

Temporal and Spatial Change of Population in Fethiye (Muğla)

ABSTRACT

Population, which is a dynamic element, is a vital variable with both its quantity and structure in all stages of development, including the establishment of an urban. The population structure includes phenomena such as gender, education, age, and socio-economic characteristics.

Despite being among the most important parameters for the construction and future planning of urban elements, human mobility and population are often overlooked. The aim of this study is to determine the characteristics of Fethiye's population from past periods to the present, to reveal the possible effects of population in future studies to be carried out on behalf of the urban, and to provide a healthy opinion to planners. The selection of Fethiye as the study area was influenced by the high human movement and rapid urban development due to the urbans function based on tourism and agricultural production.

Within the scope of the research, document analysis, one of the qualitative research methods, was used to determine the population characteristics of the urban and secondary data was used. In the study, data from the State Institute of Statistics (SIS) and Turkish Statistical Institute (TSI), Fethiye District Municipality, Health and National Education Directorate data and documents were used. Maps and various visuals were created from the data obtained here using Geographic Information Systems (GIS) methods.

According to the findings of the study, it was determined that the population of Fethiye has generally increased continuously in the historical process. Again, it was observed that the population was concentrated, especially in the first established neighborhoods and coastal neighborhoods. Depending on the increasing population, it was determined that the settlement and population tended to expand towards the inner parts of the Fethiye Plain. At the same time, it is among the findings of the study that the population density working in agriculture has tended to shift towards the service sector over time. As a result of the study, suggestions for the changes and developments expected to occur in the urban fabric depending on the changes in the population are also included.

Keywords: Population, Urban, Geography, Fethiye, Muğla, GIS

INTRODUCTION

A census is a study conducted to collect, record, organize, and publish population information, including all individuals in a country, on a certain date (Doğanay, 2017, p. 395). Population, beyond being numerical data, is a complex structure that includes geographical, economic, and social elements (George, 1976, p. 5). Tanoğlu, who defines the subject of geography as "*all natural and human surface events*" emphasized that a human subject such as population is directly related to the field of study of geography (Tanoğlu, 1964, p. 3). The main purpose of the geographer in examining the population is to reveal the regional differences in the human cover on the earth (Tümertekin & Özgüç, 2019, p. 212). Population geography not only deals with the amount of population but also examines the populated areas of the earth at different densities, migrations, the distribution of rural and urban populations, and the socio-economic characteristics of the population. In particular, examining the population structure of a place by emphasizing its relationship with space is the most basic feature that distinguishes population geography from other sciences (Şahin, 2021, p. 162). Population geography deals with the quantitative values of the population and the geographical factors affecting these values within the framework of the principle of distribution and also investigates the change in population over time and the effects of this change on urbanization.

Population has an important role in geography studies. For example, one of the criteria used by geographers when classifying settlements as rural or urban is the amount of population. Although it varies from country to country, settlements above a certain population are accepted as cities. Geographers state that the concept of urbanization is primarily possible with the increase in population and that settlements above a certain population can be cities (Siyavuş, 2019, p. 67). Therefore, the urbanization process is directly related to population growth. In addition, population has strategic importance. Because, throughout history, it has been considered an element of power, and

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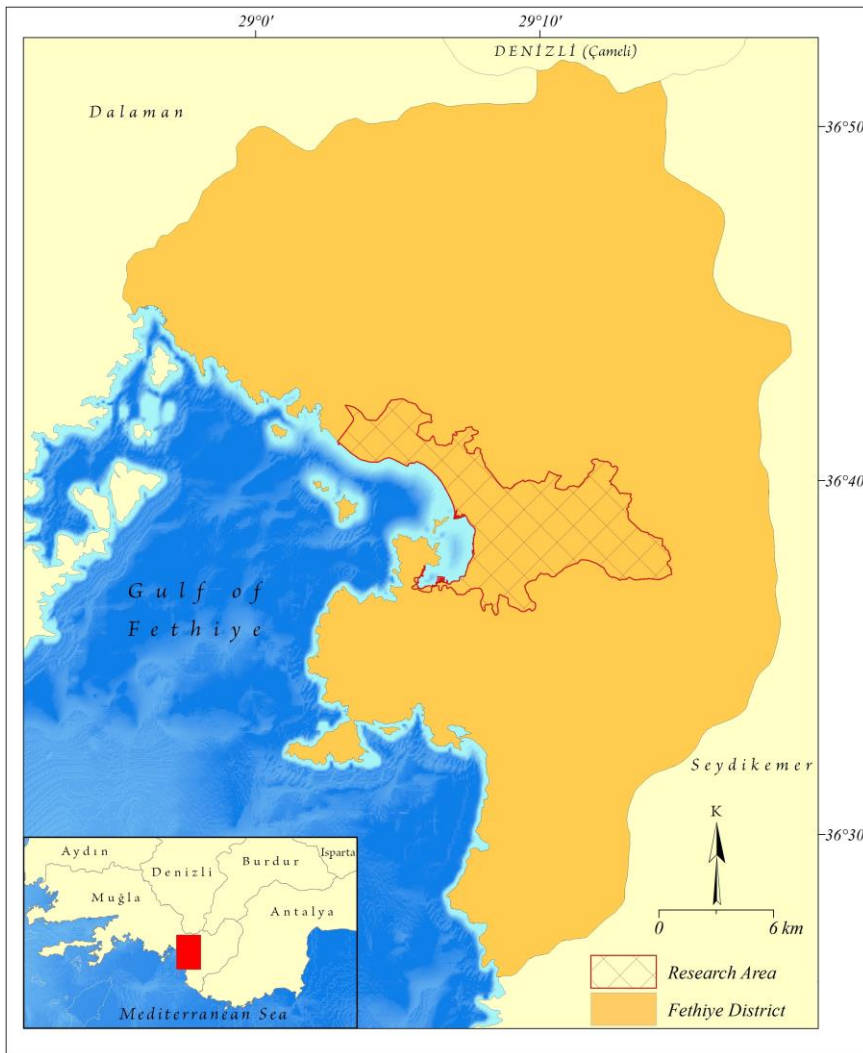
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societies that control the population have gained political, military, and economic advantages (Şahin, 2016, p. 219). Therefore, it is vital to manage the population correctly and for states to follow rational policies.

Geological and geomorphological factors and human phenomena such as tourism and agriculture, which are directly and indirectly affected by these factors, have been effective in changing Fethiye's population over time and space from the past to the present. Fethiye urban, known as Makri (Megri) in history, is located within the borders of the Fethiye district of Muğla province. Fethiye borders Denizli-Çameli in the north, Seydikemer in the south and east, and Dalaman in the west (Map 1). The urban starts on the coast of Fethiye Bay and expands towards Fethiye Plain. The urban is surrounded by various mountains and hills, and the area consists of different geological and lithological elements. The urban is surrounded by Mendos (Arı) and Karınca Mountain in the south-southeast; Eren, Dolukızlan, Köle, and Karakaktık hills in the north; Kuytucak and Azağanlı hills in the east; and Oyuk Tepe in the west. Again, limestone, dolomitic limestone, harzburgite, and ophiolite are in the high areas around the research area, and sandstone, conglomerate, and alluvium are on the plain floor. In addition, the region is surrounded by active fault lines and has been affected by many destructive earthquakes in the past.



Map 1: Fethiye Location Map

Source: Produced by the author

Fethiye is located in the Mediterranean climate zone, and a large part of the urban is located on the plain surface. There are no major changes in climatic conditions. The average annual temperature of the urban for many years has been 18.7 °C, and the average rainfall is 873.5 mm. There are 7 soil types, mainly alluvial and colluvial, in the urban and its immediate surroundings. In terms of vegetation cover, maquis are seen at low altitudes, while heathlands and red pine forests are found where the elevation increases (Photo 1).



Photo 1: View of the urban from the south (36° 37' 6.19" N, 29° 7' 3.77" E)

Source: Taken by the author

With the 2012 law, Fethiye district was divided and Seydikemer district was established, and all villages and municipal organizations in the two districts were transformed into neighborhoods. Thus, Fethiye district has 41 neighborhoods. While determining the study area of approximately 69 km², many criteria required for a settlement to be defined as an urban in geographical terms were evaluated. Using these criteria, many independent maps were created with GIS methods, and a healthy urban area was revealed with the overlapping technique. In this framework, all or part of 22 neighborhoods within 41 neighborhoods fall within this urban area as administrative boundaries. In this study, the neighborhoods included in the urban area were evaluated.

In this study, the population characteristics of Fethiye from past to present are analyzed in line with the principles of population geography. This comprehensive analysis was carried out under two main headings: pre and post-Republican, within the framework of population-space interaction. With the 2012 law, Fethiye district was divided and Seydikemer district was established, and all villages and municipal organizations in the two districts were transformed into neighborhoods. Thus, Fethiye district has 41 neighborhoods. While determining the study area of approximately 69 km², many criteria required for a settlement to be geographically defined as a city were evaluated. Using these criteria, many independent maps were created with GIS methods, and a healthy city area was revealed with the overlapping technique. In this framework, all or part of 22 neighborhoods within 41 neighborhoods fall within this city area as administrative boundaries. In this study, the neighborhoods included in the city area were evaluated.

In the study, the population characteristics of Fethiye from the past to the present have been analyzed in line with the principles of population geography. This comprehensive analysis has been carried out under two main headings, namely before and after the Republic, within the framework of population-space interaction.

METHOD

Within the scope of the research, document analysis, one of the qualitative research methods, was preferred in order to analyze the data accurately and in detail and to interpret the results obtained effectively. In the process of accessing the data of the study, the current and past data of the Turkish Statistical Institute (TSI) and the State Institute of Statistics (SIS) were utilized. In addition, data from the Republic of Türkiye General Directorate of Statistics, Fethiye Municipality, Fethiye Population Directorate, Fethiye District National Education and District Health Directorate, and Fethiye Chamber of Industry and Commerce were also used. In addition, the study area was visited at various times and on-site observations were made. All these data supported the integrity of the research by creating maps and various visuals with GIS methods.

FINDINGS

The research findings are categorized into the pre-Republican and post-Republican periods and discussed in detail in this section of the study.

Population Before the Republican Period

The population data in the study area before the Republican period is not very organized and detailed. Old-period population information about the area was obtained from the notes and works of travelers such as Kâtip Çelebi, Evliya Çelebi, Ucinini, and Cuinet. Although not specific to the urban, more accurate information on the Fethiye District was obtained from the Ottoman tahrir books, şe'riye registers, and salnames recorded from time to time.

Although precise population figures could not be obtained, it is stated that Makri was not a crowded place in terms of population during the Lycian period (VIth century), although it was economically rich (Karaca, 2013, p. 22). The Ottomans conducted population and land surveys that were renewed approximately every 30 years. However, the

population included in these assessments only includes the man taxpayer population and includes men of taxpayer age (Kütükoğlu M. S., 2010, p. 1-2). The first census in the Ottoman Empire in the modern sense was conducted in 1831, during the reign of Mahmut II. Since the main purpose of this census was to determine those of military service age and taxpayers, women, children, the disabled, those not liable for military service, those engaged in trade, and non-Muslims were not included in the census. For the reasons mentioned above, the population counted in these periods does not fully reflect the actual population (Karpas, 2003, pp. 46–47).

