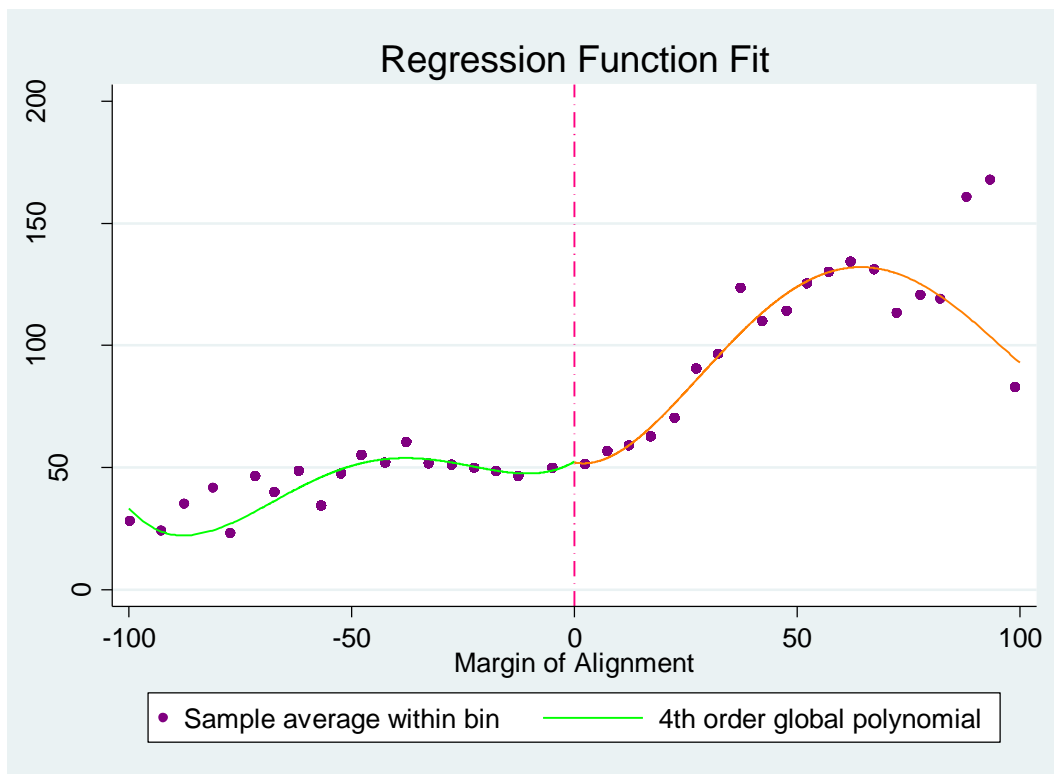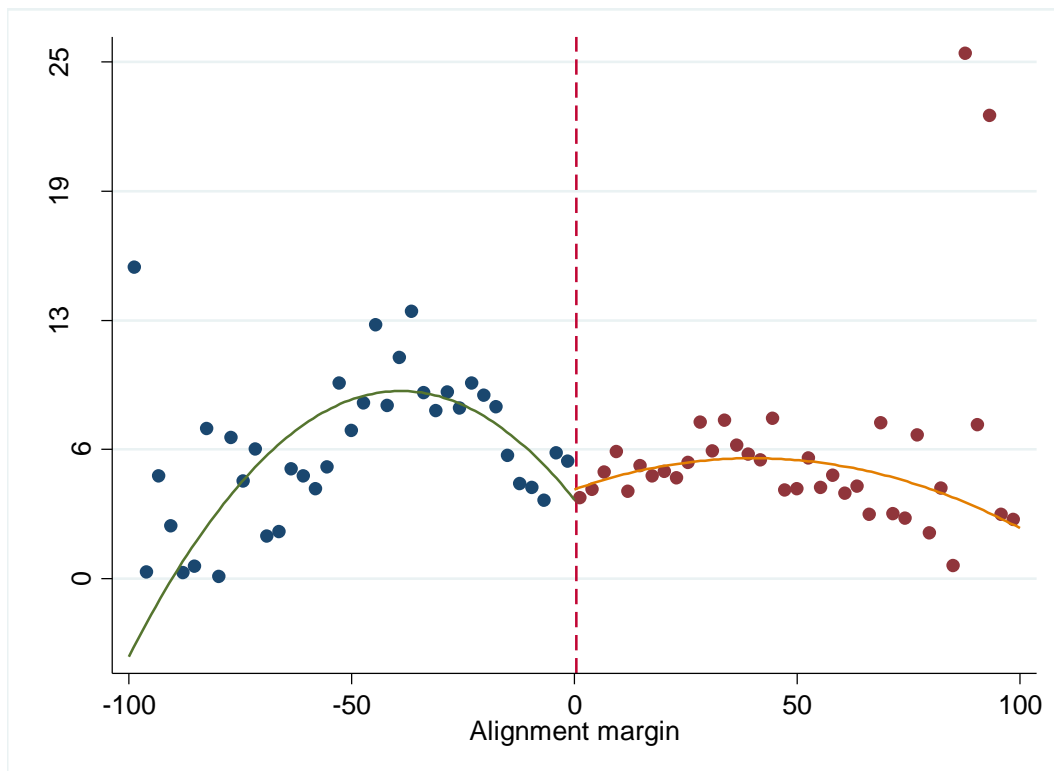