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Article

The differentiated regionality of rural Türkiye: The relationship between population growth/decline trends, population sizes and spatial distribution of settlements at village/sub-village level in Türkiye

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ABSTRACT

This study examines the dynamics and regional differentiation of rural areas in Türkiye, focusing on the relationship between population growth/decline trends, population sizes, and the spatial distribution of settlements at the village and sub-village/hamlet level. To this end, it uses data from the Address-Based Population Registration System (ABPRS) and Nomenclature of Territorial Units for Statistics regions level 2 (NUTS-2) to identify and analyze the rural population change trends in Türkiye's NUTS-2 regions. The study categorizes 41,944 rural settlements with populations under 5,000 into three groups based on population size: below 500 (Group 1), between 501–2,000 (Group 2), and between 2,001–5,000 (Group 3). It classifies all these settlements as "decreasing," "stable," or "increasing" in population. To visualize the relationship between these variables, the study employs Geographic Information System (GIS) mapping and discusses the factors influencing population trends.

The main findings indicate a decreasing trend in the rural population, with the highest rate of population loss occurring in settlements with populations below 500. In contrast, settlements with populations over 500 show relatively less population loss, and a significant portion of them are experiencing growth.

This research provides a detailed spatial analysis of rural population trends in Türkiye, making a significant contribution to the literature. It offers insights for policymakers to address regional disparities and support sustainable rural development.

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INTRODUCTION

During the urbanization process experienced by Türkiye in the last seventy years, a significant portion of the population has migrated to cities. While the urban population ratio was 25% in 1950, it reached 92% in 2018 (TSI, 2023a). In Europe, which began its urbanization process about 200 years ago (Benevolo, 1995), the urban population ratio averages 75%, with some of the highest urbanization rates seen in countries like Germany (77%) and France (80%) (UN, 2023). The rapid increase in Türkiye's urban population over seventy years can be attributed mainly to poverty and low living standards in rural areas (Keleş, 2012).

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In Türkiye, which started the urbanization process much later than European countries, the swift migration to cities led to overcrowding in urban areas, while some rural regions rapidly depopulated, resulting in many village/hamlet settlements being completely abandoned. Due to Türkiye's vast geography, the distribution, density, and population growth/decline rates of rural settlements vary by region. Some rural areas experience faster population loss, while others do not. This process naturally depends on various factors such as the geographical location of the settlement, transportation facilities, and climate. Investigating whether "the size of settlements has a decisive effect on population growth or is related to it" will be useful for possible evaluations and discussions about future developments in rural areas of Türkiye. Understanding the spatial-based population growth/decline rates of rural settlements is crucial for answering these questions.

This study aims to discuss the fluidity and dynamism of rural areas in Türkiye by relating population sizes with growth/decline trends and also to reveal rural population changes at Nomenclature of Territorial Units for Statistics Level 2 (NUTS-2). For this purpose, the population sizes and distributions of the mentioned areas were identified by region, and the different patterns of population growth/decline trends by settlement sizes were determined and examined.

RESEARCH METHOD

The study was conducted based on the populations of neighborhoods and villages outside the provincial/district centers, obtained from the Address-Based Population Registration System (ABPRS) published by the Turkish Statistical Institute (TSI) and NUTS-2 they are located in. Based on the provision in Municipal Law No. 5393, stating that "municipalities cannot be established in settlements with a population of less than 5,000," rural settlements with fewer than 5,000 people outside metropolitan municipalities and settlements that were villages before the enactment of Law No. 6360 but became neighborhoods after the law came into effect within metropolitan municipality boundaries were identified (total 41,944 villages/hamlets). The populations of these settlements for the last 15 years were obtained from TSI at five-year intervals (2007, 2012, 2017, 2022), creating a database.

Based on this database, the settlements were grouped into three categories according to their population sizes: settlements with populations below 500 (average population of the villages within the scope of the study in 2022), settlements with populations between 501–2,000 (as defined by Village Law No. 442), and settlements with populations between 2,001–5,000. All these settlements were digitally mapped with coordinates using ArcGIS, and spatial assignments were made according to the mentioned years and population sizes. The population growth values for each settlement during 2007–2022 were categorized as "increasing" if above 11%, "stable" if between 0–10%, and "decreasing" if negative, and mapped accordingly[1].

Thus, related settlements were classified and visualized spatially based on population sizes and growth/decline rates on the Geographic Information System (GIS) (Figure 1). Based on the obtained data, the regions where "increasing," "stable," and "decreasing" settlements and rural