The accident of Megri (Fethiye), which was not registered in the Bayezid II period surveys, became an accident of Menteşe Sanjak in the 16th century. While 1 town, 86 villages, 5 hamlets, and 14 communities were recorded in the 1530 tahrir books, 55 villages, 5 farms, 4 hamlets, and 10 communities were recorded in 1583 (Gün, 2006, p. 24). In 1530, the population of Megri was estimated to be around 800, and there were no non-Muslims (Karaca, 2013, p. 24). From the beginning of the Ottoman Empire's rule until the beginning of the twentieth century, the Sanjak of Menteşe presented a stationary image compared to other cities of the Ottoman Empire (Soyluer, 2006, p. 110).

The population structure of Megri (Fethiye) in the pre-Republican period can be evaluated more clearly, especially from the early 1800s onwards. According to the records, the total population of the Menteşe Sanjak was 46.921 in 1830, while the Muslim man population of the Megri District was recorded as 1731, including 15 villages (Table 1) (Kütükoğlu M. S., 2004, pp. 63, 68).

Table 1: Population Structure in Megri District and Villages (1830)

Suitable for Military Service	Unfit for Military Service					Total
	Engaged in Trade	Over 40 Years	Invalid	Total	Child	
400	164	414	13	591	740	1.731

Source: Kütükoğlu M. S., 2004, p. 63

When general information about the sanjak in the 1860s is analyzed in the case of Megri (Fethiye), it is noted that the region had a population of less than 2.000 on Philippon's map. Kiepert's 1914 map of Adalia (Antalya), on the other hand, shows that the population of Megri exceeded 2.000, a sign that the population of Megri was on the rise again (Tuncel & Göçmen, 1973, p. 126). According to Texier's account of this period, "After the earthquake of 1856, some of the inhabitants dispersed; about 1.000 people lived, and the fertility of the area was not sufficient for a large population. In mid-June, the inhabitants ascend to the higher elevations of Anti Cragus (Mount Mendos), and a customs officer, a baker, and a coffeeman remain in Makri. Levissi (now Kayaköy) is the most populous place in the region, with about 500 houses, mostly Greek" (Texier, 2002, p. 340). The high population figures given for Megri in later years reveal that the above-mentioned figure was calculated only for the urban of Megri, which we can call the main settlement area. In the studies conducted, a census directly belonging to the urban center of Megri (Fethiye) for this period could not be found, but only the numbers covering the entire district could be found.

In the 1881 census, not only men but also women were included, and 24.918 people were counted in the accident of Megri (Fethiye) (Karpas, 2003, p. 162). In his 1894 book, Cuinet reported the total population of Menteşe Sanjak as 142.154 people and the population of Makri (Fethiye) as 23.522 people (Cuinet, 1894, p. 647). According to the 1886 Aydın Province Salnames, the population of Fethiye was 21.108 in 1886, increased to 29.072 in 1900, and 38.745 in 1911 (Gün, 2006, p. 34).

In the 1914 general census, the total population of Muğla was recorded as 210.874 (Candeğer, 2021, p. 144). According to the records dated September 24, 1915, a total of 42.614 people, 34.537 Muslims and 8.077 non-Muslims, lived in the accident of Megri (Fethiye). However, in the 1921 census, it was observed that the population of many villages, including some villages within the study area, was undercounted, and therefore the population of the district was underestimated in the information obtained. According to the information provided by some researchers for this year, there were 17.397 Muslims and 5.574 non-Muslims in Megri (Fethiye) District (Table 2) (Soyluer, 2006, p. 134).

Table 2: Population of Megri District in Different Years

Years	1881		1915		1921	
	Muslim	Non-Muslim	Muslim	Non-Muslim	Muslim	Non-Muslim
Total	20.870	4.048	34.537	8.077	17.397	5.574
	24.918		42.614		22.971	

Source: Soyler, 2006, p. 134

The last census in the Ottoman Empire was conducted in 1914, and the Fethiye District had three sub-districts named Kaya, Üzümlü, and Eşen and 84 villages. On this date, the total population of Megri (Fethiye) District was recorded as 43.361 people, while the population of the central accident and villages connected to the center was 11.993 people (Table 3) (Soyluer, 2006, p. 132). In Karpas's work, the population of Megri (Fethiye) in 1914 was

recorded as 36,734 Muslims and 7.611 non-Muslims, totaling 44.325 people; in the same work, the total population of Menteşe Sanjak was 188.916 (Karpas, 2003, p. 224).

Table 3: Population Status of Fethiye District and Villages (1914)

District - Village			
Fethiye Town (District center)	1.926	Göcek	458
Günlükbaşı Karyesi	291	Gökçeovacı	406
Dont (Esenköy) Karyesi	717	İnlüce (İnlıce)	316
Gökben Karyesi	717	Kargı	360
Patlangıç Karyesi	872	Seydiler Manastır	249
Eldirek	703	Seydiler Kızıldere	761
Ahadlı	139	Seydiler Yenice	582
Karaçulha	2.148	Zorlar	386
Çenger	336	Müngen (Uğurlu)	131
Yanıklar	495	Total	11.993

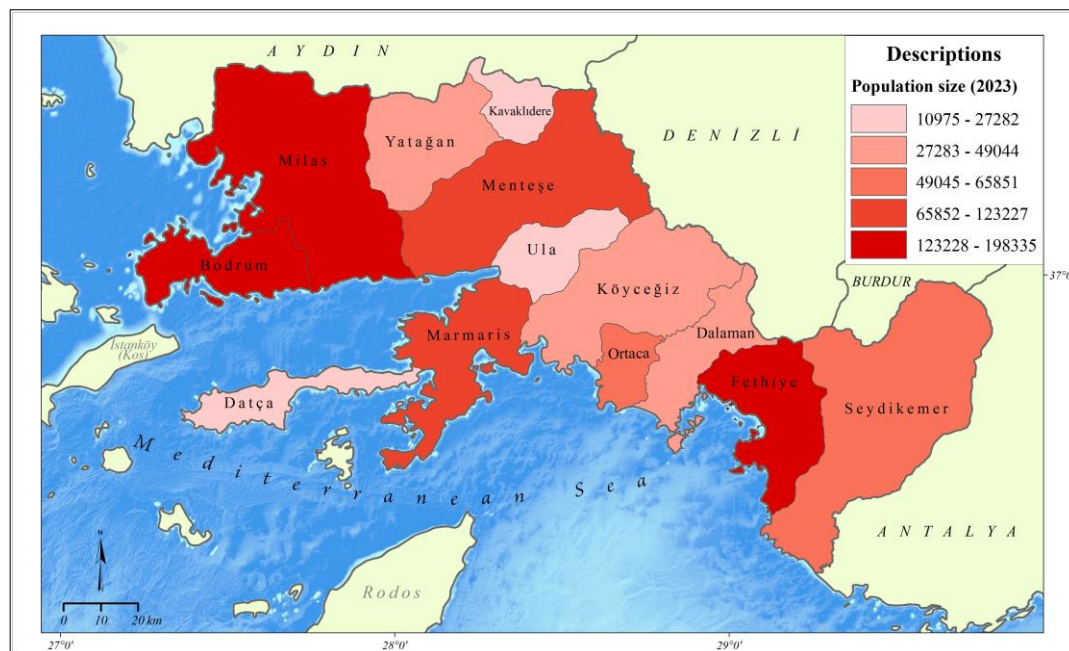
Source: Soyluer, 2006, p. 132

Population in the Republican Period

The first general census in the Republican period was conducted in 1927; a census was conducted every 5 years in general; and the last general census was conducted in 2000. Since 2006, the Address-Based Population Registration System (ABPRS) has been implemented, and updated data is obtained and published in short periods every year.

Population Size and Development

Fethiye has always occupied an important place in Muğla in terms of population. In particular, the widespread tourism in the province and the economic activities carried out accordingly have led to the socio-economic development and dense population of the districts on the coastline. In 1927, the total population of Fethiye was 33.698 people, which is equal to approximately 20% of the provincial population. Between 1945 and 2013, Fethiye consistently ranked first among Muğla districts in terms of population. In 2023, the population of the district reached 177,569, which means that 17% of the total provincial population among the 13 districts lived in Fethiye (Map 2).



Map 2: Population Map of Muğla Districts (2023)

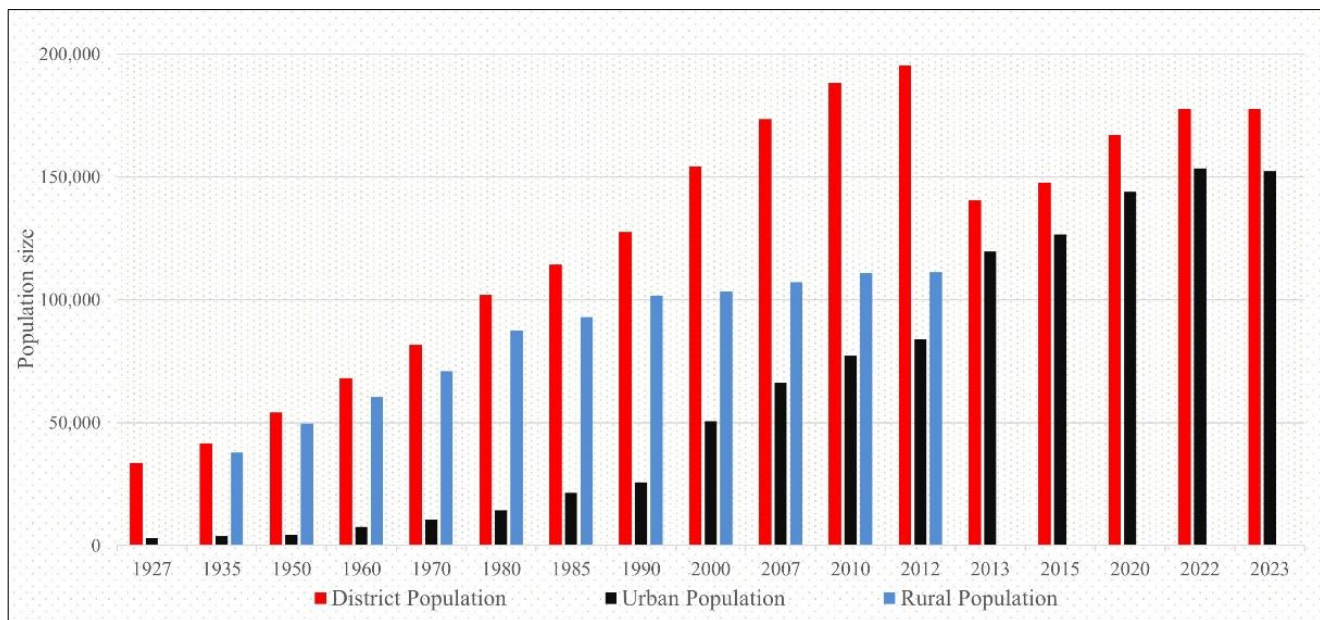
Source: Produced by the author

Various criteria have been used by geographers to distinguish a settlement as urban or rural. One of these criteria is the size of the population. In this context, considering Darkot's criterion that a place must exceed a population threshold of 3.000 in order to be considered a urban, the center of Fethiye has had a urban identity with a generally increasing population since the early years of the Republic (Table 4, Graph 1).

