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ARTICLE / ARAŞTIRMA

Assessment of Tendency to Become a Smart City Among Turkish Cities in the Context of Underdevelopment: An Empirical Analysis

Türkiye'de Akıllı Kent Olma Eğiliminin Az Gelişmişlik Bağlamında Değerlendirilmesi: Ampirik Bir Analiz

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ABSTRACT

More than half of the world's population lives in cities, which creates serious pressure on cities. Eliminating this pressure is important for the sustainability of cities, as well as for improving the quality of urban life. In this context, the smart city model has recently been utilised to address urban sustainability challenges and enhance the quality of urban life. The model has a framework aimed at overcoming the mentioned issues through the use of technology. This model has begun to be included in upper-scale policy documents all around the world, along with Turkey. However, the human and physical entities that make up the components of the smart city differ spatially within the country, which points to the problem that the smart city model cannot be equally effective everywhere. Therefore, this study aims to demonstrate the trend of NUTS 3 regions in Turkey to become smart cities based on variables considered the most important components of a smart city, such as technological infrastructure, human capital, and governance structure. In order to achieve this goal, cluster analysis was applied to these variables. The analysis has revealed that there are five different clusters in Turkey that differ from each other in terms of the tendency to become smart cities. The findings indicate that smart city applications cannot be used equally effectively and efficiently in each region in parallel with the differentiation of the level of development.

Keywords: Information and communication technologies; regional differentiation; underdevelopment; smart cities.

ÖZ

Dünya nüfusunun yarıdan fazlası kentlerde yaşamaktadır. Bu durum kentler üzerinde ciddi bir baskı oluşturmaktadır. Bu baskının ortadan kaldırılması kentlerin sürdürülebilirliği açısından önemli olduğu kadar kentsel yaşam kalitesinin artırılması açısından da önemlidir. Bu çerçevede akıllı kent modeli, hem kentlerin sürdürülebilirliği hem de kentsel yaşam kalitesinin artırılması açısından son yıllarda giderek artan bir biçimde kullanılmaya başlamıştır. Söz konusu model, teknolojinin kullanılması yoluyla bahsedilen sorunların üstesinden gelmeyi amaçlayan bir çerçeveye sahiptir. Öyle ki bu model, hem dünyada hem de Türkiye'de üst ölçekli politika belgelerinde de işlenmeye başlamıştır. Ancak akıllı kentin bileşenlerini oluşturan beşeri ve fiziki unsurlar, mekânsal olarak farklılıklar arz etmektedir. Bu da akıllı kent modelinin her yerde aynı ölçüde etkin olamayacağına ilişkin bir soruna işaret etmektedir. Bu bağlamda bu çalışma, teknolojik altyapı, beşeri sermaye ve yönetişim yapısı gibi akıllı kentin en önemli bileşenleri olarak kabul edilen değişkenlere dayalı olarak Türkiye'de düzey 3 (il) bölgelerinin akıllı kent olma eğilimini ortaya koymayı amaçlamaktadır. Bu amacı gerçekleştirebilmek için söz konusu değişkenlere kümeleme analizi uygulanmıştır. Analiz neticesinde Türkiye'de akıllı kent olma eğilimi açısından birbirinden farklılaşan beş farklı kümenin olduğu ortaya konulmuştur. Elde edilen bulgular, gelişmişlik düzeyinin farklılaşmasıyla paralel olacak biçimde akıllı kent uygulamalarının her bölgede aynı ölçüde etkin ve verimli kullanılamayacağına işaret etmektedir.

Anahtar sözcükler: Bilgi ve iletişim teknolojileri; bölgesel farklılaşma; az gelişmişlik; akıllı kent.

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TMMOB
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1. Introduction

According to the data from the World Bank, the population living in cities has been increasing rapidly. The rate of people living in urban areas was 33.6% in the 1960s, however it exceeded 50% for the first time in 2007, and as of 2019, this rate reached 55.7% (World Bank, 2020). This global change has also followed a similar pattern in Turkey, with 93% of the Turkish population living in urban areas in 2020 (TÜİK, 2021). The fact that a large portion of the population lives in cities has brought up certain issues such as the sustainability of cities and improving the quality of urban life in both academic and political circles. At this point, such issues have for some time been addressed within the concept of smart cities. The origin of this conceptualization can be traced back to the definition "cybernetically planned cities" in the 1960s (Çetin and Çiftçi, 2019: 135). Smart city conceptualization denotes a complex ecosystem with a range of components from health to environment, from energy to transportation, from disaster and emergency management to security, from governance to economy (Solanas et al., 2014; Kylili and Fokaides, 2015; Garnett and Matthew, 2018; Ruhlandt, 2018; Braun et al., 2018). With the development of information and communication technologies, the integration of technology into the above-mentioned components constitutes the essence of the smart city conceptualization, thus smart cities are encouraged for a sustainable urban development and better quality of life (Caragliu et al., 2011). Here, we should note that there exist other conceptualizations coinciding with the concept of smart city, including digital city, technological city, sustainable city, and intelligent city (Varol, 2017).