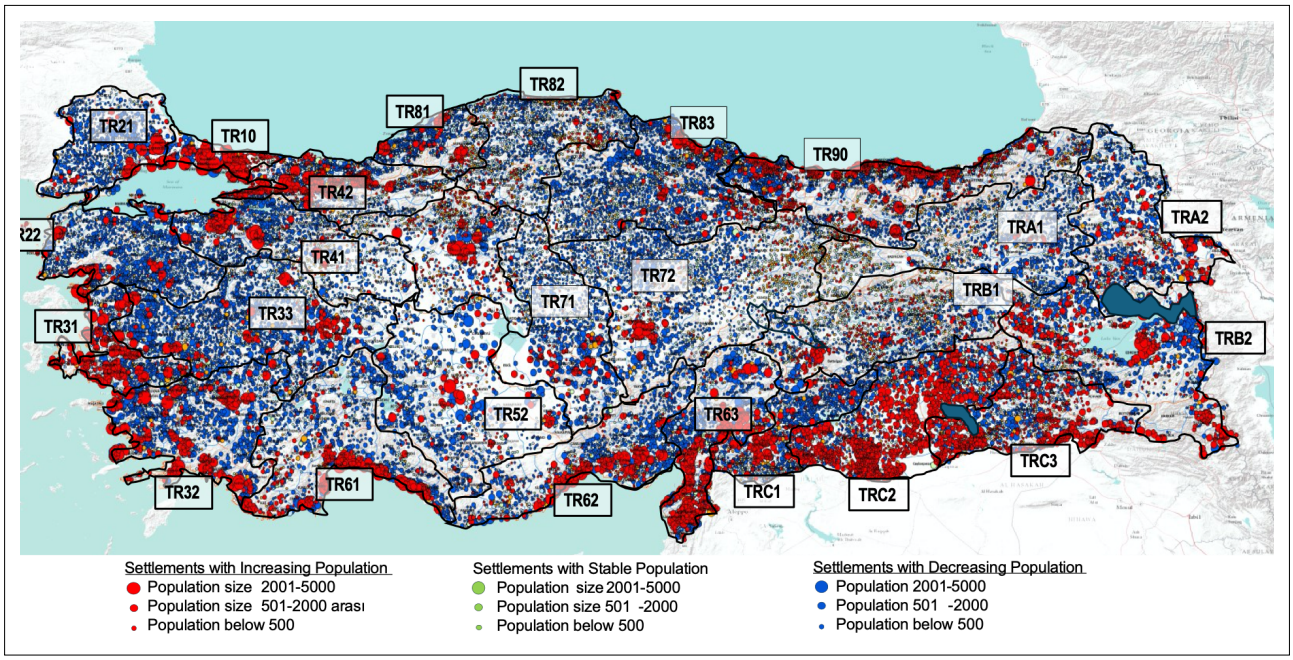

Figure 1. Increasing/Decreasing Rural Settlements by Population Size Groups (2007-2022).

settlement groups are concentrated were identified, and the relationship between population size groups and growth/decline rates was discussed. Before proceeding to the case study, a literature review on the subject was conducted and discussed conceptually.

CONCEPTUAL FRAMEWORK

Approximately 200 years ago, 3% of the world's population lived in urban settlements (Raven et al., 2011). With industrialization starting in Europe and spreading worldwide, the population migrating from rural to urban areas rapidly increased, and today more than half of the world's population (57%) lives in cities. While this dynamic slowed and became stable towards the end of the 20th century in developed countries such as Europe and North America, migration from rural areas to cities significantly increased in developing countries that started the industrialization process later, particularly between 1981–2016 in East and South Asia, North Africa, and Latin America (Li et al., 2019).

Young (2013) explains the decline in the rural population primarily with economic and social factors, stating that the living standards in rural areas are lower than in cities. The greater the economic and social differences, the higher the migration from rural areas. Therefore, the lower the living standards in rural areas, the higher the migration to urban areas. This migration causes a reduction in social services and the closure of commercial enterprises in depopulating rural settlements, weakening social capital, especially as young people prefer cities (Amcoff & Westholm, 2007; Luck et al., 2011).

As a result of this spiral process, the remaining population ages, reducing the capacity to maintain basic rural functions. Researchers refer to this process with concepts like "community destruction," "dying rural communities," "marginal community," and "hollowing out" (Gallaher & Padfield, 1980; Forth, 2000; Ono, 2005; Carr & Kefalas, 2009; Li et al., 2016; Sakuno, 2006; Kasamatsu, 2009; Odagiri, 2011).

Migration driven by economic reasons from rural to urban areas has been the subject of various studies and research, leading to the development of many theories to explain the phenomenon from different perspectives. One such theory is the Neoclassical approach, which argues that migrations primarily stem from the differences in labor demand and potential across regions, geographical differences, and individuals' rational cost and return expectations (Fan, 2005). Therefore, people migrate to areas where job and return expectations are high. The structuralist approach emphasizes the cumulative causation of regional growth and suggests that the movement of human resources from less developed regions to developed central regions accelerates polarization (Myrdal, 1957; Hirschman, 1958). Richardson argues that economic and employment growth further increases labor migration (Richardson, 1978).

Thus, in developing countries with high natural population growth rates, imbalanced development, population concentrations, and regional polarizations continue (MacKellar & Vining, 1995).

On the other hand, a new phenomenon of migration to rural areas is mentioned in both Southern and Northern Europe (Bock et al., 2016; Almeida et al., 2016). Some authors explain these developments by factors such as social and environmental problems in cities, increased car usage, advances in communication technologies, retirees settling in second homes, and changing settlement preferences of people and entrepreneurs. They also note that some of these trends may be related to the transition to a post-production society (Novotná et al., 2013).

Some rural settlements experience population growth because they are preferred by upper-income professional urbanites who wish to live in a 'natural' environment outside the city while remaining within commuting distance of their workplaces (Cloke et al., 1998; Nelson et al., 2010). On the other hand, some rural settlements experience population growth due to their proximity to activities like agriculture-based industry, storage and logistics, driven by the labor demand created by businesses. These developments are described as "rural revival" by some authors (Fuguitt, 1985; Champion, 1988; Fuguitt & Beale, 1996).

Population increase/decrease process, influenced by various characteristics of the settlements, is fundamentally based on tangible features such as physical area, location, geographical features, population and resource endowments, as well as intangible features like historical background, values, attitudes, personal relationships, culture and institutions (Davoudi & Stead, 2002; Potter et al., 2004). For example, settlements in the Black Sea and Eastern Anatolia regions in Türkiye, characterized by rugged and limited agricultural areas due to climate and topography and with difficult and long access to major urban centers, are among the primary reasons for migration. In contrast, settlements in the Southeastern Anatolia Region with similar disadvantages experience less and slower migration due to cultural reasons.

Some village settlements, located in disadvantaged geographical conditions and affected by globalization, industrialization, urbanization and information processes on different scales, experience rapid population loss. The primary reason for this is that they have not been able to adapt traditional economic methods to current conditions or attract wealthy urban groups longing for rural life. They may also lack the adaptability and innovative responses to external developments and changes. Conversely, some rural settlements, with their natural features appealing to wealthy groups or by shaping their production types and quantities

according to market economy demands while absorbing technological developments, do not experience population loss (Vidich & Bensman, 1958). Therefore, different regions exhibit different population density patterns and demographic changes and the types and volumes of economic activities, as well as physical attributes like roads, buildings and infrastructure, are shaped accordingly.