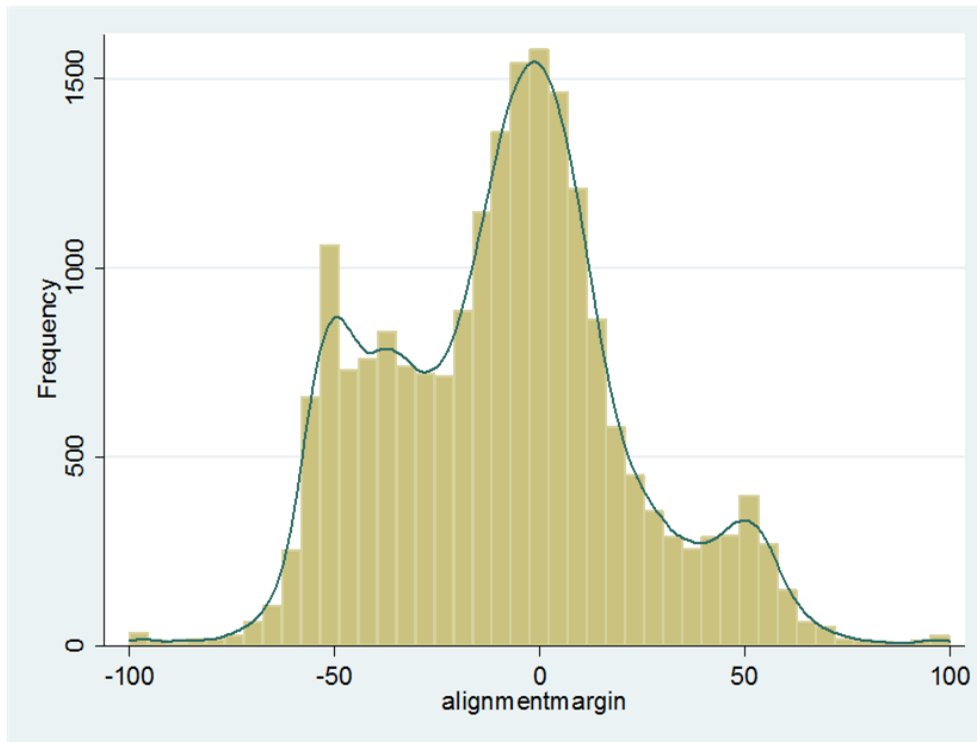
Chapter 3