As accepted by the European Union, in order to achieve a sustainable economic development and better quality of life, smart cities should be designed after the infrastructure for information and communication technologies has been completed through human and social capital. Accordingly, the report published by the European Parliament states that smart cities have six dimensions within the framework of Cohen's approach (Giffinger and Pichler-Milanović, 2007; Yalçıner-Ercoşkun, 2016; Örselli et al., 2018). These six dimensions include smart economy, smart person, smart governance, smart mobility, smart environment and smart living. While the smart economy here refers to the establishment of a competitive economic structure that is generally shaped on the axis of innovation, intelligent people refers to the human capital structure shaped in the axis of the qualified population. Smart governance refers to a structure where social capital is strong, where participation in decision processes is prioritized, while smart mobility refers to accessibility to both transportation and communication technologies. The dimension of the smart environment is based on a framework built on the sustainability of resources, and smart living has a framework for increasing the quality of life, including culture, education, safety and health (Giffinger and Pichler-Milanović, 2007). We can suggest that although there are many components, the backbone of smart cities is shaped by dynamics particularly including technology, innovation, and governance (Komnisos et al., 2013). In other words, the structure related to technology, innovation, and governance has a dimension that can exert a great impact on the effectiveness and efficiency of other factors related to the smart city. Indeed, the success of most implementations within the framework of the smart city concept, where technology is the main focus, can only be achieved by integration of the dimensions involving social processes such as smart governance and smart people (Ateş and Erinsel-Önder, 2019). For instance, the technological infrastructure makes sense when it integrates an innovative human capital structure with a strong tendency to utilize technology. Therefore, smart city refers to a city where information technologies are used to provide urban services by individuals and institutions that are willing to adopt the latest innovations (Gül and Atak-Çobanoğlu, 2017: 1544).

In summary, a smart city is defined as a city built on the smart combination of the assets and activities of its unique, independent, and conscious citizens, where economic activities and governance perform best in the environment as well as in living areas (Chourabi et al., 2012). This brings the definition of smart city to a position that has social content as well as technology. Therefore, the practical effectiveness of a smart city heavily depends on combined utilization of both technological and social processes.

In Turkey, smart city services and applications have recently gained considerable momentum. The first application related to smart city concept in Turkey began with the IT Valley Project in Yalova in the early 2000s (Yalçıner-Ercoşkun 2016; Örsell and Dinçer, 2019). Smart city applications beginning to take shape in the early 2000s displayed a significant improvement after the initiative of local governments in provinces such as Izmir, Ankara, Bursa, Konya, and Çanakkale. The first national-scale policy document on supporting smart city applications was designed within the scope of the 10th Development Plan for the years 2014 to 2018. In 2018, the Department of Smart Cities and Geographical Technologies, affiliated to the the Ministry of Environment and Urban Planning, was established. In 2019, the 2020-2023 Smart Cities Strategy and Action Plan was prepared by the Ministry of Environment and Urbanization (T.C. Çevre ve Şehircilik Bakanlığı, 2019). The process that started with the 10th Development Plan reveals that the smart city approach has been removed from the local initiative dimension and turned into a national and central policy. As emphasized above, dynamics such as technology, innovation, and governance shape the backbone of smart cities (Komnisos et al., 2013). Therefore, the existence of these dynamics in a region can determine the level of applicability of the smart city.