Concept of Rural Areas

The purpose of this study is not to define or discuss the concepts of rural-urban areas. However, to determine the study's assumptions, the concept of "Rural Areas" in the literature was examined and found to be a comprehensive concept encompassing several issues, defined differently from country to country. These definitions sometimes vary even within the same country, with many studies attempting to determine rural area variables by researchers (Hoggart, 1990; Halfacree, 1993; Pierce, 1996). The rapid increase in urban areas post-industrialization has led many scientific disciplines to focus on rural areas as well, and determining accurate measures for national and international economic/social policies has become increasingly important.

In general, the term "rural" refers to areas where activities like agriculture, forestry, and livestock are dominant, and social production and relations are shaped through agriculture, located outside urban settlements with low population density (Labrianidis, 2006). However, explaining rural areas solely through this definition is insufficient to describe today's complex developments. Therefore, studies including factors such as population density, population loss and growth rates, settlement sizes, local economic structure, and local landscape are being developed and discussed to define and classify rural areas (Akder, 2002; Ballas et al., 2003; Baum et al., 2004; Bryden, 2002; Ilbery, 1998; Labrianidis, 2006). Additionally, factors like the social, economic, and political structures of countries also differentiate and shape rural areas (Woods, 2005; Labrianidis, 2006).

For this reason, it is stated in United Nations Population Statistics that a standard rural-urban definition is not possible, and a single definition valid for every country cannot be developed due to national differences (Öğdül et al., 2007).

On the other hand, Tekeli (2016) argues that the concepts of village, rural, and urban used to describe settlement systems are insufficient to represent the emerging settlement structure as we transition from an industrial to an information society. He states that new concepts and theories need to be developed in the field of settlements. He bases this on the fact that during the transition to an information society, production and service activities considered urban are increasingly being located outside cities, a significant portion of small landowners in villages work as wage earners in both agricultural and non-agricultural sectors, and the logic of capitalist consumption has become dominant not only in cities but also in all rural areas.

The Concept of Region/Regionality and Rural Area in Türkiye

A region is generally defined as a homogeneous area with specific geographic, economic, social, or cultural characteristics. Regionalism emphasizes the unique economic, social, and cultural features of a particular region. This concept also reflects an understanding that highlights local identities and cultural differences (Ersoy, 2015). The scale of the region varies according to its purposes and can be explained by multiple criteria (geographic, social, economic) (Keleş, 2021).

Unlike the theoretical definitions provided above under section 3.1, the concept of rural areas in Türkiye has historically been defined based on administrative and population criteria. In this context, it would be useful to briefly address the concepts of "region/regionality" and "rural areas" in Türkiye.

Region/Regionality

The concepts of region and regionalism in Türkiye have been discussed many times and shaped by different policies throughout the historical process. In this process, no political/administrative structure was ever considered due to the "sensitivity of the unitary state and political integrity." After the establishment of the Republic, seven geographical regions were defined in Türkiye by a decision made at the 1st Geography Congress held in Ankara in 1941 (Avcı, 2012). Although these regions were primarily determined based on geographical features, they also include socio-economic characteristics and differentiations (Özdemir, 2017).

After the 1950s, most public institutions created to implement infrastructure investments were organized at the regional level, creating a mismatch with the province-based administrative structure (Özdinç, 2009).

With the adoption of the new constitution in 1961, regional policies were developed during the planned development period. State intervention in the economy increased, and it aimed to reduce regional disparities through this approach (Ersoy, 2015). However, the neoliberal policies implemented in the 1980s reduced the state's role in the economy and adopted a development model led by the private sector. This situation caused an increase in regional inequalities (Karasu, 2015).

After the 2000s, the strengthening of local governments, the establishment of regional development agencies, and the European Union harmonization process contributed to the prominence of the concept of regionalism. In this process, the concept of regionalism became significant in terms of protecting local identities and evaluating local economic potential (Özdemir, 2017).

During this period, regional development agencies were established in 2006 to ensure balance between regions within the framework of the European Union harmonization process, and 26 NUTS-2 regions were determined, defining the working areas of each development agency (Sert, 2012). Although it was claimed that the NUTS-2 boundaries were made in accordance with the functional economic geography division, there are many criticisms on this issue (Karasu, 2015).

Rural Area in Türkiye

Until recently, definitions of rural areas in Türkiye were made differently within three systems that took into account administrative boundaries as well as statistical classifications by TSI. These were grouped legally (laws and plans), administratively (boundaries), and statistically (censuses and surveys) according to the needs of studies.

First, the village is defined as an administrative unit with its own law. According to Village Law No. 442 of 1924, villages are defined as settlements with a population of less than 2,000. On the other hand, Municipal Law No. 5393 states that municipalities cannot be established in settlements with a population of less than 5,000. In parallel, in agricultural statistics, all villages and district centers with populations under 5,000 are considered "rural areas" (Turhan, 2005). Therefore, a population threshold of 5,000 can be considered for village settlements.

On the other hand, according to Law No. 6360 on "Establishing Fourteen Metropolitan Municipalities and Twenty-Seven Districts and Amending Certain Laws and Decree-Laws," the boundaries of metropolitan municipalities were extended to cover provincial boundaries, and villages within these boundaries were given neighborhood status, while town municipalities were abolished.

Considering this, it can be seen that there is no single "rural-urban" definition in our country, and different criteria are used in various laws, institutions, and scientific studies. Some studies accept the administrative status of settlements, while others use different population values as criteria. With the latest legal regulation concerning metropolitan municipalities (BŞB) made in 2012 with Law No. 6360, the administrative status of many settlements was changed again and they were removed from the rural population scope and included in the urban population as neighborhoods. Therefore, many village settlements within the boundaries of metropolitan municipalities are counted as 'urban' population, despite having almost no changes in their characteristics and socio-economic features. Thus, the urban population ratio in TSI data appears higher than the actual figure after 2012.