INTERGOVERNMENTAL GRANTS AND THE FLYPAPER EFFECT IN TURKEY

3.1 Introduction

The debate about whether intergovernmental grants and local private income have similar effects on local expenditures has found an important place among researchers. In local public finance literature, this phenomenon has been called as the flypaper effect, which is a term derived from the statement for "money sticks where it hits". The flypaper effect predicts that non-matching grants (revenue-sharing type) stimulate much more local spending than does income going to private citizens within the community. It can also be explained that money received in the public sector is more likely to remain in the public sector, whereas money received in the private sector is more likely to remain in the private sector (Fisher, R. C. 1982). The reason of this fact is that politicians at local level do not tend to cutting taxes when the local government receives revenue-sharing monies.

3.2. The Politics of Grant

Trying to model how receiving governments respond to grants need much more than an understanding of the economic equivalences between different grants formulas. Actual problem is how governments determine their spending and revenue decisions.

The decisions are the result of some kind of political process rather than simply economic. As such, a model that tries to explain governments' responses to grants is only as good as its ability to model the underlying political process that generates their responses. Today, local governments and political forces have become numerous with growing communities and moved beyond the simplest one-person, one-vote direct democracies of the small village. Therefore, it will be tough to capture all the political distinctions that take place in large communities and provincial governments.

Nevertheless, most of economists have essentially chosen median voter model that is commonly used to develop empirical models of local (state or provincial) governments' decisions on spending, revenues, and grants transferred by upper-tier or central government. The main assumption of the model is that a government's spending and revenue decisions are those that match the preferences of the median voter in its jurisdiction. So, median voter is the one whose preferences on spending and revenues lie in the middle of the preferences.

Several research theories have endeavoured to explain the flypaper effect phenomenon. There are two main discussions competing with each other. First, flypaper effect is caused by a fiscal illusion. Second, the reason of the effect is bureaucrats. We will give a brief explanation about these two models below.

3.2.1. Fiscal Illusion

In this view, the flypaper effect is the outcome of voter-taxpayer ignorance of fiscal illusion. Fiscal illusion literature argues that some features of the tax structure influence voter's perceptions about how much they are financing the cost of public goods. Fiscal illusion suggests that when government revenues are not completely perceived by taxpayers, then the cost of public goods is seen less expensive than

it actually is. The demand for government expenditures increases since taxpayers benefit from government expenditures from these unobserved revenues. As a result, politicians have an incentive to expand the size of government.

3.3. The Bureaucratic Model

According to these models, bureaucrats or local politicians are seen as exercising monopoly control over publicly produced goods and services. They use this power to compel elected officials into approving larger budgets at higher cost per unit than would otherwise occur, to improve their prestige and power (Niskanen, W. A. 1968, Wyckoff, P. G. 1988). The flypaper effect might occur in the bureaucratic model since bureaucrats have much more knowledge regarding with grants and budget. This superior information enables him to obtain a budget in excess of that desired by the median voter (Sagbas, I. and N. T. Saruç 2004). It is argued that the bureaucrats, who act strategically, disclose asymmetric information, responds the budget cuts by cutting the most popular programs first, and magnifies all budget requests (Schwallie, D. P. 1989). There are many other models and theories attempting to explain the reason of flypaper effect in public finance literature[15]. The main inference of the bureaucratic model explanation of the flypaper effect is that local authorities exert lesser local tax effort because managers in local depend on grants to finance their spending.

3.4. Literature Review

There have been numerous studies on flypaper effect and whether intergovernmental transfers stimulate or substitute local tax effort. Gramlich, E. M., H. Galper, S.

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[15] See BAILEY, S. J., and S. CONNOLLY (1998): "The Flypaper Effect: Identifying Areas for Further Research," *Public Choice*, 95, 335-361.

Goldfeld and M. McGuire (1973) pioneered one of the first discussions on the expenditure effects of intergovernmental transfers. They have categorized the intergovernmental grants as;

(1) open-end matching grants, where the higher level of government finance some portion of the cost of certain expenditures of lower level of government. This obviously reduces the price of services provided by local government.

(2) Closed-end lump sum transfers, where the higher level of government transfers a fixed amount of money to a lower level of government without dictating any aim on the use of money or changing any relative prices. This may be based on any allocation formula such as population criteria; Turkish local government system has this type of transfers, which is also called revenue-sharing programmes.

(3) Closed-end categorical grants, where the higher level of government transfers a limited amount of money to be used for a particular programme started by lower level of government. This type of grants may be thought a mixed of first two categorizes (price of the programme is lowered, but the size of the grant is limited).

According to the authors expenditure effect should be larger for open-end matching grants and smaller for closed-end lump-sum transfers, while the expenditure effect of closed-end categorical grants should be between those two effects. Hence, lump-sum grants should have only income effect, whereas matching grants should also have substitution (price) effect (Bailey, S. J. and S. Connolly 1998). However, recent literature finds that lump-sum grants should also have price effect since the grants help the local authority to reduce tax rates even if they provide the same level of local

public goods. Marginal costs of public funds are lower, which means that the effective price of providing the public goods is also reduced.