To that end, this research has a framework that explores the applicability of the smart city concept in terms of level 3 regions, which has been turned into a national and central policy. The adoption of smart city applications as a national strategy expresses a space-blind approach. However, Turkey is a country with spatial differences in terms of the implementation of the smart city strategy. Therefore, the technological and social spatial differences complicates the application of smart city models in every place. In the relevant literature, there are several studies into national and regional scale smart cities in the context of underdevelopment (Tan and Taeihagh, 2020; Vu and Hartley, 2017). Also, it is observed that a new literature has been emerging with a special focus on smart city applications at the local level in Turkey (Varol, 2017; Gül and Atak-Çobanoğlu, 2017; Bilici and Babahanoğlu, 2018; Örselli and Dinçer, 2019). These local studies examine the current situation regarding the applications towards smart cities. We have seen that rather limited research has focused on the tendency and potential of cities to become smart cities (Aihemaiti and Zaim, 2018; Gürsoy, 2019; Bilbil, 2017; Akbaş, 2018; Velibeyoğlu, 2016). Except for the research by Yalçıner-Ercoşkun (2016), studies based on the readiness level of provinces for smart city applications on a national scale have been neglected. In this framework, Yalçıner-Ercoşkun (2016), who conducted their study on a NUTS 3 scale, thematically mapped the provinces in terms of their technological infrastructure only, discussing their tendencies to become smart cities merely based on technological infrastructure (Yalçıner-Ercoşkun, 2016). In other words, Yalçıner-Ercoşkun's (2016) research has revealed a 'technocentric' perspective just as Echebarria et al. (2021) conceptualised. However, as emphasized above, smart city applications should be evaluated in a broader framework with different components as well as technology. These components consist of humanistic and collaborative approaches, as Echebarria et al. (2021) mentioned. Therefore, this study has a framework that reveals the tendency of becoming a smart city in a holistic way that takes into account the technological infrastructure of the provinces as well as features such as governance, innovation, and human capital. Our study differs from other relevant research on Turkey, in that it involves much more variables and uses different methods to investigate such variables. Another aspect that distinguishes this research from other studies is that it provides a critical point of view that smart city practices, which have been made a national policy, cannot be implemented in every place due to spatial differences in the country. Besides, we address the applicability of the smart city approach by placing it in the context of development and underdevelopment. Thus, the motivation of this research is to criticize the national strategy by revealing the readiness level of each region for smart city applications that have been made a national strategy. This allows us to emphasize the necessity of bottom-up approaches rather than top-down national strategies. The research findings will hopefully make an empirical contribution to the 2020–2023 National Smart Cities Strategy and Action Plan.

2. Necessity of a Critical Approach to Smart City in the Context of Underdevelopment

Concerning the critical view of smart cities, Verrest and Pfeffer (2019) state that the term smart is equated with innovation, and innovation is equated with technology, while this unquestioned pairing actually has a technocratic reductionist side. In fact, this criticism can be furthered, as the same authors put it, to the argument that smart cities do not rely on a solid epistemological and ontological basis. In this respect, according to the same authors, the concept of smart city has become a "migrating" and "mutated" urban policy and developmental motivation. On the common ground of the knowledge economy, it represents a very attractive urban growth strategy for city managers, politicians, and representatives of the business world.

While determining policies for smart cities, countries try to implement this policy by aiming for certain targets. In the research conducted by Tan and Taeihagh (2020) on the smart city policy processes and development experiences of developing countries (India, China, Indonesia, Brazil, Malaysia, Vietnam, Mexico, Turkey, Egypt, Romania, Nepal, Ghana), four broad goals have been identified to prioritize smart city development as public agenda, which can be listed as follows: (1) Improving the efficiency of the state in public service delivery, (2) Improving the quality of life for the citizens, (3) Promoting inclusive governance, and (4) Involving the vulnerable and disadvantaged population (Tan & Taeihagh, 2020).

However, there are some serious obstacles to the smart city development for developing countries, and such drawbacks might hinder realization of the above-mentioned goals in the first place, which can be listed as follows (Tan & Taeihagh, 2020):

- Budget constraints and financial problems
- Lack of investment in basic infrastructure
- Lack of preparation for technology-related infrastructure
- Fragmented authority between central and local administration
- Lack of governance frameworks and regulatory protections for smart cities
- Lack of qualified human capital
- Lack of inclusiveness
- Environmental concerns
- No citizen participation
- Lack of technology literacy among citizens