Table 4: Fethiye Urban Population in the Republican Period (1927–2023)

Year	District Population		Urban Population		Rural Population		Urban Population Ratio (%)
	Total	Increase rate (‰)	Total	Increase rate (‰)	Total	Increase rate (‰)	
1927	33.698	-	3.105	-	-	-	9,2
1935	41.656	236	3.831	234	37.825	-	9,2
1950	54.117	299	4.432	157	49.685	314	8,2
1960	68.209	260	7.693	736	60.516	218	11,3
1970	81.640	197	10.627	381	71.013	173	13,0
1980	101.879	248	14.294	345	87.585	233	14,0
1985	114.384	123	21.442	500	92.942	61	18,7
1990	127.620	116	25.783	202	101.837	96	20,2
2000	154.209	208	50.689	966	103.520	17	32,9
2007	173.426	125	66.271	307	107.155	35	38,2
2010	188.259	86	77.237	165	111.022	36	41,0
2012	195.419	38	84.053	88	111.366	3	43,0
2013	140.509	-281	119.675	424	-	-	85,2
2015	147.703	51	126.578	58	-	-	85,7
2020	167.114	131	144.081	138	-	-	86,2
2022	177.702	63	153.532	66	-	-	86,4
2023	177.569	-1	152.450	-7	-	-	85,9

Source: SIS-TSI

**Graph 1:** Fethiye Urban Population in the Republican Period (1927–2023)

Source: Produced by the author

In 1927, the urban population of Fethiye was 3.105 people, which corresponds to 9,2% of the district population. In the census conducted in 1935, 3.831 of the district population of 41.656 people were urban dwellers. The rural population of 37.825 people is the population living in the five sub-districts of the district (Merkez, Kaya, Kemer, Kestep, and Üzümlü) (Table 5). These sub-districts also have villages, and the population values of the villages in the Merkez sub-district, which is within our main study area today, are presented in detail in the table. It is observed that the settlements such as Karaçulha, Foça, and Çenger, which are located within the urban area today, are densely populated areas that have continued from the past to the present.

Table 5: Population of Villages and Others Affiliated to the Central Sub-district of Fethiye (1935)

		Total	Man	Woman		Total	Man	Woman
Urban		3.831	2.099	1.732				
Central District Villages	Karaçulha	1.691	767	924	Eldirek	669	307	362
	Foça	1.668	1.055	613	Patlangaç	545	259	286
	Çenger	1.100	739	361	Gökçeovacık	522	338	184
	Göyben	822	377	445	Göcek	439	202	237
	Yanıklar	782	395	387	İnlice	363	169	194
	Dont	740	341	399	Günlükbaşı	337	159	178
	Kaya Sub-district	2.526	1.236	1.290	Merkez Sub-district	9.678	5.108	4.570
Kemer Sub-district	11.844	5.694	6.150	Kestep Sub-district	6.663	3.169	3.494	
Fethiye Rural Population		37.825	18.539	19.286	Üzümlü Sub-district	7.114	3.332	3.782

Source: SIS

After 1950, Fethiye became one of the districts in the country with the highest increase in urban population. While the annual population growth rate was 5,5% in the 1955–60 period, this rate was 6,2% in Fethiye. The urban population of Fethiye, which was 4.432 in 1950, reached 7.693 in the 1960 census, an increase of 736%, and the district population reached 59.662 in the same period (Table 6).

Table 6: Population Values of Fethiye Central Sub-District (1960)

Urban		Total	Man	Woman		Total	Man	Woman
		7.693	4.262	3.431				
Villages Affiliated to Central Sub-district	Bozyer	532	259	273	Karağaç	403	202	201
	Çenger	410	216	194	Karacaören	340	168	172
	Dont	1.104	523	581	Karaçulha	2.395	1.187	1.208
	Göcek	1.283	740	543	Kargı	640	321	319
	Gökben	694	342	352	Kaya	623	278	345
	Gökçeovacık	337	159	178	Keçiler	201	98	103
	Güllükbaşı	2.474	1.200	1.274	Ovacık	708	333	375
	Eldirek	982	460	522	Patlangaç	2.059	1.036	1.023
	Faralya	513	236	277	Yanıklar	879	428	451
	Hisarönü	316	153	163	Total	17.282	8.527	8.755
	İnlice	389	188	201				

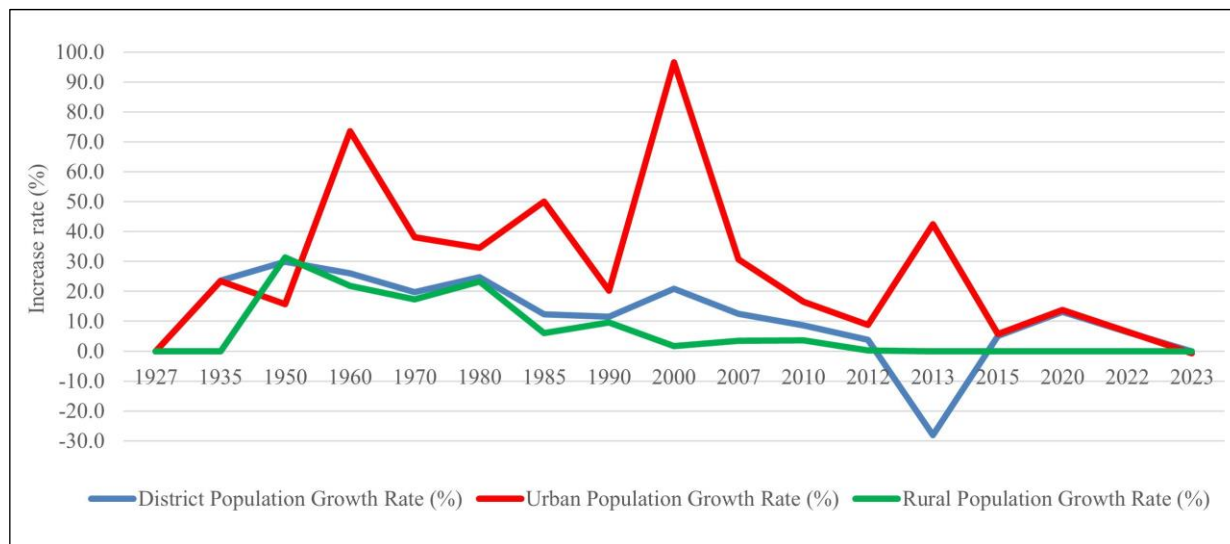
Source: SIS

While the population of Karaçulha village was 1.691 in 1935, this figure increased to 2.395 in 1960. The population of Günlükbaşı, which was 337 in 1935, increased significantly to 2.474 in 1960. Another notable increase was in Patlangaç to the east of the urban, where the population quadrupled from 545 in 1935 to 2.059 in 1960. These settlements are still among the most densely populated areas of Fethiye today.

By 1970, Fethiye's urban population had surpassed the 10.000 threshold with 10.627 inhabitants, representing 13% of the total population. After this period, when tourism and other economic activities became widespread, Fethiye's population grew much faster. In 1985, with a population growth rate of 500%, the urban's population crossed the 20.000 mark and reached 21.442 people. The proportion of the urban population in the total district population increased to 18,7%.

In 2012, if the population change due to the administrative boundary change is not taken into account, the largest population change in the Republican period was between 1990 and 2000. During this period, the district population increased by 26.589 people to 154.209, while the urban population increased by 24.906 people to 50.689. This change corresponds to a proportional increase of 966. The rural population increased by 1.683 people during this period. The ten-year census period, migration, economic reasons, and improved job opportunities in the region played a major role in this large change.

From the first census in 1927 to the 2000 census, population growth rates have fluctuated, but in the end, the population of Fethiye district increased by approximately 5 times and the urban population by 16 times (Graph 2). Compared to these values, the rural population increased at a lower rate. Especially in 1955, 1960, 1970, 1985, and 1990, there were irregular increases in the urban population. According to researchers, earthquakes, migration, and tourism are the reasons behind this situation (Bozyiğit, 1998, p. 68).



Graph 2: Population Growth Rates in Fethiye in the Republican Period (1927–2023)

Source: Produced by the author

In 2006, with the introduction of the Address-Based Population Registration System (ABPRS) method, a new era of census results began. According to 2007 data, the population of Fethiye district is 173.426 people, and the population of the urban is 66.271 people. With this value, the ratio of the urban population to the total population reached 38,2%. In the following years, between 2007 and 2012, the population of the district increased by 21.993 people, from 173.426 to 195.419. In the same period, the urban population of Fethiye increased by 268%, from 66.271 to 84.053.

The population of Fethiye has shown a continuous increase in the censuses conducted throughout the history of the Republic. However, the most important change in the population structure of the study area was experienced within the scope of Law No. 6360 on the Establishment of Metropolitan Municipalities in Fourteen Provinces and Twenty-Seven Districts and Amendments to Certain Laws and Decree Laws, which entered into force on November 12, 2012. With this law, Muğla province became a metropolitan urban, and the towns and villages within its borders were transformed into neighborhoods. With this significant change, 41 neighborhoods in Fethiye are listed in Table 7.

Table 7: Neighborhoods of Fethiye District According to Law No. 6360 and Neighborhoods Included in Our Study Area