Gramlich, E. M., H. Galper, S. Goldfeld and M. McGuire (1973) found that lump-sum transfers have larger effect on government spending than equivalent increase in private income. According to their estimation, each dollar of private income increases state and local expenditures by only 10 cents in the United States.

The issue of flypaper effect has been hugely examined in the empirical literature beside theoretical studies (Acosta, P. 2010, Case, A. C., H. S. Rosen and J. R. Hines Jr 1993, Knight, B. 2002, Turnbull, G. K. 1998, Worthington, A. C. and B. E. Dollery 1999). Most of these studies tend to focus on industrialised countries. (Pevcin, P. 2011) examines the expenditure and tax effort effect of municipal transfers in Slovenia and the empirical analysis shows that transfer revenues (grants) have absolutely and relatively larger effect on municipal expenditures than equivalent increase in income. He also finds that substitution effect exists meaning transfer revenues have negative impact on municipal tax effort.

Sagbas, I. and N. T. Saruc 2008, Sagbas, I. and N. T. Saruç (2004) examines whether grants cause the flypaper effect in the face of linear budget constraint in Turkey. They argue that the flypaper effect exists and could be explained by the bureaucratic model. In other study where the same authors contributed, they state that local tax effort is affected by the substitution and stimulative effects of grants on local expenditure in addition to the variance in the flypaper effect.

Our paper on flypaper effect analysis contributes to the literature in Turkey in two ways. First, we use GMM, which is a more advanced method, considering there might be two-way causation in grants and income. It enables us to obtain more robust results

compared to previous studies on Turkey aforementioned above. This method also provides us more reliable estimates since the difference in magnitude between grant and income coefficients are close to each other, but statistically not equal based upon T-test. In previous studies there are huge difference on those coefficients which is most like due to OLS method used and not considering endogeneity.

There are also studies that empirically test flypaper effect and find no evidence. For example Worthington, A. C. and B. E. Dollery (1999) investigate the flypaper effect for Australian local governments and could find no effect and interestingly their estimates show that intergovernmental transfers have statistically significant negative effect on local government expenditure. Becker, E. (1996) reveals that flypaper effect is in fact an illusion since the results are very sensitive to estimation technique and inappropriate functional form of estimation might generate different conclusions.

3.5. Model Specification and Estimation

We follow similar model used by (Sagbas, I. and N. T. Saruç 2004) and (Cárdenas, O. J. and A. Sharma 2011). We use a panel data set of 838 Turkish municipalities between 1997 and 2005 for the period. Since we do not have a fiscal data for the year of 1998, our data set jumps from 1997 to 1999. We include province (il) and district (ilce) municipalities but not town (belde) municipalities to our analysis we do not have enough data for towns. Out of 838 municipalities, the number of province municipalities is 59 and the remaining 739 are district municipalities. We obtain the fiscal data (grant, revenue, expenditure, etc) for municipalities from the Final Accounts provided by municipalities at the end of each year. The source for our data is Turkish Statistical Institute (TUIK). All economic variables are deflated using

price-index taken from State Planning Organization (DPT) of Turkey. Therefore grant, income and expenditure variables are in real terms in all specifications.

The summary statistics are presented in Table 1.

VARIABLES	Mean	Std.Dev	Min	Max
Grant	10.75	6.702	0.101	148.7
Income	11.81	12.13	0.103	379.7
Expend	24.11	21.58	0.112	645.6
Population	46,289	104,864	754	990,073
Popover18	52.98	16.17	7.606	229.0

The equation we estimate is as follows:

$$Ex_{it} = \alpha_0 + \beta_0 Grants_{it} + \beta_1 Income_{it} + Z_{it}\gamma + \xi_{it} \tag{1}$$

Where;

Ex_{it} = Per capita expenditure in 1998 Turkish liras of municipality i in year t.

$Income_{it}$ = Per capita own source income 1998 Turkish liras of of municipality i in year t

$Grants_{it}$ = Per capita unconditional grants in 1998 Turkish liras of of municipality i in year t

Z_{it} = Social Characteristics of municipality i in year t.

In this study, we follow the conventional approach (Courant, P. N., E. M. Gramlich and D. L. Rubinfeld 1978) where the flypaper effect is explored in the face of linear budget constraint because grants from central government are allocated without any matching requirements in Turkey.

