EYD

Ekonomik Yaklaşım Derneği / Association

***Ekonomik Yaklaşım* 2017, 28(102): 87-117**

www.ekonomikyaklasim.org
doi: 10.5455/ey.36103

Government Quality and Regional Development in Turkey

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08 Kasım 2016'da alındı; 03 Temmuz 2017'de kabul edildi.
11 Eylül 2017'den beri erişime açıktır.

Received 08 November 2016; accepted 03 July 2017.
Available online since 11 September 2017.

Araştırma Makalesi/Original Article

Abstract

This paper investigates the impact of government quality on regional development differences in Turkey. First set of results obtained from spatial data analysis show that individuals' perception on government services is spatially non-random. Moreover this spatial pattern is subject to substantial level of clustering behavior; as there are different spatial regimes shaping regions' perception. Second set of analysis underline that ties among government quality and regional development are relatively weak. Specifically for certain public services, level of perception and regional wellbeing is even inversely related. More interestingly further spatial variability analysis shows that, relationship between government quality and regional development is positive among some mid-developed northern regions, while for less developed eastern regions as well as developed metropolitan areas individuals level of satisfaction and regional development witness either negative or relatively weak association. These results suggest the existence of sizeable local instabilities in explaining spatial distribution of government quality in Turkey. Moreover results also underline that individuals and regions from different socio-economic background tend to perceive level of government services as less satisfactory albeit they enjoy different level of development. This reminds that there are different motives behind negative perception of government quality among less developed and developed regions of Turkey.

Keywords: *Institutions, development, spatial networks, Turkey*
JEL Codes: *E02, O43, R58*

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Özet

Türkiye'de Kamu Hizmetlerinin Kalitesi ve Bölgesel Gelişme

Bu çalışma kamu hizmetlerinin kalitesi ile bölgesel farklılıklar arasındaki bağı Türkiye örneğinde anlamayı amaçlamaktadır. Çalışmanın ilk bulguları bireylerin kamu hizmetlerinin kalitesini algılama biçimlerinin mekânsal olarak rastlantısal olmadığını göstermektedir. Bu mekânsal yapının kümelenme eğilimine sahip olduğu ve bölgelerin toplam kamu hizmetlerini algılama şekillerinin farklı mekânsal rejimlere tabi olduğu görülmektedir. Çalışmanın ikinci grup sonuçları ise bölgelerin kamu hizmetlerinin kalitesi ile bölgesel gelişmişlik arasındaki bağın görece zayıf olduğunu göstermektedir. Belirli kamu hizmetleri için bu ilişkinin beklentilerin tersine negatif olduğu görülmektedir. Daha detaylı incelemeler bu ilişkinin orta gelişmişlik düzeyindeki bazı bölgeler için pozitif olduğu ancak az gelişmiş doğu bölgeleri ve görece daha gelişmiş özellikle metropol bölgeler için ilişkinin ya negatif yada çok zayıf olduğunu göstermektedir. Çalışmanın bulguları bireylerin ve bölgelerin kamu hizmetlerinin kalitesini algılama şekillerinin mekânsal olarak istikrarsız bir yapıya sahip olduğunu ve farklı sosyo-ekonomik yapılara sahip bölgelerin farklı gelişmişlik seviyelerine, benzer kamu kalitesi algısına rağmen eriştikleri görülmektedir. Bu kamu hizmetlerinin kalitesini olumsuz olarak algılayan bölgelerin davranışlarının arkasında farklı motiflerin olduğunu göstermektedir.

Anahtar Kelimeler: *Bölgesel kalkınma, kurumlar, mekansal bağlar, Türkiye.*
JEL Kodları: *E02, O43, R58*

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http://dx.doi.org/10.5455/ey.36103

1. Introduction

Place of institutions and importance attributed to various forms of governance indicators has been on the agenda of development economics during the last decades. As North (1990) emphasized institutions shape our daily life from various sides; running from different lines of public services. In a way institutional approach complement the modern growth theories by identifying a catalyst to explain the importance of rule of law, lack of corruption, intellectual property rights, freedom of speech etc. all of which are important to understand the creation of new ideas, innovation and the evolution of new technologies. In their prominent work Acemoglu & Robinson (2013) remark this by underlining that historical roots of institutions have strong potential to explain cross country income differences. For instance divergence between North and South Korea based on political well as institutional norms and

standards are discussed as a significant determinant of the level of wealth and economic activity differences.

Even the impact of institutions on cross-country income differences has been widely studied; institutional environment at regional scale and its impact on regional differences has not been discussed exhaustively. In a similar vein individual's experiences regarding different forms of institutions can be divergent as this can be subject to disparities originating from ethnicity, gender, religion and geography. For instance Charron, Dijkstra and Lapuente (2014 and 2015) emphasized that there are substantial differences among the regions of European Union (EU) member states regarding the regional quality of government (including the candidate countries Serbia and Turkey). Not only the cross country differences of the quality of government services but also the within country differences are observed to be significant. Rodriguez- Pose & Di Cataldo (2014) recently discussed that these differences are vital as the quality of the government and the capacity of regions to innovate are related. Yet Rodriguez-Pose (2013) previously also underlined that it is not only the institutional environment but also it is the way that institutions influence other determinants that guided the regional development.

Originating from the possible heterogeneity of institutions within a country, this study aims at discussing how Turkish regions differ in terms of the perception on different forms of governmental services provided within their territories. Moreover expectation on the positive link between government quality and regional development will be investigated. While doing this, government quality differences will be evaluated on the basis of perception and experiences as centralized nature of Turkish administrative system makes one observe relatively homogenous set of institutions and possibly more heterogonous perception and experience.

It is expected that this approach is going to open up new discussions on a different dimension of regional disparity issue in Turkey and also in developing countries, as economic environment is highly influenced from the daily life institutions, rules and norms of the society. Additionally a number of lines deserve a careful

interpretation. First of all evaluating the institutional environment as well as measuring the perception of individuals for different government services at regional level is sophisticated. The level of local autonomy is expected to influence individuals' perception as they may not be only rating the institutions of their regions but alternatively they may be expressing their perception for the central government (or institutions). To the knowledge of this study, this piece is a first attempt to directly focus on a single developing country case (specifically Turkey) to understand the within variation of the perception of the government quality, thus institutional environment. Second, as discussed in Charron et al. (2014 and 2015) the link between government quality and development may have instabilities among the geography; that is even for developed northern European countries regions with sound working institutions are also the ones with above average income; for some periphery countries of Europe this relationship does not hold. This brings out an additional concern on a non-linear relationship between the level of regional development and institutional quality. That is, at early stages of development there may exist a negative or a weak relationship between governance and development; yet eventually in the long run it is reasonable to argue that it is the regions (nations) with a better governance that realize substantial economic growth and development. In that sense focusing on a developing country like Turkey will contain sizeable information as the persistence duality in Turkey as well as the developing nature of the country puts herself in the first phase of a U-Shaped pattern.

This study will continue as follows; section 2 briefly reviews the literature on examination of institutions at regional scale, section 3 describes the data set and the methodological strand of the paper. Section 4 gives the results and finally section 5 concludes.