The above-mentioned obstacles also point to developmental differences. Considering the historical evolution of living conditions around the world, we observe that the underdevelopment problem has indeed been at a more significant level, as compared to the past. The fact that underdevelopment is associated with socio-economic indicators is still an important factor today. In general, development can be expressed as a change that occurs gradually over time. However, the economic impacts of the developmental level in a given country are reflected in reality at different rates. For instance, if the development in an economy occurs thanks to the abundance of natural resources, the gap between the incomes of the rich and the poor increases, and thus inequality tends to rise. On the other hand, the term development in the sense of earnings refers to more accumulation, innovation activities or growth (Çiftçi, 2019). An underdeveloped economy is characterized by the presence of idle work force and unused natural resources. This may be resulting from the stagnation of techniques or certain socio-economic factors that prevent more dynamic forces in the economy from playing a significant role. In general, underdevelopment is a condition characterized by the lack of basic human development opportunities such as health, food, education, employment, living standards, and entertainment (Sangwan, 2020). This should not be considered to be independent of the realities of neoliberalism, which produces distorted results such as uneven development. However, it should be noted that regional development disparities are not shaped only by the dynamics mentioned above. In this information and communication age, regional development differences or spatial inequalities are particularly shaped by new concepts such as digital inequality (Warf, 2019; Atkinson et al., 2008; Philip et al., 2015). There are also spatial differences in terms of human capital and governance dynamics. In this regard, the applicability of smart cities becomes questionable due to the existence of spatial differences in terms of digital and human capital, as well as governance, which is also problematized by this study.

In this respect, if a country adopts a political approach towards smart cities, it is necessary to take into account infrastructural, social, and political factors related to the developmental needs of cities. As Winkowska et al. (2019) point out, focusing solely on smart technologies, introducing technology from outside to the underdeveloped region, and deploying these technologies in cities with complex social problems in the hope of solutions and development could actually increase social inequalities between those who can access technical improvements and those who cannot. Moreover, this might be the source of new inequalities in the context of basic education and digital literacy. In fact, in underdeveloped and developing countries, the main deficiencies regarding digitalization at the urban level are lack of knowledge for appropriate use of technology, inadequate internet use, and lack of skills for using technology, namely technology literacy (Chatterjee and Kar, 2015).

3. Data and Method

As stated above, the definition of smart city generally has a framework that combines a technology-oriented urban design with human capital, innovative structure, and participation (Kourtit and Nijkamp, 2012). This research aims to present a descriptive picture of the potential of provinces to become smart cities on a level 3 scale. Therefore, according to the descriptive table emerging from this point, it criticizes the level of application of the smart city conceptualization at level 3. In order to reveal a complete picture, in the first stage, a data set regarding the technological infrastructure, innovation levels, participation levels, and human capital structure of the provinces was formed by combining the data shown in Table 1. As emphasized earlier, one of the most important indicators that can ensure the applicability of the smart city concept is the technological infrastructure, human capital structure, and governance situation (Wijs et al. 2016). To that end, a data set has been created in an attempt to represent these indicators. Technology level, one of the most important dimensions in the smart city conceptualization (Caragliu et al., 2011; Batty et al., 2012; Vanolo, 2014; Wijs et al. 2016), is considered as the ratio of the use of third-generation and more advanced mobile phones in the total population, the ratio of the total number of broadband subscribers (fixed and mobile) to the population, and the fiber optic cable length to the population. On the other hand, due to the tendency to use the technology in question, the proportion of the university graduates was also used as a variable indicating the human capital structure (Caragliu et al., 2011). Governance structure is another dimension for the applicability of smart city conceptualization (Mancebo, 2020; Rose, 2021). From this point of view, the number of associations per ten thousand people and the rate of participation in the elections are used to understand the governance structure of the provinces. As it is known, governance, one of the important components of the smart city, points to the participation of the society in decision-making mechanisms (Mancebo, 2020; Rose, 2021). Participation is especially crucial to facilitating and interacting with other factors. Therefore, the two variables used here are capable of revealing the level of social and political participation in decision-making mechanisms and the size of the relationship to be established with other dynamics (like number of associations per capita and rate of participation in election). In summary, a data set that can be an indicator of the technology, governance, and human capital dimension of the smart city conceptualization has been created for the first time in the literature. While designing the data set, we took three or four-year averages as basis considering that one-year data may be misleading in some data sets.