In order for us to argue flypaper effect does exist, then the magnitude of the coefficient of grants variable must be bigger than the coefficient of income variable in equation (1), that is $\beta_0 > \beta_1$. Moreover, we could say that unconditional grants have a stimulation effect on the local tax effort conditional on $\beta_0 > 1$, while if $\beta_0 < 1$, then it generates a substitution effect, which is likely to reduce the local tax effort.

We begin estimating the equation (1) in the first column and add one variable at a time in order to check if the existence of the fly paper effect is sensitive to the included variables. That is, we first estimate equation (1) without controlling for the municipality's characteristics, and later we add these characteristics one by one. Table 1 presents the results from these estimations.

As we see, the baseline model (column I) shows the existence of flypaper effect and grants also have stimulation effect on revenue collection effort. Additional 1 Turkish Lira (TL) grant increase leads municipal expenditure by more than 1 TL. Table 1 also suggest that revenue sharing (grant) stimulates local expenditure more than municipal local budget tax revenues (a proxy for local income). The same argument holds when we control for the population, population over 18 years old and lag expenditure (columns II, III, IV respectively). All specifications include time and municipality fixed effects in order to control for time invariant, municipality specific preferences for public spending, such as geography.

Since we have a lagged dependent variable in our specification (IV) that makes the equation dynamic panel data, it may not be efficient in terms of econometric issues. Therefore we need to make sure that the previous findings are efficient and robust in dynamic panel data models. We estimate the following generalized equation:

$$Ex_{it} = \alpha_0 + \beta_0 Ex_{it-1} + \beta_1 Grants_{it} + \beta_2 Income_{it} + Z_{it}\gamma + \xi_{it} \qquad (2)$$

where:

Ex_{it-1} = The per capita expenditure in 1998 Turkish Liras of municipality i in year t-1

Why we adopt dynamic panel data estimation technique can be summarised as follows;

First issue is that the variables *Grants, Income* are potentially endogenous in equation (2) due to two-way causality. In other words, not only Grants, Income impact expenditure, but they are affected by expenditure at the same. If there is an increase in expenditure, it is most likely to stimulate revenue in the municipality. An increase in expenditure is likely to influence unconditional grants since both of them might be correlated with the unobservable such as performance or state of the economy, political cycle etc. If we want to express it more technically, it is said that the regressors are likely to be correlated with the error term.

Second problem arises due to the time-invariant municipality characteristics (fixed effects). Geographic factors, institutions and demographics of districts might be correlated with the explanatory variables. The error term in equation (2) accommodates municipality fixed effects, u_i, and the observation-specific errors, ε_{it}:

$$\xi_{it} = u_i + \varepsilon_{it} \qquad (3)$$

Third issue is the fact of autocorrelation that is emerged with the inclusion of the lagged-dependent variable, Ex_{it-1}.

Since we have a panel dataset that consists of a short time dimension (T=8) and large municipality dimension (N=841).

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Problem 1 and 2 above can be solved by using fixed-effects instrumental variables estimation (so called two-stage least squares or 2SLS). However we are not able to implement this technique due to the lack of exogenous instruments to identify the endogenous variables. Therefore, we use Arellano-Bond difference GMM (Generalized Method of Moments) estimator (Arellano, M. and S. Bond 1991), which is first proposed by (Holtz-Eakin, D., W. Newey and H. S. Rosen 1988). It enables us to use the lagged levels of the endogenous regressors as instruments. Endogenous variables become pre-determined and, therefore not correlated with the error term in equation (2).

We cope with the problem of fixed effects by using the difference GMM estimator after transforming equation (2) into;

$$\Delta Ex_{it} = \Delta\beta_0 Ex_{it-1} + \beta_1 \Delta Grants_{it} + \beta_2 \Delta Income_{it} + \Delta' Z_{it}\gamma + \Delta\xi_{it} \qquad (4)$$

Municipality specific fixed effects are eliminated by transforming the regressors by first differencing, since it is a time-invariant factor. After first differencing equation (3), we get;

$$\Delta\xi_{it} = \Delta u_i + \Delta\varepsilon_{it} \qquad (5)$$

or

$$\xi_{it} - \xi_{it-1} = (u_i - u_i) + (\varepsilon_{it} - \varepsilon_{it-1}) = \varepsilon_{it} - \varepsilon_{it-1} \qquad (6)$$

where Δ is a difference operator.

In order to address problem (3) above, which is autocorrelation issue, the first-differenced lagged-dependent variable (lag expenditure) is also instrumented with its past levels.