Finally, a new classification was made by TSI to produce statistics that could reflect the actual urban-rural structure. According to this classification, 1 km² area grids were created at the national level and settlements were classified as 'high-density urban' (settlements where at least 50% of the population lives in urban center grids), 'medium-density urban' (settlements that do not meet the criteria for high-density urban and rural) and 'rural' (settlements where more than 50% of the population lives in rural grids) based on the population density calculated from these grids (TSI, 2023b).

In this study, based on the definitions and criteria summarized above, settlements within the boundaries of metropolitan municipalities before the enactment of Law No. 6360, which were considered 'villages' by TSI and had populations below 5,000, were assumed to be 'rural settlements' and their populations were accepted as 'rural population.' Therefore, the terms 'rural population' and 'rural settlement' used in this study include settlements that were considered 'villages' before Law No. 6360.

POPULATION LOSS IN RURAL AREAS OF TÜRKİYE

Although the proportion of the rural population within the country had been continuously declining since the 1950s, the absolute population value continued to increase until 1980. In other words, while the rural population proportionally decreased from 75% to 25% during the same years, it increased from 15,702,851 in 1950 to 25,091,950 in 1980. The rural population started to decrease in absolute value for the first time after 1980, and according to TSI data, it dropped to 17,178,953 in 2012 and to 5,973,085 in 2022 (excluding settlements within metropolitan municipality boundaries) (TSI, 2023b)[2]. This dramatic decline has been evaluated negatively by some authors (Li et al., 2016), while Tekeli (2016) viewed it positively, citing lower infrastructure costs in urban areas and more people benefiting from urban living opportunities.

Doh (1984), in his analysis of inter-regional migration in Türkiye, argues that there is a negative relationship between net migration rates and agricultural employment rates and a positive relationship between the increase in agricultural employment opportunities. This relationship can be interpreted as agricultural employment opportunities in some regions having a migration-reducing effect (Çelik, 2007). According to Erkan (1994), regional factor movements, and thus labor movements, increase with economic development. If regional development differences are significant, developed regions become "concentration" centers in terms of population, while others become "depopulation" areas.

In this context, the level of economic and infrastructural development between regions has been decisive for population concentration and depopulation areas in Türkiye. While population has rapidly increased in the

Marmara Region and western and southwestern regions, it has decreased in Central Anatolia, the north, east, and northeast regions.

The depopulation experienced in the rural areas of sub-regions that lose population can be explained by the concepts of "community destruction," "dying rural communities," "marginal community," and "hollowing out" as proposed by various researchers. These explanations can vary depending on the specific characteristics of each region (Gallaher & Padfield, 1980; Forth, 2000; Ono, 2005; Carr & Kefalas, 2009; Li et al., 2016; Sakuno, 2006; Kasamatsu, 2009; Odagiri, 2011).

Population Size Groups of Rural Settlements (2007–2022)

According to a study conducted by the General Directorate of Rural Services (2001), there were 35,100 villages and 41,317 village affiliates (hamlets) in 2000 (Zeyneloğlu & Dökmeci, 2010). According to Turkish Administrative Division data (excluding settlements within the boundaries of Metropolitan Municipalities according to Law No. 6360), the number of villages is 18,277 and the number of village affiliates is 23,832 (TMİBE, 2022).

Using TSI data, this study found that the total number of settlements with populations under 5,000 (district, village, hamlet) was 41,944 when including settlements that were sub-districts and villages in metropolitan provinces and districts before 2012. When grouped by population size, it is seen that a significant portion (70%) of these settlements (29,234) have populations below 500. The number of settlements with populations between 501–2,000 is 10,577 (25%), and the number of settlements with populations between 2,001–5,000 is 2,133 (5%) (Figure 2).

The distribution of populations in settlements within the scope of the study is relatively close. As seen in Figure 3, 27% of the total population lives in settlements with populations below 500, 42% in settlements with populations between 501–2,000, and 31% in settlements with populations between 2,001–5,000.

The total population of settlements with populations below 500 (Group 1) was 6,945,152 in 2007, 6,752,208 in 2012, 6,057,880 in 2017, and 5,822,487 in 2022. The total population of settlements with populations between 501–2,000 (Group 2) was 8,686,918 in 2007, 9,094,008 in 2012, 8,701,266 in 2017, and 8,906,837 in 2022. The total population of settlements with populations between 2,001–5,000 (Group 3) was 4,935,453 in 2007, 5,583,804 in 2012, 6,083,832 in 2017, and 6,499,036 in 2022.

In Türkiye overall, it is observed that the 3rd group settlements with populations between 2,001–5,000 show a distinct population growth trend (31% increase between 2007–2022), while the total population of the 2nd group settlements with populations between 501–2,000 increased by 4.5% between 2007–2012, decreased by 4.3% between

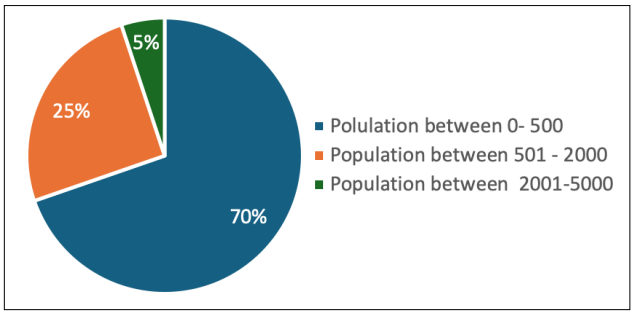

Figure 2. Distribution of Settlements with Populations Under 5000 by Population Size Groups (2022).

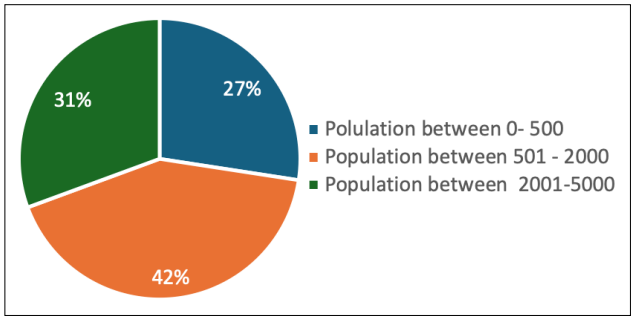

Figure 3. Distribution of Total Population Living in Settlements with Populations Under 5000 by Settlement Groups (2022).