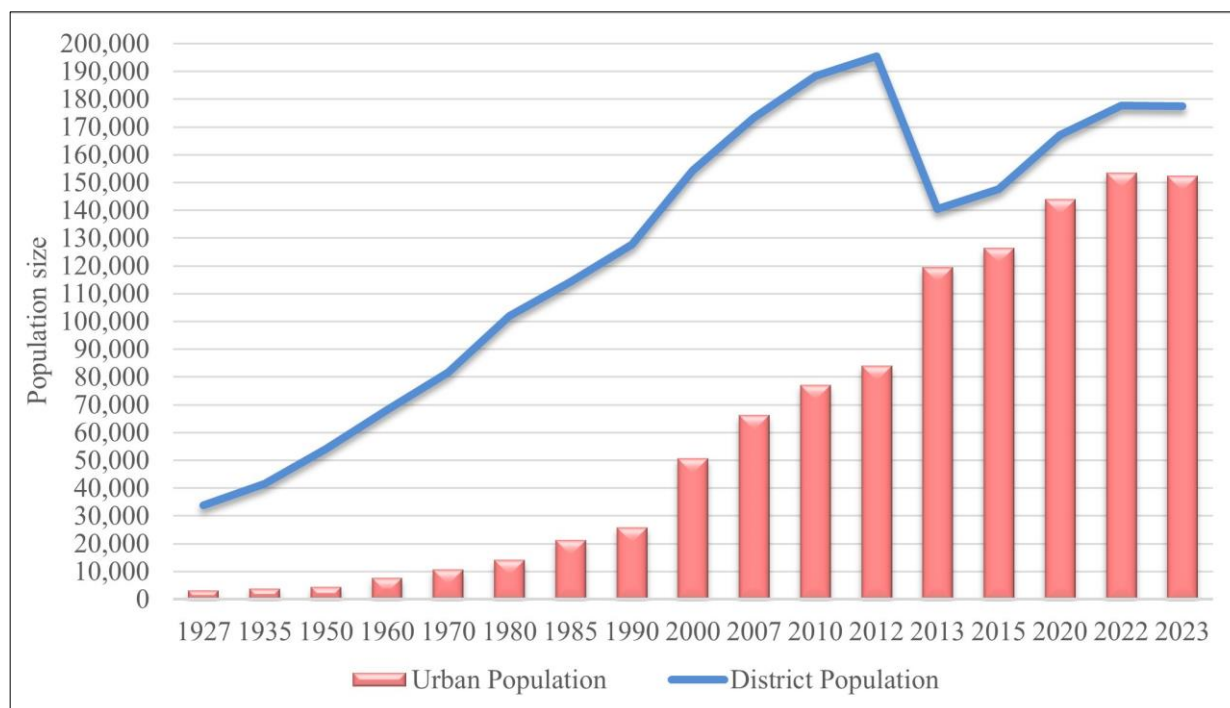
Current Neighborhoods		Converted from Towns	Returning from the Village		
Akarca*	Kesikkapı*	Çamköy*	Bozyer	Gökçeovacık	Kayaköy
Babataşı*	Menteşeoğlu*	Çiftlik*	Çenger	İncirköy	Kızılbil
Cami*	Patlangıç*	Göcek	Eldirek*	İnlice	Koruköy
Cumhuriyet*	Pazaryeri*	Karaçulha*	Esenköy*	Karaağaç	Nif
Çatalarık*	Taşyaka*	Ölüdeniz	Faralya	Karacaören	Söğütlü
Foça*	Tuzla*	Yeşilüzümlü	Gökben	Karakeçililer	Yakacık
Karagedik*	Yeni*			Kargı*	Yanıklar*
Karagözler*					

*Neighborhoods included in the borders of our work area

Source: TSI

Within the framework of the same law, Fethiye, with an area of 3.083 km² was divided, and a new district named Seydikemer was established on 2.208 km². In some data definitions of TurkStat, it is stated that, due to this change, it is not possible to compare some values and data sets between years.

Prior to the change, the population of Fethiye district reached 195.419 people in 2012. Of this population, 84.053 lived in urban areas and 111.366 in rural areas. The ratio of the urban population to the total district population was 43%. With the change, the total population of Seydikemer became 54.910 people, while the population of Fethiye district decreased by -281% to 140.509. With the change, as of 2013, TurkStat started to consider the entire population of the district as an urban population. The urban population to be evaluated in this study is not at the level of 41 neighborhoods but covers 22 neighborhoods determined according to the criteria taken as the basis for urban geography studies. The administrative boundaries of the neighborhoods are not based on an appropriate urban boundary, and the residential areas where the houses are located are taken into consideration (Graph 3).



Graph 3: Change Chart of Fethiye District Population and Urban Population (1927–2023)

Source: Produced by the author

In the post-partition period, the Fethiye district and urban population continued to increase. The COVID-19 pandemic has serious effects in our study area, as it has all over the world. In addition to the tourism-related population increase in the population values of Bodrum and Fethiye districts, especially in Muğla province, the migration of people living in metropolitan areas and the migration of new homeowners have also been effective due to the pandemic. Fethiye district population, which was 140.509 in 2013, reached 177.702 in 2022. The population of Fethiye, which was 119.675 in 2013, will reach 153.532 in 2022.

According to the latest data for 2023, the population of the district (-0,1%) and the urban (-0,7%) decreased, albeit at small rates. In 2023, the urban population was 152.450, down from 153.532 in 2022. The district population declined from 177.702 to 177.569 in the same years. This is the first decline in the period up to the legal division in 2012 and the two subsequent periods. However, looking at the overall situation, the population of Fethiye increased from 3.105 people in 1927, the first census year, to 152.450 in 2023, an increase of 149.345 people. This value corresponds to an increase of approximately 49 times. The fact that the region has become one of the centers of attraction in terms of tourism, especially after 1990, and that transportation has become much better compared to previous periods have been effective in this significant increase.

While the population of the 22 neighborhoods included in our study area and forming the urban of Fethiye was 119.675 in 2013, this value was 135.793 in 2018 and 152.450 in 2023. In 2013, the most populous neighborhood was Tuzla with 16.675 people, while in 2023 it was Karaçulha Neighborhood with 16.557 people. The least populated neighborhood was Kargı, with 1.564 people in 2013, while Karagözler, one of the oldest neighborhoods of the urban, had 2.267 people in 2023. While the number of neighborhoods with a population over 10 thousand was 4 in 2013 (Patlangıç, Taşyaka, Karaçulha, Tuzla), it became 5 in 2023 with the addition of Foça. Again, while there were three neighborhoods (Kargı, Karagözler, and Cami) with a population below 2000 in 2013, there will be no neighborhoods below 2000 in 2023. This shows that the population of neighborhoods in the urban center continues to increase. (Table 8).

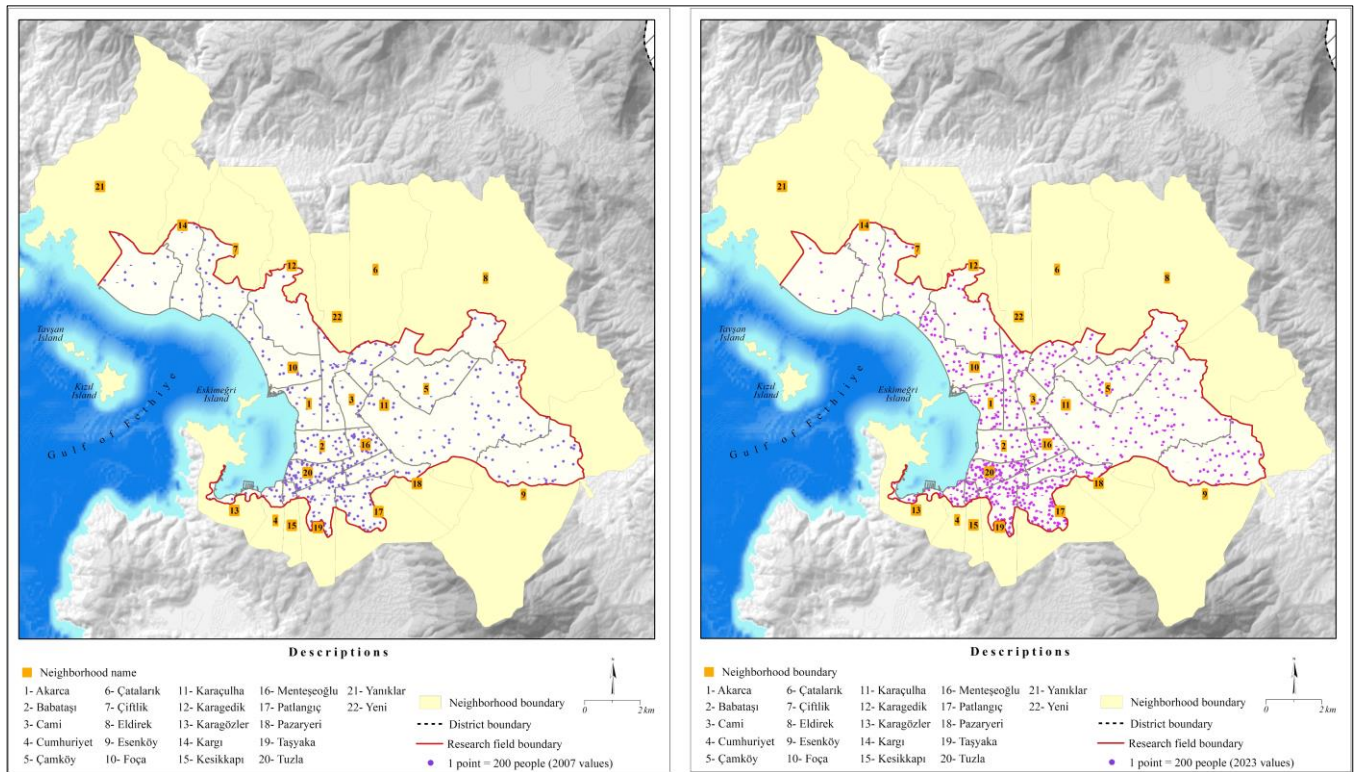
Table 8: Population Development of Neighborhoods in Our Study Area (2013–2023)

Neighborhoods	2013	2015	2017	2019	2021	2023
Karagözler	1.841	2.020	2.048	2.218	2.116	2.267
Kargı	1.564	1.691	1.724	1.874	2.093	2.309
Cumhuriyet	2.233	2.181	2.231	2.289	2.466	2.569
Yanıklar	2.009	2.076	2.151	2.300	2.457	2.601
Kesikkapı	2.534	2.763	2.833	2.882	2.805	2.725
Eldirek	2.410	2.184	2.331	2.577	2.826	3.009
Karagedik	2.315	2.447	2.466	2.658	2.810	3.121
Cami	1.903	2.094	2.394	2.718	3.017	3.150
Çiftlik	3.021	3.066	3.179	3.518	3.827	4.052
Çatalarık	3.835	3.975	4.152	4.373	4.467	4.524
Yeni	4.697	5.176	5.558	6.046	6.253	6.610
Menteşeoğlu	5.893	6.197	6.468	6.553	6.838	6.778
Akarca	5.339	5.728	6.002	6.426	6.708	6.969
Babataşı	5.889	6.183	6.706	7.190	7.407	7.099
Esenköy	5.088	4.948	5.152	5.478	5.903	7.476
Çamköy	4.406	4.687	5.271	5.831	6.833	8.019
Pazaryeri	5.827	6.367	7.179	7.556	8.099	8.225
Foça	7.549	8.319	8.907	9.661	10.325	10.610
Taşyaka	10.635	11.484	12.005	12.168	12.757	12.975
Patlangıç	10.421	11.865	12.861	13.870	14.790	15.070
Tuzla	16.675	17.041	16.989	16.853	16.646	15.735
Karaçulha	13.591	14.086	14.419	14.881	15.576	16.557

Source: TSI

Spatial Distribution and Density of Population

One of the issues to be addressed in the field of population is the spatial distribution of population and the factors affecting this distribution. There is a direct relationship between the distribution of population in a field and the geographical conditions of the field. Climate, topographic conditions, distribution of water resources, and edaphic and lithological features are the main ones. In addition, human factors such as industry, transportation, and agricultural services are also effective on population distribution (Şahin, 2016, p. 227). The effects of geomorphological elements on the population distribution in the area, including our study area, changes due to agricultural areas, migration due to transportation, and economic conditions are important. The concentration of port activities on the gulf coasts, the spread of new settlements on the plain due to the presence of fertile plains, the diversification of tourism areas, and the increase in transportation opportunities are among the determining factors for our study area. In order to understand the spatial distribution of the population in the urban of Fethiye, the administrative boundaries of the neighborhoods as well as the permanent residential areas were taken into consideration. In addition, neighborhood-based population distribution maps were created to show the population distribution more clearly (Map 3).