Arellano-Bond estimator was designed for "small T, large N" panels, meaning small time periods and many cross-sectional units. A shock to the municipality fixed effect in large time dimensional panels, which appears in the error term, will drop over time. Equivalently, the correlation of the lagged-dependent variable and the error term will not be significant anymore (see (Roodman, D. 2014).

We show the estimates of the difference GMM estimators model specifications in Table 2. Column 2 presents the specification where all the explanatory variables are treated as exogenous while column 3 presents the estimates of the difference GMM estimator of model where Grants and Income variables are considered as potentially endogenous variables.

GMM estimators require two conditions to be consistent. First condition is that error term should not be serially correlated and second, the lagged values of the explanatory variables must be accurate as instruments. (Arellano, M. and S. Bond 1991) suggested the examination of serial correlation in the error term to deal with the first one. This test seeks the first and second order serial correlation in the residuals from the regression in differences. It is a common fact that the differenced error term exhibits first order serial correlation even if the residuals in levels are not correlated. However, second order serial correlation indicates that the moment conditions are valid producing consistent estimates.

We perform a Sargan test of over-identifying restrictions for the exogenous instruments. Sargan tests the null hypothesis of overall validity of the instruments. When this null hypothesis is rejected, the validity of instruments is approved. Sargan and AR tests are reported at third row from the bottom of Table 2. Tests in Column 2 provide the evidence of second-order serial correlation and the instruments are not exogenous. This is an expected result since we were suspicious about endogeneity in

the beginning. However when we estimate the model treating "Grant and Income variables" as endogenous (Column 2), we cannot reject the null hypothesis of no serial correlation at the 10% confidence level and it means that the instruments are not correlated with the error term. In addition to that, we also cannot reject the null hypothesis of instruments being exogenous at the 10% confidence level. Hence Column 2 in Table 2 enables us to use those results to conclude the model because it passes all the relevant tests. Table 2 and 3 shows the point estimates of regression based on our estimation strategy. However we need to test formally the coefficients of grant and revenue variables in order to pass judgement on the flypaper effect exists in Turkey. Therefore we run a formal test for $H_0 : \beta_1 = \beta_2$ against $H_1 : \beta_1 > \beta_2$ and report the results in Table 2. We find that we can reject the equality hypothesis at the 5% level. We argue that grants have more impact on expenditure than local revenues in municipality level.

Table 3 shows the logarithmic estimates of the same equation. When we compare Table 2 and Table 3, we see that the Fly paper effect still remains and its magnitude increases. Table 3 also reveals that our conclusions are robust to different estimation methods. Although (Becker, E. 1996) argues that the flypaper effect is highly sensitive to the specification of the expenditure function since the linear and logarithmic equations presents different results in the paper. However, in our estimations even if we use linear and logarithmic form of the expenditure function, our conclusion does not change and not depend on the functional form.

The flypaper effect exists in Turkish local government finance and its magnitude is similar with the fixed effect estimation. This makes our analysis robust since our result holds even if the estimation strategy differs. Turkish municipalities also experience substitution effect of unconditional grants on the revenue collection

efforts. In other words, grants transferred by central government to municipalities in Turkey, substitute local revenues leading lesser local tax effort.

3.6. Conclusion

In this paper, we investigate that the phenomenon of flypaper effect and its relation to the local tax effort, by using a panel data that consist of all province and district municipalities in Turkey between 1997 and 2005 excluding 1998 due to non-available fiscal data. The flypaper effect introduces the phenomenon of which an increase in the unconditional grants leads greater spending than equivalent increase in the local income. We use fixed effects and dynamic panel data specific GMM estimators to obtain the results. According to our estimations, the flypaper effect does exist for the Turkish municipalities. This result is robust to various model specifications and econometric techniques. Turkish municipalities also experience substitution effect of unconditional grants on the revenue collection efforts. In other words, grants transferred by central government to municipalities in Turkey, substitute local revenues leading lesser local tax effort.