2. Institutions in a Regional Setting

Even the role of institutions are highly discussed and tested at the cross country setting, recent discussions open up a path for a similar investigation at the regional level. Rodriguez-Pose (2013) reminds that regional policies are not fully successful in

closing the regional development gaps. Revisiting the traditional neoclassic explanation to growth (Solow, 1956) and the more recent discussions of the endogenous growth models (Romer, 1986; Lucas, 1988) regional policies are mostly centered on the promotion of more capital accumulation, investing more in innovation and human capital.

Even such a common cure approach is popular around the globe, outcome of these policies shows that similar policies have divergent outcomes in different parts of the world. At this point, the role attributed to the institutions deserves deeper investigation.[2] Therefore replicating the institutional approach at the regional level can be an option in order to understand the failure. However as described by Rodriguez-Pose (2013) this brings a new complexity as the type of institutions under concern becomes more prominent. Other than the traditional formal institutions as rule of law, voice of accountability etc. (Rodrik, Subramanian and Trebbi, 2004); a set of informal institutions like culture, religion etc. (Tabellini, 2010) can be important. Even there seems to be an overall dispute for the way to identify the regional institutions, this discussion does not diminish the overall importance of conventional institutions for regional development. It should be kept in mind that evidence already indicates that once size fits all approach has limited success in decreasing the regional inequalities among different geographies of the globe. Recent evidence for the European countries validates this argument. Rodriguez-Pose & Di Cataldo (2015) remarks that institutional quality plays important role in understanding innovation performances of the European regions; that is corruption and low quality of government acts as a barrier for the innovation level of the peripheral border countries of Europe. More recently Rodriguez-Pose & Garcilazo (2015) underline that quality of the government is successful in explaining the efficiency of the use of the Structural and Cohesion Funds of the EU;

[2] Chien (2008); Silva-Ochoa (2009) underline that evidence from different countries implementing similar regional policies most of the time end up with extremely divergent out- comes, reminding the possibility of the heterogeneity of local institutions to absorb and/or to transfer the regional policies.

regions receiving massive amounts of structural funds cannot improve their economic growth unless quality of government is increased significantly.

In a way all these contemporary discussions open up new debates for regional scientists as institutional development plays a key role in enhancing the major prerequisites of the neoclassic and endogenous growth models (physical capital, innovation, human capital etc.). At this stage the related question will be the measurement of the quality of the institutions at the regional scale. To the knowledge of the study the European Government Quality Index (EQI) constructed for 2010 and 2013 is the most comprehensive data to examine the distribution of the institutional quality at the regional level (Charron et al. 2014 and 2015). Even the content of the index covers a wide range of governance areas, still a number of concerns stand still. One concern that has to be considered is the level of local autonomy. Unlike the examination of the institutional quality at the country level, carrying out a similar framework for individuals residing in different regions of the same country is complicated. The reason comes from the perception of the individuals regarding the institutional quality. In a way given the absence of local autonomy, observed perception is basically the experiences of different individuals for the so called homogenous institutions of the same country; that is to say individuals may have diverse experience regarding the same set of institutions. Therefore unlike the comparison of the institutions at the cross country setting, comparing institutions at the regional level makes one observe the diverse experiences of individuals rather than experiences of diverse institutions. This may not be concern for case studies like United States (US) and EU or in case of a single country case study exhibiting regional autonomy (i.e. Spain); however will be a vital issue for a country case study composed of regions governed under a centralized system.

3. Data and Methodology

As discussed in the previous section, to our knowledge Turkish regions' perception of government services is a matter of discussion for the first time in Charron

et al. (2015). In an overall evaluation for the European regions Charron et al. (2015) evaluate regional differences in government service quality for European countries by including Turkey and Serbia as member states for the year 2013. While this comprehensive data covers a wide geography and high number of indicators, it is mostly insufficient for Turkey as the representation level of NUTS 1 gives information on just 12 regions of Turkish geography. While this information is useful to have a comparative view of governance with respect to European Union member countries (and Serbia as a candidate) it fails in explaining the local spillovers and very local links with regional development. In order to get more details on this latter issue, The Life Satisfaction Survey (LSS) of 2013 conducted at the regional scale by the Turkish Statistics Office (TurkStat) is preferred throughout the analysis.[3] LSS is available at NUTS 3 disaggregation covering 81 regions of Turkey. Considering central lines of public services, six major public services are used to understand the level of government quality at regional scale. Services in major public services of legal, security, education, health, social security and transportation are used in order to understand the extent of government service quality perception. TukStat reports share of individuals within each province as a share of province population that respond to satisfaction survey as happy, unhappy and indifferent. Within all set of analysis, the focus will be on the share of province population that respond to the survey positively and declared that they are happy and satisfied with the related public service.

An important dimension that will be considered within this study is on the existence of spatial spillovers. Individuals' perception on government services can be somehow related with the overall perception of government services of their proximity. This will create sizable spatial spillovers in government services perception, which will be valuable considering the spatial duality of Turkish regional development pattern. In order to measure spatial diffusions two sets of analysis are carried out. First spatial autocorrelation as given in equation 1 is measured. *n* represents the number of cross

[3] Note that LSS is conducted annually since 2001, however the representation level of the annual periodic data is the country level. It is expected that TurkStat will conduct its second LSS at regional level in 2016.

sections, *s* is the summation of all elements of the weight matrix (*w*). Throughout the analyses two different weight matrices are considered. First a contiguity weight matrix assigning 1 to adjacent units and 0 otherwise is used. Next an inverse distance weight matrix that links each unit by using inverse distance between any pairs is preferred. This statistic is a global measure which tests whether provinces that are neighbor to each other have common perception pattern on government services or not. Next in order to understand the geography of perception, global spatial autocorrelation measure is decomposed. Following Moran's Scatterplot Analysis, for each of the public service High-High and Low-Low clusters with high and low public service satisfaction is investigated. Next High-Low and Low-High instabilities are visualized to see the outlier provinces.[4]

$$(1) \qquad I_i = \frac{n}{s} \frac{\sum_i \sum_j w_{ij}(x_i - \bar{x})(x_j - \bar{x})}{\sum (x_i - \bar{x})^2}$$

After having seen the extent of spatial diffusions, final set of analysis aims at constructing a causal framework between government quality perception differences and regional development of Turkish provinces. Given lack of regional income data, the next best alternative is the Regional Development Index provided by Ministry of Development (MOD).[5] This index contains various regional properties at province level and is an aggregate measure formed via principal component analysis which ranks provinces from most to least developed ones as of year 2011.[6] In order to test the impact

[4] Note that as discussed in Anselin (1995) it is possible to assess the inference of the Moran decomposition via Local Indicator of Spatial Association (LISA). At current stage these analyses are not reported as to give the reader a more comprehensive idea on the geography of perception differences. These related LISA maps are available upon request.

[5] See İllerin ve Bölgelerin Sosyo-Ekonomik Gelişmişlik Sıralaması Araştırması (SEGE, 2013) for details of the index calculations. Also see Luca & Rodriguez-Pose (2014) for a recent discussion on the applicability of the index within the regional inequality context for Turkey.