Map 3: Population Distribution in Fethiye Urban (2007–2023)

Source: Produced by the author

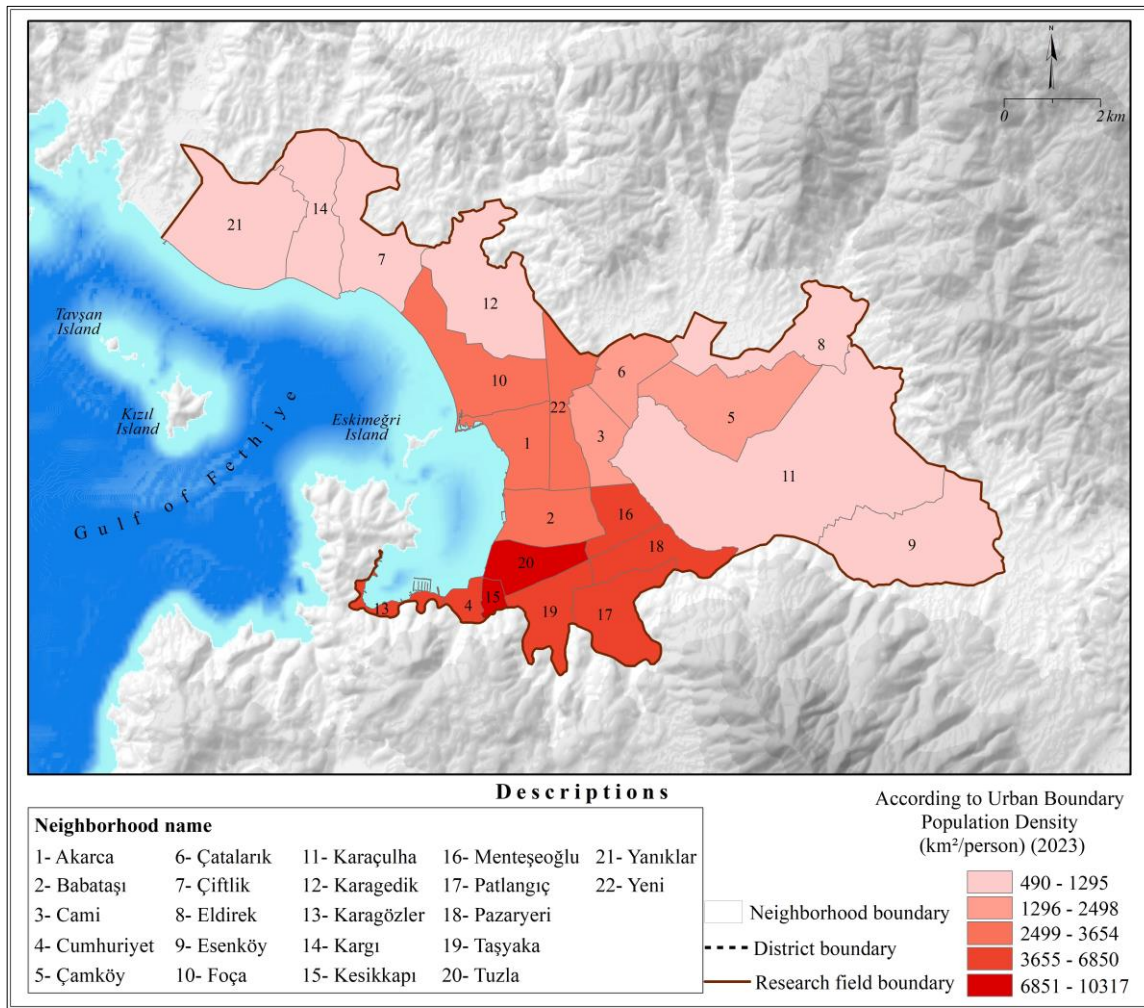
Based on 2007 and 2023 data, the population distribution maps clearly show the dense and sparse population zones in the study area. During this period, it has been observed that population density has increased even more in neighborhoods and areas that have been crowded for a long time. Akarca, Babataşı, Tuzla, Foça, and Patlangıc neighborhoods in the southeast are examples of densely populated areas. As the number of activities related to coastal tourism continues to increase, population density is expected to increase further in the direction of Foça Neighborhood, where Çalış Beach is located. As the campus area of Muğla Sıtkı Koçman University, where various departments of Muğla Sıtkı Koçman University come together, has started to develop in Çalica, it is observed that the settlement density has increased in this direction. This increase and density in settlement and construction towards the northeast from the bay are clearly visible. In addition, Cumhuriyet Neighborhood, which constitutes the core area of the urban, is an important dense residential area with its municipality, district governorship buildings, historical Paspatur Bazaar, and Fethiye Castle.

Esenköy to the east; Yanıklar and Kargı on the Dalaman road to the northwest; and Eldirek to the north, which are far from Fethiye urban center, are sparsely populated compared to other neighborhoods. However, the fact that there is no land left for construction in coastal areas shows that these areas will also become denser in a short time with an increasing population. This situation is clearly observed in the population distribution maps for the years 2007 and 2023 (Map 3).

Another issue related to the spatial distribution of population is population density. The concept of population density, which shows the relationship between the population and the area on which this population lives and is expressed in person or area, is known as arithmetic population density (Şahin, 2018, p. 157). In an area of 69.8 km², which is considered the urban area, the urban population in 2023 will be 152.450 people. According to this data, the population per square kilometer in Fethiye is 2.184 people (Map 4). According to the current situation and future projections, the density is expected to increase.

In the population density map of the urban, as in the previous distribution map, the presence of dense and sparse areas draws attention. In general, the population is concentrated in the coastal and lowland areas and sparse in the mountainous and plateau areas. According to 2023 population data, the density in Tuzla neighborhood with an area of 1.52 km², whose entire administrative boundary is within our study area, is approximately 10.351 people, while this value decreases to 81 people in Yanıklar neighborhood with an area of 32.3 km². These values are obtained based on the administrative area of the neighborhoods intersecting with our study area. However, 5.30 km² of the Yanıklar neighborhood, which has a surface area of 32.3 km², is included in our study area. In this case, the population density increases to approximately 490 people. As can be seen in the table prepared to make this

comparison clearer, the entire borders of Akarca, Babataşı, Cami, Çamköy, Foça, Menteşeoğlu, and Tuzla neighborhoods are within our study area (Map 4) (Table 9).



Map 4: Population Density by Urban Boundaries (2023)

Source: Produced by the author

Table 9: Population Densities by Neighborhood Administrative Boundaries and Research Field (2023)

Neighborhood	Population Amount	Neighborhood		Research Field	
		Field (km ²)	Density (person/km ²)	Field (km ²)	Density (person/km ²)
Yanıklar	2.601	32,31	81	5,31	490
Kargı	2.309	7,14	323	3,25	712
Çiftlik	4.052	10,22	397	3,50	1.158
Eldirek	3.009	29,35	103	3,36	896
Karaçulha	16.557	25,58	647	15,51	1.068
Esenköy	6.407	28,91	222	5,77	1.110
Çamköy	8.019	4,30	1.864	4,30	1.864
Karagözler	2.267	6,83	332	0,49	4.593
Cumhuriyet	2.569	2,01	1.276	0,51	5.016
Kesikkapı	2.725	1,66	1.641	0,33	8.273
Tuzla	15.735	1,53	10.316	1,53	10.316
Taşyaka	12.975	4,55	2.851	1,89	6.850
Patlangıç	15.070	8,40	1.794	2,47	6.090
Menteşeoğlu	6.778	1,42	4.777	1,42	4.777
Babataşı	7.410	2,18	3.401	2,18	3.401
Akarca	6.969	1,91	3.654	1,91	3.654
Cami	3.150	1,64	1.925	1,64	1.925
Çatalarık	4.524	14,71	308	1,81	2.498
Foça	10.610	3,68	2.881	3,68	2.881
Karagedik	3.121	11,84	264	4,86	642
Yeni	6.610	7,15	924	2,27	2.914
Pazaryeri	8.225	4,63	1.775	1,82	4.517

Source: TSI

Population density is quite high in Cumhuriyet and Kesikkapı neighborhoods in the center of the urban, and Tuzla, Taşyaka, Patlangıç, and Menteseoğlu neighborhoods. The population density per square kilometer in these neighborhoods is over 4.000 people. According to 2023 data, Tuzla Neighborhood ranks first in the urban with a population density of 10.316 people. Kesikkapı, Taşyaka, and Patlangıç neighborhoods follow it, respectively. Esenköy, Karaçulha, Yanıklar, Karagedik, Kargı, and Yeni neighborhoods have low population densities. The lowest population density in the study area belongs to Yanıklar neighborhood with 487 people. Although Karaçulha neighborhood is the most populous place in the urban in terms of population as of 2023, it has a low value in terms of population density (1.068) due to its area size. The increasing population density in Fethiye over time has naturally led to the expansion of the urban area. While the first settlement area of the urban, located within the borders of Kesikkapı, Karagözler, and Cumhuriyet neighborhoods, was approximately 1.3 km², today this area has reached 69.8 km².

Socio-Economic Characteristics of the Population

In this part of the study, the socio-economic characteristics of the Fethiye population, such as age, gender structure, educational status, household size, distribution by economic activity branches, population projections, and population movements, are explained.

Age Structure

Among the socio-economic characteristics of the population, age structure draws attention for its change and dynamism over time. Especially the analysis of the 15–64 age group, i.e., the active population, is important in many aspects such as labor capaurban, the nature of the needs to be provided, family dynamics, and the migration phenomenon. The classification generally used in age structure analyses considers the 0–14 age group as children (dependent population), the 15–64 age group as adults, and the 65 and over age group as elderly (dependent population) (Tümertekin & Özgüç, 2019, p. 267).

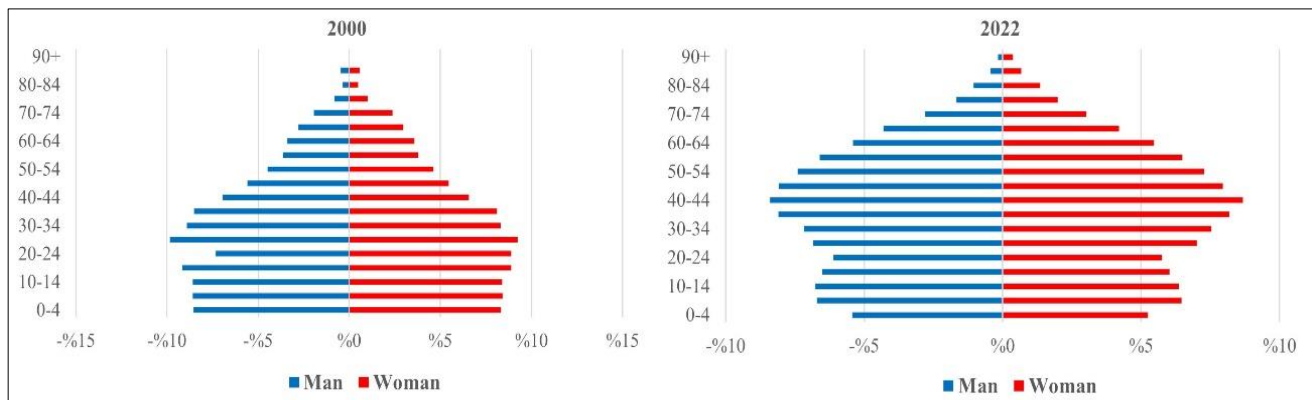
Population pyramids, which bring together the age and gender structures of the population, provide comprehensive information about the demographic structure, economic status, and social history of a region. In this context, in addition to the neighborhood-based values of the population in the study area, pyramids of the district-wide population structure were also examined and analyzed. In data selection, data from the years 2013, 2018, and 2022 were focused on in order to more effectively reflect the changes that occurred after the metropolitan law, while values from the years 1990, 2000, and 2022 were used to create tables and graphs for Fethiye district (Table 10).