2012–2017, and increased again by 2.3% between 2017–2022. The total population of the 1st group settlements with populations below 500 continuously declined during the period 2007–2022 (Figure 4).

The grouping of these settlements based on population decline/growth over the 15-year period from 2007 to 2022 is as follows: Of the 29,234 settlements in Group 1, 75% (21,836) continued to lose population, 8% remained stable and 17% had a population increase of over 10%. Of the 10,577 settlements in Group 2, 63% lost population, 13% remained stable and 24% saw population growth. In Group 3, out of 2,133 settlements, 36% lost population,

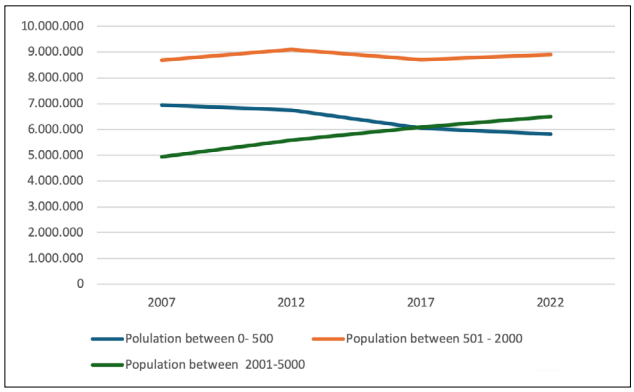

Figure 4. Population Growth of Settlements by Population Size Groups (2007-2022).

Table 1. Number of settlements with increasing/decreasing population by population size groups (2007-2022)

Population Growth	Population 2001-5000		Population 2000-501		Population 0-500		Total	
	Number of Settlements	%	Number of Settlements	%	Number of Settlements	%	Number of Settlements	%
Decreasing (%<0)	776	0.36	6.679	0.63	21.836	0.75	29.291	100
Stable (0-10%)	299	0.14	1.344	0.13	2.422	0.08	4.065	100
Increasing (%>10)	1.058	0.50	2.554	0.24	4.976	0.17	8.588	100
Total	2.133	100.00	10.577	100.00	29.234	100.00	41.944	100

14% remained stable and the remaining 50% experienced a population increase of over 10% (Table 1, Figure 5).

From the data and the graph, it is evident that generally, as settlements decrease in size, they tend to lose more population proportionally, whereas settlements with more than 500 inhabitants tend to experience population growth. One of the main reasons for this is the lack of amenities such as schools and healthcare in smaller settlements and difficulties in meeting certain needs due to geographical location and limited transportation facilities. In contrast, settlements with populations over 500 have relatively higher access to schools, healthcare and shopping facilities.

DISTRIBUTION/CHANGE TRENDS OF RURAL POPULATION AT NUTS-2 LEVEL

The distribution of Türkiye's population across 26 NUTS-2 level regions, excluding Istanbul (TR10), ranges from 1% to 7%. Istanbul, with nearly 20%, has a significantly higher share compared to the other 25 NUTS-2 regions. Among the other NUTS-2 regions, Ankara (TR51) ranks first with 7%, while Kastamonu, Çankırı, Sinop (TR82) ranks last with 1.5% (Figure 6).

During the 15-year period from 2007 to 2022, the share of regions with less than 2% of Türkiye's total population continues to decline. These regions have the highest rural population ratios compared to other regions, despite being the ones that have given the most migration from rural areas over the last 50 years.

For example, while the national average rural population ratio was 16% in 2022, it was 43% in TRA2 (Ağrı, Kars, Iğdır, Ardahan), 37% in TR81 (Zonguldak, Karabük, Bartın), 37% in TR82 (Kastamonu, Çankırı, Sinop), and 29% in TRA1 (Erzurum, Erzincan, Bayburt) (Figure 7).

Among these regions, TRA2 ranks 24th, TRA1 ranks 22nd, and TR82 ranks 21st in terms of development level. On the other hand, TR81 ranks significantly higher (12th place) compared to the other three regions (General Directorate of Development Agencies, 2019).

As seen in Figure 6, the share of regions with less than 2% of the country's total population is gradually declining. Despite being the regions that have given the most migration from rural areas over the last 50 years, their rural population ratios are still quite high compared to other regions. For example, while the national average rural population ratio was 16% in 2022, it was 43% in TRA2 (Ağrı, Kars, Iğdır,

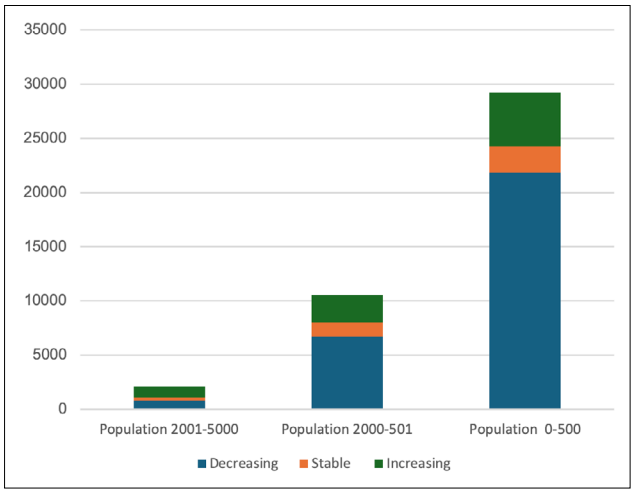

Figure 5. Number of Settlements with Increasing/Decreasing Population by Population Size Groups (2007-2022).