[6] Note that survey year of LSS and development index do not match. In order to assess the representation power of 2011 data for the year 2013, development index of 2003 and 2011 are compared. It is true that there are methodological differences in 2003 and 2011 development indices; still in their existing structures sorting of provinces within their own distributions are comparable in order to assess the mobility within the distribution. The claim here is that if for both years distribution of regional development are comparable in general, it would make sense to except that distribution will not change drastically from 2011 to 2013. Applying the Markov Chain Analysis, related diagonal element of the transition probability matrix is calculated with an average value around 85%, indicating very low chances for provinces to move from one development regime to the other (4 equal size groups are used for transition probability analysis). For each state this translates into an average value around 0.0375, lower

of regional government quality differences and regional development four set of models are estimated (Equation 2, 3 and 4). *y* is the regional development index and *x* is the related government quality variable measured by the share of individuals who are satisfied with the related public service. Note that initial set of models are unconditional; later these models are conditioned on spatial spillovers. Given that regional life satisfaction data is only supplied for one year (2013) each cross section model is estimated for 81 observations. Starting with a traditional Ordinary Least Squares (OLS) models in equation 2, further spatial augmentations are also incorporated. Equation 3 and 4 are the Spatial Lag Model (Spatial Autoregressive Model-SAR) and Spatial Error Model (SEM) respectively. While the former assumes spatial diffusion of regional development, the latter expects the spatial commonalities of the omitted variables, which is basically regional common shocks. While SAR and SEM models are offered to deal with the existence of spatial error dependence of OLS models (See Anselin, 2010), these types of models mostly fail in to control for spatial instabilities and/or spatial heterogeneities. That is, in none of the models considered it is possible to test the spatial variability of the relationship between regional development and government quality perception. Revisiting recent advances in spatial econometrics, Geographically Weighted Regression (GWR) models are estimated to deal with this issue (See Brunsdon, Fotheringham and Charlton, 1998; Fotheringham & Brunsdon, 1999; for details of GWR models). Equation 5 is the typical representation of the GWR where *u* and *v* are the coordinates of the province *i.* GWR is typically similar to a weighted regression model where weight are determined by distance suggested from a kernel function. It allows in observing regional unique coefficient estimates for each of the variable under concern. This suggests that observed impact of government quality on regional development can be diverse in different provinces of Turkey. Note that similar to the first set of econometric models GWR estimations are

than the conventional significance levels (5% and 10%). Given lack of significant mobility for provinces within the distribution it would not be naïve to expect that 2011 data is somehow able to represent the regional development distribution for 2013. Detailed comparison of 2003 and 2011 Development Index data is available from author up-on request.

also from 81 observations. Comparing results of global models (i.e. OLS, SAR and SEM) with local model (GWR) will enable one to compare and contrast the stability of the overall relationship between government quality and regional development. Finally a number of variability checks on the stability of parameter estimates are also going to be considered following Nakaya, Fotheringham, Brunsdon and Charlton (2005); Nakaya (2014).

$$y_i = \alpha + \beta x_i + \varepsilon_i \quad (2)$$

$$y_i = \alpha + \beta x_i + \rho W y_i + \varepsilon_i \quad (3)$$

$$y_i = \alpha + \beta x_i + \lambda W \varepsilon_i + u_i \quad (4)$$

$$y_i = \alpha_i(u_i, v_i) + \beta_i(u_i, v_i) x_i + \varepsilon_i \quad (5)$$

4. Findings

4.1 Descriptive Analysis

While the central aim of the paper is to express the link between regional government quality differences and development for Turkey; information on the cross country governance comparisons will also be useful in order to have a comparative idea on the overall geography. Table 1 compares the traditional governance indicators across a set of selected countries. Governance indicators come from The World Wide Governance Indicators (WGI) Project (See Kaufmann, Kraay and Mastruzzi, 2010). These governance indicators are; Voice and Accountability (VOA), Political Stability and Absence of Violence/Terrorism (POS), Regulatory Quality (REG), Rule of Law (ROL), Control of Corruption (COC). Table 1 gives a summary of the percentile ranking of a set of countries including Turkey. Focusing on Turkey figures indicate that there is minor improvement regarding the place of Turkey within the overall distribution. In general comparing different forms of governance indicators, Turkey is doing worst for political stability and absence of violence/terrorism. For other selected indicators Turkey seems to locate within the 40% to 60% percentile band. However a

careful interpretation pin points that Turkey lags behind not only the developed Western countries like UK, Germany and France; but also some peripheral European countries like Greece and Spain. Moreover considering Serbia, Turkey seems to have very limited improvement. The jump of Serbia is significant specifically for voice of accountability and political stability indicator as Serbia manage to locate above Turkey with higher governance quality as of 2013. This becomes crucial as both countries share the same candidacy status for EU as of year 2016. Meanwhile figures also indicate some similarities with emerging countries such as Argentina and Brazil. Even both countries observe some level of worsening during the 1996-2013 period in general they locate close to Turkey within the distribution. Finally Turkey seems to perform better with respect to a set of selected Middle East and African (both North and South) countries.

While cross country comparisons give a comparative idea for Turkey, it does not yield a comparison based on intra country differences. Before getting started with the LSS data, some introduction level analyses might be useful in order to focus more on this intra country issue. This will also be useful as, it will enable one to compare the robustness of EQI findings and the results of LSS. Revisiting the EQI index provided by Charron et al. (2015), table 2 gives the comparison of Turkey's NUTS 1 regions for major government services. Note that last column of table 1 gives the combined ranking of these regions based on the overall EQI index, covering 215 regions of all European Union member and candidate countries. Overall Turkish regions are on average doing relatively bad considering its regional government quality. More interestingly cross comparisons of Turkish NUTS 1 regions give interesting results; as developed regions of Istanbul and West Anatolia are doing relatively bad compared to historically less developed eastern NUTS 1 regions (i.e. Southeastern Anatolia and Northeastern Anatolia). The so called European Quality Index (EQI) can also be disaggregated in order to understand the perception of individuals to specific services of the government; education, health, law, security, freedom of speech, corruption etc. To visualize the extent of the variability of individuals' perception for various services of the government in Turkey this study focuses on a number of specific questions; via three

main pillars Quality, Impartiality and Corruption. EQI Quality pillar focuses on education, health, law, elections and media. This first pillar gives a general outlook of the regional institutional environment in Turkey. Regarding the quality scores, it is worth underlining that lowest scores are for Istanbul, Aegean and West Anatolian regions in almost all lines of services considered. Meanwhile these regions are followed by the eastern regions. On contrary highest scores are mostly observed for West Marmara, Northern Regions (Black sea area: Western Black Sea Region). This becomes even more interesting once the impartiality of three major services (education, health and law) is considered. Once more Istanbul, West Marmara, Aegean (and also East Marmara) seems to have lower belief on the equality of these services in their territories. Finally on the corruption scores perception of individuals on the level of corruption in major services (education, health and law) as well as existence of bribery in general tends to be higher in certain western regions. In addition to that it is worth underlining that eastern regions are follow-up locations in terms of the belief in the existence of corruption. Interestingly this belief tends to diminish in mostly northern regions (Black Sea Region overall).