Table 10: Age Group and Gender Status of Fethiye District (1990–2000–2022)

Age Group	1990			2000			2022		
	Total	Man	Woman	Total	Man	Woman	Total	Man	Woman
0-4	10.767	5.375	5.392	13.015	6.681	6.334	9.493	4.841	4.652
5-9	13.105	6.731	6.374	13.105	6.708	6.397	11.697	5.968	5.729
10-14	14.814	7.543	7.271	13.091	6.705	6.386	11.670	6.022	5.648
15-19	14.958	7.744	7.214	13.921	7.164	6.757	11.150	5.807	5.343
20-24	10.715	4.843	5.872	12.496	5.731	6.765	10.537	5.438	5.099
25-29	12.058	6.538	5.520	14.726	7.701	7.025	12.320	6.100	6.220
30-34	9.600	5.157	4.443	13.291	6.970	6.321	13.062	6.379	6.683
35-39	8.091	4.206	3.885	12.820	6.656	6.164	14.463	7.200	7.263
40-44	6.554	3.337	3.217	10.435	5.442	4.993	15.175	7.473	7.702
45-49	5.643	2.838	2.805	8.518	4.370	4.148	14.239	7.186	7.053
50-54	5.564	2.833	2.731	7.023	3.510	3.513	13.036	6.586	6.450
55-59	4.802	2.453	2.349	5.728	2.849	2.879	11.633	5.878	5.755
60-64	4.099	2.034	2.065	5.368	2.654	2.714	9.649	4.807	4.842
65-69	2.243	1.057	1.186	4.424	2.171	2.253	7.562	3.833	3.729
70-74	1.367	597	770	3.327	1.523	1.804	5.172	2.489	2.683
75-79	1.551	782	769	1.412	642	770	3.244	1.484	1.760
80-84	990	453	537	661	283	378	2.140	938	1.202
85-89	576	254	322	808	371	437	987	395	592
90+	123	73	50	40	23	17	473	149	324
Total	127.620	64.848	62.772	154.209	78.154	76.055	177.702	88.973	88.729
(%)	100	50,8	49,2	100	50,7	49,3	100	50,1	49,9

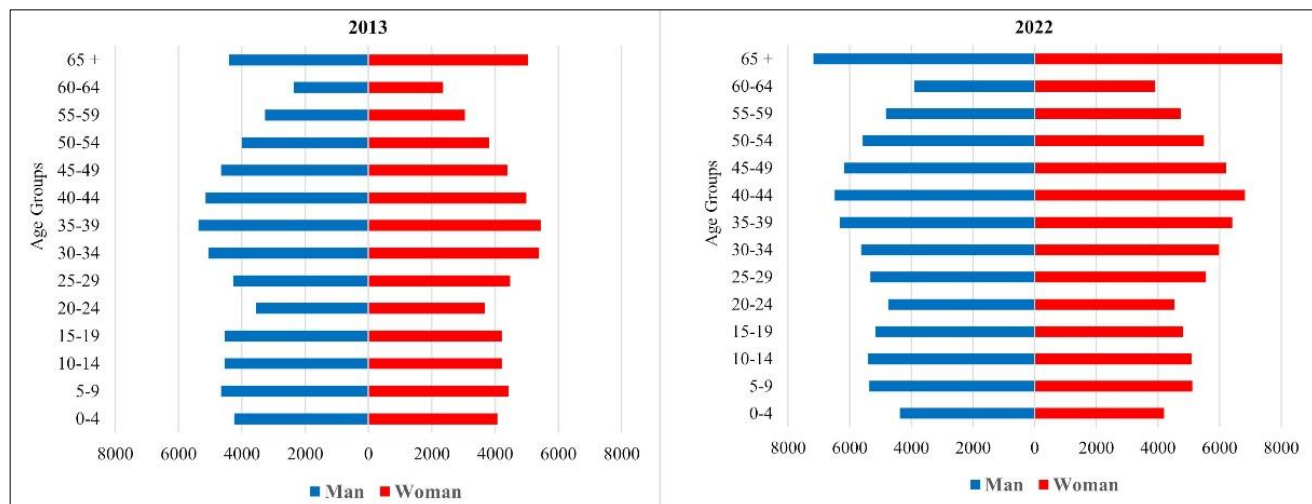
Source: TSI

In the 1990 district population pyramid, there is a narrowing of the base, representing the under-19 age group, a trend that also applies to the country's overall population pyramid. This is a sign of a decline in fertility. While in 1990, the age group with the largest population was 15–19, in 2000, this age group shifted to 25–29. In 2000, there was a significant increase in the proportion of the population older than 25 years of age. In the 2022 population pyramid, it is observed that the population under the age of 25, which increased in the previous years, has lost momentum again in the last five years. This situation, which is an indicator of the decline in the birth rate, reveals a significant contraction in the 0–4 age group (Chart 4). In 2000, the largest share in the graph belonged to the 25–29 age group, while in 2022, this value belonged mostly to the 40–44 age group.

**Graph 4:** Fethiye District Population Pyramids (2000–2022)

Source: Produced by the author

The analysis of the population structure of the urban of Fethiye shows that there has been an increase in the population in all age groups except the 0–4 age group in the period from 2013 to 2022 (Chart 5). It is also observed that birth rates have decreased within the urban population, leading to a contraction in the 0–4 age group. The most prominent trend in the graphs of the years analyzed is the increase in the population over 65 years of age, and the amount of population in this age group has been on an upward trend over the years. While the age group with the largest share in the urban population was 35–39 in 2013, this share shifted to the age group over 65 in 2022.



Graph 5: Fethiye Urban Population Pyramids (2013–2022)

Source: Produced by the author

According to the population structure of Fethiye in 2013, the young dependent population between the ages of 0 and 14 is 26.163 people, while the elderly dependent population aged 65 and over is 9.450 people. With these values, the ratio of the dependent population to the total active population is 11,2%. In the same year, the active population between the ages of 15 and 64 was recorded at 84.021 people, and this value is of great importance for the economic life of the urban. However, according to the data for 2018 and 2022, it was observed that the rate of the young dependent population decreased while the rate of the elderly dependent population increased. The elderly dependency ratio, which was 12,5% in 2018, increased to 14% in 2022. In regions where the proportion of the elderly population increases, the burden on the active population increases in order to meet health and social security expenditures. Although there was an increase in the active population in the mentioned periods, there was no change in the proportional value of 71% (Table 11).

Table 11: Broad Age Distribution of the Fethiye Urban Population (2022)

Age Group	Total		Man		Woman		Young Addict Ratio (%)	Elderly Dependent Ratio (%)
	Person	(%)	Person	(%)	Person	(%)		
0-14	29.570	19	15.151	20	14.419	19	27,2	14
15-64	108.692	71	54.182	71	54.510	71		
65 +	15.270	10	7.178	9	8.092	11		
Toplam	153.532	100	76.511	100	77.021	100		

Source: TSI

Gender Structure

Another important issue related to the population structure of the study area is the gender characteristics of the population. The gender structure is considered an important indicator for understanding the social dynamics of the urban. Although the proportion of feMan population was prominent in the total population of the district between 1935 and 1960, an increase in the proportion of Man population was observed after 1960. In 2013, 50,2% of the 119.634 people living in Fethiye were Man and 49,8% were feMan. However, according to 2022 data, the proportion of feMans in the total population exceeded the proportion of Mans again and reached 50,2%. In 2023, the proportion of the feMan population increased to 50,5% (Table 12).

Table 12: Gender Distribution of Fethiye Urban Population (1935–2022)

Year	Urban Population	Man		Woman	
		Person	(%)	Person	(%)
1935	3.831	2.099	54,8	1.732	45,2
1955	5.665	2.982	52,6	2.683	47,4
1975	12.700	6.547	51,6	6.153	48,4
1990	25.783	13.493	52,3	12.290	47,7
2000	50.689	25.695	50,7	24.994	49,3
2012	84.053	42.246	50,3	41.807	49,7
2013	119.634	60.079	50,2	59.555	49,8
2022	153.532	76.511	49,8	77.021	50,2
2023	152.450	75.519	49,5	76.931	50,5

* Urban data for TSI between 1935 and 2012 were used.
 ** TSI neighborhood population data, which entered our study area in 2013, were evaluated as urban population.

Source: TSI

Education Status

In addition to the quantitative status of the population, an important qualitative element that needs to be evaluated is the educational status. The literacy status of the population and the distribution of the literate population by levels are important sources for understanding the educational profile of the urban.

In 1990, most of the population of Fethiye was literate. More than half of the literate population (55,7%) was a primary school graduate. Among the urban population, 11.730 people graduated from primary school, and most of them graduated from secondary school. However, only 3.117 of the 56.202 primary school graduates in the rural population have graduated from secondary school. One of the main reasons for this low rate is the need for labor in agriculture in the region (Table 18). Looking at the educational status of Fethiye in 2008, it is noteworthy that 88% of the population can read and write. 40,2% of the population graduated from primary school and 9,6% from elementary school. The rate of those who graduated from secondary or equivalent schools is 3,4%, and the rate of those who graduated from high school and equivalent schools is 12,3%. The rate of bachelor's and associate degree graduates is 5,4%, and the rate of postgraduate education is 0,3%. While 0,8% of the illiterate population in Fethiye is man, 4% is woman. Looking at the 2021 data, it is seen that there is a significant increase in the literacy rate (97,9%). The proportion of those with university education increased from 5,4% in 2008 to 19,8% in 2021. The addition of new departments and faculties to the existing departments and faculties of Muğla Sıtkı Koçman University in previous years and the importance of higher education have been effective in this situation. It is seen that the level of education at all levels in Fethiye has increased and the illiterate population has decreased.