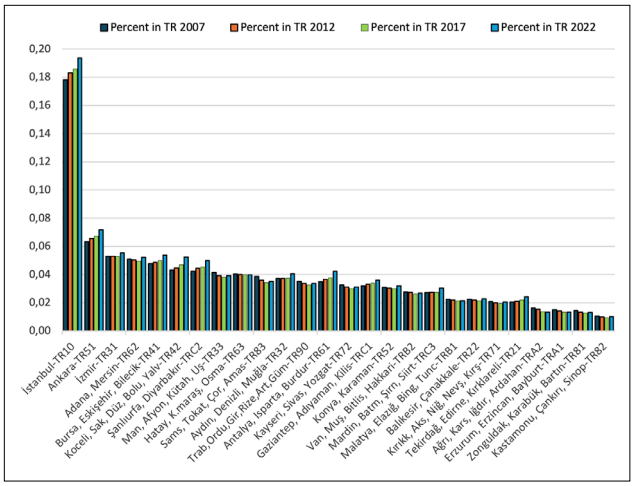

Figure 6. Change in Rural Population Ratios of NUTS-2 Regions (2007-2022).

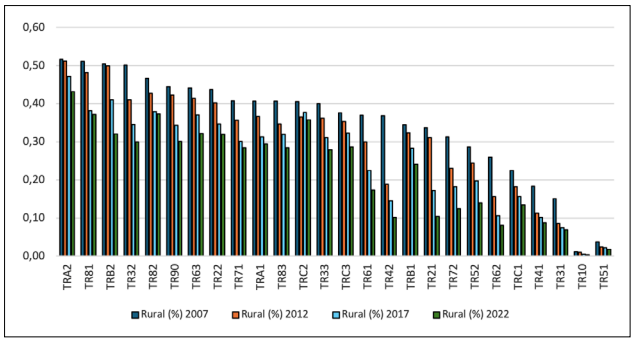

Figure 7. Change in Rural Population Ratios at NUTS-2 Level (2007-2022).

Ardahan), 37% in TR81 (Zonguldak, Karabük, Bartın), 37% in TR82 (Kastamonu, Çankırı, Sinop) and 29% in TRA1 (Erzurum, Erzincan, Bayburt) (Figure 7). Among these regions, TRA2 ranks 24th, TRA1 ranks 22nd and TR82 ranks 21st in terms of development level. On the other hand, TR81 ranks significantly higher (12th place) compared to the other three regions (General Directorate of Development Agencies, 2019).

Regional Disparities in Settlement Sizes Across Türkiye: A NUTS-2 Analysis

Looking at the distribution of settlement groups by population size according to NUTS-2 regions, TR83 (Samsun, Tokat, Çorum, Amasya) has the highest number of settlements with populations under 5,000 (2,805). It is followed by TR90 (Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane) and TR72 (Kayseri, Sivas, Yozgat) regions. The regions with the fewest settlements with populations under 5,000 are TR10 (Istanbul), TR21 (Tekirdağ, Kırklareli, Edirne), and TR81 (Izmir). Among these groups, TR83 (2,276), TR90 (2,245), TR72 (2,126), and TR82 (1,960) have the highest number of rural settlements with populations below 500 (Figure 8).

The fact that the Black Sea Region (TR83, TR90, TR82) has the highest number of small and scattered rural settlements can be explained by its rugged and unsuitable topography for agriculture. As emphasized by Tunçdilek (1985), topographic elevation is one of the important factors in shaping geographical conditions. Therefore, elevation and slope play significant roles in the distribution, structure, and type of settlements. In areas where slope is steep and economic activities cannot be diversified, settlements have lower populations (Tunçdilek, 1967).

The coastal area of the Black Sea Region, located between the mountains running parallel to the sea and the sea itself, has a fragmented structure due to rivers and valleys, with steeply rising slopes in the topography, resulting in a scattered settlement pattern (Zaman & Bulut, 2003). Additionally, the presence of dense forests and limited arable land in such a topography is a contributing factor to

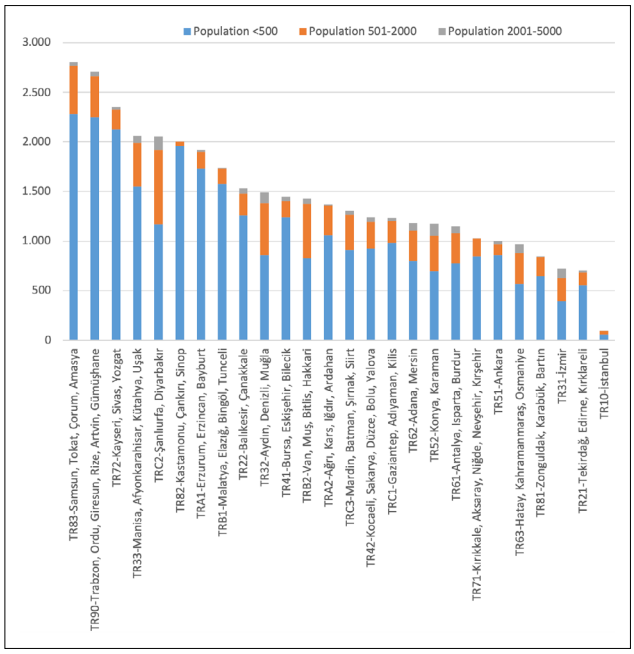

Figure 8. Distribution of Rural Settlement Numbers by Population Size Groups Across Sub-Regions.

the fragmented and scattered nature of village settlements. As a result, rural settlements located in valleys formed by rivers running perpendicular to the sea do not show a hierarchical gradation and integrity (Kaptan, 1978). The region's economy and way of life, along with the topographic structure and land ownership, are also among the factors shaping the rural settlement pattern.

After the Black Sea Region, the fact that the Central and Eastern Anatolia Regions (TR72, TRA1, TRB1) have the highest number of settlements with populations below 500 can be explained by the rugged terrain, the prevalence of agricultural enterprises below the optimal size, and the inadequacy of these enterprises to support families. Increasing landlessness, the attractiveness of cities, etc., have accelerated migration from villages to cities, causing settlements to shrink (Oran, 2014).

For example, the TRA1 (Erzincan, Erzurum, Bayburt) region, with 63% of its area covered by mountains, has a high and rugged topography. Although settlements are located on flat areas between mountains, they are situated at altitudes ranging from 800 to 2,500 meters, allowing for limited cereal cultivation, while other crop cultivation is highly restricted (Kudaka (Northeast Anatolia Development Agency), 2023).