Even these analysis contain information on cross comparison of NUTS 1 regions of Turkey, they do not express the local differences. However given existence of data from LSS at NUTS 3 level some further dimensions are worth evaluating. However due to methodological differences as well as regional coverage differences, results of LSS will not be compared with EQI and/or WGI findings. Table 3 gives the major descriptive statistics of LSS. First striking information from these numbers comes from the relatively low satisfaction of individuals on legal services. It seems legal and social security services are the ones that regions perceive as being less effective and satisfactory compared to the others. It is also worth underlining that both standard deviation and the variation of the distributions are higher for these two service lines. Given higher variation and the larger range of the distribution, it is likely to discuss further that highest inequality for government service satisfaction is observed in legal and social security services. Remaining lines of security, health, education and

transportation services share a common pattern in terms of both level as well as deviation of government services.

4.2 Exploratory Spatial Data Analysis

After having seen the general structure of the data, our follow-up analyses are on the extent of spatial spillovers. Table 4 gives the Moran's I spatial autocorrelation results. For each of the government service considered, results pin point that individuals' perception on government quality is significantly influenced from its proximity. These sizable spatial spillovers express that distribution of the government quality differences in Turkey is spatially non-random. Note that magnitude of spatial spillover is prone to the way that spatial networks are identifies. For contiguity weight matrix spatial spillovers are much higher compared to the ones detected by using inverse distance weight matrices. This is crucial as it indicates that most of the spatial similarities in terms of perception of government quality originate from what the neighbor province is doing. On contrary it is relatively less explanatory to focus on spillovers originating from greater distances as spatial spillovers seem to weaken as we try to connect each province by using distance as a discount factor.

Based on the results of global spatial autocorrelation analysis, further investigating the roots of this spatial pattern is crucial. For each of the six indicators, global spatial networks are decomposed and local spatial association is investigated. These results are given from figures 1 to 6 and contain valuable information on the geography of individuals' perception of government quality. Interestingly our findings on local clusters and outliers are conflicting with our knowledge on regional disparities. As discussed by Filiztekin (1998), Doğruel & Doğruel (2003), Gezici & Hewings (2004, 2007), Yıldırım, Öcal and Özyıldırım (2009) there exists a clear west-east dichotomy in Turkey; where eastern geography is mostly composed of provinces with very low levels of socio-economic development. Moreover as underlined by Filiztekin (2009), Yeşilyurt & Elhorst (2014), Karahasan (2015), Karahasan, Doğruel and Doğruel (2016) factors shaping the evolution of economic activity is also regionally

dispersed unequally, leaving eastern regions less developed compared to the ones among the western territory. However our findings on the decomposition analyses indicate that there are sizable similarities between some eastern and western regions that historically share different economic fundamentals and development levels. In all instances provinces in the Far East generate the Low-Low cluster emphasizing that those regions perceive quality of government services as un-satisfactionary. These are historically less developed geographies of Turkey with sizable underdevelopment problems. On the other hand we detect that metropolitan western regions such as Ankara, İzmir, İstanbul and Antalya act as outlier regions; where these provinces deviate from their geography by having very low levels of satisfaction from government services. Above all most striking finding is for the cluster of provinces with above average satisfaction level from public services. Interestingly provinces that are not as underdeveloped as the Far East but also not as developed as the metropolitan provinces are generating High-High clusters. These provinces in Central Anatolia, Black Sea region and West Marmara region are forming significant spatial spillovers in terms of perception of government service quality.

Overall our exploratory spatial analysis validates the concerns on an overall spillover tendency of government service quality perception in Turkey. More remarkably our findings from decomposition analysis point out that there are different spatial regimes in terms of government quality perception. As this pattern is rather unusual compared to the regional development structure, causal dependence between regional development and quality of government activities deserves a more explicit investigation. The next sub section aims to do so.

4.3 Empirical Findings

As sizable spatial variability for government perception is detected, final set of analyses aim at discussing the relationship between government quality and regional development within a spatial framework. Initially benchmark OLS models are estimated. Next these models are augmented by incorporating spatial links via SAR and

SEM type models. All models are unconditional on regional factors but conditional regarding the existence of spatial spillovers. It is true that there are some other determinants that may be shaping the regional development differences. That said; since regional development index is an aggregate measure consisting of major socio-economic dimensions of provinces, it would be naïve to include conventional controls and expect sizable differences in the benchmark models (with and without spatial effects). Instead, attention will be on spatial heterogeneity and variability via GWR models which are estimated as final set of specifications.

First of all results of OLS, SAR and SEM models are inconsistent. Results given in table 5 show that, while spatial lag dependence and spatial error dependence are all significant regardless of the related line of government services (exception is the SAR model for education services), relationship between government service perception and regional development does not hold in line with our expectations. For instance for legal services we do not detect any significant relationship between quality perception and regional development. For security and education services while OLS models do not evoke any relationship, it is the SAR and SEM model that emphasize sizable dependence between government quality and regional development. That said, this relationship is an inverse one identifying that regions with higher government quality are not necessarily the most developed ones. Note that for the SEM specification this pattern is also valid for Health services. Interestingly only for social security and transportation services we detect a positive link between government quality and regional development. However, this finding is not robust to the inclusion of spatial spillovers.

As specification of models inhibit sizable differences on the overall judgment regarding the importance of government quality for regional development; diagnostic analyses are carried out in order to compare and contrast models. Table 6 gives the related diagnostics to compare OLS, SAR and SEM models for each individual specification given in table 5. First vital finding is on the residual spatial autocorrelation of OLS estimates. In all cases sizable spatial error dependence is detected making one

approach to OLS results with caution. This leaves the spatial model comparison essential. Overall spatial error model is observed to be superior based on log-likelihood test and information criterions. However LM-test is all significant but maximized for different spatial specifications. Model comparison yields that for legal services, health services, social security services and transportation services specification selection is not robust to the selected information criterion. On the other hand spatial error model is a well suited specification for security services and education services. Note that inconsistent results of the other models do not provoke our concern on the unexpected negative link between regional government quality differences and regional development.

Final set of results are from GWR models which searches for the possible spatial varying relationship between regional government quality and regional development. Findings reported in table 7 validate the concern on the existence of sizable spatial instabilities. First significant F-test results reported in ANOVA tests for each panel, which compares global and local models significantly underline that GWR improves the estimate results. Note that further diagnostics on spatial variability (table 8) show that each governance indicator inhibit sizable spatial variability. This variability is best observed by observing the range of the distribution for coefficient estimates of each variable (in table 7). Health and transportation services have the highest spatial variability. Although there are some regions in which relationship between governance and regional development works in line with the expectations, these are exceptional marginal regions located on the upper quartile of the distribution. Note that median of the distribution is mostly composed of regions that inhibit a negative relationship between governance and regional development. These results make one think that overall link between governance and development seems to be reverse in Turkey. It is true that there are some locations in which better governance is associated with higher regional development. However overall pattern shows that a better quality for government services does not necessarily associated with better regional development. This finding has two consequences. On one hand lack of connection between

government quality and regional development can originate from the low perception on government quality on certain locations. On contrary it can also be possible that there are some other un-identified factors which cancel out or partially dominate the impact of institutional environment. While GWR models do not aim to answer these questions, rather shows the extent of spatial variability, it also enables one to detect the geography of the mechanism defined between government perception and regional development. Figure 7 gives the spatial variability of the impact of overall government services on regional development.[7] Interestingly enough and in line with the initial set of exploratory analyses, it is the northern geography that mostly associates government quality positively with regional development. For rest of the country the relationship is negative, while it seems to be weakening for metropolitan and urbanized developed locations. That is, GWR results seem to signal that, for regions with relatively lower belief in the quality of government services regional development is neutral or partially negatively influenced from institutional environment. Interestingly this consequence is stronger for already developed regions. However for regions that are relatively more satisfied with the government services regional development is positively linked with institutional environment. Interestingly enough these are mostly mid-developed regions.