Table 13: Distribution of Fethiye Population by Education Levels (1990–2021)

Years	Primary School	Primary Education	Secondary school or equivalent vocational school	High school or equivalent vocational school	School or Faculty	Master's Degree	PhD	Can read and write but did not finish school	Reading and Writing don't know
1990	67.932		13.523	5.876	2.920			15.843	15.848
2008	62.893	15.669	5.262	19.823	8.580	249	51	26.262	3.611
2012	55.034	29.359	6.495	25.485	14.418	675	164	26.258	1.560
2013	31.740	20.337	5.250	22.103	14.240	736	157	17.868	798
2021	30.041	8.463	22.854	33.860	27.855	2.684	329	9.945	356

Source: TSI

Household Size

Household size refers to the total number of people living together in the same dwelling, regardless of whether they are related or not, and is generally an important indicator for understanding socio-economic structures in dwellings and changes over time (Doğanay, 2017, p. 225). The total number of households in Fethiye was 36.028 in 2013 and 51.761 in 2022, an increase of nearly 70%. According to this data, while the average household size in Fethiye was 3,4 in 2013, this value decreased to 3 in 2022. At the neighborhood scale, the highest average household size in 2013 was recorded in Çamköy and Çatalarık (3,9), while the lowest was recorded in Foça (2,8). In 2022, the highest value belongs to Eldirek (3,6) and the lowest to Akarca (2,6) (Table 14). Over time, the average household

size in Fethiye shows a continuous decline. The main reason for this decrease is the increase in the number of buildings and the fact that nuclear family structures have become more common than extended family structures.

Table 14: Average Household Size in Fethiye (2022)

Neighborhood	Number of Households (Household)	Average Household Size	Neighborhood	Number of Households (Household)	Average Household Size
Akarca	2.722	2,6	Karagedik	1.045	3,1
Babataşı	2.450	3,0	Karagözler	769	2,8
Cami	1.044	3,0	Kargı	742	2,9
Cumhuriyet	968	2,6	Kesikkapı	913	3,1
Çamköy	2.137	3,5	Menteşeoğlu	2.116	3,3
Çatalarık	1.284	3,5	Patlangıç	5.362	2,9
Çiftlik	1.491	2,8	Pazaryeri	2.611	3,2
Eldirek	823	3,6	Taşyaka	4.812	2,8
Esenköy	1.923	3,3	Tuzla	5.851	2,8
Foça	4.656	2,4	Yanıklar	942	2,7
Karaçulha	4.841	3,4	Yeni	2.259	2,9

Source: TSI

Breakdown by Branches of Economic Activity

The inclusion of settlements in the urban or rural category has different perspectives depending on many factors, such as the amount of population, population density, housing density, lifestyle, and the central location of the settlement. In this context, researchers have developed approaches based on the distribution of the active population in settlements according to their branches of economic activity (Akova, 2021, pp. 97–104). In 1927, when the distribution of the active population in Fethiye according to the branches of economic activity is analyzed, it is seen that 12.687 people were in the agricultural sector (88,8%), 1.210 people were in the service sector (8,5%), and 385 people were in the industrial sector (2,7%), based on the economic classification of the employees other than 19.916 people (1927 General Population Survey, 1929, p. 13) (Table 15).

Table 15: Ratio of Working Population by Sector (1927)

Sectors	Person	(%)
Agriculture	12.687	88,8
Industry	385	2,7
Service	1.210	8,5

Source: 1927 GPC

In 1990, the distribution of the urban population by occupation showed that the number of those engaged in retail trade, community service, agriculture, and construction-public works was high, while the number of those engaged in electricity, water, gas, mining, and those with undefined economic activity was low. Looking at the sectoral comparison of urban and rural populations in the same period, the number of those working in the retail-trade sector is higher in the urban population than in the rural population. In the rural population, the number of people working in agricultural activities is significantly higher than in the urban area (Table 16).

Table 16: Ratio of Working Population by Sector (1990)

Sectors	Person	(%)
Agriculture	55.882	72,6
Industry	3.712	4,8
Service	17.351	22,5

Source: SIS

In 2000, the employment rate in the agricultural sector dropped to 67,4%. In the same year, the proportion of the population working in the service sector increased to 29,4%, making it the sector with the largest change (Table 24). A report published in 2004 included the rankings of Muğla Center and Fethiye among 872 districts. It was determined that Fethiye has an important place among the districts across the country, especially in the field of agriculture (Table 17) (Dincer & Özasan, 2004, p. 191).

Table 17: Ratio of Working Population by Sector (2000)

Sectors	Person	(%)
Agriculture	55.882	72,6
Industry	3.712	4,8
Service	17.351	22,5

Source: SIS

Table 18: Socio-Economic Ranking of Fethiye among Turkish Districts (2004)

	Muğla Center	Fethiye	Muğla Center (*)	Fethiye (*)
Unemployment Rate (%)	5	4.02	455	577
General Budget Revenue per Capita (YTL)	254.12	123.75	50	120
Share of Tax Revenues in the Country (%)	0,11134	0,0912	63	72
Share of Agricultural Production in the Country	0.14094	1.16167	223	4

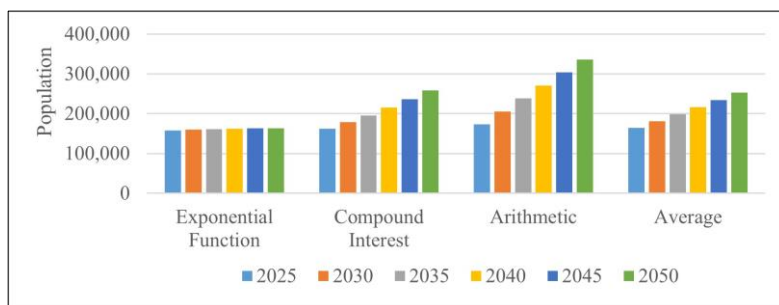
* 872 district-wide ranking

Source: Districts Socio-Economic Development Ranking

Population Projections

Population projections are an important tool used to predict future changes and formulate policies based on demographic analysis. These projections also play a key role in planning economic and social policies (Sertkaya Doğan, 2021, p. 49). Because the future distribution and size of the population affect the socioeconomic structure of a region, population forecasts at the local level usually use assessments of less than 10 years and can analyze detailed characteristics of the population, such as education, employment, and household size. However, forecasts at the national level are usually very long-term and are intended to analyze the general trends of the population (O'Neill et al., 2001, p. 205). In the population projections for Fethiye, three different methods were used for five-year periods between 2025 and 2050. The results of these methods were averaged to make a more comprehensive and clearer forecast (Graph 6).

According to all three methods, the population in Fethiye has increased in the years mentioned. The largest increase among the methods has occurred in the arithmetic method. While the expected population in 2050 is 163.283 people in the exponential method and 258.817 people in the compound interest method, it is projected at 382.746 people in the arithmetic method. The average of these methods was calculated as 252.943 for the same year.



Graph 6: Population Projections for Fethiye Urban (2025–2050)

Source: Produced by the author

Population Movements

Population movements are an important phenomenon that occurs in settlements and are affected by many reasons and cause socio-economic changes. Migration can be analyzed in various ways depending on the reasons, direction of movement, and other criteria. In Fethiye, significant changes in the population are observed throughout the year, especially during the summer period, depending on tourism and agricultural opportunities.

Internal Migration

The concept of internal migration, which defines the high population mobility in our country, refers to population mobility between administrative units and is particularly important for our country. Internal migration includes migration not only between provinces but also between districts within the same province and even between villages within the district (Doğanay & Orhan, 2019, p. 167). This situation is also noteworthy in Fethiye.

Especially after the 1980s, when job opportunities started to increase due to the development in the tourism and transportation sectors, there has been an increase in the internal migration movement to Fethiye. Especially the young population living in the interior migrates towards the coastal areas, where the welfare level is higher. Tourism activities have a very serious impact on Fethiye's population and population mobility. During the summer months, Fethiye's population can increase 4-5 times due to tourism activities and the arrival of people working in these sectors.

In order to better evaluate the migration status of Fethiye within Muğla province, it is seen that it has the highest migration mobility after Bodrum and Menteşe districts. In 2000, 43.096 people migrated to the province, of which

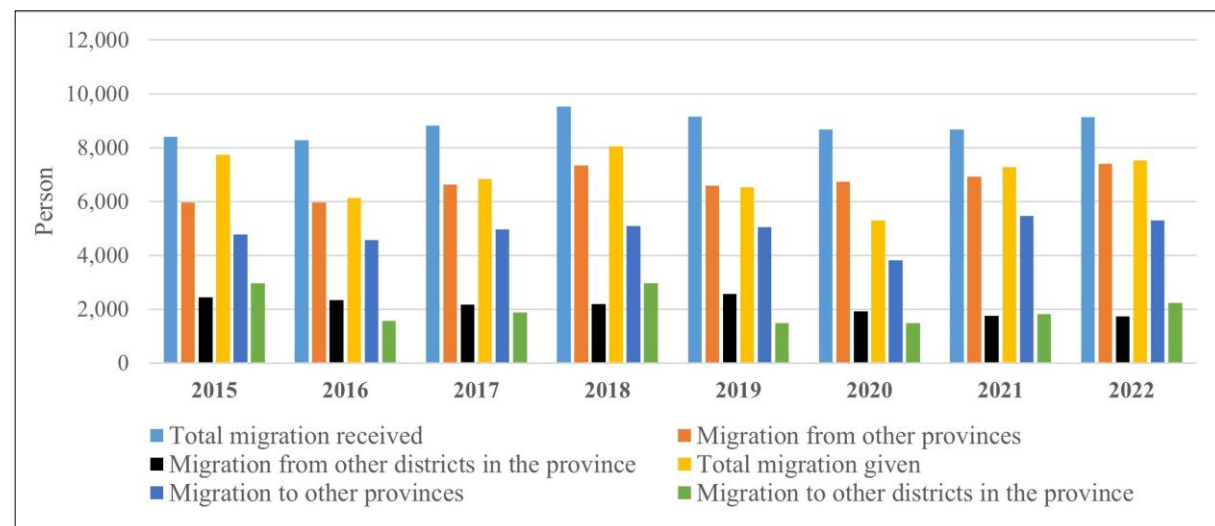
3.651 came to Fethiye (8,4%). A large portion of them were employed in the urban area. In 2022, 1.606 people, constituting 12,8% of the 12.477 migrants in the province, came to Fethiye district (Table 19).

Table 19: Migration Values of Fethiye District (2000–2022)

Year	Population Amount	Migration Received	Migration	Net Migration Amount	Net Migration Rate (%)
2000	137.308	10.272	6.651	3.621	26,72
2012	195.419	6.243	6.224	19	0,10
2013	140.509	5.152	4.390	762	5,44
2015	147.703	8.413	7.736	677	4,59
2020	167.114	8.668	5.296	3.372	20,38
2022	177.702	9.134	7.528	1.606	9,08

Source: TSI

In the 2015 and later data provided by TSI, not only the migration values received by the districts from the provinces are given, but also the data on whether the districts receive migration from other districts within the provincial borders are included. Although it is not given between which districts the movement is between, this distinction is important in evaluating whether the dominant direction of the population participating in the migration phenomenon originates from outside the province or between the districts. Looking at 2015 and later migration values, it is seen that Fethiye received more than 8.000 migrants every year until 2022 (Graph 7). 71% of the total migration in 2015 and 81% in 2022 belongs to those who migrated to Fethiye from other provinces. Likewise, the rate of migration to other provinces is higher among the migration values that Fethiye gives out. In 2015, the total amount of migration given was 7.736 people, while this value will be 7.528 people in 2022.