With the analysis based on the data set, provinces with similar qualifications in terms of participation, technology and innovation, and human capital structure were included in the

Table 1. Variables included in cluster analysis and their definitions

	Data	Description	Period	Source
Governance infrastructure	Number of association per capita	It was calculated by proportioning the number of associations in the provinces to the population of the province.	2019	Ministry of Internal Affairs Turkish Statistical Institute (TUIK)
	Rate of Participation in elections	It was calculated by taking the average of the participation rate in the recent elections.	Average of participation rates in the last three elections (1 November 2015, 24 June 2018, 31 March 2019)	Supreme Electoral Council (YSK)
Technology and innovation	Innovativeness level	It was calculated on the basis of the average number of patent, utility model and trademark applications.	Average number between 2015 and 2019	Turkish Patent and Trademark Office
	Technological infrastructure level	The ratio of the number of mobile phones (3G + 4.5G) to the population The ratio of the total number of broadband internet subscribers (fixed and mobile) to the population The ratio of fiber-optic cable length to population	2019	Information and Communication Technologies Authority (ICTA)
Human capital structure	Education level	The ratio of university graduates (including associate, undergraduate and graduate degrees) in the total population	Average number between 2015 and 2019	Turkish Statistical Institute (TUIK)

Table 2. Final cluster centers

Category	Variables	Clusters				
		1	2	3	4	5
Governance	Number of associations per person (per 10,000 people)	17.394	**22.461**	13.279	15.980	8.073
	Average Participation in elections (last three elections)	**87.781**	86.552	87.704	83.672	82.548
Technology and innovation	Average number of patent, utility model and trademark applications per person (2015–2019 (per 10,000 people)	**5.147**	1.743	2.091	1.280	0.675
	Number of mobile phones per person (3G + 4.5G)	**0.908**	0.786	0.796	0.756	0.677
	Length of fiber-optic cable length per person	0.005	0.006	0.005	0.006	0.004
	Number of broadband internet subscribers per person (fixed and mobile)	**0.866**	0.746	0.731	0.683	0.604
Human capital structure	Rate of university graduates	**17.677**	13.880	13.574	12.433	10.438

same cluster so that the opportunities and capabilities of provinces to become smart cities could be better illustrated. Clustering analysis is based on an algorithm concerning placement of units with similar characteristics into the same cluster (Uçar, 2017). While determining the number of clusters, the tree chart (dendrogram) in the cluster analysis was used. In the chart, the observations were determined to cluster in five groups, so the number of clusters in the analysis was five. This was in agreement with Uçar (2017), who pointed out that the breakdowns in the tree chart should be taken as a reference when determining the number of clusters.

4. Results

The clustering analysis revealed that the provinces were grouped into five different clusters. There were 9 provinces in the first cluster, 14 in the second cluster, 31 in the third cluster, 13 provinces in the fourth cluster and 14 provinces in the fifth cluster (Fig. 1, see also Appendix 1). The final cluster centers in Table 2 indicate that the first cluster had the highest average in terms of all variables except the number of associations per capita and fiber cable length per per-

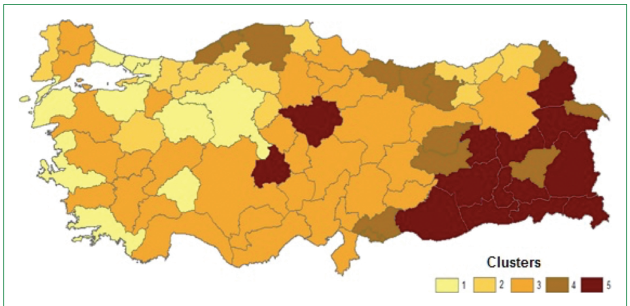

Figure 1. Clustering of the provinces in Turkey by their tendency to become a smart city.

son. In this context, the average of variables such as political participation rate, innovation level, and technological infrastructure in the first cluster was much higher than the other clusters. This shows that the provinces in the said cluster constituted the group with the highest tendency to become smart cities. On the other hand, the provinces in the fifth cluster were found to have the lowest averages in terms of all variables. In fact, all variables including association, participation in elections, level of innovation, technological infrastructure, and human capital structure in the fifth cluster had the lowest averages (Table 2). From this point of view, it can be said that the provinces in the fifth cluster were far from smart city applications. In general, the tendency to become a smart city weakened as we went from the first cluster to the fifth cluster. The map illustrating the clusters (Fig. 1) shows that this tendency declines as we move from east to west of Turkey. Here, the most striking aspect is observed in the provinces located in the interior regions of Turkey. In this regard, Aksaray, for instance, was assigned to the fifth cluster like the provinces in southeastern Turkey, although its neighboring provinces were placed into the first and third clusters. A similar case was observed in Yozgat; even though Yozgat's neighbors were assigned to cluster 2 and 3, it was included in the fifth cluster with the lowest averages. Therefore, Aksaray and Yozgat appear as provinces that interrupt the stratification from west to east.