5. Conclusion

Quality of government services is an important proxy to understand how governance differs across space. More specifically better quality for government services should explain not only social cohesion and inclusion differences but also the ability for different societies to absorb more economic activity to promote more economic growth and development. In that sense focusing on the regional dimension

[7] Note that variability of coefficient estimates for GWR models come from the overall satisfaction and regional development link. Similar results are obtained for individual governance indicator and regional development link. Also results in figure 7 comes from the overall government quality. For individual government quality indicators (legal, security, education, health, social security, transportation) similar analyses with almost identical results are obtained. All these additional results are available upon request.

of governance and development link is informative for discussing different consequences of regional disparities.

Inspired from the rising influence of governance and quality of government within growth models, this study critically assess whether Turkish regions with better government quality are realizing more regional development or not. First set of exploratory results show that there are sizable differences in terms of regional government quality. Specifically high spatial association signals that rather than distant regions, it is regions that are in close proximity to have more or less identical government quality. This reminds the heterogeneous structure of Turkish territory. However more remarkably local analyses show an unexpected picture as there are some highly developed regions with very low government quality. Regression analyses validate this finding as in most of the instances regional government quality and regional development is negatively related. In all cases spatial association is significant. However once spatial variability is considered results indicate that there are sizable differences in terms of the effect of government quality. In general for northern regions, perception on quality of government services and regional development are positively associated. However for historically less developed eastern regions as well as most of the western developed regions this relationship does not hold; as perception of government quality seems to be a negligible factor shaping regional development levels in these locations. More importantly there is possibly a different explanation for this picture. While for the less developed eastern regions it is reasonable to discuss that individuals do not perceive government services as sufficient as it is in some other geographies, for western regions it is probably the perception on the overall governance quality or more specifically awareness on the overall governance level of the country. Moreover it should be noted that these GWR results have different dimensions. For instance less developed eastern regions and urbanized more developed western regions both have very low levels of government quality perception. Among these geographies there is also lack of connection between governance and regional development. Essentially it could be discussed that there are other factors behind regional

development patterns of urbanized western regions as well as underdeveloped eastern geographies. Or it could be well discussed that this weak association originates from the very low level of governance quality in these locations; as increasing perception of government quality originating from better working institutions may stimulate development in the future. In any case GWR results do not answer which mechanism dominates the other; however it is still successful in expressing the spatial variability of the impact of individuals' government service perception on regional development.

Findings of the study also contain information on the roots of economic growth and development; thus economic policy implications. It should be kept in mind that regional and national economic well-being are inter-alia related. Sustainable and inclusive growth reminds the necessity to consider different segments and regions of the country; that is the central concern of the paper on regional development is inevitably influencing the long run pattern of national income in Turkey. Returning back to the original discussion on how governance and institutions affect economic well-being, one would naturally question how these less satisfied geographies are going to contribute to the long run growth path of Turkey. It is true that developed western regions already contribute to the national income dominantly; however this does not cancel out the fact that long run economic growth is bounded by the innovative and creative ability of societies; both of which is inevitably shaped negatively by the low quality of institutions and governance in these geographies. In that sense it is naturally expected that increasing the satisfaction level in these developed regions will eventually increase the potential of these regions. In turn this will have sizable positive effect on the overall economic prosperity of Turkey. On contrary for those of the less developed regions with very low levels of satisfaction an important dimension will be on social issues (poverty, education, health etc.) which are directly affecting the regional and national development of Turkey. In a way underdevelopment of these regions not only has direct effect on the economic/business environment at local level but also have indirect influence on the resource allocation at national level. In return these two issues bring us a new complexity as the very low levels of institutional quality and the lack of

connection between governance and development will have different consequences for policy makers. That is it would be challenging to consider not only to increase the level of institutional quality but also it would be a necessity to consider how this development will be reflected to the regional socio-economic environment in Turkey. In short other mechanisms through which institutional quality affects regional development will be an important concern for policy makers. Once again this reminds us that not only regional policies but also their reflections are subject to significant amount of heterogeneity.

Overall these results have a number of headlines. Observing a common pattern for the less developed and the wealthiest regions of Turkey on government quality indicate an important regional motive for Turkey, which has not been detected for any other socio-economic properties of these regions. Even foundations of the negative impact is possibly different, sharing a common negative pattern on government quality and realizing negligible amount of interconnection between governance and development is a vital point to be considered in subsequent researches. More importantly in the absence of right policy to combat against institutional down-turn in these regions, it is challenging to consider a sustainable and inclusive growth for a developing country like Turkey. For this reason perception of government quality should be followed in more details in the future in order to tests whether changes in the quality of government at the regional scale changes regional perception as well as development differences.

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APPENDIX

A. Tables

Table 1. Cross Country Comparison of Global Governance: Selected Countries

	VOA		POS		GOV		REG		ROL		COC	
	1996	2013	1996	2013	1996	2013	1996	2013	1996	2013	1996	2013
Argentina	59.62	56.4	47.12	48.82	62.44	44.5	70.1	17.7	52.63	28.44	49.76	40.67
Brazil	53.85	58.77	37.98	36.97	50.73	51.2	65.2	54.55	41.63	52.13	56.1	55.02
China	12.02	5.21	41.35	27.01	46.83	54.07	47.55	42.58	36.36	39.81	43.9	46.89
India	62.02	61.14	19.23	12.32	53.66	47.37	32.35	33.97	59.33	52.61	40	35.89
France	88.94	88.63	73.56	61.61	88.78	89.47	78.92	85.17	91.87	88.15	85.85	88.04
UK	88.46	92.42	76.92	63.03	95.12	89.95	99.51	96.17	94.74	92.89	96.1	93.3
Germany	90.38	93.84	92.79	76.78	93.66	91.39	91.18	92.82	93.78	91.94	94.63	94.26
Greece	75.96	67.3	60.1	39.34	77.56	66.99	71.08	72.73	81.82	63.51	65.85	55.5
Spain	89.9	77.25	50.48	46.92	90.24	82.78	84.8	78.95	90.91	81.04	83.9	75.12
Serbia	11.54	56.87	14.42	42.65	17.56	50.24	23.53	51.2	10.05	44.55	15.12	50.72
Iran	20.67	4.27	34.13	10.43	32.2	28.23	5.39	5.74	24.4	17.06	27.8	27.75
Iraq	0.48	16.59	4.81	4.27	0.98	14.35	1.47	10.53	5.26	3.79	2.44	7.18
Nigeria	4.81	27.49	13.46	3.79	15.12	16.27	22.55	25.36	10.53	12.32	8.78	9.09
Saudi Arabia	8.65	2.84	37.5	33.65	46.34	57.42	47.06	55.02	58.85	60.66	28.29	58.37
South Africa	73.56	65.4	31.73	44.08	79.02	66.51	62.75	64.11	50.24	57.82	78.54	54.55
Syria	10.58	3.79	33.17	0.47	28.29	8.13	11.76	4.31	38.28	3.32	25.85	7.66
Egypt	24.04	18.01	26.44	7.11	47.8	19.62	52.45	26.32	53.59	34.12	56.59	32.54
Turkey	43.75	40.76	10.58	11.85	56.59	65.55	59.31	65.07	48.33	55.92	44.88	61.72