(Duncombe, W. 1996) recommends that, if the flypaper effect exists, central government should develop a policy to predict funds required and assign unconditional grants accordingly. For instance, if local governments experiencing a budgetary gap are many, then there are two alternative options to improve the budget; either a reduction in grant or an increase in local taxes. In the flypaper theory, a reduction in grants would have more impact in lowering a budgetary gap than an increase in local taxes, because expenditures are increased by unconditional grants more than equivalent increased in private income. This fact explains that governments might use grants to affect local budget to reduce municipality spending. From the

political perspective, politicians who are aligned with the same political party in the municipality could assure more grants to be transferred to his/her jurisdiction when the elections are close so that the municipality provides more public good and influence the voters. By doing so, politicians might increase their probability of re-elected in the next election.

Table 1: OLS Fixed Effects Estimation Results, Testing for Flypaper (Turkish Lira per capita), dependent variable is expenditure per capita.

VARIABLES	(1) I	(2) II	(3) III	(4) IV
Grants	1.052***	1.044***	1.037***	1.011***
	(0.095)	(0.098)	(0.123)	(0.123)
Income	0.921***	0.923***	0.916***	0.899***
	(0.048)	(0.048)	(0.049)	(0.054)
Population		-0.000***	-0.000***	-0.000***
		(0.000)	(0.000)	(0.000)
Popover18			0.027	0.026
			(0.034)	(0.030)
Lag expenditure				0.104**
				(0.048)
Constant	-6.382***	-4.876***	-6.039***	-9.412***
	(1.417)	(1.709)	(1.232)	(2.217)
Observations	6,958	6,958	6,559	6,437
Year dummies	Yes	Yes	Yes	Yes
Municipality Fixed effects	Yes	Yes	Yes	Yes
R-squared	0.674	0.674	0.726	0.766
F statistic	F(9,80)= 373.43	F(10,80)= 326.15	F(11,80)= 334,81	F(12,80)= 297,85

Notes: This table presents OLS regressions with expenditure per capita as dependent variable. The independent variables of interest are grant and income variables. Significant levels *** p<0.01, ** p<0.05, * p<0.1 , Figure in parenthesis are heteroskedasticity corrected standard errors.

Table 2 : Difference GMM Estimation, dependent variable is expenditure per capita.

VARIABLES	(1) Exogenous	(2) Endogenous
Grants	0.835***	0.666**
	(0.060)	(0.328)
Income	0.651***	0.589*
	(0.047)	(0.345)
Lag population growth	97.815**	18.078
	(43.179)	(20.261)
Population	-0.000	-0.000
	(0.000)	(0.000)
Lag Expenditure	0.160***	0.154***
	(0.021)	(0.013)
AR(1)	0.000	0.000
AR(2)	0.000	0.690
Sargan test of over identification for the exogenous instruments	0.000	0.420
T test for Equality	5.08**	4.22**
Observations	2,503	2,503
Number of Municipalities	838	838

Notes: This table presents GMM regressions with expenditure per capita as dependent variable. The independent variables of interest are grant and income variables. Sargan tests the null hypothesis of overall validity of the instruments. When this null hypothesis is rejected, the validity of instruments is approved. Significant levels *** $p<0.01$, ** $p<0.05$, * $p<0.1$, Figures in parenthesis are heteroskedasticity corrected standard errors. T test for equality of grant and revenue coefficients shows that null hypothesis is rejected at 5% level.

Table 3: Logarithmic Estimates of variables in Table 2, dependent variable is log of expenditure per capita.

VARIABLES	(1) Exogenous	(2) Endogenous
Loggrants	0.265***	0.442***
	(0.027)	(0.070)
Logincome	0.293***	0.140**
	(0.014)	(0.058)
Lag population growth	-1.808***	0.282
	(0.693)	(0.263)
Logpopulation	0.179	-0.793
	(1.044)	(0.482)
Lag logexpenditure	0.047	0.145***
	(0.085)	(0.048)
AR(1)	0.000	0.000
AR(2)	0.000	0.307
Sargan test of over identification for the exogenous instruments	0.000	0.235
T test for Equality	1.14	8.58***
Observations	2,496	2,496
Number of Municipalities	837	837

Notes: This table presents GMM regressions in logarithmic form with expenditure per capita as dependent variable. The independent variables of interest are grant and income variables. Sargan tests the null hypothesis of overall validity of the instruments. When this null hypothesis is rejected, the validity of instruments is approved. Significant levels *** $p<0.01$, ** $p<0.05$, * $p<0.1$, Figures in parenthesis are heteroskedasticity corrected standard errors. T test for equality of grant and revenue coefficients shows that null hypothesis is rejected at 1% level when grants and income variables are treated as endogenous.

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