Settlements with populations above 500 (especially the group with populations between 501–2,000) are generally concentrated in regions with fertile agricultural lands and relatively high agricultural incomes, such as TR32 (Aydın, Denizli, Muğla), TR52 (Konya, Karaman), and TR33 (Manisa, Afyon, Uşak, Kütahya, Afyonkarahisar) (Figure 9). These regions remain attractive for small and large

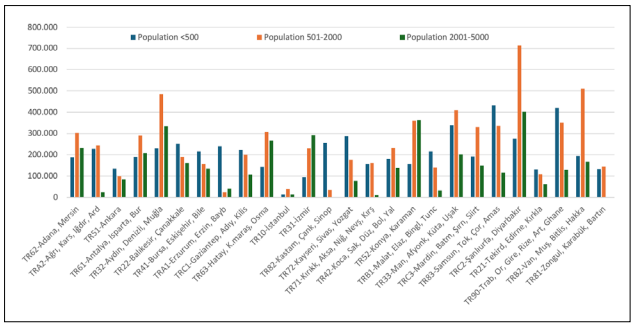

Figure 9. Distribution of Total Populations in Settlement Groups Across NUTS-2 Regions.

enterprises due to their high product diversity/quantity, irrigable agricultural lands, and integration into domestic/international market networks.

In regions like TRC2 (Şanlıurfa, Diyarbakır) and especially TRB2 (Van, Muş, Bitlis, Hakkâri), the fact that settlements with populations of 500 and higher predominate is largely due to the impact of terrorism and security issues since the 1980s, with the population moving from isolated hamlets and small villages to more accessible villages and centers.

The distribution of settlements with populations between 2,001–5,000 across regions shows that the TRC2 (Şanlıurfa, Diyarbakır) region ranks first with 131 settlements, followed by the TR52 (Konya, Karaman) region with 116 settlements. The widespread presence of flat areas suitable for agricultural activities (53%) has contributed to the high number of 3rd group settlements in these regions, with a significant portion of the population settled there.

In the TRC2 region, the number of 1st group settlements (populations below 500) has decreased, and many villages have been evacuated due to terrorism and security issues, in addition to limited infrastructure and economic conditions in the high-altitude and mountainous areas where small livestock farming is prevalent (Durmuş, 2018).

In the TR82 (Kastamonu, Çankırı, Sinop) region, due to harsh topographic conditions and limited arable lands, there are no 3rd group settlements (populations between 2,001–5,000), with mainly 1st group settlements.

Population Increases in Rural Settlements by Provinces (2007–2022)

The population shift in rural areas based on settlement sizes and locations is related to their ability to transition from a potentially multifunctional state based on productivity to one that can maintain its functionality. Therefore, some settlements continue to experience migration, while the population in some settlements increases slightly or significantly. Generalizing these settlements on a regional basis may not yield accurate results.

Apart from singular developments showing growth/decline, micro-regions where rural areas relatively far from geographic centers and lacking urban core facilities experience high population loss can be observed. These regions are generally found outside coastal areas, in the Eastern, Southeastern, Central Anatolia, Eastern Anatolia, and Black Sea regions. Even within these regions, there are settlements experiencing population growth, typically located in relatively accessible and agriculturally favorable valleys formed by rivers between mountains.

The population growth/decline rates of rural settlements by provinces show significant variations compared to the NUTS-2 averages. For example, the provinces with the highest population loss in rural settlements are Zonguldak, Kırklareli, Edirne, Uşak, Ardahan, Adıyaman, Çanakkale, Yozgat, Tekirdağ, Kütahya, Manisa, and Kars, located in different regions (Figure 10).

Approximately three-quarters of the village and sub-village settlements in these provinces lost more than 20% of their population over the 15-year period. Especially in Zonguldak, Kırklareli, and Edirne, a significant portion of rural settlements (eight out of ten) lost more than 20% of their population in the last 15 years.

The rural areas of Zonguldak are located in the region where the coastal and inner mountain ranges of the Western Black Sea Mountain Belt come very close to each other and intersect in some places. Therefore, the area is quite mountainous, with a fragmented topographic structure separated by steep slopes, making agricultural lands very limited. The scarcity of alternative economic and infrastructure opportunities also plays a significant role in the migration of the region's population to large cities (Deniz, 2015).

Although the rural areas of Kırklareli and Edirne have relatively larger agricultural lands, the primary reason for their high migration rates is the proximity of attractive industrial centers such as Tekirdağ, Çorlu and Çerkezköy, which offer significant economic job opportunities. The

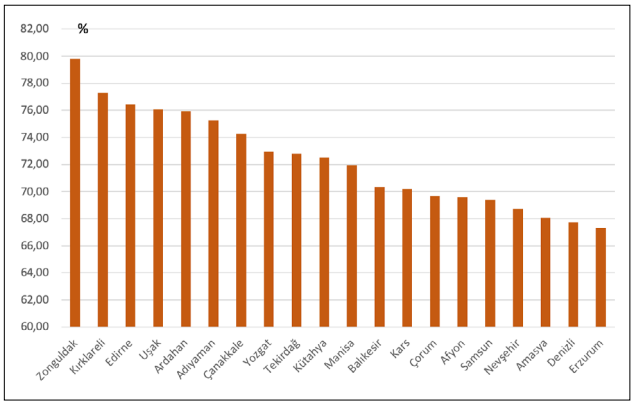

Figure 10. Provinces Where Rural Settlements Lost More Than 20% of Population (2007-2022).

establishment of an Organized Industrial Zone in Çerkezköy in the 1970s and its rapid expansion due to the influence of Istanbul created an increasing demand for labor, attracting migration from the rural areas of many provinces, especially Edirne and Kırklareli. Similarly, within the TR22 region, population growth is observed in rural settlements that are attractive for second homes in coastal areas and in settlements close to the central region of Balıkesir, while population loss continues in other rural areas, particularly in the rural settlements of Çanakkale. In these areas, population loss has continued to increase due to reasons such as the insufficient income generated by agricultural economic activities, the desire for urban living and the increase in property values in some villages with unique architectural structures, leading to housing sales (Başaran, 2017).