Notes: Voice of Accountability (VOA), Political Stability and Absence of Violence (POS), Government Effectiveness (GOV), Rule of Law (ROL), Control of Corruption (COC)

Table 2. Regional Perception of Government Quality in Turkey (NUTS 1 Level)

	Quality					Impartiality						Corruption					EQI
	Edu.	**Health**	**Law**	**Elec.**	**Media**	**Edu. I**	**Health I**	**Law I**	**Edu II.**	**Health II**	**Law II**	**Edu.**	**Health**	**Law**	**Other**	**Bribery**	**Rank**
TR1 Istanbul Region	-1.808	-0.671	-1.793	-0.764	-1.281	-1.217	-0.441	-1.302	-1.193	-0.268	-1.054	-1.605	-0.584	-1.308	-0.785	-0.641	214
TR2 West Marmara Region	-0.445	0.971	2.011	0.606	-0.393	1.462	2.57	1.491	0.903	1.718	1.417	-0.087	1.317	1.272	0.939	0.306	110
TR3 Aegean Region	-2.703	-0.591	-1.007	-1.569	-2.072	-0.944	0.427	-0.268	-1.624	-0.035	-0.257	-1.909	-0.166	-0.494	-0.204	0.208	212
TR4 East Marmara Region	-1.754	-0.292	0.036	-0.38	-0.185	-0.082	0.842	0.048	-0.749	0.274	0.11	-0.992	0.22	0.139	0.334	0.175	188
TR5 West Anatolia Region	-2.91	-0.862	-2.01	-0.662	-0.926	-0.992	0.191	-1.008	-1.533	-0.308	-1.125	-1.802	-0.452	-1.108	-0.603	-0.935	215
TR6 Mediterranean Region	-1.431	0.072	0.189	-0.479	-1.631	0.759	1.41	0.526	0.337	0.64	0.449	-0.406	0.6	0.429	0.517	0.208	180
TR7 Central Anatolia Region	-0.972	-0.016	0.404	0.035	0.375	0.866	1.364	0.458	0.034	0.632	0.495	-0.714	0.121	-0.082	0.541	0.143	176
TR8 West Black Sea Region	-1.12	0.668	1.326	1.144	-0.075	1.393	2.421	1.065	0.669	1.471	0.697	0.14	1.24	0.808	1.096	0.437	125
TR9 East Black Sea Region	-0.384	0.766	0.943	1.267	0.655	1.685	2.464	1.168	0.751	1.43	1.03	-0.003	1.284	0.836	1.304	0.404	112
TRA Northeast Anatolia Region	-0.973	0.007	-0.407	1.109	0.887	1.777	1.602	0.618	0.901	0.718	0.215	0.084	0.662	0.343	0.385	0.502	154
TRB Central East Anatolia Region	-2.417	-0.524	-1.963	0.395	-0.554	0.012	0.863	-0.657	-0.664	0.126	-0.734	-1.06	0.043	-0.608	-0.009	-0.282	206
TRC Southeast Anatolia Region	-0.988	0.288	1.117	0.918	-0.702	1.029	1.916	0.872	0.36	1.017	0.741	-0.283	0.947	0.663	0.72	0.012	153

Source: EQI Index (2013)

Notes: Edu. And Elec. represents education and elections respectively. For impartiality the equality issue is examined by expressing a negative attitude by (I), and from a positive attitude by (II)

Table 3. Descriptive Statistics from LSS (2013)

	Mean	Standard Deviation	Coefficient of Varaition	Min.	Max.
Legal Services	55.07	13.02	0.24	28.80	84.50
Security Services	84.24	7.16	0.09	58.90	94.90
Education Services	74.10	8.46	0.11	48.20	88.90
Health Services	77.47	7.30	0.09	54.60	89.10
Social Security Services	69.92	11.13	0.16	34.80	89.50
Transportation Services	78.26	8.79	0.11	50.20	94.20

Source: TurkStat, Author's own calculations

Table.4 Spatial Autocorrelation Analysis

	Contiguity	Inv. Dis.
Legal Services	0.227***	0.041***
	(3.332)	(3.263)
Security Services	0.301***	0.049***
	(4.424)	(3.786)
Education Services	0.209***	0.046***
	(3.100)	(3.565)
Health Services	0.430***	0.125***
	(6.196)	(8.424)
Social Security Services	0.375***	0.124***
	(5.422)	(8.313)
Transportation Services	0.477***	0.171***
	(6.867)	(11.260)

Notes: *** represents spatial autocorrelation at 1% level

Table 5. Cross-Section Regression Analysis

Dependent Variable: Regional Development Index

		OLS	SAR	SEM			OLS	SAR	SEM
Panel A	Legal Services	0.006	-0.003	-0.01	**Panel D**	Health Services	0.022	-0.008	-0.032**
		(0.008)	(0.006)	(0.006)			(0.015)	(0.011)	(0.013)
	ρ		0.715***			ρ	-	0.728***	
			(0.08)					(0.081)	
	λ			0.727***		λ			0.764***
				(0.075)					(0.07)
	Observations:	81	81	81		Observations:	81	81	81
Panel B	Security Services	-0.008	-0.026**	-0.048***	**Panel E**	Social Security Services	0.026***	0.003	-0.009
		(0.015)	(0.01)	(0.011)			(0.009)	(0.007)	(0.008)
	ρ		0.750***			ρ		0.691***	
			(0.075)					(0.087)	
	λ			0.783***		λ			0.732***
				(0.065)					(0.076)
	Observations:	81	81	81		Observations:	81	81	81
Panel C	Education Services	-0.004	-0.021**	-0.034***	**Panel F**	Transportation Services	0.033***	0.001	-0.019
		(0.013)	(0.009)	(0.009)			(0.012)	(0.009)	(0.012)
	ρ		0.751			ρ		0.702***	
			(0.075)					(0.087)	
	λ			0.765***		λ			0.753***
				(0.068)					(0.074)
	Observations:	81	81	81		Observations:	81	81	81

Notes: Standard Errors in (), ****, **, * represents significance at 10%, 5% and 1% respectively.