Graph 7: Fethiye District Migration Values (2015-2022)

Source: Produced by the author

In addition to these general migration patterns, for a more detailed analysis, it would be important to look at which provinces these migrations are from in order to understand the direction of population mobility. For this purpose, the data of the provinces where the person is registered to the population despite residing in Fethiye is used. Not all provinces are included in the table, but the provinces with a value above 1.000 in 2022 records are listed (Table 20).

Fethiye receives migrants from almost every province of Türkiye. In 2022, the province where Fethiye receives the highest number of migrants is Istanbul, with 4.894 people, followed by Denizli with 3.252 people, Izmir with 2.319 people, and Antalya with 2.319 people. The following provinces are Van and Konya in a remarkable way. In particular, migration from Van more than doubled between 2013 and 2022. The effect of the earthquake that occurred in Van in 2011 is important in this. In 2022, 99.186 of Fethiye's population is registered to the population of Muğla province, while the remaining 78.516 people (44%) are registered to the population of a different province.

Table 20: Distribution of those registered to different provincial populations and residing in Fethiye (2022)

Urban	2007	2012	2013	2022	Urban	2007	2012	2013	2022
Afyon	519	747	739	1.014	Adana	595	829	814	1.427
Gaziantep	330	591	595	1.055	Malatya	860	1.136	1.142	1.583
K.Maraş	657	903	809	1.089	Sivas	694	1.084	1.095	1.768
İçel	486	742	699	1.106	Burdur	1.587	1.740	1.428	1.783
Yozgat	491	754	732	1.130	Konya	903	1.294	1.223	1.867
Manisa	546	863	857	1.197	Ankara	854	1.183	1.261	2.143
Tokat	678	772	804	1.248	Van	907	1.000	1.025	2.181
Ordu	646	883	879	1.284	Antalya	2.056	2.551	1.620	2.296
Çorum	736	850	875	1.321	İzmir	1.043	1.644	1.613	2.319
Hatay	657	850	876	1.349	Denizli	2.060	2.928	2.547	3.252
Aydın	810	1.109	1.068	1.357	İstanbul	1.568	2.299	2.410	4.894
Kayseri	648	894	916	1.391					

Source: TSI

Looking at the birthplaces of Fethiye residents by province, it is seen that the highest value belongs to Istanbul (Table 21). In 2014, 3.786 Fethiye residents were born in Istanbul, while this figure more than doubled to 8.014 in 2022. In order to better understand the migrations received on the basis of provinces, a distribution map showing the provinces where the residents of Fethiye were born was made using the data for 2022 (Map 5).

Table 21: Distribution of Fethiye Residents by Province of Birth (2014–2022)

	2014		2022	
	Urban	Number of People	Urban	Number of People
Less than 100 people	Hakkari	26	Hakkari	61
	Şırnak	39	Yalova	82
	Yalova	48		
	İğdır	79		
	Bilecik	82		
	Kilis	88		
More than 2000 people	2014		2022	
	Urban	Number of People	Urban	Number of People
	Antalya	2.113	Denizli	2.667
	Denizli	2.290	Antalya	2.966
	Ankara	2.345	İzmir	3.559
	İzmir	2.857	Ankara	3.758
	İstanbul	3.786	İstanbul	8.014
	Yurtdışı	7.218	Yurtdışı	14.998

Source: TSI

**Map 5:** Distribution of the Population Residing in Fethiye District by Province of Birth (2022)

Source: Produced by the author

Fethiye also emigrates for various reasons. In order to reveal the migration of the urban, those registered in Fethiye but living in different provinces are taken as the basis (Table 22). The highest rate of residence in different provinces despite being born in Fethiye was Antalya in 2008 and İzmir in 2013 and 2022 (Map 6).

Table 22: Those Registered to The Population of Fethiye But Residing in Different Provinces (2008–2022)

Less than 10						More than 1000					
2008		2013		2022		2008		2013		2022	
Ardahan	7	Sinop	4	Ardahan	1	Ankara	1.304	Antalya	1.664	Ankara	1.023
Iğdır	7	Ardahan	5	Sinop	4	İstanbul	2.761	İstanbul	1.993	Antalya	1.966
Kilis	7	Kilis	5	Bayburt	5	İzmir	6.060	İzmir	3.827	İstanbul	2.258
Tunceli	8	Bayburt	7	Kilis	6	Antalya	7.632			İzmir	3.939
		Iğdır	7	Bingöl	6						
		Çankırı	9	Batman	7						

Source: TSI

**Map 6:** People Registered to the Fethiye District Population but Residing in Different Provinces (2022)

Source: Produced by the author

External Migration

Throughout history, Fethiye has witnessed various movements in terms of foreign migration. Among these, the agreements made with Bulgaria and Greece in 1913 and the exchange migrations in connection with the Treaty of Lausanne signed in 1923 have an important place. After 1820, the Greek efforts for independence and the subsequent homogeneous population idea brought along the effort to remove the Turkish population from Greece (Candeğer, 2021, p. 133).

As a result of the exchange agreement signed with Greece in 1923, it was planned to settle around 64.000 immigrants from the Balkans, especially from Zeytinci, Drama, Kavala, and Thessaloniki, in and around Muğla. The majority of these immigrants were settled in Bodrum, Milas, and Fethiye. The majority of those who left settled on islands such as Athens, Samos, and Sömbeki. In the early days of the Republic, Greeks living in Türkiye were concentrated, especially in coastal cities. Fethiye was one of these places, and especially Levissi (Kayaköy) was one of the places where Greeks lived in large numbers. In the first quarter of the 20th century, 6.064 Greeks, 7 Jews, 7 Armenians, and 7 foreigners lived in Fethiye (Candeğer, 2021, pp. 145–149). Fethiye was one of the places where the highest number of immigrants from the Balkan and Aegean islands arrived between 1924 and 1929. For example, in 1926, 762 shops and houses were found to be given to the immigrants, but only 250 of them could be allocated to the immigrants from Rhodes, and the rest were not used because they were not suitable in terms of structure (Akça, 2008, p. 29). In this exchange, approximately 1250 people were settled in Fethiye, assuming an average household size of 5 people. However, some of the settled migrants left the region in the following years and migrated to the north of the Aegean (FTSO, 2022, p. 26).

Looking at more recent data, it is seen that among the districts of Muğla province, Fethiye ranks at the forefront in foreign migration values. In 2016, 862 out of 4.169 foreign migrants (21%) and in 2019, 1.984 out of 7.063 foreign migrants (28%) headed to Fethiye. In 2016, a net foreign migration of 80 people was realized for Fethiye district, while this value increased to 1072 people in 2019 (Table 23).

Table 23: Migration Values of Fethiye District and Inter-district Status (2016–2019)

Years	Migration from Abroad	Turkish Citizen	Foreign Nationals	Man	Woman	Ranking in Districts
2016	862	142	720	353	509	2
2017	1251	218	1033	555	696	2
2018	1757	268	1489	860	897	2
2019	1984	213	1771	959	1025	1
Years	Abroad Outbound Migration	Turkish Citizen	Foreign Nationals	Man	Woman	Ranking in Districts
2016	782	129	653	372	410	3
2017	954	243	711	469	485	3
2018	874	198	676	381	493	3
2019	912	154	758	437	475	2

Source: TSI

Fethiye receives migration not only from within the country but also from abroad due to its climate advantages, livability, improved transportation facilities, and tourism opportunities. When we look at the values of the foreign population within the total population of Fethiye, a general upward trend is observed. In 2016, the number of 5.527 foreign nationals in the district population of 151.474 increased to 12.002 in the population of 177.702 in 2022 (Table 24).

Table 24: Foreign Population in Fethiye District Population (2016–2022)

Year	Total	Turkish Citizen	Foreign Nationals
2016	151.474	145.947	5.527
2017	153.963	149.331	4.632
2018	157.745	152.256	5.489
2019	162.686	156.272	6.414
2020	167.114	161.036	6.078
2021	170.379	163.250	7.129
2022	177.702	165.700	12.002

Source: TSI

CONCLUSIONS AND RECOMMENDATIONS

Fethiye is a urban located in southwestern Türkiye, within the borders of Muğla province. Located on the south-southeast coast of Fethiye Bay, the urban has a structure that expands into the Fethiye Plain. Fethiye district, which includes the urban, was divided by a law enacted in 2012, and Seydikemer district was formed with a large part of it.

The population of Fethiye has shown a continuous increase in the historical process. Recently, rapidly developing transportation facilities, diversifying employment opportunities, and increasing welfare levels have accelerated population growth even more. The population of the urban, which was 3.105 in 1927, tripled in about 45 years and reached 10.627 in 1970. However, the same population doubled 10 years later to 21.442 in 1985. This increase continued and reached 50.689 in 2000 and 153.532 in 2022. While in 2000, the urban population ratio was 32,9% of the total population, this value reached 86,4% in 2022. The newly announced population for 2023 decreased slightly (0,7%) to 152.450. This is the first time this has happened in any of the censuses conducted so far, and the data for the coming years should be carefully analyzed in terms of the urban's population structure.

Productive agricultural areas, proximity to the coast, and landforms have been effective in the spatial distribution of the population. Population density is high in areas close to the coast, and with increasing population pressure, a population increase is observed towards the interior of the Fethiye Plain. Tuzla Neighborhood had the highest population density until 2021. According to 2022 data, Karaçulha, Tuzla, Patlangıç, Taşyaka, and Foça are the neighborhoods with a population of over 10 thousand. Karaçulha stands out as a neighborhood where new construction, service areas, and business areas are concentrated. This situation reveals that the amount and density of the existing population will increase even more in the future.

Based on population projections and data, Fethiye's population in 2050 is expected to increase by approximately one-third of its current value and exceed at least 200.000 people. It is important that the

planning of the urban and the investments to be made take these values into consideration in order to reduce the problems that may be encountered in the future.

Fethiye's natural and human elements are threatened by increasing population pressure. Fethiye Bay is facing a serious pollution problem due to inadequate infrastructure services and tourism pressure. Measures should be taken in this regard, especially regarding the use of harbors, coasts, and beaches. Determining legal obligations and raising awareness among the public and tourists will play an important role in this process.

In Fethiye, narrow roads and heavy vehicle traffic cause transportation and parking problems. The density due to the tourism season is especially evident in Karagözler, Cumhuriyet, and Kesikkapı neighborhoods. Considering the geographical factors at these points, the construction of underground functional multi-storey parking lots can be a solution to the traffic problem.

Fethiye Plain has been an important agricultural area from past to present, but it is losing its agricultural function under the pressure of increasing population and urbanization. Aerial photographs and satellite images show that the agricultural areas and greenhouse areas of the plain are under threat of urbanization. Local authorities and the public should prioritize the protection of agricultural areas by taking the necessary measures in this regard.

The High Schools Campus in the north of Fethiye and the Muğla Sıtkı Koçman University campus in Esenköy will cause the population density to shift in this direction. In this context, it is important to carry out the necessary planning and infrastructural works now in order to reduce the negative impacts that may occur in the future.

These recommendations and conclusions include important steps that can guide the sustainable growth and development of Fethiye.

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