5. Discussion and Conclusion

In a broad sense, smart cities represent a model based on the participation of citizens, utilization of infrastructure, and widespread use of modern technologies to increase the quality of urban life and sustainability of cities (Chatterjee & Kar, 2015; Yalçıner-Ercoşkun, 2016). The functioning of this model directly depends on the existence of a suitable human and physical infrastructure, as well as the effective collaboration of infrastructure, people, and information (Wijs et al., 2016). This brings into question the applicability of smart city applications in every region. Based on this motivation, this research has a framework that criticizes the fact that the Smart City transformation, which is expressed in the 2020-2023 National Smart Cities Strategy and Action Plan, is designed to cover all of Turkey. However, many experiences reveal that the top-down central planning approach does not yield successful results in countries such as Turkey, where regional differences are explicit both socially, economically, culturally and technologically. As outlined above, first of all, the success of smart city applications depends on the technological infrastructure of the region and the human capital structure. It is possible to mention a deep regional differentiation in Turkey in terms of these two basic features required for the functionalization of smart city applications. Therefore, even the regional differentiation of these two critical issues points to a necessity for each region to make its own local strategy rather than a national strategy. Therefore, we should develop policies for a smart city strategy by taking into account regional differences. Indeed, the transformation of a city from its traditional structure into a smart city involves a challenging process in terms of both time and other habits (Örselli & Dinçer, 2019: 93).

As revealed by this investigation, there has been a spatial differentiation evident in Turkey. In fact, the research findings show that the tendency to become a smart city at the level 3 scale generally decreases from northwest to southeast, which suggests that each region may respond to the national policies regarding the concept of smart city at different levels according to its inherent characteristics. Our results are also consistent with the findings of Yalçıner-Ercoşkun's study (2016), which was conducted on NUTS 3 level in Turkey. However, it should be noted once again that the findings of this study are based on a larger data set, focusing on easy access to technology. The results of that research clearly reveals that there are regional differences in terms of easy access to technology in Turkey. Our study, on the other hand, has a framework in which other variables such as human capital and governance structure are analyzed besides easy access to technology. This once again indicates that smart city applications should be made taking into account the characteristics of each region.

Another issue that should be noted here is that the 2020-2023 National Smart City Strategy covers all settlements with a population of more than 50,000. Therefore, future research is warranted to investigate a city's potential of becoming a smart city at the district level. However, since a significant part of the data used in this study is not at the district level, it does not seem possible for this study to cover all the districts in Turkey at the moment. Analysis at the district level can only be performed with data collected from primary sources, combining qualitative and quantitative data from a few samples to be selected as a case. This, in turn, calls for further research into this issue on a micro scale.

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Appendix 1. Cluster memberships by provinces

Provinces	Assigned cluster	Provinces	Assigned cluster	Provinces	Assigned cluster
Adana	3	Edirne	2	Malatya	3
Adıyaman	3	Elazığ	5	Manisa	3
Afyon	3	Erzincan	3	Mardin	4
Ağrı	4	Erzurum	3	Mersin	3
Aksaray	4	Eskişehir	1	Muğla	1
Amasya	3	Gaziantep	5	Muş	4
Ankara	1	Giresun	5	Nevşehir	3
Antalya	3	Gümüşhane	5	Niğde	3
Ardahan	5	Hakkari	4	Ordu	5
Artvin	2	Hatay	3	Osmaniye	3
Aydın	3	Iğdır	5	Rize	2
Balıkesir	3	Isparta	1	Sakarya	2
Bartın	5	İstanbul	1	Samsun	3
Batman	4	İzmir	1	Siirt	4
Bayburt	2	Kahramanmaraş	3	Sinop	2
Bilecik	3	Karabük	2	Sivas	3
Bingöl	4	Karaman	3	Şanlıurfa	4
Bitlis	5	Kars	4	Şırnak	4
Bolu	2	Kastamonu	5	Tekirdağ	3
Burdur	3	Kayseri	3	Tokat	3
Bursa	1	Kilis	5	Trabzon	2
Çanakkale	1	Kırıkkale	2	Tunceli	5
Çankırı	2	Kırklareli	3	Uşak	3
Çorum	3	Kırşehir	3	Van	4
Denizli	3	Kocaeli	1	Yalova	2
Diyarbakır	4	Konya	3	Yozgat	4
Düzce	2	Kütahya	2	Zonguldak	5