On the other hand, when looking at the provinces where rural settlements increased their population by 20% or more in the same period, Şanlıurfa, Şırnak, Istanbul, Hatay, Yalova, Mardin, Hakkâri, Antalya and Muğla rank first (Figure 11). Despite the existing unemployment, poverty and particularly the intense terrorism incidents between 2015-2017 (Günal, 2018), the rural population in Şanlıurfa, Şırnak, Mardin, Diyarbakır and Hakkâri did not decrease, but rather continued to increase. Günal (2018) explains this primarily with the fact that the intense terrorism incidents between 2015-2017 occurred mainly in urban centers and part of the population that had previously migrated from rural to urban areas returned to the villages. Another significant factor is the high fertility rate in the region, which was 4.30-4.58% during this period, compared to the national average of 2.0-2.10%.

In Istanbul, the increasing rural settlement population is generally due to people who work in the city but prefer to live outside it, which has different characteristics compared to other provinces.

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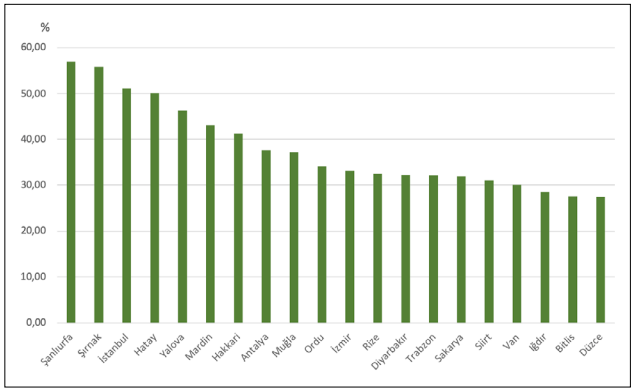

Figure 11. Provinces Where Rural Settlement Populations Increased More Than 20% (2007-2022).

This trend of population growth in rural settlements is also observed in other provinces. For instance, approximately half of the rural settlements in Hatay experienced population growth. A significant portion of the growing rural settlements is located in the Amik Plain, which has fertile agricultural lands south of the Nur Mountains and along the İskenderun Gulf coast west of the Nur Mountains. In provinces like Mardin and Hakkâri, the population in some rural settlements increased due to migration from mountainous areas where livestock farming was prevalent to settlements in plains and valleys due to the impact of terrorism. The 4-5% fertility rate in the region continues to be a significant factor in population growth.

DISCUSSION AND CONCLUSION

In general, rural areas in Türkiye can be categorized into four groups. The first category includes village/hamlet settlements located in rugged geography with infertile agricultural lands, far from urban centers without rapid transportation facilities. These settlements typically have populations below 500, and their economies are predominantly small-scale agricultural/forestry enterprises.

As noted by Young (2013), economic and social factors have been influential in the population decline in these areas. The growth of cities or the development of certain urban activities outside city centers has not positively impacted these settlements. The reduction of social services in rural settlements experiencing population decline, along with the closure of the few commercial enterprises, has weakened social capital.

In these settlements, especially young people continue to migrate due to the search for stable "urban" jobs, children's education, the attraction of city life, and the impact of terrorism in mountainous areas, reducing their capacity to maintain basic rural functions. A process described by concepts such as "dying rural communities," "marginal communities," and "hollowing out" by some researchers (Gallaher & Padfield, 1980; Forth, 2000; Ono, 2005; Carr & Kefalas, 2009) can be observed. These settlements are predominantly located in the TR83, TR90, TR72, and TR82 regions.

The second category includes settlements experiencing "rural revival," as defined by some authors (Fuguitt, 1985; Champion, 1988; Fuguitt & Beale, 1996), which can integrate into external world markets shaped by capitalist economic relations through agricultural production. Especially those with urban activities like agricultural-based industry, storage, and logistics around them experience population growth instead of loss due to the labor demand created by enterprises, increased land values, and commercial circulation, thereby enhancing their technical and social infrastructure facilities.

These settlements are predominantly found in regions like TR31, TR32, TR61, TR62, TRC1, and TRC2, concentrated in the plains of the Aegean, Mediterranean, and Southeastern Anatolia.

The third category includes rural settlements that are within commuting distance to urban workplaces, generally preferred by upper-income professional urbanites who want to connect with "rural society" and live in a "natural" environment outside the city (Cloke et al., 1998; Nelson et al., 2010). In these areas, a sociological change can be observed, with more middle-class urbanites than villagers and blue-collar workers (Phillips, 1993). These settlements are typically found around metropolitan areas like Izmir, Istanbul, and Bursa.

The fourth category, as explained by Novotná et al. (2013), consists of settlements that have experienced population growth due to factors such as increasing social and environmental problems in cities, advancements in communication technologies, retirees settling into their second homes, and changes in the settlement preferences of individuals and entrepreneurs.

The same researchers also note that some of the trends emerging in these types of settlements may be related to the transition to a post-production society. Settlements located on or near the coast, such as those in the Aegean and Mediterranean regions, can be considered part of this category.

In these settlements, the population is composed of villagers and retirees or working individuals who use their houses in the summer and generally live in the city during the winter. Growing settlements due to natural population growth and internal migration are generally found in the population groups of 501–2,000 and 2,001–5,000, mostly located in fertile agricultural lands and areas near the sea.

This research generally reveals expected population development trends. However, some areas, such as the Southeastern region, exhibit unexpected developments. Overall, rural areas continue to experience migration at a decreasing rate.

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NOTES

[1]According to ABPRS data, the population growth rate of Türkiye between 2007 and 2022 is 21%

[2]According to this study, when the settlements within the boundaries of metropolitan municipalities prior to Law No. 6360 and considered as 'villages' by TSI are included, the rural settlement population in 2022 is found to be 13,845,323 people

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