Table 6. Diagnostics Test for Cross-Section Regression Analysis

	Panel A	Panel B	Panel C	Panel D	Panel E	Panel F
Moran's I for	0.5416	0.5982	0.5902	0.4968	0.4086	0.4131
Residuals of OLS	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
LM Test	57.4661	62.7086	61.8911	51.8062	44.1278	42.8606
(Lag)	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
LM Test	53.7276	65.5274	63.7904	45.2029	30.5814	31.2583
(Error)	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Robust LM Test	16.5070	13.1166	14.8896	17.8636	25.6676	22.4830
(Lag)	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Robust LM Test	12.7685	15.9355	16.7889	11.2603	12.1212	10.8807
(Error)	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Likelihood Ratio	43.9559	50.0656	49.6177	42.7064	37.0157	36.9896
(SAR)	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Likelihood Ratio	46.1118	59.2032	56.0751	47.3609	37.8602	39.3482
(SEM)	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
R^2 (OLS)	0.01	0.00	0.00	0.03	0.09	0.09
R^2 (SAR)	0.50	0.55	0.54	0.51	0.50	0.50
R^2 (SEM)	0.52	0.60	0.58	0.54	0.51	0.52
Observations:	81	81	81	81	81	81
Akaike Information (OLS)	232.321	232.629	232.8	230.743	225.385	225.598
Akaike Information (SAR)	190.365	184.563	185.182	190.037	190.369	190.608
Akaike Information (SEM)	186.209	173.426	176.725	183.382	187.525	186.25

Notes: P-values in []

Table 7. GWR Results (Spatial Variability of Coefficient Estimates and ANOVA F-Test Results)

		Min	Max	Lwr Quartile	Median	Upr Quartile	Range
	Legal Services	-0.330	0.283	-0.261	-0.108	0.266	0.613
	GWR ANOVA Table	*SS*	*DF*	*MS*	*F*		
Panel A	*Global Residuals*	*79.468*	*79.000*				
	GWR Improvement	*47.134*	*8.091*	*5.825*			
	GWR Residuals	*32.333*	*70.909*	*0.456*	*12.774*		
	Observations	*81*					
	Security Services	-0.376	0.381	-0.300	-0.113	0.347	0.756
	GWR ANOVA Table	*SS*	*DF*	*MS*	*F*		
Panel B	*Global Residuals*	*79.770*	*79.000*				
	GWR Improvement	*59.984*	*7.848*	*7.643*			
	GWR Residuals	*19.786*	*71.152*	*0.278*	*27.4848*		
	Observations	*81*					
	Education Services	-0.566	0.425	-0.474	-0.375	0.343	0.991
	GWR ANOVA Table	*SS*	*DF*	*MS*	*F*		
Panel C	Global Residuals	*79.939*	*79.000*				
	GWR Improvement	*56.548*	*8.190*	*6.904*			
	GWR Residuals	*23.391*	*70.810*	*0.330*	*20.900*		
	Observations	*81*					
	Health Services	-0.834	0.399	-0.747	-0.392	0.370	1.233
	GWR ANOVA Table	*SS*	*DF*	*MS*	*F*		
Panel D	Global Residuals	*77.935*	*79.000*				
	GWR Improvement	*57.012*	*5.928*	*9.617*			
	GWR Residuals	*20.922*	*73.072*	*0.286*	*33.5880*		
	Observations	*81*					
	Social Security Services	-0.376	0.381	-0.300	-0.300	-0.300	0.756
	GWR ANOVA Table	*SS*	*DF*	*MS*	*F*		
Panel E	Global Residuals	*72.946*	*79.000*				
	GWR Improvement	*42.362*	*7.828*	*5.412*			
	GWR Residuals	*30.584*	*71.172*	*0.430*	*12.5932*		
	Observations	*81*					
	Transportation Services	-0.636	0.509	-0.507	-0.273	0.471	1.145
	GWR ANOVA Table	*SS*	*DF*	*MS*	*F*		
Panel F	Global Residuals	*73.138*	*79.000*				
	GWR Improvement	*49.436*	*7.872*	*6.280*			
	GWR Residuals	*23.702*	*71.128*	*0.333*	*18.8462*		
	Observations	*81*					

Notes: First row for each panel gives the coefficient estimate intervals for related grids. Remaining rows summarizes the ANOVA results

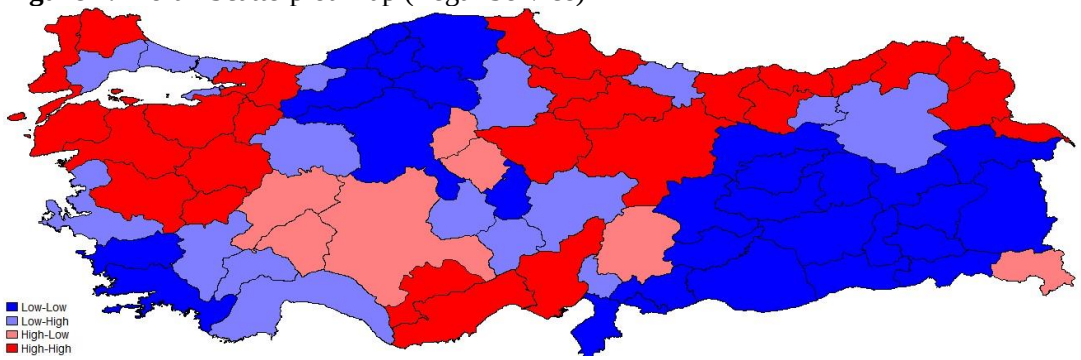
Table 8. Geographical Variability Tests for Local Coefficients

Independent Variable	Difference of Criterion
Legal Services	-4.147***
Security Services	-37.065***
Education Services	-23.333***
Health Services	-43.755***
Social Security Services	-9.591***
Transportation Services	-29.574***

*Notes: *** represents significant spatial variability based on Nakaya (2014)*

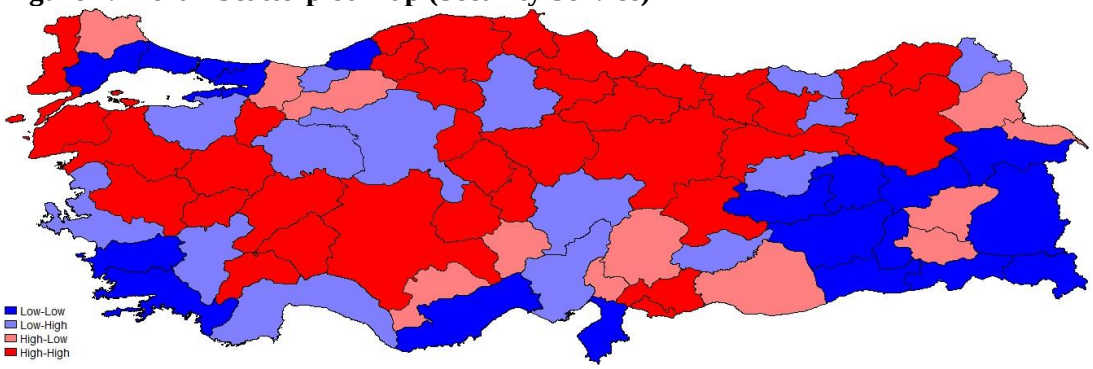
B. Figures

Figure 1. Moran Scatterplot Map (Legal Service)



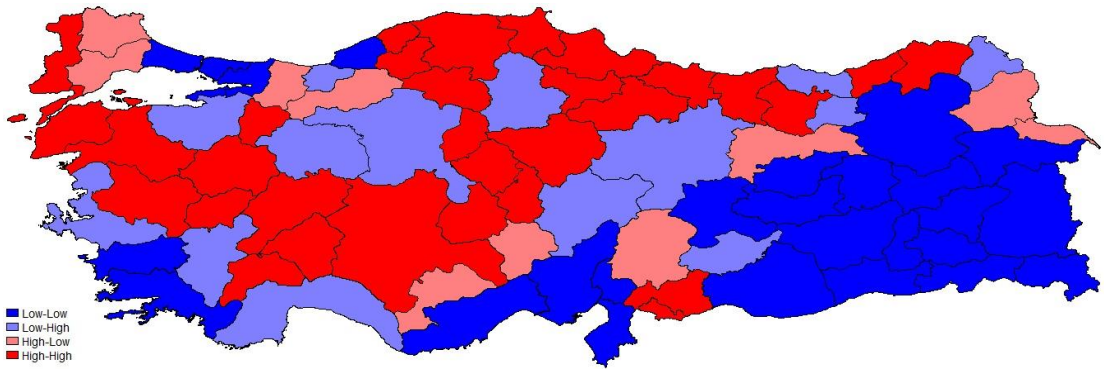
Source: TurkStat, Author's own calculations

Figure 2. Moran Scatterplot Map (Security Service)



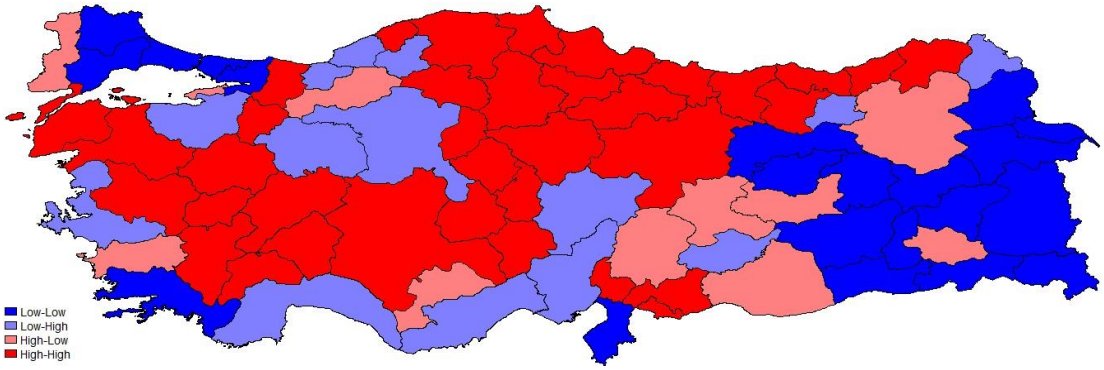
Source: TurkStat, Author's own calculations

Figure 3. Moran Scatterplot Map (Education Services)



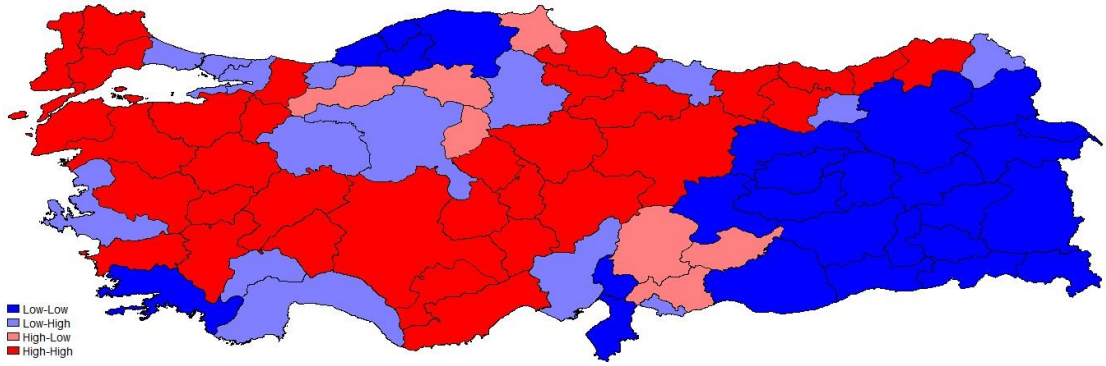
Source: TurkStat, Author's own calculations

Figure 4. Moran Scatterplot Map (Health Services)



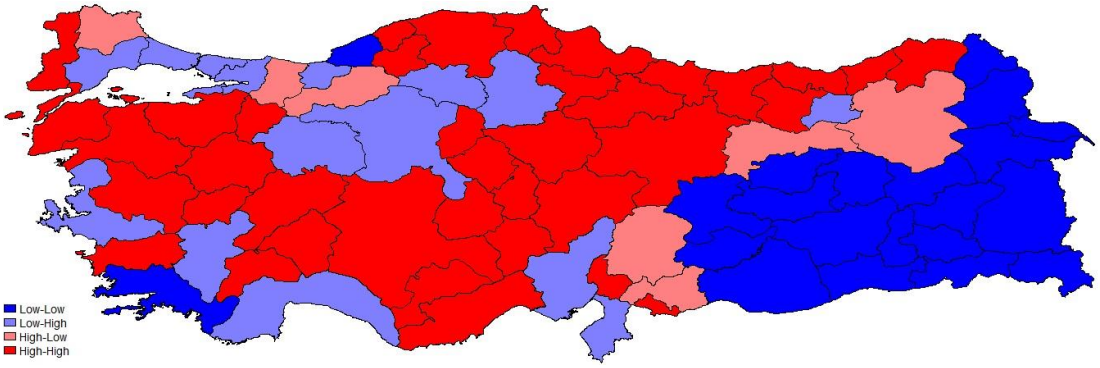
Source: TurkStat, Author's own calculations

Figure 5. Moran Scatterplot Map (Social Security Services)



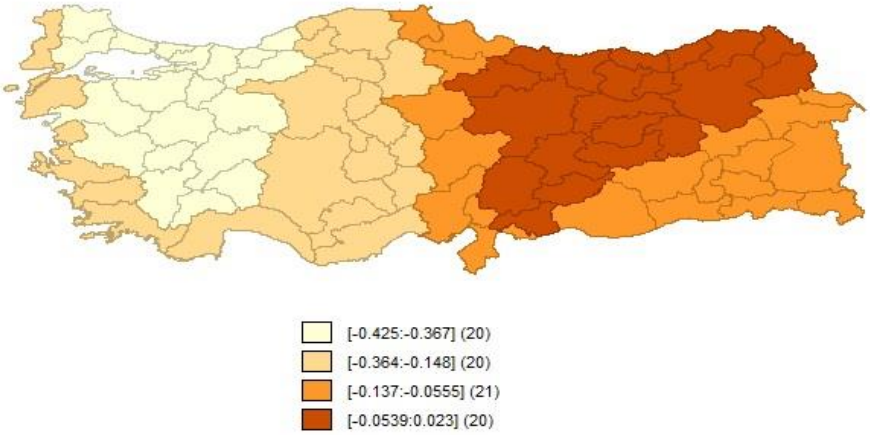
Source: TurkStat, Author's own calculations

Figure 6. Moran Scatterplot Map (Transportation Services)



Source: TurkStat, Author's own calculations

Figure 7. GWR Results (Overall Government Quality)



Source: TurkStat, Author's own calculation